FI Analysis

Fewer vulnerable households after stricter amortisation requirement

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Summary

Under FI's stricter amortisation requirement, which went into effect on 1 March 2018, new mortgagors with debt in excess of 450 per cent of gross income must amortise one percentage point more of their loan per year in addition to the existing requirement. The objective of the stricter requirement is to strengthen resilience of households by decreasing the number of mortgagors who have high debt in relation to their income.

This FI Analysis evaluates how the stricter amortisation requirement has affected the size of the loans taken by new mortgagors and the purchase price of the homes they are buying. Households affected by the stricter amortisation requirement are borrowing on average 8.5 per cent less than they otherwise would have done. They are also buying less expensive homes. However, the stricter regulation only affects a small share of all new mortgagors. This means, in turn, that the total impact is limited; new mortgagors are buying homes that on average are 1.1 per cent less expensive and borrowing on average 1.5 per cent less following the introduction of the stricter amortisation requirement. The impact of the stricter requirement is smaller than what FI expected (see Finansinspektionen, 2017b). This is because fewer households that took out a new mortgage were affected by the stricter requirement, and those that were did not need to increase their amortisation payments as much as FI had estimated they would.

The households that adapted their behaviour the most as a result of the stricter amortisation requirement were single-person households and the oldest group of mortgagors. Affected households are buying less expensive homes and borrowing less regardless of where they live in the country. However, because more households in Stockholm and Gothenburg are affected than in other regions, mortgages and housing demand were reduced the most in these two cities. Mortgages also shrank more among new mortgagors with the highest income, which was the group most affected by the stricter requirement.

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Stricter amortisation requirement to increase household resilience

Household debt has been rising at a higher rate than household disposable income for a long time. One important reason is that house prices have been rising rapidly. This high and rising level of debt may enhance risks to financial and macroeconomic stability. In order to mitigate the risks associated with household debt, Finansinspektionen (FI) has taken several measures, including the introduction of a mortgage cap and an amortisation requirement. These measures have reduced debt, and FI considers households with new mortgages thus to have become more resilient (see Finansinspektionen, 2018a) to an economic downturn. In order to further strengthen the resilience of households, FI introduced a stricter amortisation requirement on 1 March 2018.

Under the stricter amortisation requirement, new borrowers with mortgages greater than 450 per cent of their gross income must amortise at least 1 per cent of the mortgage in addition to the amortisation required under the first amortisation requirement. Before introducing the stricter amortisation requirement, FI predicted that households with a new mortgage would buy less expensive homes and borrow less as a result of the regulation (see Finansinspektionen 2017b). The new requirement would immediately make these households less vulnerable. Amortising at a faster rate also would also reduce their vulnerability over time. Overall, the stricter amortisation requirement was thus expected to lower the risks associated with high household debt.

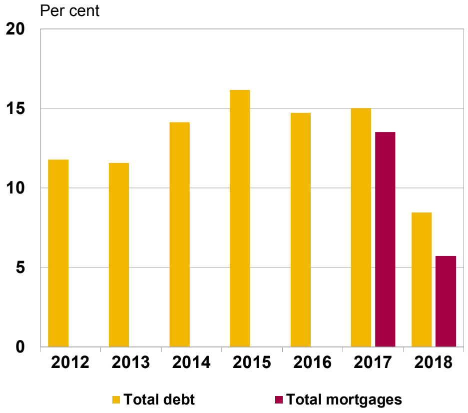
This FI Analysis estimates the direct impact of the stricter amortisation requirement on new mortgagors. We use the mortgage surveys from 2016–2018 as our basis. The data includes periods both before and after the introduction of the stricter amortisation requirement that enable us to evaluate how the stricter amortisation requirement changed the behaviour of new mortgagors. We disregard data prior to 2016 to ensure that the results are not affected by the first amortisation requirement, which FI introduced in 2016.[1]

We use the *difference-in-difference* method to estimate the impact of the stricter amortisation requirement (see Finansinspektionen, 2017a and Andersson et al., 2018). The method identifies the impact of a regulation by comparing the development of those affected by the regulation to a comparable group that was not affected. In order to assess the robustness of our estimates, we supplement the analysis with *bunching* estimates.[2] The bunching approach uses the distribution of the households' debt and identifies the regulation's impact through the bunching of households just under the limit of 450 per cent of gross income. From this bunching, we estimate how much less these borrowers have borrowed. The estimate is then used to calculate how much less all mortgagors affected by the regulation borrow.

1 FI introduced the first amortisation requirement on 1 June 2016. The information in the 2016 mortgage survey refers to data from September and October 2016.

2 See also Saez (2010), Chetty et al. (2011) and Kleven and Waseem (2013) for more information about the bunching approach.

Diagram 1. Percentage of households with a loan-to-income ratio of over 450 per cent of gross income



Source: FI

Fewer households with high loan-to-income ratio after stricter requirement

FI previously assessed how the mortgage cap and the first amortisation requirement affected the behaviour of new mortgagors, i.e. the size of the loans they take and the price of the homes they buy (see Finansinspektionen, 2017a and Andersson et al., 2018). The mortgage cap and the first amortisation requirement encouraged households with high loan-to-value ratios to buy less expensive homes and borrow less. This increased households' resilience to disruptions. The amortisation requirement introduced in 2016 was linked to the relationship between the mortgage and the value of the home (loan-to-value ratio). However, household debt continued to increase in relation to income (loan-to-income ratio). Households with high loan-to-income ratios may be more sensitive to income shocks than households with lower loan-to-income ratios (see Finansinspektionen (2017c)). New mortgagors with high loan-to-income ratios are only affected to a limited extent by the first amortisation requirement since the correlation between households' loan-to-income ratios and loan-to-value ratios is relatively weak. FI therefore decided to introduce a stricter amortisation requirement.

The percentage of households that had a debt-to-income ratio (calculated using total debt) of more than 450 per cent when they took out a new mortgage had increased until 2015 (Diagram 1). After the first amortisation requirement, this percentage decreased somewhat, and in 2017 it was 15 per cent. The first amortisation requirement was formulated in terms of the mortgage for the specific home. The stricter amortisation requirement, in contrast, has been formulated as the total loans collateralised by (any) home (see Box 2 of Finansinspektionen, 2017c). Total debt overestimates loans collateralised by homes since by definition it also includes other loans (unsecured loans or loans against collateral other than a home). However, starting in the mortgage survey in 2017, FI began to gather data about total mortgages. The loan-to-income ratio calculated using this measure shows that 13.5 per cent of the new borrowers had a loan-to-income ratio of more than 450 per cent of gross income in 2017.

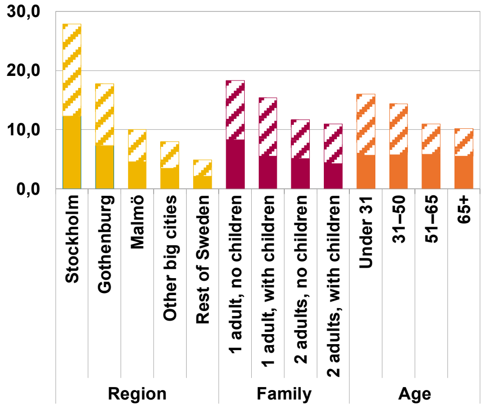
New mortgagors can react differently to the stricter amortisation requirement. Some may choose not to buy a home. We cannot study these households since they are not included in the mortgage survey. For households that do buy a home, the stricter requirement could result in them buying less expensive homes and borrowing less. Some new mortgagors borrow so much less as to come under the loan-to-income ratio limit of 450 per cent and thus avoid the stricter amortisation requirement. New mortgagors with loan-to-income ratios of more than 450 per cent may also choose to borrow less to reduce the extra expenditure associated with the stricter regulation.

Following the stricter amortisation requirement, the percentage of new mortgagors with a high loan-to-income ratio (total mortgages) amounted to 5.7 per cent.[3] Households in this category need to amortise more as a result of the stricter amortisation requirement. Larger amortisation payments initially impair their cash flows, but

3 Households that take smaller loans to avoid the amortisation requirements or to reduce their monthly payments immediately experience better resilience.

Diagram 2. Share of new mortgagors with a loan-to-value ratio of more than 450 per cent by type of household

Per cent

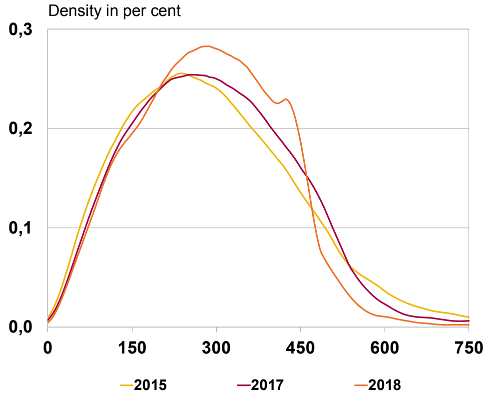


Source: FI

Note: Solid bars refer to the 2018 survey and the striped bars refer to the 2017 survey. The loan-to-income ratios refer to total mortgages as a percentage of income before tax.

Diagram 3. Distribution of household loan-to-income ratios

Density in per cent



Source: FI

Note: The loan-to-income ratios refer to total mortgages as a percentage of income before tax.

Table 1. Annual amortisation payments for loan-to-value ratios of more than 450 per cent

Per cent

Loan-to-value ratio	2017	2018
Under 50 per cent	0.5	1.6
50–70 per cent	1.2	1.8
Above 70 per cent	2.0	2.5
Average	1.4	2.1

Source: FI

Note: Average refers to a weighted average of the three groups. Amortisation payments are calculated as annual amortisation on the object in question through total mortgages on the object. The loan-to-income ratio that serves as a basis for the classification is calculation using the household's total mortgages.

amortisation also means that the percentage of vulnerable households decreases over time. Given the assumption that income increases by 2 per cent a year, if the households with a loan-to-income ratio of more than 450 per cent amortise, their share of all mortgagors falls from 5.7 to 3.1 per cent after one year and to 1 per cent after five years. According to the stricter requirement, households may stop amortising when their loan-to-income ratio falls below 450 per cent. The household then has improved both its resilience and its cash flow.

Most of the households that must amortise according to the stricter requirement are in Stockholm and Gothenburg, and they are largely single-person households (Diagram 2). However, the age distribution is fairly even. This is a change from the 2017 survey. Then, most of the young borrowers had loan-to-income ratios of more than 450 per cent. This indicates that more young borrowers are taking smaller loans to avoid the stricter amortisation requirement, but the requirement does not appear to have convinced young mortgagors not to buy a home. The percentage of young households in the mortgage survey has been stable at around 20 per cent since the 2016 survey (see Finansinspektionen, 2019).

The distribution of new mortgagors' loan-to-income ratios in the 2018 survey shows that a large percentage of borrowers are taking loans that result in a loan-to-income ratio of just under 450 per cent (Diagram 3). This is a change from previous years and is an indication that many new mortgagors opted to lie just under the limit for the stricter requirement. Several of these households are probably borrowing less to avoid the stricter requirement since the percentage of households with a loan-to-income ratio of 450 per cent has decreased.[4] There is also a larger share of households that have taken a loan with a loan-to-income ratio of around 300 per cent compared to previous years. This is probably due to something other than the stricter amortisation requirement. Households that took out a new mortgage in 2018 had on average higher income than those that took out a mortgage last year. At the same time, the average market value of residential properties that serve as collateral for mortgages fell during this period.

FI's amortisation requirement has most likely contributed to a decrease in the percentage of new mortgagors with a loan-to-income ratio of 450 per cent (Diagram 3). Lower house prices, higher income and lower confidence in future economic growth probably also contributed to this decrease.

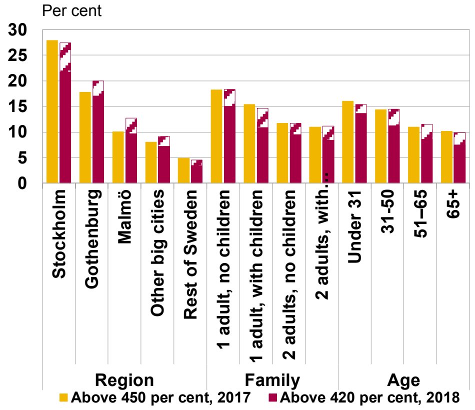
HOUSEHOLDS AMORTISE MORE

Amortisation payments clearly increased after FI introduced the first amortisation requirement (see Finansinspektionen, 2017a). In the 2018 survey, the contractual amortisation payments for new mortgagors was on average 2.2 per cent of the mortgage. This is largely the same as in 2016.

New mortgagors with a loan-to-income ratio of more than 450 per cent and a loan-to-value ratio of more than 70 per cent amortise on average 2.5 per cent of their mortgage (Table 1). This figure is lower than the required 3 per cent under the stricter requirement, but this does not necessarily mean that these households are in violation of the

4 This implies that the stricter amortisation requirement did not have a normative effect "from the bottom up".

Diagram 4. Percentage of households affected by the stricter requirement



Source: FI

Note: The striped part of the bars shows the exemptions. This means that the households does not need to amortise in accordance with the stricter requirement. The loan-to-income ratio refers to the household's total mortgages as a percentage of income before tax.

amortisation requirements. It may instead be because some new mortgagors have bought newly produced apartments (which are exempt from the amortisation requirement), are amortising in accordance with the equity withdrawal rule or have changed banks.[5]

On average, amortisation payments increased by 0.7 per cent of the mortgage for households taking a new loan that is larger than 450 per cent of their income.[6] As a percentage of income, amortisation payments increased from 8 to 11 per cent for these households.

Stricter requirement leads to mortgagors borrowing less and buying less expensive homes

The change in the loan-to-income ratios indicates that the stricter amortisation requirement has led to households borrowing less, but this change could also be due to other factors. In order to assess the amortisation requirement's impact, we need to compare what would have happened without the stricter requirement. Since this is not directly observable, we must estimate this development.

One way to do this is to divide borrowers into two groups. The first group (control group) consists of households that are not affected by the requirement; the second group consists of households that are affected. The amortisation requirement applies to households that have a loan-to-income ratio of more than 450 per cent. These households are affected by the stricter requirement since they must amortise an additional one percentage point. However, some households appear to have opted to borrow so much less that they have a loan-to-income ratio of less than 450 per cent and therefore do not need to amortise the extra percentage point (Diagram 3). These households have also been affected by the stricter requirement. Our break-down into groups thus looks like this:

1. *Control group* with households that have loan-to-income ratios between 300 and 420 per cent.[7] These households are not affected by the stricter amortisation requirement.
2. The *group of households that is affected* by the stricter amortisation requirement and has loan-to-income ratios of more than 420 per cent.

The limit of 420 per cent was selected from the elevated density under the limit in Diagram 3. In addition, around 13.5 per cent of the households in the 2018 survey have a loan-to-value ratio of more than 420 per cent. This is approximately as large as those that have a loan-to-income ratio of more than 450 per cent in the 2017 survey

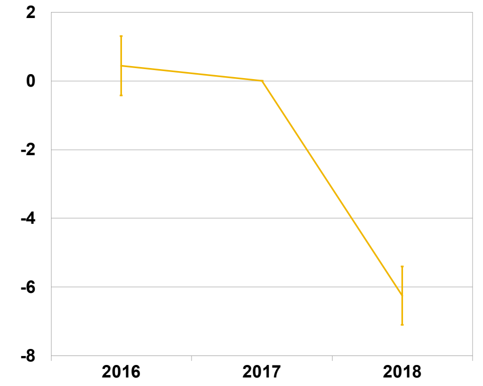
5 Those that amortise in accordance with the equity withdrawal rule amortise 10 per cent a year on the new loan. This assumes that the loan is an equity withdrawal loan for an existing loan on the collateral in question. Households that change banks may continue to amortise in accordance with earlier amortisation schedules if agreed by the new lender.

6 Amortisation payments for households with loan-to-income ratios below 450 per cent remained at 2.2 per cent in the 2018 survey.

7 Mortgagors with a loan-to-income ratio of less than 300 per cent are not affected by the stricter amortisation requirement, either. However, because the debt for this group has historically increased faster than both of the other groups, these households have been omitted from the analysis.

Diagram 5. Test of parallel trends between groups

Per cent



Source: FI.

Note: The diagram shows if the changes in the loan-to-income ratios differ between those that are affected and the control group before and after the reform. When the confidence interval includes zero, the difference between the groups (and relative to the 2017 dataset) is not statistically significant.

Table 2. Impact of the stricter amortisation requirement on debt and mortgages, new mortgagors

Per cent and amount

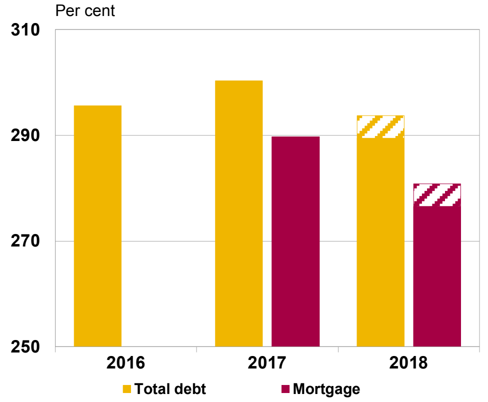
Loan-to-income ratio	Total debt	Total Mortgage
Affected	-8.2*** (0.5)	-8.5*** (0.5)
Degree of explanation	60.6	62.2
Number of obs.	19,136	19,136

Source: FI

Note: Robust standard of error in parentheses. *** indicates that the estimate is statistically different than zero at a one-percent level. The table shows only the difference-in-difference estimate, which indicates the impact of the stricter amortisation requirement on households with a loan-to-income ratio above 420 per cent.

Diagram 6. Average debt ratios

Per cent



Source: FI

Note: The shaded area for 2018 marks the estimated trend if FI had not implemented the stricter amortisation requirement.

(Diagram 4). We therefore assume that the households that adapted their loan-to-income ratio as a result of the stricter amortisation requirement are still included in the group that is affected. This means that the households in the control group are assumed to be unaffected by the requirement. Of the households with a loan-to-income ratio of more than 420 per cent, 2.8 percentage points are exempt from the extra amortisation.[8] Therefore, almost 11 per cent of households are included in the group that is affected by the stricter requirement.

The fundamental assumption for the approach we use is that debt for both groups would have followed the same development without the stricter amortisation requirement.[9] We test the (null) hypothesis that the average growth in debt was the same – if the trends were parallel – in the group before the stricter amortisation requirement using data from the 2016 and 2017 surveys. According to the outcome, we cannot reject the hypothesis (Diagram 5). This means we can estimate *difference-in-difference* equations to calculate the impact of the requirement. We also study through the equations how the requirement has affected different types of households.

LEVERAGED HOUSEHOLDS BORROW LESS

The model estimates show that the stricter amortisation requirement affected the size of loans taken by new mortgagors.[10] Those that are affected by the requirement take on average mortgages that are 8.5 per cent smaller than if FI had not implemented the requirement (Table 2). The impact is approximately the same for total debt.

The total impact of a requirement depends on *how many* are affected and by *how much* they are affected. The stricter requirement affects 11 per cent of new mortgagors, and they are borrowing on average 8.5 per cent less.[11] As a whole, this means that the mortgages of new mortgagors are 1.5 per cent lower as a result of the stricter amortisation requirement. Between 2017 and 2018, the average mortgages in the mortgage survey decreased by 1.8 per cent. The stricter amortisation requirement represented almost 80 per cent of the decrease. This means that the loan-to-income ratios should have decreased in the 2018 survey even if FI had not introduced a stricter amortisation requirement, but the requirement reduced the ratios even more (see the shaded area in Diagram 6).

These estimates are lower than FI's expectations before the introduction of the amortisation requirement (see Finansinspektionen, 2017b). FI expected households affected by the requirement on average to borrow 17 per cent less. This is in part because the increase in the amortisation payments was lower than the increase used as a

8 Households that change bank, use the equity withdrawal rule or buy a newly produced home or agricultural property are exempted from the amortisation requirement.

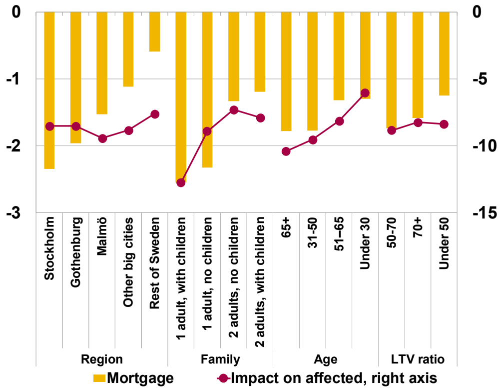
9 Since the groups consist of new mortgagors each year, the borrowers in the groups are different.

10 The results from our estimates are robust when we alter the group delineation. The estimated impact on new mortgagors with a loan-to-income ratio of between 420 and 450 per cent is weaker than for households with a loan-to-income ratio of more than 450 per cent.

11 The households affected by the first amortisation requirement slowed their mortgages by 9 and 14 per cent, depending on whether they would amortise 1 or 2 per cent (see Finansinspektionen, 2017a).

Diagram 7. Estimated impact and slow-down in mortgages for different types of households

Per cent

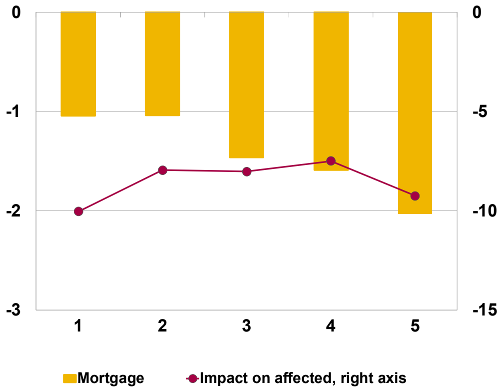


Source: FI

Note: "Impact on affected households" shows the estimated impact of the stricter amortisation requirement on different types of households. The decrease in debt is the average decrease in the group and takes into account both the percentage of households affected and how large the impact has been on those that are affected.

Diagram 8. Estimated impact and slow-down in mortgages by income group

Per cent

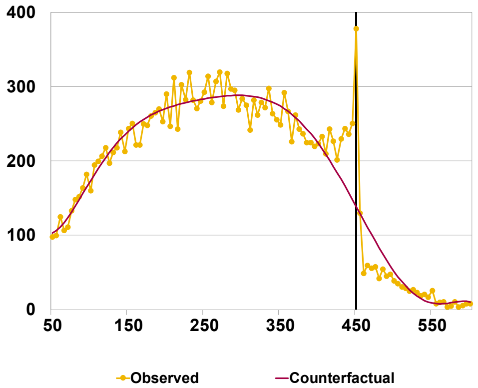


Source: FI

Note: Households are broken down into income quantiles (five equally large groups). See the note to Diagram 7.

Diagram 9. Break-down of households by loan-to-income ratio

Number of households



Source: FI

Note: The X axis shows the loan-to-income ratio. Counterfactual distribution is an estimate of the number of households without the stricter requirement. The counterfactual distribution is given a polynomial for the observations without observations close to the threshold.

basis for the estimate.[12] Part of this difference is also because Finansinspektionen (2017b) used estimates for how households with new mortgages reacted after the first amortisation requirement. The behaviour may also have been affected in different ways by both requirements, for example due to the fact that the two amortisation requirements were introduced under different economic circumstances.

Prior to the introduction of the stricter amortisation requirement, FI expected that new mortgagors would borrow on average 3.7 per cent less for the country as a whole. This figure is larger than the 1.5 per cent we observe in this analysis. In addition to differences in the impact on households affected by the requirement, FI also used a different measure – total debt divided by income – in the impact analysis (see Finansinspektionen, 2017b). This measure overestimates the percentage of households with new mortgages that are affected by the stricter requirement.

Largest decrease in debt in big cities and single-person households

All household types are borrowing less as a result of the stricter amortisation requirement (Diagram 7). The impact on affected households does not differ much between regions, but a larger percentage of households that are affected a located in Stockholm and Gothenburg. This is why the stricter requirement slowed debt most in these regions.

The impact on single-person households is larger than on households with two adults. Single-person households also reduced their mortgages the most (when we also consider the percentage of households that are affected). Furthermore, the oldest borrowers are also affected more than the other age groups. The differences in impact on borrowers by loan-to-value ratio are relatively small and not statistically significant.

The impact of the stricter amortisation requirement is largest for households with the lowest and the highest income (Diagram 8). However, households with the highest income decreased their loans the most. This is also the group that was the most affected by the stricter amortisation requirement.

ALTERNATIVE ESTIMATE

The impact of the stricter amortisation requirement can also be estimated using an approach that takes into account that the requirement can lead to the aggregation of households around a threshold, i.e. *bunching*. We therefore make an alternative estimate of the impact of the stricter requirement using this approach.

The *bunching estimator* is based on the households that bunch around 450 per cent compared to a counterfactual distribution (Diagram 9). This approach calculates the number of households that reduced their

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12 The calculation in Finansinspektionen (2017b) assumed that households required to amortise under the stricter amortisation requirement needed to increase their amortisation payments by 0.96 percentage points. Amortisation payments were 0.68 percentage points higher in the mortgage survey in 2018 than the survey in 2017. In last year's calculation, FI used amortisation payments on the new loan. In this FI Analysis, we use total amortisation payments on the residential property in question.

Table 3. Stricter amortisation requirement's impact on house prices, new mortgagors

Per cent and amount

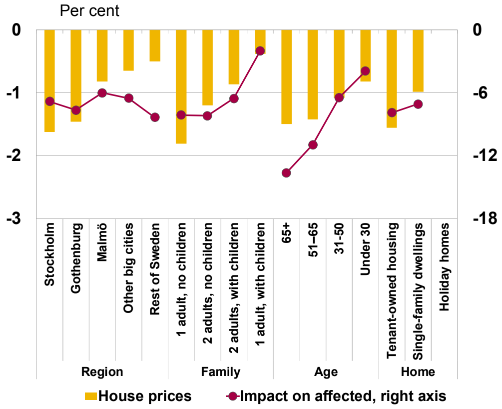
	House prices
Affected	- 7.1***
	(1.3)
Degree of explanation	63.9
Number of obs.	19,136

Source: FI

Note: Robust standard of error in parentheses. *** indicates that the estimate is statistically different than zero at a one-percent level. The table shows only the difference-in-difference estimate, which indicates the impact of the stricter amortisation requirement on households with a loan-to-income ratio above 420 per cent.

Diagram 10. Impact of the amortisation requirement and the slow-down of house prices by household type

Per cent



Source: FI

Note: "Impact on affected households" shows the estimated impact of the stricter amortisation requirement on different types of households that are affected by the requirement. House prices show the average impact in the group and takes into account both percentage of households affected and how large the impact has been on those that are affected.

loan-to-value ratio to just below 450 per cent and how much less these households borrowed as a result of the requirement. According to this calculation, affected households borrow 2.8 per cent less.[13] If we assume that all households over 450 per cent reduce their loan-to-value ratios as much as those in the bunching, the stricter amortisation requirement reduced new borrowers' mortgages by 0.5 per cent.[14]

The *bunching* approach estimates less of an impact than the *difference-in-difference* model. This is in part because the *bunching* estimate does not take into account the loan-to-income ratios that are above the interval of the aggregation. Separate estimates indicate that new mortgagors with higher loan-to-value ratios reduce their loans more than those that borrow close to the limit. This could be because the stricter amortisation requirement increases their monthly payments more in relation to their income.

HOUSEHOLDS WITH LARGE LOANS BUY LESS EXPENSIVE HOMES

Over the last four months of 2017, house prices fell by almost 9 per cent in Sweden as a whole. The combination of high prices and the large increase in newly produced homes – and the resulting large supply – is judged to be the primary cause behind the fall in prices.[15] The fall also coincided with FI's announcement of the forthcoming stricter amortisation requirement, which probably also contributed to the fall in prices.

The mortgage surveys contain information about the price of the homes new mortgagors bought. The *difference-in-difference* approach enables us to estimate the impact of the stricter amortisation requirement on households with high loan-to-income ratios relative to the control group. This means that we can only comment on the impact of the stricter requirement on the purchase prices. We cannot comment on how the requirement impacted house prices. The reason for this is that all homes are sold on the same market. It is also likely that the stricter amortisation resulted in households buying a different type of home, for example a different size or in a different area. The estimates show that those affected by the requirement are buying homes that are on average 7.1 per cent less expensive than what they would have bought if FI had not introduced the stricter amortisation requirement (Table 3).

Those affected by the stricter requirement are buying less expensive homes regardless of where in the country they live (Diagram 10), but the greatest number of home buyers affected were in Stockholm and Gothenburg. This is why the prices households paid for their homes decreased the most in these locations. Furthermore, the results show that the impact is larger for households without children than households with children. Households without children are in general more flexible than families with children and thus find it easier to choose a less expensive home.

13 The estimate is statistically significant at the one-per cent level.

14 A household that would have bought a home with a loan-to-value ratio of well above 450 per cent may not be able to reduce its debt to a point that it can avoid amortisation payments under the stricter amortisation requirement. But it may still choose to take a smaller loan than if the stricter amortisation requirement had not existed in order to reduce its debt payments.

15 See Finansinspektionen (2018a).

The estimated impact on prices is greatest for the oldest age group. Households affected by the requirement purchased homes that were just under 14 per cent less expensive. The smallest impact is found among the youngest home buyers.

Following the stricter amortisation requirement, households with high loan-to-income ratios are buying tenant-owned apartments and single-family homes that are almost 8 per cent less expensive. The first amortisation requirement primarily affected prices on holiday homes. This is not the case with the stricter amortisation requirement. The impact on market values for holiday homes is not statistically significantly different than zero. This means that new mortgagors are buying holiday homes at approximately the same price regardless of whether they are affected by the stricter requirement or not.

An analysis of all new mortgagors in the mortgage survey indicates that, due to the stricter amortisation requirement, households with new mortgages are purchasing homes that on average are 1.1 per cent less expensive. This is more or less in line with the 1.5 per cent that FI expected prior to the introduction of the stricter amortisation requirement (see Finansinspektionen, 2017b).

Small impact since few new mortgagors affected by the stricter requirement

This FI Analysis shows that the stricter amortisation requirement has led to a change in behaviour among households that take out a new mortgage and that the impact is moving in the direction FI intended. New mortgagors are taking smaller mortgages than what they would have taken if FI had not introduced the stricter amortisation requirement, and they are also buying less expensive homes. However, since relatively few new mortgagors are affected by the stricter requirement, the total impact is small. The impact increases in size if loans increase a lot in relation to income since the stricter requirement will affect more new mortgagors.

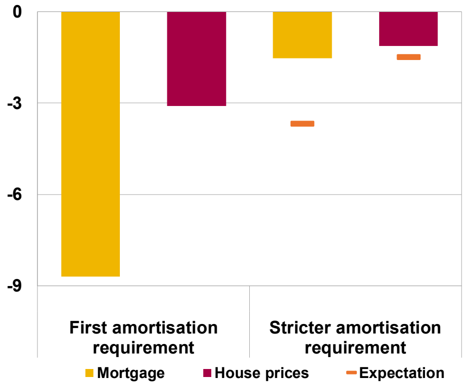
The impact of the stricter amortisation requirement is relatively small compared to the first amortisation requirement, under which new mortgagors borrowed around 9 per cent less and bought properties that on average were 3 per cent less expensive (see Finansinspektionen, 2017a). When FI introduced the first amortisation requirement, it affected 55.6 per cent of the households, and on average these households needed to increase their amortisation payments by 0.6 per cent of the size of the loan. The stricter amortisation requirement affects significantly fewer households – around 11 per cent.[16] These households have increased their amortisation payments on average by 0.7 per cent of the size of the loan. Overall, the stricter amortisation requirement has resulted in new mortgagors buying homes that were on average 1.1 per cent less expensive and borrowing 1.5 per cent less (see Diagram 11).[17]

16 Around 2.8 per cent of these are exempt from the extra amortisation required under the stricter requirement.

17 The bunching estimator showed an even lower estimate. According to the estimate, households reduced their mortgages by 0.5 per cent as a result of the stricter amortisation requirement.

Diagram 11. Amortisation requirements' impact on mortgages and house prices

Per cent



Source: FI

Note: The diagram shows the change in per cent of mortgages and the price paid for homes as a result of the mortgage cap. The aggregate impact of the stricter amortisation requirement has been calculated using the estimated impact presented in Table 2 and Table 3.

Following the first amortisation requirement, new mortgagors adapted their mortgages three times as much as the price they paid for their home. This indicates that households with new mortgages used savings for their deposit to a larger extent after the first amortisation requirement. In contrast, however, households with new mortgages are equally adapting their demand for homes and their mortgages after the stricter amortisation requirement. This could be because the stricter requirement targets households that borrow a lot relative to their income. Many of these households may have limited savings to use when buying a home. The stricter amortisation requirement also gives lower incentive to borrow less at a given house price than the first amortisation requirement did. This is because banks are allowed to update the information that serves as a basis for household amortisation payments more frequently for the stricter amortisation requirement.[18] In practice, this means that a household could choose higher monthly payments for a short period of time instead of using its own savings if, for example, the household expects its income to increase. The household can also add equity at any time to terminate the extra amortisation payments required under the stricter requirement. The first amortisation requirement does not allow the same flexibility; it requires the household to amortise for at least five years.

18 According to the first amortisation requirement, households must amortise for at least five years before the banks may update the loan-to-value ratio (see Finansinspektionen, 2016). In contrast, the loan-to-income ratio, which serves as a basis for the stricter requirement, can be updated "at any time" (see Finansinspektionen, 2017c).

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