FINANSINSPEKTIONEN

The Swedish Mortgage Market

2 April 2020

2 April 2020
Ref. 20-3427

TABLE OF CONTENTS

Summary

Finansinspektionen's (FI) assignment is to contribute to a stable financial system through well-functioning markets and strong consumer protection. We should also contribute to sustainable development and limit financial imbalances. As part of this assignment, FI is following the ongoing development of household debt. High debt can mean risks for individual households, banks, financial stability and macroeconomic development. The mortgage survey serves as an important basis for the assessment of the risks associated with household mortgages. Household debt has risen faster than household disposable income for a long time. One important reason for this is that house prices have been increasing rapidly.

The percentage of new mortgagors with a high level of debt in relation to either their income or the value of the home continues to be high. New mortgagors in 2019 increased their average loan-to-income ratio. The percentage of borrowers with a loan-to-income ratio above 450 per cent also increased slightly, but it was still lower than in 2017. The average loan-to-value ratio also increased in 2019 among new mortgagors, thus breaking the trend of falling loan-to-value ratios since 2013.

The percentage of new mortgagors that amortise their mortgages has also increased over a period of several years, in part due to the amortisation requirements. The percentage of mortgagors who amortised in 2019 remained the same as in 2018. The average rate of amortisation was also approximately the same in 2019 as it was in 2018. If a household experiences financial difficulties as a result of the spread of the coronavirus (COVID-19), the amortisation rules allow the bank to grant the household an exemption from the amortisation payments. FI takes the position that, given the current situation, the banks should be generous in their application of the exemption.

In general, new mortgagors still have good margins for servicing their loans under weaker economic conditions. More households than before could handle higher interest rates without experiencing a deficit in their cash flow. However, there was a slight increase in 2019 in households that experienced a monthly deficit following a loss of income compared to 2018. The increase refers primarily to single-person households.

Good resilience indicates that there is a limited risk that mortgages would cause extensive credit losses for banks. This becomes relevant, for example, if the economic development were to sharply deteriorate as a result of the spread of the coronavirus and the measures being taken in response to it.

Households can also be expected to reduce their consumption when their financial circumstances deteriorate. This applies in particular to households with a high level of debt in relation to their income or the value of the home. Such a reduction in consumption can be expected to accentuate the economic downturn.

The measures FI has taken in recent years to reduce the risks associated with household debt have increased households' resilience. In part due to these measures, households have borrowed less and

purchased less expensive homes than what they would have otherwise done. This should mitigate the reduction in household consumption.

Mortgage Survey

Swedish household debt has been increasing rapidly for a long time. In January 2020, household debt was SEK 4,244 billion, which corresponds to approximately 85 per cent of Sweden's GDP. Mortgages represented 82 per cent of total household debt. The mortgage survey provides an important basis for FI's analysis of household debt and the associated vulnerabilities for households, banks, and, by extension, macroeconomic growth and financial stability. This report presents the results of the survey for 2019.

The purchase of a home is in many cases the largest investment a household will make. To enable them to finance this purchase, the household generally needs to take out a mortgage. It is therefore important that the credit market functions well. The opportunity to take out a loan is also important as this allows households to redistribute consumption to different periods of life. However high levels of debt can lead to risks, not only for individual households but also banks, financial stability and the economy as a whole.

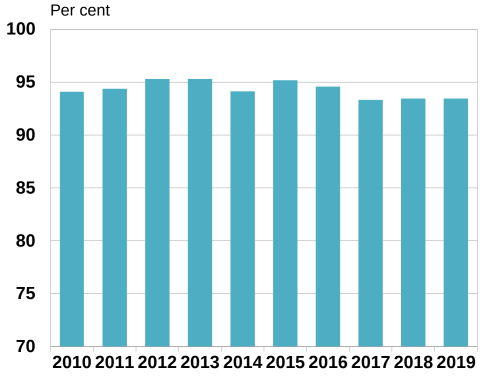
Household borrowing has increased rapidly the past 20 years. An important reason why Swedish households have been borrowing more has been rising house prices. Despite weaker growth in prices at the end of 2018 and in 2019, house prices have risen sharply when looked at in a wider temporal perspective. This increase in prices is due to several factors. Stable income growth and a growing population has increased demand for homes. Over the past five years, historically low interest rates have also decreased the cost of borrowing. This has further increased demand for homes. There are also changes in the structure of the housing market that have contributed to greater demand for mortgages among households. These include an increase in the construction of tenant-owned apartments and conversions of rental apartments into tenant-owned apartments. Lending growth slowed in 2018 and stabilised in 2019 at around 5 per cent.

FI has implemented several measures in order to reduce the vulnerabilities associated with high levels of household debt and strengthen the resilience of both households and banks. FI introduced the mortgage cap[1] in 2010 and a risk-weight floor for mortgages in 2015. The floor means that the banks need to have more equity for mortgages. FI introduced an amortisation requirement in 2016. This requirement means that households which borrow more than 50 per cent of the value of the home have to amortise at least one per cent of their mortgage each year. Households that borrow more than 70 per cent have to amortise at least two per cent.[2] FI then made the amortisation requirement stricter in 2018 after this was approved by

1 For more information about the mortgage cap, see Finansinspektionen's general guidelines (FFFS 2010:2) regarding limitations to the size of loans collateralised by homes.

2 FFFS 2016:16. See FI Analysis 10, *Amortisation requirement reduced household debt*, for an evaluation of the first amortisation requirement.

1. Market share for the banks included in the mortgage survey, total mortgages



Source: Mortgage survey (aggregate data) and Statistics Sweden.
Note: The sum of total outstanding mortgages for banks included in the mortgage survey as a proportion of MFI's total outstanding mortgages.

the Government.[3] This requirement means that households which borrow more than 450 per cent of their gross income have to amortise one percentage point more than they would have done under the first amortisation requirement.

PURPOSE AND DATA

In order to gain a clearer picture of which vulnerabilities households' mortgages may entail, FI needs to supplement aggregate statistics with detailed data. The mortgage survey contains data on households with new mortgages.

The purpose of the survey is to chart the situation for households that take out new mortgages. It contains information about both new mortgages that households were taking out at the time of the survey and any mortgages and other loans that these households already had. FI uses this information to assess which potential risks and vulnerabilities these households' mortgages entail. This vulnerability analysis is one component in the assessment of whether there is a need to change the rules that apply to the mortgage market. The information is also used to evaluate measures that have already been implemented. In addition, the survey also provides an important basis for FI's supervision of and dialogue with banks.

The vulnerability assessment includes an analysis of the households' repayment capacity. This is important in order to give FI the ability to assess these households' financial resilience and thus banks' credit risks. FI calculates the repayment capacity of the households in the survey using their discretionary income. This calculation is similar to those used in banks' own credit assessments. The report also contains an assessment of repayment capacity in strained situations such as higher interest rates, loss of income and falling house prices.

The survey includes data from Danske Bank, Handelsbanken, Länsförsäkringar Bank, Nordea, SBAB Bank, SEB, Skandiabanken and Swedbank. These mortgage lenders collectively account for more than 93 per cent of the total mortgage volume in 2019 (Diagram 1). However, their combined market share has decreased slightly over time.

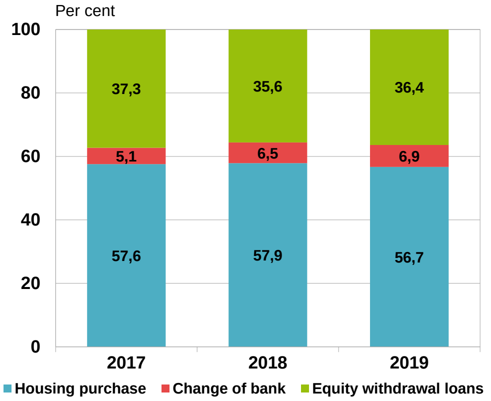
The mortgage survey consists of three parts:

- *Household sample (microdata)*. The sample includes all new mortgage agreements entered into during the periods 30 August–6 September 2019 and 27 September–4 October 2019. After processing, 25,435 households are included in the survey.[4] The information consists of household income and composition, total loans, loans collateralised by homes, unsecured loans linked to the home, agreed interest rates and amortisation payments, and the market value of the home. This is the tenth time FI has compiled this data. The previous samples are from the years 2009 and

3 FFFS 2016:15. See Andersson and Aranki (2019), *Fewer vulnerable households after stricter amortisation requirement*, FI Analysis No. 17, Finansinspektionen, for an evaluation of the stricter amortisation requirement.

4 Processing denotes that validation of reported data that FI conducts, which involves deficient and extreme observations being removed.

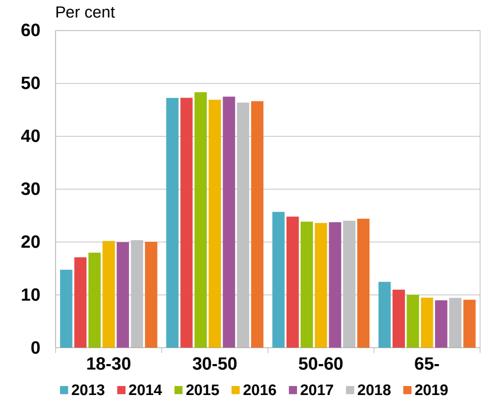
2. New mortgages by purpose



Source: Mortgage survey, new loans.

Note: Denotes distribution according to number of new loans.

3. Age distribution mortgage surveys 2013–2019



Source: Mortgage survey, new loans

2011–2018.

Data concerning new mortgages that FI collects in its mortgage survey pertains not only to new mortgages for purchases of homes. New mortgages can also be expansions of existing mortgages (equity withdrawal loans) and mortgages where an existing loan has been moved from another bank. Diagram 2 shows the distribution of new mortgages by purpose in the samples from the last three years.[5]

- *Aggregate data*. FI also gathers data about the banks' total lending to households for housing purposes. This data includes, for example, total volume of new lending, existing loans and amortisation payments. FI has collected aggregate data since 2006. The data stretches as far back as 2002.
- *Qualitative information*. By answering a number of in-depth questions, banks provide both general and detailed information about their situation. Among other things, this relates to the methods banks use to value homes, the credit assessments they conduct on households and how they protect consumers in conjunction with mortgage lending.

Table 1 compares borrowers' average income, debt and market value of their home with the samples from previous years. The average market value of the homes that serve as collateral for mortgages increased by 4.7 per cent. In spite of a decline in market values in 2018, they have increased a great deal since 2012 (by approximately 48 per cent). Average debt increased by just over 5.2 per cent compared to the previous year. This increase is larger than the increase in market values. Average debt has increased by almost 43 per cent since 2012. Disposable income has increased by around 21 per cent over the same period.

In tables 2 and 3 the new mortgagors in the 2019 sample are broken down by region and age. In Stockholm, the average debt was almost double that in the region with the lowest debt (rest of Sweden), and the average market value of homes was approximately 131 per cent higher. At the same time, average disposable income in Stockholm was approximately 24 per cent higher. The youngest borrowers (18–30 years old) had approximately the same level of income as the oldest borrowers (over 65 years old) but bought homes that were just over 32 per cent cheaper. The proportion of borrowers in the survey under the age of 30 has increased since 2013, but has been unchanged in recent years. In 2019, young people made up 20 per cent of the

5 See Aranki and Larsson (2019), *Fewer home equity withdrawals after amortisation requirements*, FI Analysis No. 20, Finansinspektionen, for more detail about equity withdrawal loans.

sample (Diagram 3).[6] The proportion of borrowers who are over the age of 65 has also decreased slightly.

CALCULATIONS AND REVISIONS

Ahead of this year's mortgage survey, FI has conducted a general review of data and calculations in order to improve the data quality. FI has adjusted the tax calculations and now uses as a basis a weighted average for municipal and county council taxes in the country and for the job tax deduction that takes into account the age of borrowers. In addition, large family supplement (for those households that receive child allowance for at least two children) is included in the calculation of households' disposable income. All in all, these adjustments provide a somewhat more accurate view of household income. The adjustments have resulted in a slightly higher average disposable income than was the case previously. In turn, this has an impact on loan-to-income ratios calculated with net income and households' estimated monthly surplus. In addition, some of the data for 2018 have been revised. This has resulted in slightly lower average loan-to-value ratios for 2018.

FI has also revised the stress tests by using higher interest rate levels for unsecured loans and loans with collateral other than a home.[7] In previous reports, the same interest rate levels (3 or 7 per cent) have been used for both mortgages and other loans. For the stress tests with higher interest rates, the interest rate levels 7 or 10 per cent are now being used for loans that are not collateralised by a home.[8] This better reflects the actual interest rates encountered by households. The interest rates for mortgages in the stress tests remain at 3 or 7 per cent. Furthermore, existing loans with collateral other than a home are assumed to have straight line amortisation over 10 years. The result of these changes is that both the interest expenses and the average amortisation of the household's total debt used in the stress tests has increased slightly.

6 See Olsén Ingefeldt and Thell (2019), *Young adults and the housing market*, FI Analysis No. 19, Finansinspektionen, for more detail about young borrowers.

7 In addition to the new loans, existing loans, both mortgage and other loans, are also included in the survey.

8 In the event of rising interest rates, other interest rates also rise in line with mortgage rates. However, loans with other collateral and no collateral often have a higher interest rate than mortgages (see Statistics Sweden's Financial Market Statistics). Accordingly, FI's stress tests need to differentiate the level between mortgage rates and other rates. Since 2012, these consumption loans have also had an interest rate margin that is around 3 percentage points higher than for mortgages. Consequently, the interest rate for loans with other collateral and no collateral rise to 10 per cent when the mortgage rate is assumed to rise to 7 per cent. Some banks also use an interest rate level of 10 per cent for loans without collateral in their credit assessments.

Table 1. New borrowers 2012–2019

	2012	2013	2014	2015	2016	2017	2018	2019
Number of households	24,122	24,967	28,214	31,226	25,747	27,822	24,241	25,435
Average debt (SEK)	1,659,236	1,703,365	1,894,730	2,072,055	2,121,996	2,251,693	2,248,574	2,365,159
Since last year (%)		2.7	11.2	9.4	2.4	6.1	-0.1	5.2
Since 2012 (%)		2.7	14.2	24.9	27.9	35.7	35.5	42.5
Average market value of home (SEK)	2,221,153	2,332,864	2,519,785	2,865,787	3,053,136	3,277,466	3,129,082	3,275,528
Since last year (%)		5.0	8.0	13.7	6.5	7.3	-4.5	4.7
Since 2012 (%)		5.0	13.4	29.0	37.5	47.6	40.9	47.5
Average disposable income (SEK/month)	39453	38,498	40,143	41,962	43,056	44,722	46,041	47,715
Since last year (%)		-2.4	4.3	4.5	2.6	3.9	2.9	3.6
Since 2012 (%)		-2.4	1.7	6.4	9.1	13.4	16.7	20.9

Source: Mortgage survey.
Note Average debt denotes total debt. Cohabitants denotes households where more than one borrower lives in the home.

Table 2. Geographic distribution new borrowers 2019

	Stockholm	Gothenburg	Malmö	Other large cities	Rest of Sweden	Total
Proportion of households (%)	26	11	7	20	36	100
Proportion of volume new loans (%)	38	13	7	18	24	100
Average debt (SEK)	3,270,657	2,723,042	2,453,956	2,214,710	1,656,410	2,360,628
Single-person household	2,245,114	1,839,850	1,577,706	1,435,054	1,104,358	1,601,218
Cohabitants	3,919,890	3,165,820	2,951,957	2,593,946	1,951,774	2,776,544
Average market value of home (SEK)	4,804,862	4,124,762	3,465,663	2,871,348	2,082,381	3,269,195
Single-person household	3,685,303	3,132,992	2,463,134	2,060,684	1,551,643	2,484,079
Cohabitants	5,513,614	4,621,975	4,035,432	3,265,667	2,366,342	3,699,190
Average disposable income (SEK/month)	53,321	50,078	48,470	46,947	43,006	47,633
Single-person household	33,927	30,945	29,938	28,521	27,141	29,929
Cohabitants	65,598	59,670	59,003	55,910	51,494	57,329

Source: Mortgage survey.
Note Average debt denotes total debt. Cohabitants denotes households with more than one borrower that is to live in the home.

Table 3. Age distribution of borrowers 2019

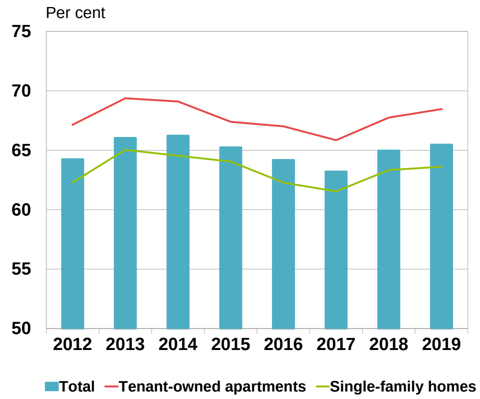
	18–30	31–50	51–65	65+	Total
Proportion of volume new loans (%)	22	53	20	5	100
Average debt (SEK)	1,886,883	2,689,236	2,451,558	1,518,225	2,365,159
Single-person household	1,295,237	1,786,635	1,845,808	1,059,713	1,606,605
Cohabitants	2,387,259	3,092,191	2,779,981	1,778,132	2,780,481
Average market value of home (SEK)	2,232,436	3,573,535	3,552,186	3,300,137	3,275,528
Single-person household	1,712,809	2,596,160	3,015,829	2,837,774	2,491,374
Cohabitants	2,671,902	4,009,872	3,842,985	3,562,227	3,704,866
Average disposable income (SEK/month)	38,351	51,548	51,312	38,957	47,715
Single-person household	24,925	31,944	34,211	24,901	30,025
Cohabitants	49,706	60,300	60,583	46,924	57,400

Source: Mortgage survey.
Note Average debt denotes total debt. Cohabitants denotes households with more than one borrower that is to live in the home.

Household Debt

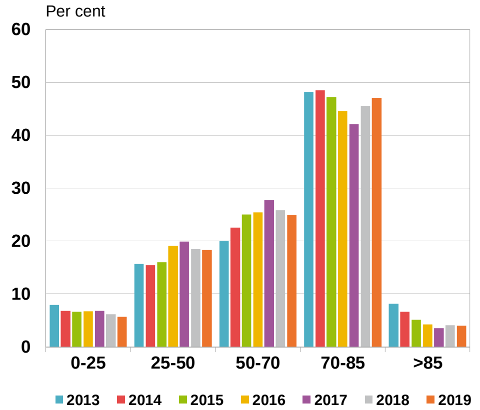
Following the introduction of the stricter amortisation requirement in 2018, the proportion of new mortgagors with debt of more than 450 per cent of gross income and average debt both decreased. These increased slightly in 2019. The proportion of new mortgagors that have a high loan-to-value ratio or high loan-to-income ratio remains high.

4. Average loan-to-value ratio



Source: Mortgage survey.
Note: Denotes new loans.

5. Households distributed by loan-to-value ratio



Source: Mortgage survey.
Note: Denotes new loans.

Household debt can be related to other variables in order to compare it between different households over time. The loan-to-value ratio is calculated as the size of the loan a household has used to finance the purchase of a home divided by the market value of the home.[9] If a fall in house prices leads to the value of the home falling below that of the mortgage, the household risks ending up in a vulnerable financial situation. This means that a higher loan-to-value ratio makes the household less resilient to falling house prices. The household can amortise more in order to reduce this vulnerability.

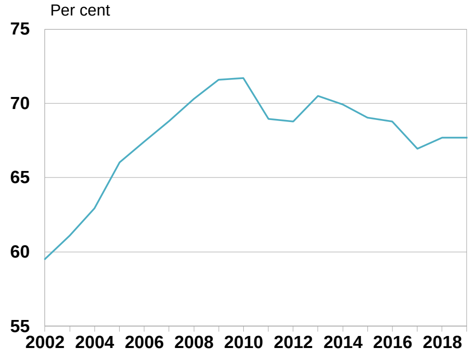
The loan-to-income ratio is another measure of household debt and is calculated as the household's mortgage as a proportion of net income (after tax) or gross income (before tax).[10] A high loan-to-income ratio means that the household must dedicate a larger portion of its income to interest rate expenses at a given interest rate level. The loan-to-income ratio, therefore, shows how vulnerable a household is to increases in interest rates and a loss of income. When interest rates are higher or there is a loss of income, households may need to adapt by reducing their consumption. If a large number of households act in a similar way, this impairs macroeconomic development. To reduce the vulnerability resulting of high levels of debt as a proportion of income, the household can amortise more or save more.

The combination of the household's loan-to-value ratio and loan-to-income ratio offers a more complete overview of the household's vulnerability. Households that have both a high loan-to-income ratio and a high loan-to-value ratio are the most vulnerable. They are vulnerable to falling house prices, loss of income and higher interest rates. The link between a household's loan-to-value ratio and loan-to-income ratio is relatively weak among new borrowers. A household with a high loan-to-value ratio does not necessarily have a high loan-to-income ratio or the reverse (Figures B2.1 and B2.2 in Appendix 2). In the mortgage survey for 2019, 4.4 per cent of borrowers had both a loan-to-income ratio of over 450 per cent of gross income and a loan-to-value ratio of over 70 per cent. This is somewhat higher than in

9 Any unsecured loans the household has taken out in conjunction with the new mortgage and from the same bank as the mortgage are included in the calculated loan-to-value ratio.

10 From an economic perspective, a loan-to-income ratio based on net income offers the best information. This shows the income a household actually has to pay off its debts. On the other hand, a loan-to-income ratio based on gross income is easier for borrowers and banks to calculate. The graphs in this report show the loan-to-income ratios calculated using gross income. The statistical appendix to this report also includes the same graphs with the loan-to-income ratio calculated using net income.

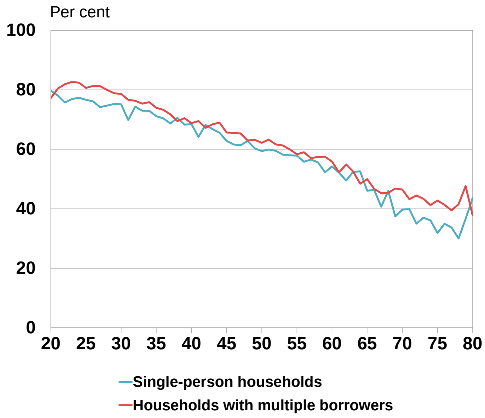
6. Average volume-weighted loan-to-value ratio



Source: Mortgage survey.

Note: Denotes new loans, aggregate data.

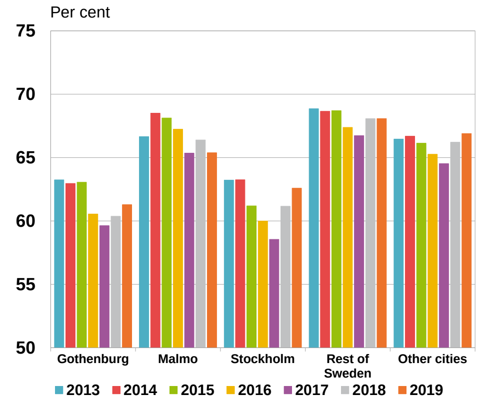
7. Correlation between age and loan-to-value ratio



Source: Mortgage survey.

Note: Denotes new loans.

8. Loan-to-value ratio in different regions



Source: Mortgage survey.

Note: Denotes new loans.

2018 when the proportion was 3.9 per cent. Nevertheless, this is still lower than in 2015 when the proportion was 9.3 per cent.

RISING LOAN-TO-VALUE RATIO

Households bought slightly more expensive homes in 2019 than in 2018. The size of households' new loans linked to financing a home increased to a slightly larger extent. Consequently, the average loan-to-value ratio increased in 2019. The average loan-to-value ratio for new mortgagors was 65.5 per cent, which is 0.5 percentage points higher than in 2018 (Diagram 4). The loan-to-value ratio in 2019 was at around the same level as in 2015, and the proportion of new borrowers with a high loan-to-value ratio remains high. The proportion of households with a loan-to-value ratio of over 70 per cent increased by 1.4 percentage points to 51 per cent (Diagram 5). The fact that the loan-to-value ratios have increased over the past two years means that a larger number of households have taken on more financial risk than previously.

The average loan-to-value ratio differs between households depending on the purpose of the new loan. For households that took out a new mortgage to purchase a home in 2018, the average loan-to-value ratio was around 71 per cent. For households that made a home equity withdrawal or switched bank in 2019, the average loan-to-value ratios were 60 and 54 per cent, respectively.[11] Except for 2016, the average loan-to-value ratio for new mortgages when purchasing a home has increased from just over 64 per cent in 2012 to around 71 per cent in 2019.

FI also calculates a volume-weighted average loan-to-value ratio for households with new mortgages.[12] The volume-weighted loan-to-value ratio in 2019 was unchanged in comparison to 2018 at 67.7 per cent (Diagram 6).

Households with new mortgages that have a loan-to-value ratio of over 85 per cent have supplemented their mortgages with an unsecured loan (loan without collateral) in conjunction with the mortgage. The proportion of new borrowers with unsecured loans was 3.6 per cent in 2019, which is the same proportion as in 2018.[13] The average unsecured loan was SEK 172,000, which is 4.3 per cent higher than in 2018. New unsecured loans that have been taken out in conjunction with the new mortgage still constitute a limited proportion of the total volume of the new loan and equate to around 0.5 per cent. It is primarily borrowers under the age of 50 that are using unsecured

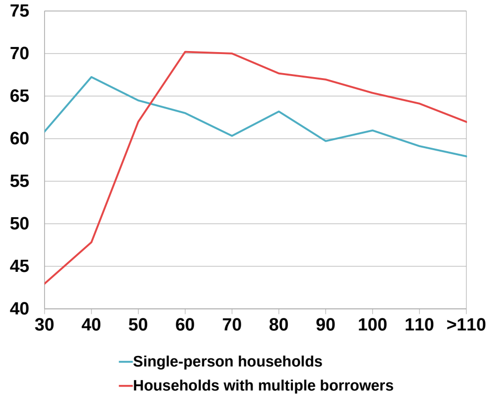
11 Before taking out the new loan, the mortgagors that made a home equity withdrawal had an average loan-to-value ratio of 44 per cent in 2019. This is somewhat higher than in 2017 and 2018 and around the same level as in the period 2012–2016.

12 The volume-weighted loan-to-value ratio is determined by first calculating the average loan-to-value ratio for each bank's total new lending. Then the banks' average loan-to-value ratios are weighted by their respective market share of total new lending to achieve the total average loan-to-value ratio.

13 Unsecured loans that are included here are those that have been taken out by the borrower from the bank that issued the new mortgage and in conjunction with the new mortgage. Unsecured loans issued by a bank other than that which issued the mortgage for the purpose of financing the home are not included in this data. Consequently, the proportion of households that are using unsecured loans to finance house purchases is probably underestimated.

9. Correlation loan-to-value ratio and income

Per cent

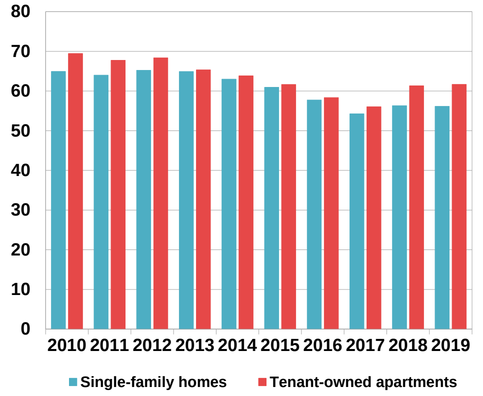


Source: Mortgage survey.

Note: Denotes new loans. The horizontal axis shows the household's gross income per month and the vertical axis shows average loan-to-value ratio.

10. Loan-to-value ratio distributed by type of object

Per cent

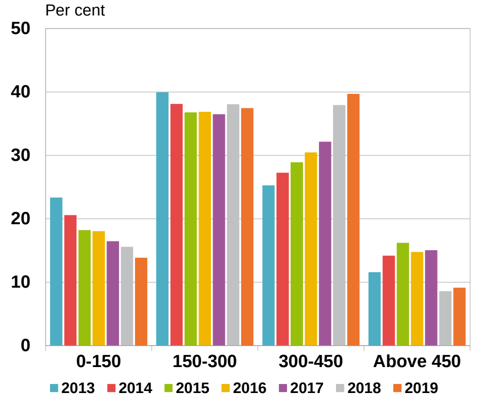


Source: Mortgage survey.

Note: Denotes aggregate data and total stock of existing mortgages.

11. Households distributed by loan-to-income ratio

Per cent



Source: Mortgage survey.

Note: Denotes loan-to-income ratio calculated using gross income, new loans.

loans. The most common reason for a household to use an unsecured loan when they are buying a home is to finance part of the deposit.

In total, the loan-to-value ratio has increased in all age groups. The average loan-to-value ratio increased most for the youngest households, from 77.4 to 78.3 per cent. There is a clear negative correlation between age and loan-to-value ratio for households with new mortgages (Diagram 7). The loan-to-value ratio is highest for the youngest borrowers and falls as the age rises. This is because households that have just started their property and professional careers often have limited savings to use as deposit and therefore need a larger loan given a certain price. Due to factors such as appreciation of previous homes and the resulting profit from their sale, amortisation, and other savings, older borrowers often have more equity to use as a deposit when purchasing a home.

In Stockholm, Gothenburg and other large cities, the average loan-to-value ratio for new borrowers was higher in 2019 than in 2018 (Diagram 8). In Stockholm, the loan-to-value ratio increased most, by 1.4 percentage points. The largest decrease in loan-to-value ratio for new borrowers was in Malmö, where it fell by one percentage point. In the rest of Sweden, the average loan-to-value ratio in 2019 was unchanged on the figure for 2018. The average loan-to-value ratio is lowest in the metropolitan areas, where homes are most expensive. One explanation for this is that many households in the metropolitan areas made significant capital gains when selling previous homes thanks to rising house prices. Consequently, they have been able to reduce their loan-to-value ratio when compared with previous purchases by using a larger proportion of equity when purchasing their next home.

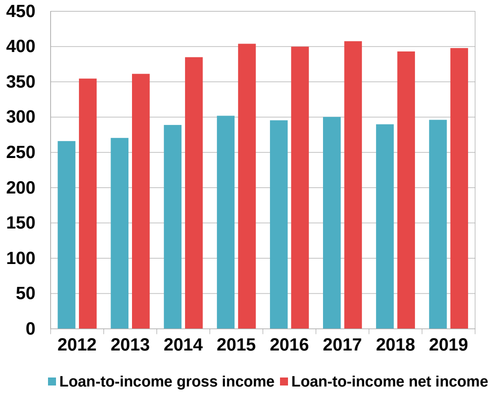
If the new borrowers are broken down by income and household composition, the loan-to-value ratio was lowest for cohabitants (households that consists of more than one borrower) with the lowest incomes (Diagram 9). These borrowers primarily live in other parts of the country, where house prices are lower. Borrowers that are single-person households have approximately the same loan-to-value ratio regardless of income. Single-person households and cohabitants without children increased their average loan-to-value ratio most in 2019, by 0.7 percentage points on the figure for 2018. Single-person households with children were the only group of households that slightly reduced their average loan-to-value ratio.

The loan-to-value ratio can also be calculated for the stock of households' total existing mortgages. The average loan-to-value ratio for these mortgages is dependent on the change in market value of the homes and amortisation payments since the homes were purchased. On average, older mortgages have a lower loan-to-value ratio than new mortgages. If households expand or pay off their existing mortgages, this also has an impact on the loan-to-value ratio. Banks adjust market values in line with house prices.[14] In spite of rising house prices in 2019, the average loan-to-value ratio was basically unchanged at 58 per cent (Diagram 10). Due to rising house prices and amortisation payments, the proportion of existing borrowers with a

14 There is variation in the frequency with which banks adjust market values but they all do it at least once a year.

12. Average loan-to-income ratio (gross and net income)

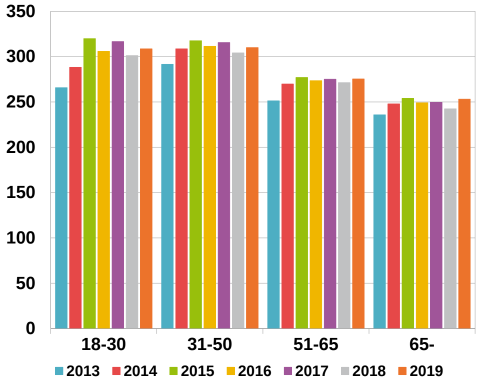
Per cent



Source: Mortgage survey.
Note: Denotes new loans.

13. Loan-to-income ratio in different age groups

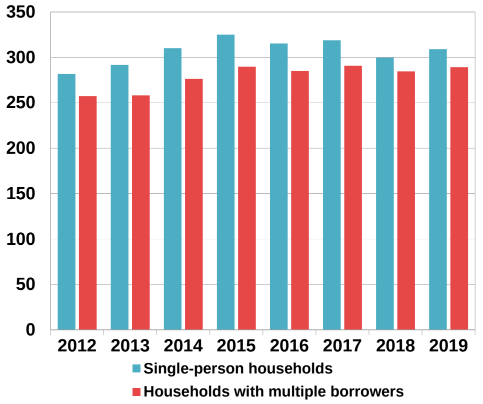
Per cent



Source: Mortgage survey.
Note: Denotes loan-to-income ratio calculated using gross income, new loans.

14. Loan-to-income ratio distributed by household composition

Per cent



Source: Mortgage survey.
Note: Denotes loan-to-income ratio calculated using gross income, new loans.

loan-to-value ratio of over 85 per cent decreased from around 6 per cent to 4 per cent.

HIGHER LOAN-TO-INCOME RATIO AMONG NEW MORTGAGORS

FI introduced the stricter amortisation requirement in 2018. There was a subsequent reduction in the proportion of new mortgagors with a debt larger than 450 per cent of their gross income (Diagram 11). The proportion with a loan-to-income ratio of over 450 increased slightly in 2019. However, the proportion is still significantly lower than before the stricter amortisation requirement was introduced. The average loan-to-income ratio of new borrowers rose from around 290 per cent in 2018 to 296 per cent in 2019 (Diagram 12). Accordingly, the loan-to-income ratio is at around the same level as in 2015. When loan-to-income ratio is calculated using net income, it increased from 380 per cent in 2018 to 388 per cent in 2019. Borrowers who live in single-family homes have increased their average loan-to-income ratio the most in 2019. Their average loan-to-income ratio is 8 percentage points higher than in 2018.

In the metropolitan areas, a larger proportion of new borrowers are affected by the stricter amortisation requirement. In 2019, the average loan-to-income ratio increased in all regions. However, the loan-to-income ratio increased less in the metropolitan areas. In the categories *rest of Sweden* and *other large cities*, the average loan-to-income ratio increased by around 7 and 6 percentage points, respectively, when compared with 2018. The increase was lowest in Gothenburg, where the loan-to-income ratio rose by 1.8 percentage points.

The loan-to-income ratio increased in all age categories in 2019 (Diagram 13). In particular, the loan-to-income ratio of borrowers aged over 65 and borrowers below the age of 30 increased by 11 and 7 percentage points, respectively. The average loan-to-income ratio is higher for borrowers under the age of 50. Since 2013, the average loan-to-income ratio of those under 30 has increased faster than that of other age groups. It is now at about the same level as for borrowers aged 31–50.[15]

The trend in loan-to-income ratio was the same for borrowers irrespective of the purpose of the mortgage up until 2015. Since then, the average loan-to-income ratio for home equity withdrawals has gradually fallen from 299 to 285 per cent.[16] The average loan-to-income ratio of mortgagors who have switched bank (bank switchers) has also fallen since 2015. At the same time, the average loan-to-income ratio for new mortgages for purchasing homes has varied around 300 per cent since 2015 and was approximately 305 per cent in 2019. This is slightly lower level than in 2017, before FI introduced

15 The average loan-to-income ratio of borrowers under the age of 30 has increased more than that of older borrowers in recent years. This may indicate that young borrowers have been forced to take more substantial financial risks than other groups in order to buy a new home. See Olsén Ingefeldt and Thell (2019), *Young adults and the housing market*, FI Analysis No. 19, Finansinspektionen, for more detail about trends in young home buyers' levels of debt.

16 Before taking out the new loan, the mortgagors that made a home equity withdrawal had an average loan-to-income ratio of 221 per cent in 2019. This is approximately 10 per percentage points higher than in 2017 and 2018.

the stricter amortisation requirement, when the average loan-to-income ratio was 313 per cent.

Around 65 per cent of new borrowers were households with cohabitants and around 35 per cent were single-person households. Borrowers who are single-person households generally have a higher loan-to-income ratio than cohabiting borrowers (Diagram 14). In 2019, the largest increase in loan-to-income ratio was in the group single-person households. Between 2018 and 2019, the average loan-to-income ratio of single-person households increased from approximately 300 to 309 per cent. Within the group single-person households, the average loan-to-income ratio increased most for borrowers without children, by 10 percentage points. For cohabitants, the average loan-to-income ratio increased by approximately 5 percentage points to 289 per cent. Within the group cohabitants, the loan-to-income ratio increased most for those with children, where it increased by approximately 6 percentage points.

For cohabitants with new mortgages, there is a correlation in which the loan-to-income ratio increases with income. Borrowers with higher incomes often live in metropolitan areas, where house prices and debt levels are generally higher. For single-person households, this correlation is not as evident. Compared with 2018, it was primarily single-person households with good gross incomes – between SEK 50,000 and 90,000 per month – whose average loan-to-income ratio increased most, by an average of 14 percentage points.

Young first-time buyers

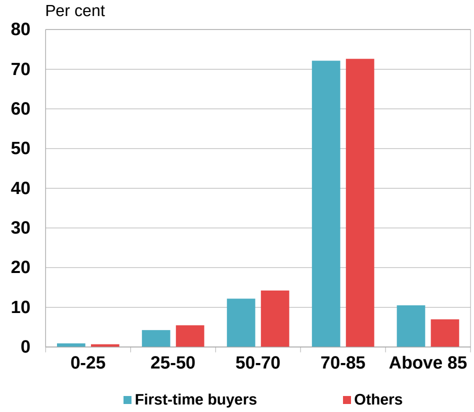
FI has incorporated new information into this year's mortgage survey in order to allow first-time buyers to be identified, i.e. people who are taking out loans in order to buy a home for the first time.[17] We are focusing in this analysis on borrowers up to the age of 35 and are comparing those classified as first-time buyers with other borrowers within the age group.[18] Almost 60 per cent of the first-time buyers identified were 35 years of age or younger. Approximately half of all new mortgagors aged between 18 and 35 were classified as first-time buyers.

On average, young first-time buyers had lower incomes and bought cheaper homes than other borrowers. On average, young first-time buyers had a disposable income that was SEK 10,800 lower and bought a home that was approximately SEK 730,000 cheaper than other young borrowers. Because young first-time buyers bought cheaper homes, they also took out smaller loans than other young mortgagors. On average, young first-time buyers took out loans that were SEK 500,000 smaller.

17 Of the new mortgagors who bought a home (aside from borrowers who have switched bank and borrowers who made a home equity withdrawal), 35 per cent were identified as first-time buyers.

18 Using this method, FI was able to identify first-time buyers in all age groups. However, the majority of the first-time buyers identified were under the age of 40. The identification is based on whether or not the borrowers in the household had mortgages before and in conjunction with the new loan being granted. Consequently, borrowers who previously had an unencumbered home and were taking out a new mortgage are identified. These individuals are not first-time buyers but will be classified as such using this method.

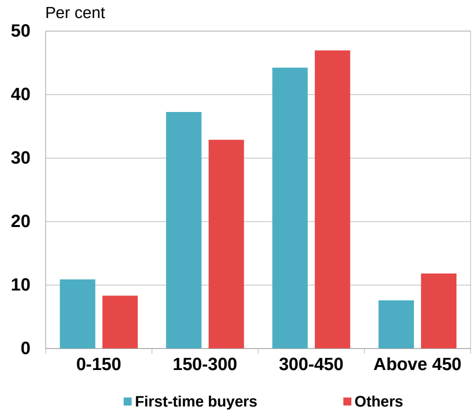
R1. Loan-to-value ratios



Source: Mortgage survey.

Note: Denotes new mortgagors under the age of 35, new loans 2019.

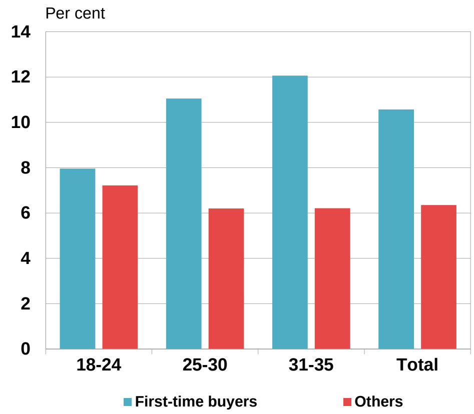
R2. Distribution of loan-to-income ratios



Source: Mortgage survey.

Note: Denotes new mortgagors under the age of 35, new loans 2019. Loan-to-income ratio is calculated using gross income.

R3. Proportion of young people who supplemented their mortgage with an unsecured loan.



Source: Mortgage survey.

Note: Denotes new mortgagors under the age of 35, new loans 2019.

Young people often have limited savings to use as a deposit and generally have high loan-to-value ratios (Diagram R1). Young first-time buyers' average loan-to-value ratio was 79 per cent. This is 1.4 percentage points higher than that of other young mortgagors. Over 80 per cent of young first-time buyers had a loan-to-value ratio of over 70 per cent and 44 per cent had a loan-to-value ratio of exactly 85 per cent. This is a somewhat higher proportion than among other young mortgagors. At the same time, young first-time buyers had a somewhat lower average loan-to-income ratio and fewer had a loan-to-income ratio of over 450 per cent when compared with other young people (Diagram R2).

Almost twice as many young first-time buyers supplemented their mortgage with an unsecured loan when compared with other young mortgagors (Diagram R3).[19] This may be because other young people have more capital from selling previous homes to use as a deposit. The analysis shows that it is primarily first-time buyers aged 31 to 35 who are supplementing their mortgage with an unsecured loan. This may be because they usually have a higher income, which makes this feasible.

Young first-time buyers had much lower monthly surpluses than other young people and are therefore more vulnerable to higher interest rates. According to calculations using FI's discretionary income calculation, a larger proportion of young first-time buyers end up with a deficit at a mortgage rate of 7 per cent. At a mortgage rate of 7 per cent, 10.2 per cent of young first-time buyers have a deficit, compared with 7.7 per cent of other young people.

LOWER LEVELS OF DEBT IN TENANT-OWNER ASSOCIATIONS WITH NEWLY PRODUCED APARTMENTS

Starting with the mortgage survey for 2017, FI collects information about tenant-owner associations' debt for households that have taken out a new mortgage collateralised by a tenant-owned apartment.

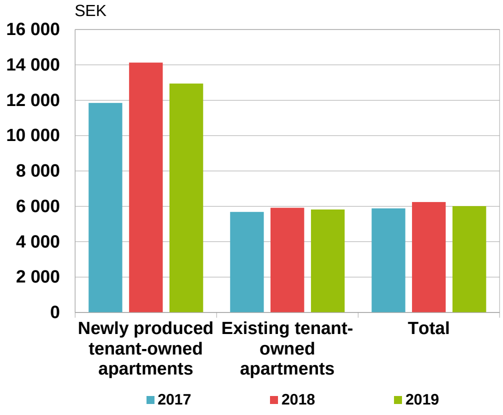
Banks' lending to tenant-owner associations increased rapidly in 2016 and 2017. In 2018, lending increased at a slightly slower rate. Lending to tenant-owner associations has continued to decline in 2019 and is now growing slowly.[20] This may partly be explained by the fact that fewer tenant-owned apartments are being built. The debt of these associations is an indirect debt for the owner of a tenant-owned apartment. If interest rates rise, the association's interest expenses increase. This means that associations with high levels of debt may need to raise the fees they charge in order to preserve the same standard of maintenance and amortisation rate.

Existing tenant-owner associations' average debt equated to SEK 5,800 per square metre in 2019 (Diagram 15). This is 1.7 per cent lower than in 2018. Associations in the metropolitan areas Stockholm and Gothenburg had slightly higher levels of debt than associations in

19 The average unsecured loan was SEK 150,000. The size of the unsecured loan was approximately SEK 20,000 lower among first-time buyers than among other young mortgagors.

20 In 2019, lending to tenant-owner associations increased by an average of 2.6 per cent on an annual basis. This can be compared with 2017 and 2018, when lending increased by an average of 8.6 per cent and 6.7 per cent, respectively, on an annual basis. Associations' debt to banks and institutions as at 31 December 2019 was SEK 489 billion, according to Statistics Sweden's financial market statistics.

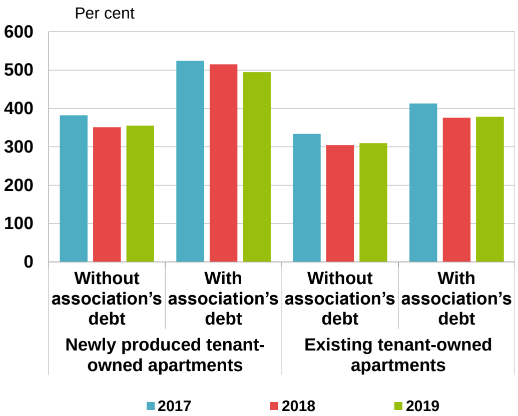
15. Tenant-owner associations' average debt



Source: Mortgage survey.

Note: Denotes new loans and debt per square metre.

16. Loan-to-income ratio (gross income, including share of the tenant-owner association's debt)



Source: Mortgage survey.

Note: Denotes loan-to-income ratio calculated using gross income, new loans.

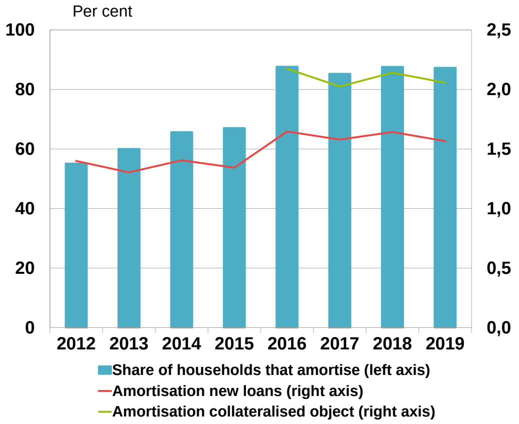
other regions. For newly produced tenant-owned apartments in newly formed associations, the average deb was SEK 13,000 per square metre. This is lower than in 2018, when the debt was SEK 14,100 per square metre. The reduction was greatest for newly produced tenant-owned apartments in the rest of Sweden. The average debt of associations with newly produced rental apartments was around SEK 1,000 higher in 2019 than in 2017.

If the borrowers' share of the associations' debt is included in the calculation of households' loan-to-income ratios (gross income), the ratio becomes markedly higher. For households in existing associations, the loan-to-income ratio becomes approximately 69 percentage points higher. For households in associations with newly produced tenant-owned apartments, the loan-to-income ratio rises by approximately 140 percentage points (Diagram 16). When the share of the association's debt is included, the average loan-to-income ratio for borrowers who purchased a newly produced tenant-owned apartment was 495 per cent in 2019. When the association's debt is taken into account, households that bought newly produced tenant-owned apartments in Stockholm, other large cities and Gothenburg had the highest loan-to-income ratio, with loan-to-income ratios of 505, 499 and 498 per cent, respectively. The loan-to-income ratio, taking the association's debt into account, among households in existing associations was highest in Stockholm and Gothenburg, at 433 and 412 per cent, respectively.

Households' Amortisation Payments

The proportion of new mortgagors who are amortising has increased since the amortisation requirement was introduced. The amortisation rate has also increased over the same period. Nevertheless, the proportion of households that are amortising and the average amortisation rate in 2019 was unchanged compared to the figures for 2018.

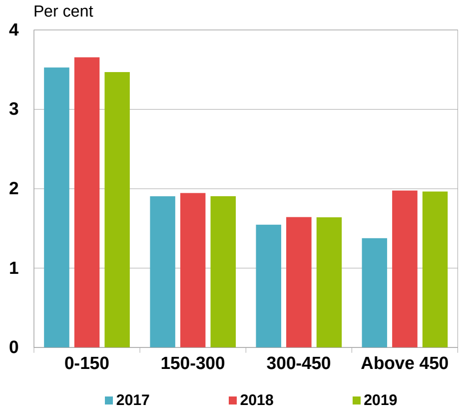
17. Proportion amortising and annual amortisation



Source: Mortgage survey.

Note: Denotes new loans.

18. Amortisation as a proportion of loan, distributed by loan-to-income ratio



Source: Mortgage survey.

Note: Denotes loan-to-income ratio calculated using gross income, new loans.

A household reduces the size of its loans over time by amortising. The loan-to-value ratio and loan-to-income ratio decrease at the same time. The stricter amortisation requirement that was introduced 2018 supplements the first amortisation requirement from 2016. Both amortisation requirements have contributed to increasing households' amortisation payments.

When FI conducts supervision of banks' mortgage lending, FI examines whether the banks are complying with the amortisation requirements. FI's assessment is that in 2019, as in previous years, the terms of the banks' loans are compliant with the amortisation requirements. In the few cases where the bank has not complied with the requirements, FI has proceeded with in-depth investigations in order to establish the causes and to ensure that the bank complies with the requirements in future.

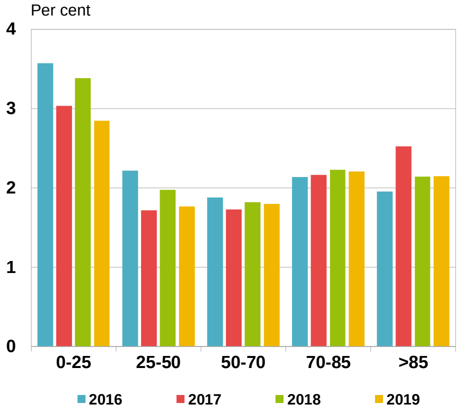
In order to gain a more accurate view of how households are complying with the amortisation requirements, new borrowers' amortisation payments are reported here as the sum of amortisation payments for all of the homes the household owns. Mortgage reports prior to 2018 only reported the amortisation payments for new mortgages. If a household that is taking out a new mortgage already has a mortgage, which is being amortised, the amortisation payments on the new loan will not paint a complete picture of the household's total amortisation payments. For example, a situation may arise in which a household buys an additional property or expands an existing mortgage by making a home equity withdrawal. If we take households' total amortisation payments on mortgages into account, the average amortisation rate is approximately 0.5 percentage points higher than for amortisation of the new mortgages alone (Diagram 17).[21]

UNCHANGED AMORTISATION RATE

Just over 87 per cent of the new borrowers in 2019 amortised and the average amortisation payment per month was around SEK 2,940 over the course of the year. Among the households subject to at least one of the amortisation requirements, the proportion amortising varied from 81 to 100 per cent. There may be several reasons why not all borrowers are amortising. One explanation is that households are able

21 The mortgage survey only provides FI with data for calculating amortisation per collateral as of 2016.

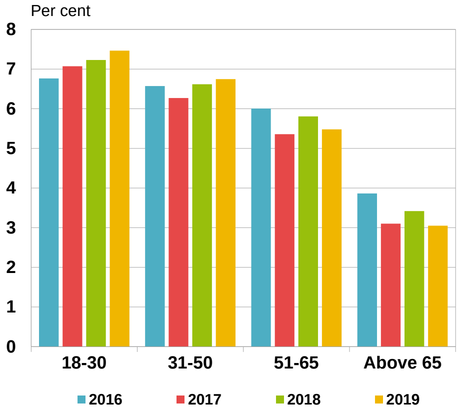
19. Amortisation rate as a proportion of loan, distributed by loan-to-value ratio



Source: Mortgage survey.

Note: Denotes new loans.

20. Amortisation payments in relation to income, distributed by age



Source: Mortgage survey.

Note: Denotes disposable income, new loans

to use one of the exemptions permitted under the amortisation requirements.[22]

The average annual amortisation rate as a proportion of the size of the mortgage was 2.1 per cent for new borrowers in 2019. This is about the same amortisation rate as in 2018. The average amortisation rate for new borrowers in various loan-to-income intervals remained unchanged compared with 2018 (Diagram 18). If the new borrowers are instead divided up on the basis of loan-to-value ratio, the average amortisation rate decreased in 2019 for borrowers with a loan-to-value ratio of under 50 per cent, when compared with 2018 (Diagram 19). For borrowers with a loan-to-value ratio of over 50 per cent, the average amortisation rate was almost the same as in 2018.

New borrowers amortised the equivalent of an average of 6.2 per cent of their disposable income in 2019. This was the same level as in 2018. Amortisation payments as a proportion of income were highest for the youngest borrowers (Diagram 20). This can be explained by the fact that younger people often have a higher loan-to-value ratio and loan-to-income ratio than other age groups. Young people who live in single-person households without children amortise most. Among these borrowers, amortisation payments equated to just over 8.1 per cent of disposable income in 2019. Amortisation payments as a proportion of income fall with age, and are lowest among the oldest borrowers (over 65).

For the total mortgage stock, amortisation payments amounted to SEK 56 billion in 2019.[23] This is 4 per cent higher than in 2018. The total mortgage volume increased by approximately 5 per cent. The average amortisation rate for existing loans was 1.8 per cent in 2019.

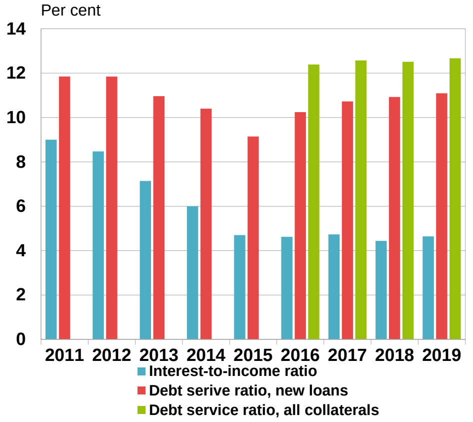
22 Households that normally have to amortise under the amortisation requirement because of their loan-to-value ratio or loan-to-income ratio, or both, may be exempted from amortisation under the rules of the amortisation requirement. An exemptions is available for borrowers with new loans that arise when moving an existing loan to a different bank. In this case, the borrower is able to keep the original amortisation terms. A borrower who acquires a newly produced home has the opportunity to be exempt from amortisation payments for five years. Banks also have the opportunity to grant exemptions from the amortisation requirements for home equity withdrawals, for loans granted prior to 1 March 2018. In such cases, the borrower amortises at least 10 per cent of the home equity withdrawal instead of amortising the entire loan in accordance with the amortisation requirements.

23 Denotes the stock of mortgages of the eight institutions that are included in the mortgage survey.

Households’ Repayment Capacity

FI assesses the new mortgagors’ repayment capacity as part of the mortgage survey. The calculations and the stress tests show that their repayment capacity is generally good. However, individual mortgagors may have difficulty with cash flow if interest rates rise and they become unemployed. Households’ financial situation may be affected by COVID-19. According to the amortisation regulations, banks are able to grant these households amortisation exemptions. As a whole, FI asses that the risk that banks will suffer extensive credit losses from their exposure to mortgages is deemed to be limited.

21. Interest-to-income ratio and debt service ratio



Source: Mortgage survey.

Note: Interest-to-income ratio denotes interest payments as a proportion of households’ disposable income. Debt service ratio denotes interest payments and amortisation payments as a proportion of households’ disposable income.

In a situation where the economic conditions have deteriorated, the margin between income and expenditure may become smaller for many households. FI’s stress tests calculate how many households with new mortgages may end up with deficits in various negative scenarios. Households that have more expenses than income may find it difficult to pay off their loans. If many households were to experience such a deficit at the same time, this could lead in the long run to larger credit losses at the banks. However, a deficit in FI’s calculations does not necessarily result in credit losses for banks. A household may be granted a temporary exemption from amortisation payments, use any savings it has or choose to live more frugally for a period of time. Conversely, households that do not end up with deficits may also be forced to adapt – for example by reducing the amount they save or their consumption – in tough economic situations. Reduced consumption has a negative impact on macroeconomic development. These stress tests do not focus on such effects, instead they focus exclusively on households’ capacity to make interest and amortisation payments.

High levels of debt may make borrowers more vulnerable to loss of income or lower asset prices. One way to measure a household’s debt burden is to measure how much of its disposable income the household uses to pay off its loans. The interest-to-income ratio measures interest payments as a proportion of disposable income. The average interest-to-income ratio for new mortgagors was falling up until 2016. This is due to generally low interest rates. The interest-to-income ratio has remained relatively stable since (Diagram 21). In 2019, new mortgagors made interest payments that equated to an average of 4.6 per cent of their disposable income.[24]

The debt service ratio is a broader measure of vulnerability that relates both interest expenses and amortisation payments to disposable income. Up to and including 2015, FI only had information about amortisation payments on new loans during the sampling period. As of 2016, FI has better information about the household’s total amortisation payments, which also takes into account mortgages taken

24 Taking into account tax deductions for interest payments.

out during an earlier period on other objects used as collateral.[25] As with the interest-to-income ratio, the debt service ratio was also falling up until 2016. As amortisation payments have subsequently been increasing, so has the debt service ratio. New borrowers' interest and amortisation payments amounted to an average of 12.7 per cent of their disposable income in 2019. Both the interest-to-income ratio and the debt service ratio increased slightly in 2019 compared to 2018.

HOW BANKS ASSESS HOUSEHOLDS' REPAYMENT CAPACITY

Before banks grant a mortgage, they conduct a detailed assessment of a household's financial situation and repayment capacity using a discretionary income calculation. These calculations are key to the banks' risk management and, by extension, to financial and macroeconomic stability. They are also one aspect of good consumer protection. That is why FI reviews the banks' methods.

When a household applies for a mortgage, it provides information about income and debt. A bank deducts estimated expenses from household income as part of its discretionary income calculation. These expenses include taxes, home-related expenses, running costs, interest expenses (using a cost of capital that is higher than the actual rate) and amortisation payments. Banks also deduct a standardised amount for cost of living. If the bank is to grant a mortgage, the household is normally not allowed to have a deficit in this calculation. Banks may make an exception if the household has a substantial amount of other assets or additional income that has not been included in the calculation. Other reasons to make an exception can be a low loan-to-value ratio or if a portion of the loan is temporary (known as a bridging loan).[26]

The average standardised cost of living for an adult person was just over SEK 8,700 per month in the 2019 mortgage survey. All banks in the survey have been including the amortisation requirement in their discretionary income calculations since 2016. The banks' average cost of capital for mortgages was 7 per cent in 2019. This was a marginally lower level than in recent years, which is the result of two banks having reduced their cost of capital in 2019.

The cost of capital is not a comprehensive measure of the strictness of the banks' credit assessments. For example, standardised costs also affect borrowers' discretionary income calculations. Standardised costs vary by bank, primarily in terms of the individual components. For example, the basic standardised cost of living for an adult living alone varies between SEK 6,000 and 10,200 in this year's mortgage survey. The variation between the banks is reduced when all costs considered by the banks are taken into account.

25 The calculations in the rest of the report are based on the household's total amortisation payments.

26 A bridging loan is a temporary loan granted for the period between when a household has paid for its new home but has not yet been paid for the old home it has sold or intends to sell.

HOW DOES FI ASSESS HOUSEHOLDS' REPAYMENT CAPACITY?

FI conducts its own discretionary income calculations of households' monthly surpluses. These use different standardised amounts for running costs and cost of living in order to treat all households equally. FI's standardised amounts are based on the banks' average standardised costs and cost of capital.[27] Standardised costs are dependent on the size of the household, its composition and the type of home. They do not relate to the household's actual expenses at the time the loan is issued and are instead an estimate of the household's essential expenses.[28]

Consequently, FI's discretionary income calculations do not capture the fact that households may be forced to reduce their consumption in order to continue paying off their loans. FI calculates the household's disposable income by deducting tax from gross income and adding other income such as any child allowance and large family supplement.[29] FI also uses the interest rate that applied at the time the loan was issued. The household's resilience to rising interest rates is analysed at various interest rate levels, after tax deductions for interest payments. As in previous years, two scenarios are used where the mortgage interest rate levels are 3 and 7 per cent, respectively. In the two different scenarios, the interest rate level for other loans (loans with other collateral and unsecured loans) are assumed to be 7 and 10 per cent, respectively (see Calculations and revisions in the section Mortgage Survey). The actual level of the tenant-owner's charge has also been used since 2018.[30] Because the stress tests have been revised, the results from FI's stress tests are not completely comparable with those in previous reports. In this report, the changes to the method have been used for all years. In some cases, it is also interesting to see the effect of amortisation payments, for example how large a buffer they may constitute if a household is granted an exemption from amortisation payments. Consequently, FI performs calculation both with and without actual amortisation payments.

---

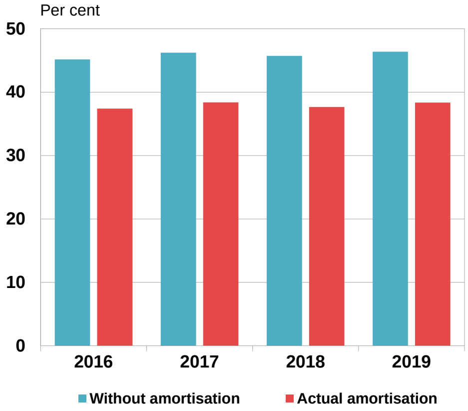
27 See Appendix 1 for a more detailed description of FI's calculation of monthly surpluses.

28 Banks have access to more detailed information about households and are therefore able to use household-specific information such as actual tenant-owner association charges and running costs for single-family homes that are based on the size of the household's home. Banks may also then take into account any car costs or other transportation costs. Because FI does not have sufficiently detailed data about households' homes and living situation, standardised costs are used instead. This means that FI's calculations are not as precise for individual households as those used by banks. In addition, banks are also able to take the household's financial assets into account when assessing repayment capacity. It is not possible to do so in this analysis because FI does not have such data. The methods banks use to calculate households' repayment capacity vary. FI's use of a standardised calculation that is the same for all banks allows consistent comparisons between banks. When FI's discretionary income calculation shows a deficit, this do not necessary mean that the household will have a deficit in the banks' calculations.

29 The tax is calculated on the basis of the average municipal and county council tax rate in the whole country. It then takes into account state income tax, temporary austerity tax, basic deduction and job tax deduction.

30 A standardised amount for the charge tenant-owners pay to their association is used for the years prior to 2018. The standardised cost for the charge to the association acts as a floor for the years 2018 and 2019.

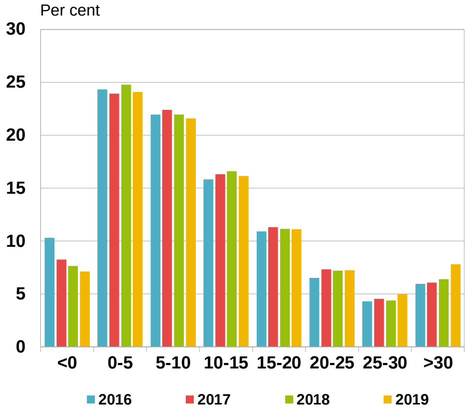
22. Monthly surplus as a proportion of disposable income



Source: Mortgage survey.

Note: Denotes agreed interest rate, new loans.

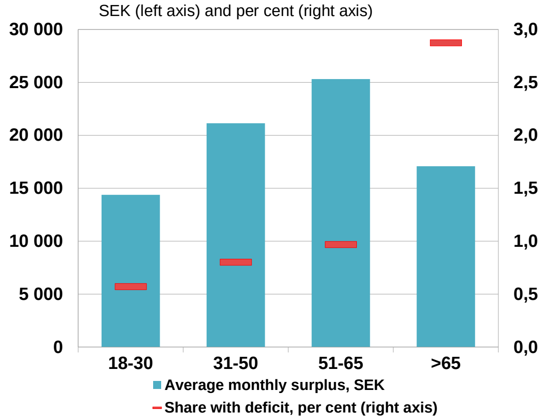
23. Breakdown of households into different monthly surplus intervals at higher interest rates.



Source: Mortgage survey.

Note: Denotes surplus at a mortgage rate of 7 per cent, new loans.

24. Monthly surplus in various age groups.



Source: Mortgage survey.

Note: Denotes monthly surplus calculated using the agreed interest rate and amortisation payments, new loans.

HOUSEHOLDS' MARGINS ARE GOOD

The financial margins of households for debt service payments are generally good. According to FI's calculations, households in the sample have an average surplus of SEK 20,000 per month.[31] This equates to just over 38 per cent of their disposable income (Diagram 22). If a household experiences financial difficulties as a result of a specific event, for example unemployment or loss of income as a result of COVID-19, the amortisation rules allow the bank to grant the household an exemption from the amortisation payments. This makes households more resilient.

Approximately 9 per cent of households with new mortgages had a monthly surplus of less than SEK 5,000 in 2019 at their agreed interest rate and amortisation payments. This was a slightly lower proportion than in 2018. The proportion with a deficit at the time the loan was granted was approximately 1 per cent in 2019. This was about the same level as in both 2017 and 2018. At a mortgage rate of 7 per cent, 31 per cent of households would have a monthly surplus of less than SEK 5,000 (Diagram 23). This was a slightly lower proportion than in 2018. However, the number of households with very high monthly surpluses (over SEK 25,000) was higher in 2019 than previously.

As in previous year, the youngest and oldest new mortgagors had the lowest average monthly surpluses (Diagram 24). This is because they often have lower incomes and are more likely to be single-person households than borrowers in the other age groups. The surplus increased for all new borrowers over the age of 30 compared to 2018. The average surplus increased most for borrowers aged between 51 and 65. The increase was approximately SEK 1,300. However, the average surplus remained unchanged for borrowers under the age of 30.

Using FI's discretionary income calculation, 2.9 per cent of the oldest borrowers had a deficit in 2019 with the agreed interest rate and amortisation payments. This was slightly higher than in 2018 when 2.2 per cent of the oldest borrowers had a deficit. The equivalent proportion with a deficit in other age groups was lower than 1 per cent and lowest for those under the age of 30.

The fact that households are able, when necessary, to get temporary exemptions from amortisation payments makes households more resilient. At the agreed interest rate and with no amortisation payments, almost no new borrowers under the age of 65 had a deficit in 2019. However, 2.1 per cent of new borrowers over the age of 65 still have a deficit at the agreed interest rate and with no amortisation payments. This was around one percentage point higher than in 2018.

STRESS TESTS SHOW SLIGHTLY LARGER MARGINS

In order to assess households' resilience, FI conducts various stress tests in which their financial circumstances are impaired. These stress tests involve FI estimating how households' repayment capacity is affected in the event of higher interest rates if the borrowers were to lose their jobs or if the market value of their homes was to fall.

31 Based on agreed interest rate and amortisation plan.

Interest rate increases and unemployment mean that households will have a lower discretionary income. Falling house prices make the loan-to-value ratio rise. FI has analysed five possible negative scenarios:

- Higher interest rates.
- Unemployment (where all households have unemployment insurance and income protection insurance).
- Unemployment (where all households have unemployment insurance but not income protection insurance).
- Higher interest rates and higher monthly charges due to the tenant-owner associations' debts.
- Lower house prices.

The first three scenarios estimate the percentage of households that would have a deficit in their monthly budget. The latter involves calculating the proportion of households that end up with a loan-to-value ratio of over 100 per cent (i.e. the loan is greater than the value of the home). In the stress tests for the first two scenarios, FI compares the proportion of households with new mortgages that have ended up in deficit in the period 2016–2019.

The fourth scenario only applies to new borrowers that have a tenant-owned apartment as collateral. In this scenario, the tenant-owner association's debt is also take into account.[32] If the interest rate increases for the tenant-owner association, this may mean that they will need to raise their charge.[33] In this stress test FI has also assumed that the charge covers the association's interest rate expenses at the outset. When the interest rate increases, the association's increased interest payments will result in a corresponding increase in the monthly charge.[34]

Interest rate sensitivity

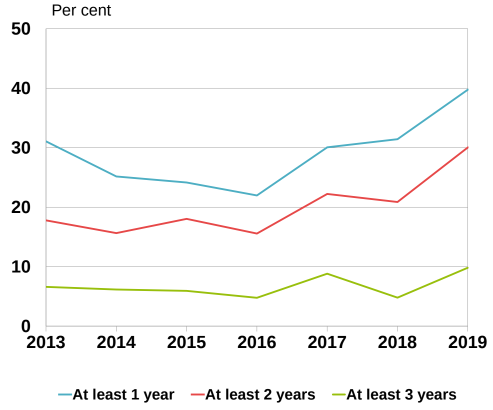
The fact that households have margins in their finances helps them to cope with higher interest expenses. They can also protect themselves against higher interest rates by fixing their mortgage rate. In this year's mortgage survey 40 per cent of households had a volume-weighted interest rate adjustment period of over one year

32 Banks also take the indirect household debt from tenant-owner associations into account in their credit assessments. Three of the banks state in the mortgage survey that they always stress the charge to the association through an increase in the interest rate. Three banks stress the charge if the association's debt exceeds a threshold they set internally. A threshold that is used is that the association's debt should not be in excess of SEK 9,000–15,000 per square metre.

33 This stress test is possible because FI has been collecting data on the size of tenant-owned apartments' and the associations' debt per square metre since 2017.

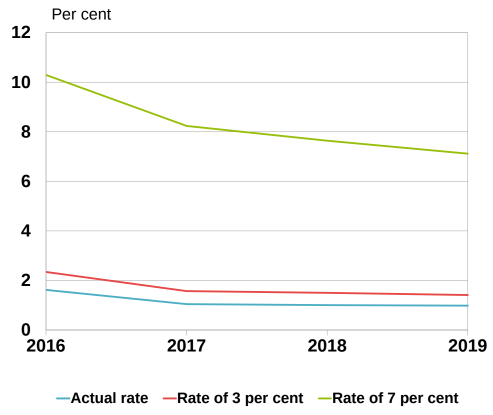
34 The assumption that interest rate increases have a direct effect on the charges is conservative. Many associations probably have a sufficiently strong cash flow that they do not need to increase the charge following small interest rate rises. It is also possible that some associations will choose to reduce their investments and maintenance of the property instead of raising the charge when interest payments increase.

25. Proportion of new mortgagors with a fixed interest rate



Source: Mortgage survey.
Note: Denotes the proportion of new mortgagors with a volume-weighted interest rate adjustment period of at least 1, 2 or 3 years, new loans.

26. Proportion of households with a deficit between income and expenses at different interest rate levels



Source: Mortgage survey.
Note: Calculations including agreed amortisation, new loans.

(Diagram 25).[35] This is approximately 8 percentage points higher than in 2018 and around 17 percentage points higher than in 2016.[36] The fact that a larger number of borrowers are fixing their interest rates is positive from the perspective that this makes them more resilient to rapidly rising rates. The average mortgage rate for new borrowers was 1.57 per cent in 2019, which was the same level as in 2018.

FI calculates household's sensitivity to interest rates by increasing the rate on the household's total loans in order to see how many households end up with a deficit in their monthly calculation. The interest expenses are calculated on the household's total loans, not just the mortgage, because other interest rates typically increase in line with the mortgage rates, but at a higher level. Even fixed interest rates are assumed to increase in the same way. This means that households' sensitivity to interest rates, and therefore the proportion who end up with a deficit, is overestimated in the short term. Over time, however, fixed interest rates will also be affected by higher interest rates. In a normal economic scenario, households make their interest rate and amortisation payments. The basic premise for FI in these calculations is therefore to include amortisation payments at all interest rate levels. FI supplements the analysis with scenarios because, under the amortisation regulations, banks have the opportunity to grant temporary exemptions from the amortisation requirements.[37]

The proportion of households who end up with a deficit at different interest rate levels has gradually decreased in recent years (Diagram 26). This applies primarily at the higher interest rate level of 7 per cent. At this level, 7.1 per cent of households ended up with a deficit in their monthly calculation in 2019. This was a slightly lower proportion than in 2018 when 7.6 per cent of households ended up with a deficit in their monthly calculation. The fact that fewer households end up with a deficit – when both the average loan-to-value ratio and loan-to-income ratio increase – is partly due to their incomes having increased more than the standardised figures for cost of living in the discretionary income calculation. The debts of those households that end up with a deficit when the mortgage rate is 7 per cent corresponds to approximately 7.5 per cent of the total loans of all households in the sample. At the agreed interest rate, approximately 1 per cent of households have a deficit.

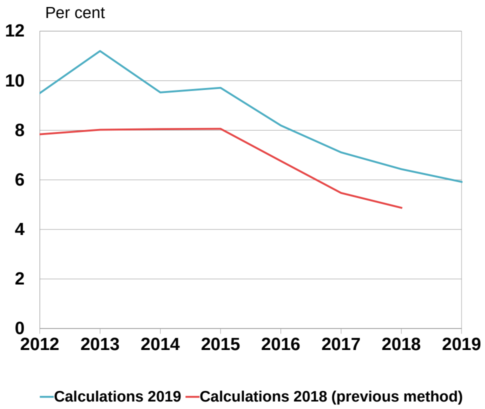
Because some data and some calculations were revised in 2019 (see Calculations and revisions in the section Mortgage Survey), the proportion of households who have a deficit in this year's report is higher than what was reported in the previous year's report

35 Mortgagors have often split up their mortgage into different interest rate adjustment periods. The interest rate adjustment period therefore applies to the volume-weighted interest rate adjustment period for new mortgages and the proportion denotes the proportion of new mortgagors that have a volume-weighted interest rate adjustment period of over 1, 2 and 3 years, respectively.

36 According to Statistics Sweden's financial market statistics for corresponding institutions, the proportion of new loans and renegotiated agreements that are fixed for over one year has increased from an average of 16 per cent in 2016 to an average of 34 per cent in 2019. This is a slightly lower level than that which appears in FI's sample in the mortgage survey.

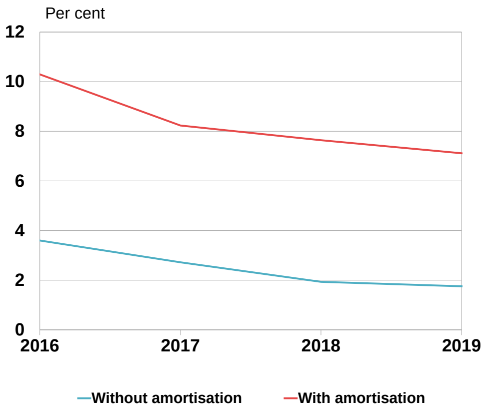
37 Banks are permitted to grant individual borrowers temporary respite from amortisation if there are specific grounds. Typical situations include unemployment, a death in the family or illness. In some case, banks are able to determine what constitutes specific grounds.

27. Comparison with previously published data on the proportion with a deficit, 7 per cent interest rate



Source: Mortgage survey.
Note: The calculation of discretionary income has been performed in accordance with the old method under which only amortisation of new mortgages is included at an interest rate of 7 per cent.

28. Proportion of households with a deficit, with and without amortisation



Source: Mortgage survey.
Note: Calculations reflect a mortgage rate of 7 per cent, new loans.

(Diagram 27). However, the trend that new borrowers have become more resilient to higher interest rate levels remains in place.

The proportion of households with a deficit at an interest rate of 7 per cent is highest in the age group under 30 years of age, followed by households in the age group over the age of 65, where just over 9 and 8 per cent, respectively, end up with a deficit. Households with a high loan-to-income ratio are also overrepresented among those who end up with a deficit at the higher interest rate level of 7 per cent. This is natural because the loan-to-income ratio shows the degree of sensitivity to interest rates. Among those households that have a loan-to-income ratio of over 450 per cent, just over 28 per cent end up with a deficit in the monthly calculation. This is approximately 5 percentage points lower than in 2018.

The general trend is that the proportion of households with small margins in their cash flow has decreased since 2016.[38] This is in spite of the fact that new borrowers have, on average, borrowed less as a proportion of their income or the value of their home. In addition, the trend is still that the proportion who end up with a deficit when interest rates are higher is decreasing. Good margins indicate that households are generally resilient to rising interest rates. Nevertheless, households will need to devote a larger portion of their income to interest and amortisation payments when interest rates are higher. The average debt service ratio rises from 12.7 to 29 per cent if the mortgage rate were to rise from the current level to 7 per cent.

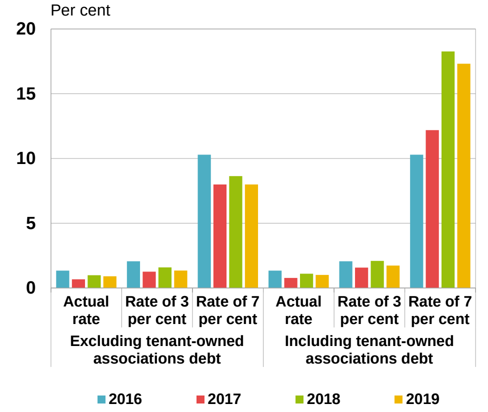
When exemption from amortisation payments is granted, the monthly payment fall temporarily. When it is assumed that exemption from amortisation payments will be granted, the proportion of new borrowers who end up with a deficit at an interest rate of 7 per cent is 1.8 per cent. This is 5.4 percentage points lower than without this exemption (Diagram 28). With the exemption and an interest rate of 7 per cent, it is primarily households over the age of 65 that end up with a deficit. In the other age groups, the proportion with a deficit is between 1.2 and 1.5 per cent. The difference between the proportion of households that have a deficit with and without amortisation has decreased slightly over time.

The amortisation requirements have caused households' amortisation rates to increase. When households amortise more, there is a negative impact on their cash flow in the short term. They become more sensitive to disturbances. However, the amortisation rate has also reduced household debt. This means that fewer households end up with a deficit if they are granted a temporary exemption from the amortisation requirement. Compared to 2018, there were slightly fewer households that ended up with a deficit at an interest rate of 7 per cent with and without amortisation. In the long term, amortisation also means that the loans decrease in size. This makes households less sensitive to disturbances.

Tenant-owner associations' debts affect households that live in tenant-owned apartments. When the interest rate on a tenant-owner association's loans increases, its charges may need to be increased. In

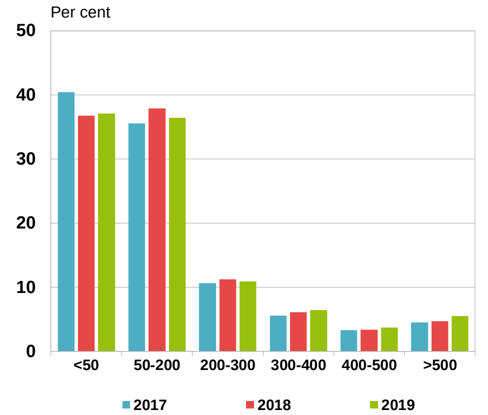
38 FI is only able to assess changes in cash flow because FI does not have access to data concerning households' liquid and financial assets.

29. Proportion of households with a deficit at various interest rates



Source: Mortgage survey.
Note: Calculations concern whether the tenant-owner association's debts are included or not, including amortisation payments for new loans. The tenant-owner association's debts are stressed at interest rates of 1, 2 and 5 per cent, respectively, in three different scenarios.

R4. Distribution of households with other loans, size of other loans



Source: Mortgage survey.
Note: The x-axis shows the size of the other loans in thousands of SEK.

this year's stress test for tenant-owners, the interest rate level in one scenario was set at 3 per cent for mortgages and 2 per cent for the tenant-owner association's debts. In the second scenario, the interest rate level was set at 7 per cent for mortgage and 5 per cent for the tenant-owner association's debts. If the interest rate for tenant-owners' mortgages (excluding the tenant-owner association's debt) increases to 7 per cent, 8 per cent of tenant-owners end up with a deficit, according to FI's calculations (Diagram 29). If the entire increase in the association's interest payments (at an interest rate of 5 per cent) is transferred to the association's members, the proportion with a deficit rises to just over 17 per cent. This is lower than in 2018, when the corresponding proportions with a deficit were 8.6 and 18.3 per cent, respectively.

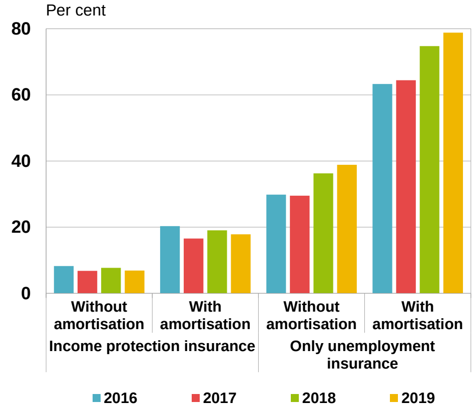
Households with loans in addition to mortgages are just as resilient as other households

As of 2017, it is possible for FI to differentiate what proportion of new mortgagors' total loans are made up of loans with other collateral (e.g. car and boat loans) or unsecured loans. These loans are classified as *other* loans. They often have a high interest rate and a short maturity. In 2017, just over 48 per cent of households had other loans in addition to mortgages. This proportion increased in 2019 to approximately 57 per cent. The average size of the other loans has also increased since 2017, from just over SEK 148,000 to SEK 171,000. Approximately 27 per cent of households have other loans that are larger than SEK 200,000 (Diagram R4). Accordingly, the households that have other loans also have larger mortgages – an average of SEK 294,000 larger in 2019 – than households that only have mortgages. These households also have a slightly higher average loan-to-value ratio, approximately 2 percentage points. But they also have larger incomes. On average, they have an income after tax that is SEK 6,000 higher than households with only mortgages. The households that have the largest other loans also have the highest incomes. This is healthy in terms of both consumer protection and financial stability.

Looking at just the mortgages, households with other loans had a lower average loan-to-income ratio than households with just mortgages. However, looking at the total loan burden, their average loan-to-income ratio is 15 percentage points higher than households with only mortgages. As households with loans in addition to mortgages have more and larger loans in relation to their income and value of their home, they need to use a larger proportion of their income for interest and amortisation payments. In 2019, their interest-to-income ratio and debt service ratio were 5 and 14.2 per cent, respectively. This can be compared with 4.2 and 10.7 per cent for households with only mortgages. At a mortgage rate of 7 per cent, households with other loans would be spending a large portion of their disposable income on interest and amortisation payments, 31 per cent on average. This is 5 percentage points higher than households with only mortgages.

Households with other loans have higher monthly surpluses, both at the agreed interest rate and at an interest rate of 7 per cent. The proportion that would end up with a monthly deficit at various interest rate levels is about the same as for households with only mortgages. In spite of the fact that households with other loans have larger loans on average, they have, on average, the same resilience to higher interest rates. The fact that households are taking out various types of loan need not, in itself, entail a higher risk of repayment problems. Nevertheless, those households that have large loans, regardless of the number of loans, are still the most vulnerable to higher interest rates. In addition, the debt service ratio rises

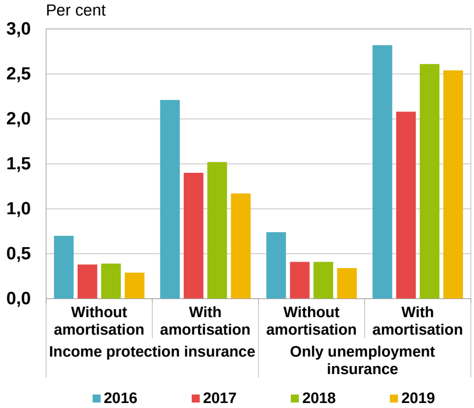
30. Proportion of single-person households with a deficit in the event of unemployment



Source: Mortgage survey.

Note: Denotes new loans.

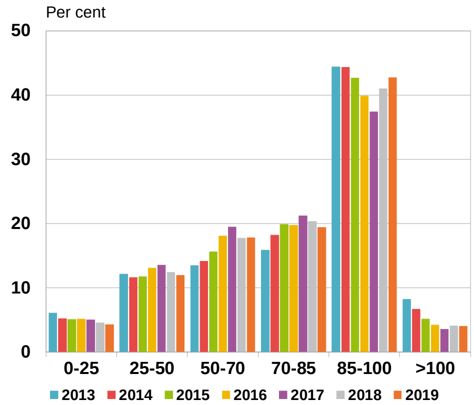
31. Proportion of cohabitants with a deficit in the event of unemployment



Source: Mortgage survey.

Note: Denotes new loans.

32. Distribution of loan-to-value ratios in the event of a 15 per cent fall in house prices



Source: Mortgage survey.

Note: Denotes the loan-to-value ratio new borrowers would have in the event of a fall in house prices of 15 per cent.

more for households with other loans than for other households when interest rates are higher. Consequently, they may need to make somewhat more substantial adaptations in the event of rising interest rates. For example, they can do this by reducing their savings or consumption.

Unemployment

Unemployment reduces the household's income. Households that do not have unemployment insurance are hit especially hard. FI analyses households' ability to cope with interest payments and other expenses if they become unemployed and their incomes fall as a result. FI tests this in two ways. The first involves FI assuming that all households have unemployment insurance and income protection insurance. In this case, the households receive 80 per cent of their income in the event of unemployment. The other involves FI assuming that all households have unemployment insurance but not income protection insurance. This reduces the household's income by 20 per cent, but with a maximum compensation of around SEK 16,000 after tax. In both scenarios, separate calculations are performed for single-person households and cohabitants. For cohabitants, only one person in the household becomes unemployed. FI then calculates how many households will end up with a deficit in their monthly calculation. It is unlikely that all borrowers in the sample will become unemployed at the same time. However, the test shows the proportion of households that would cope with unforeseen losses of income.

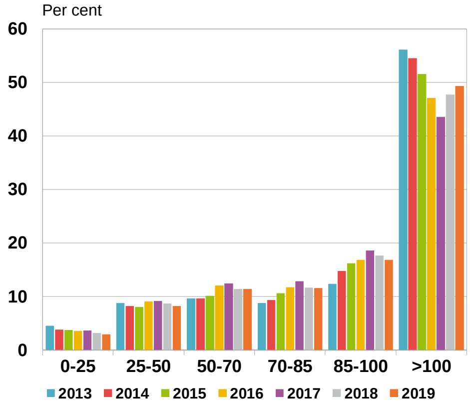
In the event of unemployment with income protection insurance and exemption from amortisation payments, 6.9 per cent of single-person households with new mortgages would end up with a deficit in their monthly calculation in 2019 (Diagram 30). If the household does not have income protection insurance, approximately 39 per cent would end up with a deficit. Cohabitants that have two incomes are more resilient to loss of income than single-person households. In the event of unemployment (with income protection insurance) and exemption from amortisation payments, only 0.3 per cent of cohabitants would end up with a deficit in their monthly calculation (Diagram 31). If the household does not have income protection insurance, the proportion that end up with a deficit is unchanged.

The fact that it is possible for the household to be granted an exemption from amortisation payments in the event of unemployment reduces the proportion that end up with a deficit and makes them more resilient. The reduction is greatest for single-person households. The increase in resilience as a result of exemption from amortisation payments has become increasingly large as amortisation payments have increased.

Fall in house prices

A high loan-to-value ratio makes households vulnerable to a situation in which house prices are falling. FI also tests how new borrowers' loan-to-value ratios change when house prices are falling. If prices fall by 15 per cent, 4 per cent of households end up with a loan-to-value ratio of over 100 per cent (Diagram 32). In which case, the household's debts exceed the value of its home. In this scenario, almost 50 per cent of households have a loan-to-value ratio of over 85

33. Distribution of loan-to-value ratios in the event of a 30 per cent fall in house prices



Source: Mortgage survey.

Note: Denotes the loan-to-value ratio new borrowers would have in the event of a fall in house prices of 30 per cent.

per cent. This is more than in previous years. If prices fall by 30 per cent, 50 per cent of households end up with a loan-to-value ratio of over 100 per cent (Diagram 33). This is a higher level than was previously the case. In this scenario, one in three households has a loan-to-value ratio of over 85 per cent.

If households have negative monthly surpluses, they can sell their homes to pay off their loans. However, in a real negative scenario in which house prices have also fallen, the household's debts may exceed the value of its home. Households can adapt in ways other than by selling their home if their finances worsen. For example, they may choose to reduce their consumption or their savings, if this is possible. Nonetheless, the proportion of households that would end up with both a deficit in their monthly calculation and a loan-to-value ratio of over 100 per cent is limited. In the event of a fall in house prices of 30 per cent and a mortgage rate of 7 per cent, 3.9 per cent of households would end up with both a monthly deficit and a loan-to-value ratio of over 100 per cent. This is a slightly smaller proportion than in previous years. In addition, it is possible in such situations for households to be granted an exemption from amortisation payments by the bank. If exempted from amortisation payments, 0.5 per cent of households would end up with both a deficit and a loan-to-value ratio of over 100 per cent.

THE RESILIENCE OF NEW BORROWERS IS GOOD

All in all, FI's stress tests indicate that households' resilience has improved in recent years. Compared with 2018, there were slightly fewer households in 2019 that ended up with a deficit between income and expenses in the event of higher interest rates. There was also a slightly smaller proportion of cohabitants that ended up with a deficit in the event of loss of income in 2019 than in 2018. However, the proportion of single-person households with a deficit increased in 2019 compared with 2018. This is partly due to the fact that they were amortising a larger proportion of their income in 2019 than was previously the case.

At present, the majority of households with new mortgages have sufficient margins to cope with their debt service payments even if interest rates were to rise. Even in the event of severe stress, few households experience problems with their debt service payments. The fact that households are able to, when necessary, get temporary exemptions from amortisation payments makes them more resilient. The increase in resilience as a result of exemption from amortisation payments has become increasingly large as amortisation payments have increased.

Appendix 1 – FI's Monthly Calculation

The banks' discretionary income calculation contains detailed information about mortgagors' household-specific data that is registered when a loan application is submitted. This calculation encompasses actual tenant-owner association charges and running costs for the individual household. If there is missing data, the banks use standardised costs that are based on the size and composition of the household and the type of home. FI's monthly calculation is based on an average of these standardised costs (see below) for all households of the same type. The standardised costs only take into account the type of home and not its size. Because the size of a home can have a major impact on costs such as heating, FI's calculations are not as precise for individual households as those used by the banks.

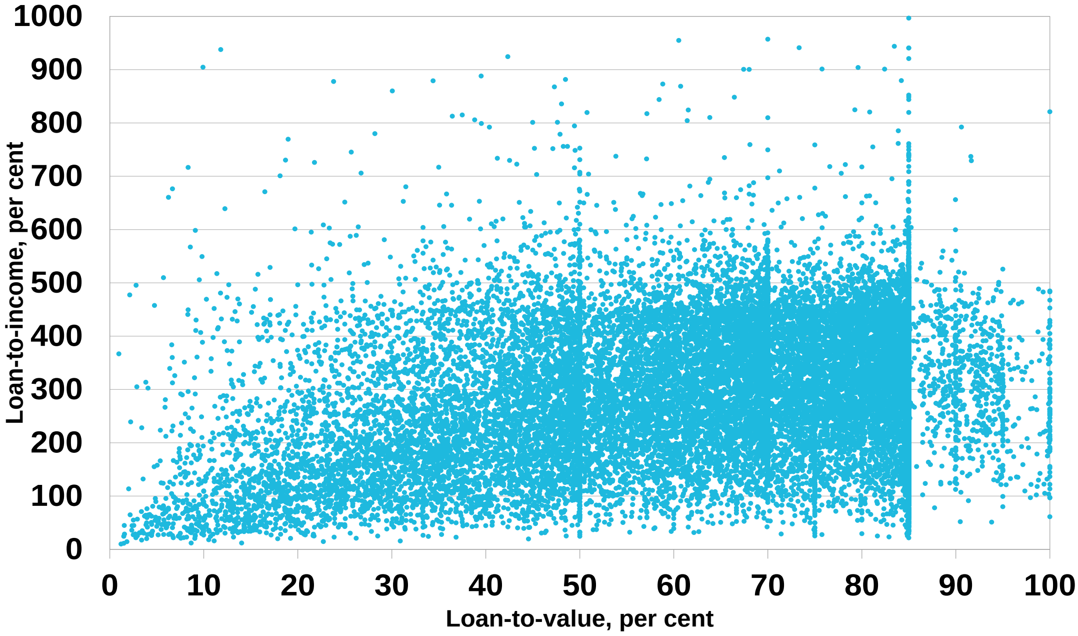
Table B1. FI's standardised costs in the monthly calculation.
SEK

	2019	2018	Swedish Consumer Agency 2019
Cost of living			
Single-person household	9,900	9,700	7,000
Cohabitants	17,000	16,800	12,200
Per child	3,700	3,600	3,800
Running costs			
Single-family home	4,000	3,900	
Tenant-owned apartment	3,100	3,100	
Holiday home	2,000	1,900	

The standardised costs used by the banks have increased over time but fell between 2015 and 2016. They also fell slightly between 2018 and 2019. When assessing households' resilience, FI has chosen to base its calculations on the costs of living figures for 2015. 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 calculating interest expenses twice. For 2019, FI is using the standardised costs shown in Table B1.

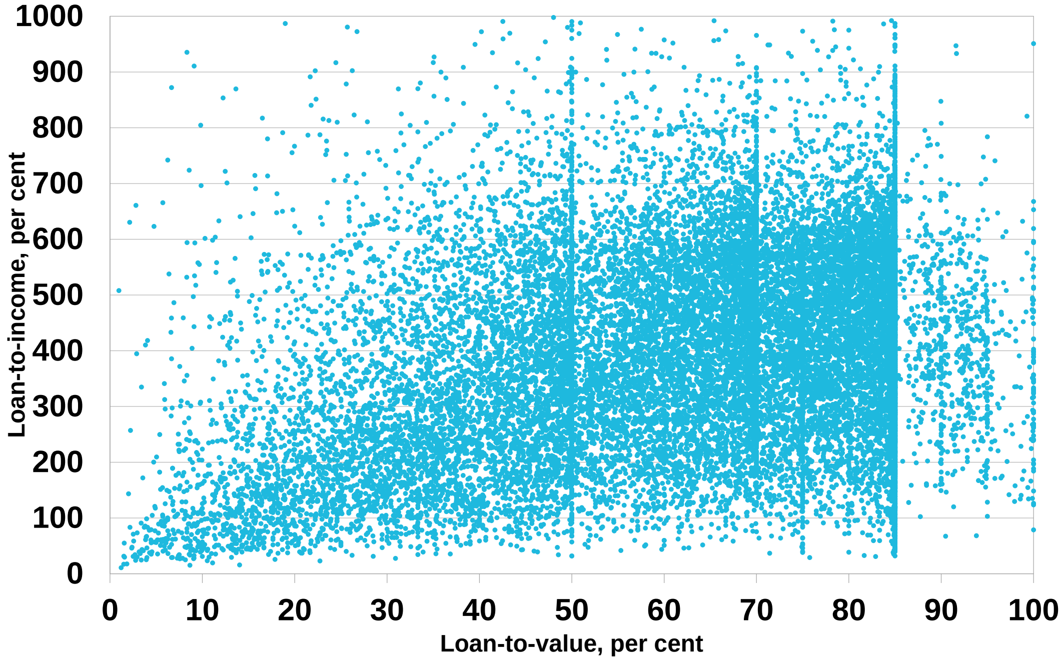
Appendix 2 – Households with New Mortgages. Correlation Loan-to-Value Ratio and Loan-to-Income Ratio

B2.1. Sample from the 2019 mortgage survey, gross income



Source: Mortgage survey.

B2.2 Sample from the 2019 mortgage survey, net income



Source: Mortgage survey.

Finansinspektionen
Box 7821, 103 97 Stockholm
Besöksadress Brunnsgatan 3
Telefon +46 8 408 980 00
Fax +48 8 24 13 35
finansinspektionen@fi.se

www.fi.se