The deceptive debt ratio

An analysis of the facts, and a discussion of the common arguments surrounding household debt and the housing market in Sweden.
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In June, the Swedish Riksbank presented its first Financial Stability Report for 2015. Except for some minor follow-ups in the business sections of the morning newspapers, the report passed by relatively unnoticed. It shouldn’t have. In the report, the Riksbank presents its most extensive “reform programme” ever – measures that, if implemented, would lead to the collapse of housing construction and further raise the already considerable barriers that prevent resource-poor households from entering the housing market.

The Riksbank proposes a combination of measures that would have a negative impact on both the portfolios of banks, and the ability of households to finance their home purchases, meaning, in practice, their opportunities to demand housing. The recommendations for households are mandatory mortgage repayment requirements, a lowering of the loan-to-value limit to 75%, three different macro prudential tools to limit the ability of households to borrow, a debt ratio limit, a debt-service-to-income limit and stricter credit assessments in the banks’ discretionary income calculations. (The banks currently base the assessment of households’ debt-serving ability on an interest rate of 7% or higher.) The Riksbank also proposes that the interest-rate fixation periods of households be regulated.

According to the Riksbank, these measures are required to curb an unhealthy trend in the housing market, particularly in relation to household debt. But how close to reality is the Riksbank’s description? Are Swedish housing prices really spiralling because of circumstances in the Swedish housing market? Is the Swedish debt ratio really high by international standards? Do the Riksbank’s calculations enable reasonable comparisons? Is it true that Swedish households do not repay their mortgages?

In this light, the undersigned, both with an extensive background in the Swedish housing and property sector, and similar experience in politics and public administration, particularly as members of the Swedish Social Democratic Party, commissioned the independent research and analysis company Evidens to review five key assertions that are regularly presented by the Riksbank. The review of these assertions provides the basis for this report, and has been independently conducted by Evidens.

The review confirms our own assessment, based on our vantage point in the Swedish construction and property sector: The Riksbank’s description of risks in the Swedish housing sector is in many respects imbalanced. The same applies to the comparisons made with other countries, where the Riksbank ignores the obvious fact that Sweden has a different social security and taxation system.

High tax automatically means that household disposable income will be lower than in countries with low tax and a higher percentage of privately financed welfare services. Conversely, this also means that in countries where public childcare, for example, is almost non-existent, households have to pay these expenses out of pocket. Although the major
implications of this for macro comparisons of household debt at an aggregate level should be obvious, they are not accounted for in the ongoing debate.

The same applies to household assets, where Swedish households should reasonably be credited for the fact that social security contributions (accrued salary, in practice) provide protection against long-term unemployment and illness, and a basic level of security for their eventual retirement. If, like the Riksbank and international regulators, we disregard the basic differences between how welfare systems are financed and function in other European countries, the end result will be a comparison of apples and oranges.

Moreover, it seems that the Riksbank has very little knowledge of how housing finance really works, i.e. that it is, in fact, the very lifeblood of housing construction. Unless the Riksbank has an unspoken goal of changing the frameworks of Swedish housing policy, such as how and in what forms of tenure people should live, it becomes contradictory when the bank proposes restrictions that target households on one hand, and claims that it wants to stimulate housing construction on the other.

Every measure that restricts the ability of households to finance a home purchase will obviously impact demand and, thus, overall housing construction.

Anyone who doubts this fact can personally assess the consequences of the loan-to-value limit that was introduced in 2010, which led to the collapse of the Swedish single-family housing sector and severely hampered opportunities for young people to enter the homeowner market.

Considering the rash manner in which the loan-to-value limit was introduced, there is every reason to be more prudent in the future. We would like to emphasise that owner-occupied housing comprises 70% of the stock in Sweden, and that Sweden is probably the only country in the world to introduce a loan-to-value limit without simultaneously introducing special regulations that ease conditions for young people.

It is also important to point out that housing construction requires financing. To realise the Swedish government’s target of 250,000 homes by 2020, their construction must be financed. A simple and quick calculation shows that this will cost approximately SEK 800 billion. For rental units, this would mean an equity amount of 30% and the remainder as a loan. The same mathematics apply for owner-occupied housing, except that a household’s co-financing is shared between the actual household and the housing association.

It is high time that politicians, regulators and the media scrutinised the Riksbank. We believe that the elected representatives of the Swedish Riksdag should initiate a broad and neutral analysis to provide answers to these key questions:

- Is the manner in which Swedish debt is currently calculated and described accurate and relevant?
- What is a healthy mortgage repayment culture and how should such a culture be designed?
- What would constitute optimal risk-sharing between households, commercial operators and the government? To date, housing-related crises have been linked to either government or commercial operators. When, and under what circumstances, does household debt actually pose a risk?

On the basis of such an analysis, the elected representatives should then design a long-term strategy for the financing of future housing. Politicians must provide an answer to where the risk equity is to come from, regardless of whether households or commercial operators are to hold the conductor’s baton, and the role that the banks, or the government, should play in regard to the need for borrowed capital.

One thing is perfectly clear: without a vision for how future housing is to be financed, the current housing shortage will persist and vulnerable groups, particularly young people, will be even further alienated from the housing market.

Stockholm, 10 September 2015

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«Is it accurate that the Swedish debt ratio is high by international standards? Does the manner in which the Riksbank calculates provide reasonable comparisons?»
Many commentators claim that household debt and price growth in the housing market are unsustainable, and pose a threat to financial stability in Sweden. Using available data, this report examines and discusses a number of common assertions about debt and the housing market in Sweden:

1. “Household debt in Sweden is among the highest in the world – the high debt ratio calls for powerful measures to curb the continued build-up of debt”
2. “Household debt in Sweden is growing far too quickly”
3. “Housing prices are unsustainable and the price growth in recent years is unreasonably high – the price trend should be curbed”
4. “Most Swedish households are not paying off their mortgages – a new repayment culture needs to be created”
5. “Mortgages in Sweden are so high that consumption could fall dramatically in a crisis – so sharply that financial stability would be at risk”

A study of the available data shows that several of these assertions can be disputed, and that the risk scenario is less problematic than often claimed.

Summary

In reference to the debt ratio, meaning total household debt relative to total disposable income, Swedish households are claimed to be among the most indebted in the world. An analysis of the data proves this claim invalid. It is only true if we ignore how welfare services are financed and the fact that Sweden has a higher tax burden than many other countries. Since a major portion of the higher tax burden in Sweden is compensated by a higher degree of social security, a debt ratio measure that accounts for taxation differences would probably be more accurate. If the calculation of the debt ratio was based on gross household income and social security contributions, the Swedish debt ratio would be relatively average compared with other countries. The same applies when debt is related to GDP.

The debt ratio level in Sweden, and in other countries, seems mainly explained by the percentage of homeowners with mortgages. In many cases, countries that have reached debt ratios that are significantly higher than justified by their home ownership...
rate, have been forced to reduce their debt ratio to a more sustainable level. In Sweden, however, such a reduction of the debt ratio would prove problematic and require a policy to reduce home ownership, or a policy that would somehow reduce housing prices.

The main reasons why the debt ratio has risen in Sweden in recent decades is that the percentage of homeowners has increased sharply in Sweden since the mid-1990s. In addition, household incomes have increased sharply and mortgage rates have fallen. With rising household incomes, the creditworthiness of households increases and demand for housing grows. That household incomes and creditworthiness have risen can hardly be considered problematic.

A major problem with the debt ratio measure is that it does not provide a clear picture of how the risks associated with debt have developed. An analysis of a palette of more relevant measures, such as the interest coverage ratio, the level of household assets and the stress testing of household risk groups does not indicate any increased level of risk. On the contrary, the debt-servicing ability and resistance of households has seemed to increase in recent years – not decline.

Overall, the data shows that a policy decision on credit rationing, based on the level and growth rate of the debt ratio, could prove counterproductive. Credit rationing displaces major groups and reduces market mobility. There is a risk that new construction will be lower than normal, leading to upward price pressure in the existing housing stock.

"Housing prices are unsustainable and the price growth in recent years is unreasonably high – the price trend should be curbed"

Analysis of the data shows that the increase in home prices is due to fundamental factors, such as metropolitan growth, rising incomes and wealth, and falling interest rates. After the financial crisis in 2007, incomes grew faster than housing prices until 2014. It wasn’t until 2015 that the price growth for owner-occupied units exceeded income growth, although interest rates continued to fall at the same time. In 2015, the price growth for single-family dwellings has remained slower than disposable income growth since 2007.

At the same time, unique data shows that the housing expenses for rental units with market rents (sub-letting of owner-occupied housing units) are slightly higher than the housing expenses for owner-occupied housing units. This means that the price growth is not driven by unrealistic expectations of future capital gains. This conclusion is supported by surveys to households, in which long-term price growth expectations were studied. In the long term, households in the Stockholm region expect real price growth of between 2–3%, which is even lower than the historical income growth.

Although the prices are due to fundamental factors, the rapid price growth could obviously be problematic from other perspectives. Groups outside the housing market, in particular, will find it difficult to buy a home. However, such distribution problems cannot be resolved with more credit rationing, they require advanced housing and fiscal policy, such as measures that increase incentives for relocation in both rental and homeownership markets.

"Most Swedish households are not paying off their mortgages – a new repayment culture needs to be created"

The data shows that eight of ten households are paying off their mortgages. And among those households with the highest loan-to-value ratio, more than 90% amortise their mortgages.

Many claim that a new “repayment culture” needs to be created. The exact definition of a new repayment culture is unclear,
but one interpretation is that all mortgages should always require regular payments, in addition to the mortgage payment when a home is sold (which is actually the entire loan amount and the holding period for a home is, in practice, a maximum of 30–50 years), and in addition to the automatic mortgage payments due to inflation and the increase in value of the home. The automatic mortgage payment created by 2% annual inflation and 2% annual increase in value means that the mortgage is reduced by half, in real terms, in less than 20 years. These facts do not support assertions that amortisation periods in Sweden are more than 100 years.

This also begs the question of when Sweden did actually have a “repayment culture”? We would have to go much further back than the decades leading up to the 1990s crisis, since for many years, households paid back their mortgages on the basis of 60-year-old annuity tables, where monthly payments were very low during the first 30-40 years due to the high inflation and nominal interest rates that prevailed at the time.

“One justification for the introduction of mandatory mortgage repayments, according to official statements, is the risk of consumption falling sharply in a crisis. So sharply that businesses dependent on household consumption could go bankrupt, causing credit losses in the banking sector. However, a closer examination of statistical analyses of the relationship between the debt ratio’s level and the drop in consumption during a crisis shows that there is no clear correlation between debt ratio levels and falls in consumption during a crisis. International experience from Denmark and the UK indicate instead that it is low saving rates and overconsumption among heavily indebted households (LTV of more than 50%) prior to a crisis that lead to a drop in consumption among these households. In Denmark, for example, consumption among highly leveraged households fell to the same level as for other households, meaning a normal and more sustainable level.

In Sweden, households have record-high saving rates and, thus, there is no clear indication that highly leveraged households would engage in any type of unsustainable overconsumption. And high mortgages are found among households with high incomes that typically also have high saving rates. The data indicates that Swedish households use debt to invest in assets – not for unsustainable overconsumption. It therefore remains for those financial regulators that intend to introduce further lending restrictions for households in order to safeguard financial stability to show how far consumption would decline, or how high credit losses in the banking sector would be, if the consumption of Swedish households with a high LTV (more than 50%) was to fall to the same level as other households during a crisis. To the best of our knowledge, no such analysis has ever been published.
1. Five assertions about household debt and housing prices

The risks associated with household debt and the price growth in the housing market are currently subject to intense debate. Many people fear that rising house prices and increased debt will lead to major economic problems and costs if housing prices were to decline sharply in a future crisis. For this reason, it is argued, opportunities for households to borrow money for a mortgage should be restricted.

And in recent years, a number of such measures have been passed and implemented: a loan-to-value limit, higher risk weights, the introduction of countercyclical capital buffers for banks, increased capital requirements for banks, mandatory amortisation schedule requirements, the Swedish Financial Supervisory Authority’s annual stress-testing of new mortgage takers and the Swedish Banker’s Association’s recommendations that credit scores for households be based on high interest rates. Politicians have also announced future and mandatory mortgage repayment requirements for all households with mortgages exceeding 50% of the property’s value, regardless of the household’s other assets or income levels.

However, despite the implementation, or future implementation, of these measures, government agencies, primarily the Riksbank, want more measures to be taken to restrict access to loans for homebuyers. According to the Riksbank, the politicians and other regulators that have adopted the measures listed above actually suffer from an “inaction bias,” meaning they would really prefer to do nothing at all to restrict lending for housing:

“...there also appears to be what is known as an inaction bias, which means that no authority has taken adequate measures.” Kerstin af Jochnick,
First Deputy Governor of the Sveriges Riksbank, in her speech at the Centre for Business and Policy Studies in August 2015 Examples of the Riksbank’s proposals for additional measures include a reduced loan-to-value limit, even stricter mortgage repayment requirements, a debt ratio limit, which means that loans to households (regardless of worth) are limited to a certain percentage of household income and a higher proportion of fixed-interest rates. In brief, the percentage of equity when buying a home must be higher. One interpretation of this is that young households with limited savings should not be able to own a home because of the risk to financial stability. While the Riksbank also believes that housing construction should increase, the Riksbank has not, as far as we know, analysed how credit rationing constraints would stimulate housing construction. Other analysts believe the constraints will, in fact, lead to lower construction.

In recent years, the Riksbank has claimed that a higher key interest rate would reduce the risk of household debt to such an extent that the costs incurred by such a policy would be justified. The bank has also argued for many years that inflation would reach the target of 2% within the very near future, and that interest rates would then rise. On both counts, the Riksbank’s conclusions have been widely criticised and the bank has been forced to revise both its conclusions and its policy.

As a result, many housing industry players have little confidence in the Riksbank’s analysis and conclusions regarding household debt and the housing market. It is obviously important that neither the housing market nor the credit market jeopardises financial stability in Sweden. Motivated regulatory changes are welcome, especially if they lead to lower construction.

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As a result, many housing industry players have little confidence in the Riksbank’s analysis and conclusions regarding household debt and the housing market. It is obviously important that neither the housing market nor the credit market jeopardises financial stability in Sweden. Motivated regulatory changes are welcome, especially if they help the housing market to function more effectively. But the question is whether credit control represents such a measure, or whether the current level of household debt is actually as problematic as the Riksbank claims? While the Riksbank’s analysis of monetary policy is not free from objections — how accurate is its analysis of debt and the housing market?

Concerns about the Riksbank’s agitation has not been lessened by the fact that other qualified analysts, who have published more detailed analyses of data describing household debt, have not arrived at the same conclusions as the Riksbank. Some better-known examples are the Swedish Financial Supervisory Authority’s annual mortgage market reports (Swedish Financial Supervisory Authority 2015), a report from the Centre for Business and Policy Studies (SNS): Swedish Debt (SNS 2015), the Swedish government official report: Overindebtedness in the Credit Society (SOU 2013) and Professor Lars EO Svensson’s argumentation, see for example: Svensson (2014a). All of these analyses present a largely different, and considerably less problematic, assessment of household debt than the Riksbank. They also show that simple debt ratio measures do not guarantee any reliable assessment of the risks associated with debt accumulation.

The Riksbank – and other political and media commentators – have firmly maintained, for example, that debt accumulation measured as debt ratio is highly problematic. Debt ratio is defined as household debt relative to disposable income. With reference to the debt ratio level and growth rate, the view is that Swedish households are heavily indebted and that a rising debt ratio is a clear sign that risks to financial stability have risen sharply. Against this background, the call for more action is easy to understand. But is a “high” debt ratio really a sign of high risk?

This can be illustrated by studying and comparing events during the 1990s crisis, the period from 1991-1993 and the 2008–2011 financial crisis. During the 1990s crisis, the debt ratio was approximately 130%. During the financial crisis, the ratio was about 170%. However, the impact on the economy and financial stability were considerably more negative and widespread in the 1990s than after the financial crisis.

During the 1990s crisis, housing prices fell by 20–30% and then recovered slowly, while the price decline during the financial crisis was at most 20%, followed by a relatively fast recovery. The lower price decline and faster recovery during the financial crisis suggest that both households and the housing market were considerably more resilient than in the 1990s, despite a substantially higher debt ratio and many times higher housing prices. The explanation is probably that the level of housing construction had...
been lower, credit expansion more moderate, saving rates higher, interest rates lower and both government and household finances stronger in the form of lower national debt, more stable municipal finances, higher disposable incomes and stronger financial assets than during the 1980s and 1990s. This real-time stress-testing therefore indicates that the potential risks associated with household debt and house price growth require both a wider and deeper analysis than what is possible with a simple debt ratio measure.

It is therefore problematic if policy and other decision-makers in those government agencies base decisions that have a significantly adverse effect on the housing market on diffuse grounds and simple, unsophisticated indicators, such as the debt ratio.

In order to analyse and discuss common assertions in the debate, two companies – Veidekke and Rikshem – have commissioned Evidens to analyse and discuss a number of widely used assertions in the debate:

1. “Household debt in Sweden is among the highest in the world – the high debt ratio calls for powerful measures to curb the continued build-up of debt”
2. “Household debt in Sweden is growing far too quickly”
3. “Housing prices are unsustainable and the price growth in recent years is unreasonably high – the price trend should be curbed”
4. “Most Swedish households are not paying off their mortgages – a new repayment culture needs to be created”
5. “Mortgages in Sweden are so high that consumption could fall dramatically in a crisis – so sharply that financial stability would be at risk”

The question is to what extent these assertions are based on known facts? Or could the regulators’ recommendations have a negative impact on the housing market without solving any real problems?
Government agencies, international analysts of the Swedish economy and not least the media, firmly maintain that Swedish households are heavily indebted. The main evidence for this is that the debt ratio, or aggregate household debt relative to aggregate disposable income, has risen over the past 20 years and is now at a “high” level, both historically and by international standards.

It is true that the debt ratio level is historically high (fig. 1). However, many would argue that a high level from an historical perspective is not proof that risks have increased. The changed risk scenario is probably the result of how households are now able to carry a higher debt burden due to a higher debt-servicing ability and greater resistance to shocks. Thus, there are better indicators of how the risks associated with debt have changed than the debt ratio. This will be discussed in more detail later in this section.

Nor does the fact that household debt is high by international standards mean that risks would be higher in Sweden than in countries with lower debt ratios. The simplest illustration of this conclusion is that several countries with higher debt ratios than Sweden do not have any problems, while a number of countries with lower debt ratios have experienced major problems in both the housing market and the banking sector. This demonstrates that the debt ratio alone is not an effective indicator of the risks associated with household debt. International experience indicates instead that national conditions, such as housing construction, the balance of current payments, household savings, credit expansion, the standards used for assigning credit scores to households and institutional terms and conditions, affect the risk scenario.

INTERNATIONAL COMPARISONS OF THE DEBT RATIO BASED ON DISPOSABLE INCOME ARE MISLEADING

In addition to the debt ratio being a rudimentary indicator of the risks associated with household debt, it poses another problem when making international comparisons. The debt ratio measure that the most alarmist players (mainly the Riksbank) use is, as previously mentioned, a ratio of debt to disposable income. In Sweden (and in other Nordic countries), the income tax is relatively high. This includes both the level of social security contributions and the level of taxation for earned income. In other countries, it is more common that parts of these services are instead financed by households’ disposable incomes. This leads to lower disposable incomes for Swedish households and a higher debt ratio, which means that international standards are misleading. Since a major portion of the higher tax burden in Sweden is compensated by a higher degree of social security, a debt ratio measure that accounts for taxation differences would probably be fairer.

To slightly improve the comparability between countries, available statistics could
be used to calculate a debt ratio, based on a measure of income comprising gross income and social security contributions. A debt ratio could also be calculated in which household income is replaced by GDP. The question is how Sweden would compare with international standards if a more accurate debt ratio measure was used.

The latest information about the debt ratio measured on the basis of disposable income can be found in the Riksbank’s monetary policy report from July 2015 (Riksbanken, 2015). At the end of 2014, the debt ratio measured in this manner was 172%, which is basically in line with 2010. Over a period of four years, the debt ratio has thus remained basically unchanged at about 170%. This is the level categorised by the Riksbank and others as “high” by international standards.

Replacing disposable income with the sum of gross income and social security contributions will provide an adjusted debt ratio. Available statistics from Eurostat and the OECD allow such comparisons between 12 Western European countries (fig. 2).

The results show how the spread between countries decreases and that Sweden’s adjusted debt ratio was 132% in 2013, the last year with available statistics for several countries in the comparison. The debt ratio measured in this way is therefore nearly 40 percentage points lower than the measure preferred by the Riksbank. A comparison of adjusted debt ratios shows that Sweden lies close to the middle among the countries compared in figure 2 (in 2012, the mean was 130%, and median 122%).

The definition of a very high, high, normal or low debt ratio is obviously open to discussion. However, it certainly seems as though the regulators’ assertion that the Swedish debt
ratio would be very “high” by international standards with relevant countries and a more accurate measure of income is highly questionable. It would only seem true if we ignored how welfare services are financed.

International experience shows that problems are not due to the debt ratio level but to the growth rate of debt accumulation (usually in combination with extensive construction, low savings and/or loose credit standards), see Flodén (2014) and Bunn and Rostom (2014). A comparison of countries with major problems in both the housing market and their economies shows that the growth rate in the years leading up to the crisis was also moderate in Sweden, measured as growth in the adjusted debt ratio (table 1). And since 2010, as previously mentioned, the growth rate in Sweden has effectively amounted to zero. Growth rates in Denmark, Spain and Ireland were considerably higher than in Sweden. The Netherlands had a slightly higher rate of growth in the adjusted debt ratio, but reported both higher housing construction before the crisis, and sharply divergent institutional conditions compared with Sweden in terms of tax regulations and lending.

Another method for calculating the debt ratio, that accounts for the taxation system and the financing of welfare services to avoid misleading comparisons, is to relate debt to GDP. A compilation of debt in advanced economies, divided between the specific sectors of Government, Corporate and Household, is presented in figure 3, McKinsey (2015).

Available data shows that Swedish household debt measured as debt relative to GDP is average by international standards and in 2014, amounted to 82%. At the same time, the total debt ratio across all Swedish sectors was 290%. The average, total debt ratio for all advanced economies compared was 280%. Both household debt and total debt therefore appear average by international standards. At the same time, government debt in Sweden appears low, while the corporate sector’s debt ratio is relatively high compared with most other countries. However, the debt ratio measure is also misleading for the corporate sector. Based on corporate assets, the leverage ratio of Swedish non-financial listed companies is approximately 20%, which is low by international standards (Centre for Business and Policy Studies (SNS), 2015).

There is much to indicate that confidence in public finances and the financing of welfare services via taxes would slow a price decline during a crisis, compared with countries where households have to finance welfare services with their disposable income. With high confidence in public finances and access to funded healthcare, education and social insurance, many households are able to endure a weak economy without needing to sell their home at a loss. In Sweden, households are also personally liable for the full amount of their mortgages compared with the US, for example, where the loan is linked to the collateral, meaning the actual home. Overall, these conditions make Swedish households more resilient. Over time, credit losses on mortgages have remained at a minimal level. During the 1990 crisis, the banks’ losses on households amounted to only 6% at the peak of the crisis in 1992; the losses were incurred in the corporate sector instead.

The availability of data limits opportunities for comparing trends over time. However, if we study the growth rate in debt ratio in the household sector relative to GDP in the countries for which the OECD presents data, Sweden does not show any significant divergence (fig 4). As with debt ratios, which are calculated on the basis of gross income and social security contributions, this measure does not present a growth rate that diverges from other countries before the financial crisis either, and the growth rate in recent years also seems moderate.

A comprehensive and serious discussion on the level and growth rate of Swedish household debt should be based on the presentation of several different measures. As previously stated, the debt ratio measure is inadequate as

### Table 1. Debt ratio, Household debt as a percentage of gross household income and social security contributions.

<table>
<thead>
<tr>
<th>Countries with a sharp fall in housing prices</th>
<th>Debt ratio</th>
<th>Change, 2003–2007, %</th>
<th>Annual change, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>144.1</td>
<td>174.4</td>
<td>30.3</td>
</tr>
<tr>
<td>Denmark</td>
<td>179.2</td>
<td>231.7</td>
<td>52.5</td>
</tr>
<tr>
<td>Spain</td>
<td>72.7</td>
<td>112.5</td>
<td>39.8</td>
</tr>
<tr>
<td>Ireland</td>
<td>119.1</td>
<td>189.4</td>
<td>70.3</td>
</tr>
<tr>
<td>Sweden</td>
<td>92.5</td>
<td>112.0</td>
<td>19.5</td>
</tr>
</tbody>
</table>

Source: Eurostat.
The Deceptive Debt Ratio

A measure of risk. There is a significantly better measure, which will be developed in more detail at the end of this section. However, when discussing debt based on a debt ratio measure, such a presentation should also contain debt ratios based on gross income and GDP. This brief review and analysis of debt ratios calculated on the basis of (simple) available data indicates that the conclusion that Swedish households are heavily indebted compared with households in other countries is questionable. A reasonable conclusion of this is that political decisions to limit households’ opportunities for borrowing money to finance their homes, based on the assertion that debt relative to disposable incomes is high compared with other countries, does not appear reasonably substantiated. This raises the question of why the Riksbank has decided to use debt relative to disposable income in international comparisons, when there is a more accurate measure.

The Home Ownership Rate and Availability of Housing Finance Impacts the Debt Ratio Level

Although Swedish household debt only appears “high” by international standards when debt is related to disposable income, many countries in Western and Southern Europe also have a lower debt ratio when gross income or GDP is used to determine the ratio. With an average debt ratio measure, such as debt relative to GDP, Sweden was positioned in the middle of the selected countries. Thus, there are many countries with a lower debt ratio than Sweden, regardless of the debt ratio measure studied. The question is therefore what influences the level of the debt ratio?

A reasonable assumption would be that the level of the debt ratio is influenced by several factors, such as the economic development of each country, how the credit market works, tax regulations, institutional conditions and the structure of the housing market, meaning the percentage of the population that owns, or rents, their homes. In countries with a large rental sector that also includes financially strong households, debt in the household sector is lower since the demand for mortgages is lower. Debt is incurred in the corporate sector instead – with housing companies and other property owners. Conversely, debt in...
the household sector is greater with a high rate of homeownership. In many countries with a high homeownership rate, this has been the result of political objectives based on the idea that a high rate of homeownership actually raises living standards. As a result, political goals of increased homeownership have often affected the availability of mortgages. There is research to support such political objectives. Positive effects on investment in local amenities and social capital are discussed in DiPasquale and Glaeser (1999), positive effects on school outcomes are discussed in Aronson (2000), and Rohde and Lindblad (2013) summarise research on the impact of crime and perceived quality of life.

The Eurostat database contains data on home ownership in several European countries (fig. 5). The figure shows that Norway has the highest home ownership rate of all countries compared. All Nordic countries present a high rate of ownership. However, several countries in southern Europe, such as Malta, Cyprus, Spain and Italy, also have a high rate of ownership in the housing market. Characteristic of the Nordic countries (including the Netherlands, Belgium and Luxembourg) is that a very high percentage of homeowners have a mortgage. In Southern Europe, there is a high percentage of homeowners without a mortgage; their housing is obviously financed by other means.

In addition to purely cultural differences in attitudes toward home ownership, family-building and establishment in the housing market, the willingness and ability to obtain a mortgage is influenced by various factors:
- Political goals
- GDP and housing price level
- Degree of urbanisation
- The ability of banks to assess the creditworthiness of the borrower (including whether correct income details are available and the safeguards that exist against, for example, illness and unemployment)
- Institutional conditions (transaction costs, rule of law, degree of corruption and confidence in land registration authorities and pledge registers, etc.)
- The existence of a black/grey economy in housing construction in parts of
Southern Europe
These conditions also have a reasonable impact on the availability and supply of mortgages – which, in turn, affects opportunities for households to obtain a mortgage.

One method for analysing the significance of ownership structure on the housing market’s debt ratio level is to study the correlation between these two factors for countries unaffected by serious disruptions in the housing market during the financial crisis. The indebtedness of countries affected by disruptions, and where households were forced to restructure their debt, may have been too high for several reasons, such as overvalued homes or too high debt relative to household income. The loans may have been used to finance other consumption, meaning that the high level of debt could not sustainably be motivated by homeownership rates or income.

The countries for which Eurostat presents data, and that were not affected by serious disruptions in the housing market and the subsequent deleveraging, are Estonia, Italy, Austria, France, Germany, Belgium, Finland, Sweden and Norway. Those that were excluded due to suspected problems with heavy debt or sharp home-price falls are Iceland, Denmark, the Netherlands, Spain and Portugal. For other countries, there is no data for debt ratio based on gross income or rate of ownership in the housing market. Due to data issues, the number of countries in the analysis is limited, and means that the results should naturally be viewed with caution. However, a simple regression between debt ratio and the percentage of homeowners and mortgages in this limited number of countries shows a very strong correlation between these variables (fig. 6). The correlation remains strong if countries with major price falls are also included (fig. 7).

The results indicate that the debt ratio level over time is mainly due to the percentage of households in various types of owner occupancy and the proportion of these with a mortgage – given that their homes are correctly valued and that the household’s debt is mainly used to finance housing.

Thus, the results could also explain why certain countries have been forced into extensive debt restructuring. If the debt ratio is significantly higher than justified by the...
percentage of homeowners and mortgages, and the debt mainly comprises mortgages, the ratio can sooner or later be expected to fall to the level justified by the percentage of homeowners with mortgages. That would largely explain why debt ratios declined after the financial crisis in such countries as Ireland, Iceland, Denmark, Spain and the US, while remaining stable in other countries (fig. 4). It also indicates that households in these countries may have used loans for consumption other than housing investment to a greater extent. Such debt-financed overconsumption is not sustainable in the long term, while debt levels that are justified by the rate of home ownership in a housing market, with correctly valued homes, are much more sustainable.

That Sweden presents a higher debt ratio than several other countries by international standards seems primarily due to a high rate of ownership in the housing market, and reasonably valued homes combined with the availability of housing finance for many households. This also means that a government strategy aimed at reducing the supposed “high” debt ratio seems problematic.

If, for some reason, a low debt ratio is considered desirable, the percentage of homeowners with mortgages can be reduced by forcing households to drastically pay down their mortgages. However, from a portfolio perspective on savings, this is a problematic strategy, which will be further developed in the following sections. Such an approach will probably also have a sharply negative impact on new housing construction, Evidens (2015). Requiring significantly higher percentages of equity for house purchases limits opportunities for young and other liquidity-constrained households to demand homes. In the long term, lower levels of new construction could eventually lead to further price increases in the existing stock.

Alternative strategies could be that more people rent their homes, or that mortgages are sharply rationed. But in that case, what household groups would benefit from exchanging their owner-occupied housing for rented housing? For what household categories should the availability of housing finance be reduced? Or should a decline in housing prices be forced with consequent debt adjustment? And what problems would such a policy solve?

THE DEBT RATIO RISES WHEN MORE HOUSEHOLDS OWN THEIR HOMES

As confirmed by international studies, the growth rate of debt accumulation represents the real risk factor. This will be discussed in more detail in the concluding section. And the Swedish debt ratio, regardless of how
it is measured, shows a relatively moderate growth rate, even though it has risen over a long time. The growth rate in countries with problems has typically been much faster (fig. 4).

In addition to the growth rate, the risk situation associated with household debt is highly dependent on what the accumulation of debt is used for. In Sweden, debt is mainly used for investment rather than overconsumption. Overconsumption is defined as when households consume more than their disposable income, meaning that households borrow to finance their consumption. Analyses of the factors that have contributed to the accumulation of debt

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**Fig. 8. Housing construction and conversion to owner-occupied units in metropolitan areas.** Housing construction and conversion per type of housing and form of tenure in Greater Stockholm, Gothenburg and Malmö, 1975-2012.

Source: SCB and Evidens.
among Swedish households shows that two main factors have led to a higher debt ratio in Sweden over the past 20 years (Evidens, 2013).

The first factor is that housing prices have risen substantially in real terms, which, in turn, is partly due to metropolitan growth, rising household income and wealth and a change in interest rates. The sustainability of home price growth will be discussed in more detail in the following sections.

The second factor, which is relatively unique for Sweden compared with countries that have experienced major problems, is that the home ownership rate has risen sharply during the period (fig. 8 and table 2). Unfortunately, there is no data for the distribution of newly constructed multi-family dwellings prior to 1990. However, the figure shows clearly that the percentage of owner-occupied housing units supplied to the market through new construction and conversion has increased since 2000, because new construction has been dominated by single-family dwellings and owner-occupied units, while very high numbers of rental units have been converted to owner-occupied units in high-price markets. Table 2 shows how other, and in some cases more problematic, factors have led to the build-up of debt in several other countries. As a result, this major structural change in the housing market has largely contributed to the rising debt ratio in Sweden.

The increased home ownership rate is due to several factors. A key factor has been the realignment of housing policy and dismantling of the former housing finance system, which favoured the construction of rental units. When households are personally liable for the financing of their homes, housing expenses, all things being equal, are higher in rental units where the housing expenses (the rent) are also intended to cover the investor’s return on invested capital. Moreover, the conversions – due to political will and implementation of the utility-value system – have increased the stock of owner-occupied housing, especially in high-price markets. The combination of rising house prices and municipal land policy has also favoured the construction of owner-occupied housing. The introduction of balance requirements and a generally stricter budgetary stance after the 1990s crisis led metropolitan municipalities to apply market prices when divesting land. In addition, some infrastructure costs are now transferred to the developers to a much larger extent. Overall, this means that the cost calculations for rental units will be problematic and the proportion of newly constructed owner-occupied units will grow – the financing will increasingly end up with households.

The Swedish Financial Supervisory Authority commented on this trend as follows (Swedish Financial Supervisory Authority, 2013):

“The upturn in the household debt ratio in other countries cannot, like for Sweden, be generally explained by increased home ownership and lower costs for housing and mortgages. There are indeed many similarities with the Netherlands, where a rising share in ownership can explain an increase in the debt ratio of 30%.

For the Netherlands, just like for Sweden, both reduced taxes on homes and lower mortgage rates also

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<tr>
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<tr>
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<td>+44</td>
<td>-7</td>
<td>+8</td>
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Source: Swedish Financial Supervisory Authority
contribute to explaining an increase in the household debt ratio. Note, however, that the debt ratio in the Netherlands increased by 63% in the period in question compared to 44% for Sweden, and that these factors can explain 70% of the upswing compared with 91% of it for Sweden."

"However, taking this into consideration, it might nevertheless be reasonable to believe that what has occurred in household indebtedness (and on the housing market) in other countries because of the financial crisis will not automatically occur in Sweden. In order to judge the future trend in Sweden, it ought to be more interesting to attempt to determine how the underlying factors will unfold in future instead of primarily drawing conclusions from what has occurred in other countries."

A nominal total-debt growth rate of approximately 4% per year is consistent with an unchanged debt ratio, since nominal incomes can be expected to grow about 4% per year. In the short term – over the past year – the annual growth rate of debt, measured by total debt growth in nominal terms, increased from about 4% to 7% per year (June 2015). According to analyses previously conducted by Evidens, the rising growth rate is probably due to the fact that household income and net worth have grown faster over the past year, while the rate of new construction (and probably also the rate of conversion, although there is no fresh data) has also increased. To summarise: the creditworthiness of households increases and the stock of new owner-occupier housing grows faster when the economy improves and construction gains momentum.

THE DEBT RATIO – AN INADEQUATE MEASURE

The above discussion on various debt ratio measures shows that debt ratios are an inappropriate and inadequate measure of the potential risks associated with household debt. According to the discussion, drawing conclusions about the level of risk in Sweden based on international comparisons of the debt ratio level is unreasonable. Policy decisions should not, therefore, be based on such comparisons. There are considerably more relevant measures and indicators. One interesting outcome of studies of such relevant measures is that they arrive at a different risk scenario to that presented by the regulators, particularly the Riksbank.

On several occasions, Riksbank representatives have claimed that the debt ratio is an adequate measure of risk since households use their disposable income to pay borrowing costs rather than their assets. However, this argument is flawed, since the debt ratio – on closer examination – hardly provides any information about risks, partly because disposable income is not used to repay the debt, but to pay the ongoing costs of borrowing.

An understanding of the actual debt-servicing ability and shock-resistance of a household requires an analysis of the household’s total income statement and balance sheet. And analysing the household balance sheet and income statement separately is also appropriate, rather than mixing stock and flow measures, as is done when using the debt ratio measure:

1. The interest ratio, meaning interest payments relative to disposable income, is a better income statement measure, since a low interest ratio indicates high debt-servicing ability and resistance to interest rate increases.

2. Stress-testing of risk groups in the housing market, where households are stress-tested against economic downturns.

3. The leverage ratio, meaning household debt relative to total assets, is a better measure than the debt ratio, since a low leverage ratio indicates that households have a high net worth in relation to debt. High-net-worth households are resistant to a decline in housing prices, for example, because of their high capacity to absorb losses without depleting their net worth.

A common argument in the debate about household debt is that liquid assets are the most significant factor in the resistance of households and their ability to absorb a decline in housing prices. However, that claim is highly debatable. Mortgages do not need to be terminated before selling a home. The home is thus more liquid than the loan. In the event of a major disruption, the household can thus sell its home and purchase or rent another, cheaper, alternative. Liquid assets therefore become a measure of the ability to manage more temporary income loss due to illness or unemployment, thus becoming more of an additional flow measure.
Ability to manage ongoing borrowing costs

The ability of households to manage the current level of debt in their income statement can be analysed by studying the interest ratio, meaning the ability to manage the ongoing cost of their debt with disposable income (flow measure against flow measure). At present, the interest ratio is about 3% of household disposable income, which is slightly lower than the historical average in recent decades.

The debt ratio for all households is slightly more than 170%. However, this figure is obviously higher for indebted households, slightly more than 300%, since many households have no loans at all. The crucial question is whether an average level of debt in relation to disposable income of about 300% is problematic? This can be analysed by calculating the ongoing borrowing costs for such a debt ratio at different interest rates.

Mortgage rates are currently (2015) about 2%, the tax deduction for interest on debt is 30%. The household interest ratio, meaning interest payments relative to disposable income, then amounts to about 3% (0.02 x 0.7 x 170 is approximately 3%). However, debt among indebted households is higher, which also means that their interest ratio is higher, about 4% (0.02 x 0.7 x 300 is approximately 4%).

If mortgage rates were to rise substantially, 7% for example, the average interest ratio for indebted households would be 0.07 x 0.7 x 300 = 15%. With such a high mortgage rate (at present, the interest rate can be fixed for up to ten years at significantly lower levels), the loan repayments for indebted households would be 15% of disposable income. The question is whether this level is sustainable? The answer can be found by comparing a household’s alternatives to owner-occupied, debt-financed housing, meaning the ongoing payments for renting equivalent housing. In 2013, the housing cost burden for rental units in Stockholm was about 27% (fig. 9), which is about the same cost burden for all of Sweden. It is therefore undeniable that a nominal interest expense of 15% is considerably lower, and the housing association fee is hardly so high, that total housing expenses would exceed the expenses for a rented home.

It therefore appears that the current debt
levels among indebted households are sustainable from an income statement perspective. However, the nominal interest payment keeps the nominal debt constant. For many households with positive margins in their household finances, the interest payment that keeps the real debt constant is equally as interesting.

A simple calculation that shows the interest payment required to hold debt real constant with inflation was presented in Svensson (2014b), Svensson writes:

"With positive inflation, the real debt then falls over time. The nominal interest payment may be relevant for borrowing and liquidity-constrained households. But for households that are not liquidity-constrained, the real interest payment, the interest payment that is required to keep the real debt constant, is more relevant than the nominal. With an inflation rate of 2%, the real mortgage rate after tax is 5 – 2 = 3% [with a mortgage rate of 7% before tax]. Then the real interest payment is only 0.03 x 300 = 9% of disposable income."

But this calculation disregards real growth of disposable income. The real interest payment keeps the real debt constant. If real disposable income grows over time, the debt ratio will fall over time. To assess whether or not a particular debt ratio is sustainable in the long run, one can calculate the debt service that keeps the debt ratio constant.

In summary, these simple calculations show that the current average level of debt, measured as debt relative to disposable income, appears sustainable over time. Even with sharply increased interest rates, the housing expenses for owner-occupied housing will remain highly competitive compared to the alternative of renting a home. The calculations also show why the interest ratio is a better and more nuanced measure of the potential risks of household debt.

«A crucial question is whether an average level of debt in relation to disposable income of about 300% is problematic.»
Stress-testing risk groups

One objection to simple calculations of interest ratios at an average debt ratio of 300% is that there are many households, especially households that have recently taken out a mortgage, that are more vulnerable. This applies particularly to new mortgage takers. Older borrowers have increasingly been able to benefit from price trends and increased disposable income, which has lowered their loan-to-value and debt ratios. The best source for the debt-servicing ability and shock-resistance of new mortgage takers is the Swedish Financial Supervisory Authority’s annual mortgage market report. The most recent report shows, with detailed analyses and stress tests conducted on data for individual households, that new mortgage takers have a high repayment capacity and are resistant to shocks, such as sharply rising mortgage rates and higher unemployment (Swedish Financial Supervisory Authority, 2015).

The Authority’s report confirms the conclusions derived from the simple calculations above. Only a small percentage of new mortgage takers will have a deficit in their household finances, even with a 5 percentage-point rise in the mortgage rate (fig. 11), if incomes do not grow. This will hardly lead to any significant macroeconomic effects. That a minor percentage will have problems is obviously problematic for these households. However, this is a consumption problem, not a macro problem.

The report also shows how debt-servicing ability has increased in the past year. The stress tests also study the percentage of households that would have a deficit in their household finances and, simultaneously, a mortgage that exceeded the market value of their home, if prices fell sharply in the housing market. These tests also indicate a high degree of resistance among households (fig. 12).

One reason why households demonstrate such resistance to interest rate increases is that the heavy debt is concentrated to households with high incomes (fig. 10) that also have positive margins in their household finances. There are also more studies of disaggregated data on household debt showing that heavy debt is found among highest-income households and that both loan amounts, and the
percentage of indebted households among low-income households, are significantly lower. Many low-income households do not have a mortgage.

In the summary of its 2015 report, the Swedish Financial Supervisory Authority (FI) writes:

“FI’s stress tests show that the households generally have sound margins in their finances, both today and under worse conditions. The stress tests show household resilience towards both an increase in interest rates and towards a loss of income following unemployment. Resilience has improved considerably compared with 2013.”

An interesting question is why the Swedish Financial Supervisory Authority and the Riksbank arrive at such diametrically opposed conclusions on the level of risk associated with household debt? And does the Riksbank believe that the debt ratio provides more information about risks in the household sector than FI’s stress tests of individual data in its annual mortgage market report? What would the arguments be for such a conclusion?

ABILITY TO ABSORB LOSSES AND A LOWER NET WORTH – HOUSEHOLD ASSETS

In order to understand the ability of households to withstand a decline in housing prices, there are also better measures than the debt ratio.

Such measures are obtained by comparing debt with other assets in the household balance sheet, such as the value of the household’s home or its total assets.

The Riksbank’s Financial Stability Report contains data on how household assets have developed relative to debt (fig. 13). There is data for both real and financial assets. The real assets mainly comprise homes. The data shows that the real assets and financial assets of households have grown considerably faster than debt. Subsequently, the debt ratio is also misleading in terms of the household balance sheet. The sharp growth in household assets has made households more resilient in recent years – not less. The ability to absorb losses should housing prices fall has

1 See, for example, the summary of available information on the distribution of household debt published by the Centre for Business and Policy Studies (SNS) in 2015. Debt in the household sector is described and summarised on pages 72–86.
Therefore increased.
Although the debt ratio has increased to a historically high level, neither household debt nor the loan-to-value ratio have risen and the equity/assets ratio has not declined (fig. 14). The leverage ratio is constant, slightly under its historical average. Similarly, the loan-to-value ratio hardly indicates a problematic trend. The long-term trend is rather declining, entailing increased resistance and an ability to absorb losses. The household equity/assets ratio level can also be calculated by relating net worth to total assets. This measure also shows that the resilience of households has been greater in recent years than before.

A BATTERY OF KEY FIGURES PROVIDES A BETTER MEASURE OF HOW RISKS CHANGE THAN CONCLUSIONS BASED ON THE DEBT RATIO LEVEL

A more nuanced assessment of the potential risks of household debt than that offered by simple debt ratio measures can therefore be achieved by analysing:

1. A household’s interest ratio, its sensitivity to rising interest rates and costs relative to equivalent rental housing
2. Risk groups with disaggregated data, such as the resistance of new mortgage takers to higher interest rates, income loss due to unemployment and a decline in housing prices
3. Household assets and liabilities in the form of net worth, leverage ratio, loan-to-value ratio and equity/assets ratio

The potential risks of household debt should be based on an overall assessment of these measures. None of these measures currently indicate any problematic levels or trends. Stress testing simultaneously shows that households are also resilient in considerably more stressful scenarios. The conclusion is therefore that simple comparisons of debt ratios between different countries is an inadequate method of analysis to describe the risks associated with household debt. Against this background, the question is why several stakeholders in the debate consistently maintain that the rising debt ratio has led to increased risk?

**A HOUSEHOLD’S INTEREST RATIO**
its sensitivity to rising interest rates and costs relative to equivalent rental housing

**RISK GROUPS**
with disaggregated data, such as the resistance of new mortgage takers to higher interest rates, income loss due to unemployment and a fall in housing prices

**HOUSEHOLD ASSETS AND LIABILITIES**
in the form of net worth, leverage ratio, loan-to-value ratio and solvency
3. "Housing prices are rising at an unsustainable rate"

A common argument in the debate is that housing prices are rising at an unsustainable rate. However, this phenomenon is not unique to Sweden. This debate is taking place in many of the countries that have seen asset prices increase as the economy recovers from the financial crisis, while interest rates are low.

The real meaning behind the claim that housing prices are unsustainable is probably that housing prices are not at a sustainable level, but will sooner or later have to be adjusted downwards to a fundamentally justified level. If housing prices are inflated beyond the level explained by fundamental factors, a decline in housing prices could be relatively extensive, more extensive than a more normal cyclical slowdown would otherwise justify. Smaller, cyclical, price declines have occurred when the economy has slowed, such as the dot-com crash in the early 2000s, the financial crisis in 2008 and the European debt crisis in 2011. These economic shocks, with consequent price declines of between 5 and 20%, did not reveal any lack of debt-servicing ability or weak resilience in the household sector. However, housing prices have continued to rise since then. The question is whether the growth in housing prices over the past 20 years can be regarded as fundamentally justified and sustainable?

AVAILABLE ANALYSES SHOW THAT HOUSING PRICES ARE FUNDAMENTALLY JUSTIFIED

Publicly available analyses have arrived at the conclusion that it is unlikely that Sweden has built up a housing bubble in the classic sense. A housing bubble is a situation where the exceedingly high level of housing prices cannot be explained by fundamental factors. The price level is not, therefore, inflated by unrealistic expectations of future price increases. The conclusion that Sweden does not have a housing bubble was stated, for
example, in the Riksbank’s major inquiry into risks in the Swedish housing market (the Riksbank, 2011). Evidens’ own analyses showed the same results (Evidens, 2012, 2013). Analyses published in posts by Harry Flam on Ekonomistas’ blog site (2014 and 2015) and a study conducted by the Swedish Fiscal Policy Council (2013) showed similar conclusions.

The main indications against the notion of a housing bubble in Sweden are primarily that the price growth can be explained by fundamental factors, and that the housing expenses for owner-occupied units correspond to the market prices for rental units. The analyses shows that the price growth since the end of the 1980s is due to such fundamental factors as rising disposable income, lower tax rates (income tax, succession tax, capital transfer tax, wealth tax and property tax), increased household financial assets and declining real mortgage rates. In addition, the rapid population growth in expanding regions combined with a relatively low level of housing construction have continued to push housing prices upward.

HOUSING PRICE GROWTH IN STOCKHOLM DUE TO RAPIDLY RISING INCOMES AND FALLING INTEREST RATES

The results of a simple model estimate show that the price growth in Stockholm is largely due to fundamental factors (fig. 15). The time series models for the price growth in Stockholm that present the best explanations, and otherwise perform best from a statistical perspective, comprise two key variables:

- Total disposable income in Stockholm County
- Real interest rate (two-year mortgage) after tax deduction

The total disposable income in the county measures both growth in household disposable income, including capital income, and population growth (table 3). This variable therefore contains two distinct regional economic aspects in the form of income levels and income growth in Sweden’s largest local labour market, as well as the rapid population growth. The analysis shows that this complex variable provides a better explanation for the price growth than when only
Table 3. Average annual income growth in the City of Stockholm, 2005-2012, %

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Source: SCB.

«Income growth is particularly high during periods of strong economic growth. During such periods, household capital income, in particular, increases rapidly, which drives the price growth.»

average income growth is tested.

Analyses of the growth in total disposable income show clearly that total income has grown rapidly over the past 15 years. A comparison of the change in income over time with the growth in total household financial assets also shows that income growth is particularly high during periods of strong economic growth. During such periods, household capital income, in particular, increases rapidly, which drives the price growth. Households in metropolitan areas account for a very high proportion of total financial worth, which, in turn, makes these housing market more sensitive to changes in economic conditions.

A comparison of the annual growth rate of disposable income across Sweden with the growth rate of housing prices shows that the price growth for owner-occupied units was slower than disposable income growth between 2007 and early 2014 (fig. 16). It was not until late 2014 and throughout 2015, when interest rates continued to fall, that prices grew faster than incomes in the owner-occupied housing sector. Prices for single-family dwellings did not achieve the same growth rate as disposable income since 2007 until early 2015.

The model analysis also shows clearly, as did the Riksbank’s analysis from 2011, that falling interest rates were largely accountable for the price growth. In the early 1990s, the two-year mortgage rate was about 14% and has since fallen to an average level of about 3% in recent years. Household financing costs have therefore declined sharply, which has a positive effect on price growth.

The combination of real, sharply rising total disposable incomes and falling interest rates may account for nearly the entire change in price levels for both single-family dwellings and owner-occupied housing units in Stockholm since the end of the 1980s.
Comparisons between the housing expenses for owner-occupied units and for rental units also support the conclusion of fundamentally justified housing prices. If the housing costs for owner-occupied units significantly exceed the housing costs for rental units with market rents, this indicates that owner-occupied housing buyers are speculating on the future increase in value, which, through an assumed capital gain over time, will offset their initially higher housing costs. However, if the housing costs for owner-occupied units are lower than for rental units, this indicates that households do not have unrealistic expectations of future capital gains. Tenants should pay higher housing costs, since the property owner, and not the tenant, assumes the capital risk, and that a higher level of service is included in the rent.

A comparison of the housing costs between owner-occupied units and newly constructed rental units with (relatively) short waiting times in the City of Stockholm (the waiting time for the Stockholm Royal Seaport project is just under five years, and almost ten years for the Södermalm project), shows that the housing costs for rental units are at least as high as for owner-occupied units located close to the newly constructed rental units (fig. 17).

The housing costs for owner-occupied units have been calculated on the basis of observed fees to the housing associations, and the assumption that loans and required return on equity are about 3.5%. And even with higher mortgage rates and return requirements, the housing costs for owner-occupied units are competitive in relation to newly constructed rental units. The same conclusion can be drawn by studying the requested rents for sub-let owner-occupied units on the Blocket online marketplace.

These results do not therefore indicate that the prices for owner-occupied units are inflated beyond reasons due to fundamental factors—it is not cheaper to rent a home with market rent.
ON FUTURE PRICE GROWTH ARE NOT UNREALISTIC

Rapidly rising housing prices are not therefore proof that a housing bubble is imminent. However, if expectations of rapid and sustained price growth provide an important and decisive motive for households to purchase a home, an increasingly inherent fragility will gradually determine the housing market’s price growth. Although the current level of prices can be explained and is fundamentally reasonable, there is therefore the risk that a future housing market will enter a “bubble phase,” meaning that future prices will rise faster than is warranted by growth in incomes, assets, interest rates and so forth.

In such a situation, the fundamental factors of income, interest rates, construction, etc. will no longer determine the price; prices will rise due to household confidence in, and expectations of, future capital gains. Households will then believe that although the price is high today, it will be even higher tomorrow, which, in turn justifies the high price today. In such a situation, homebuyers think that a home that they would normally consider too expensive for them is now an acceptable purchase because they will be compensated by substantial future price increases. They will not need to save as much as they otherwise might, because they expect the increased value of their home to do the saving for them. Since housing prices cannot rise too fast, or for too long, in relation to fundamental factors, the prices in such a situation will sooner or later fall when households, for whatever reason, stop believing in rising prices. Price levels will then be highly fragile, since they are only supported by expectations, and prices will decline due to lower demand — the bubble will burst. Households planning to buy a home will now postpone their purchase because it makes more sense to wait until prices fall, which further reduces demand. Moreover, if a large percentage of households have also purchased unaffordable homes and cannot meet the housing costs they have undertaken, many homeowners will be forced to sell fast. Such forced sales provide an extra addition to the housing supply, and prices will decline even further. In summary, therefore, the role of household expectations in relation to future price growth in the housing market is a highly interesting factor to study.

Evidens conducts annual analyses of household expectations of future price growth (Evidens, 2014). The analysis of survey responses during summer 2014 and spring 2015 show that Stockholm households, on average, expect long-term price growth of about 5-6% annually over the next ten years, adjusted for extreme values (figure 18). This can be compared with results from the famous paper by Case and Shiller in 2004, which showed that US households expected annual price growth of up to 15% annually over a ten-year period (Shiller, 2004). Although US households were considerably more optimistic, households in Stockholm also expect relatively healthy price growth. The spread in the responses to expected price growth in the long term is slightly higher than for short-term growth. One way to illustrate this is to calculate the median expected price growth in Stockholm over the next ten years, which then falls to about 5% annually. In the short term, the mean and medians basically coincide. Thus, there is greater uncertainty about long-term price growth among Stockholm households, while a smaller group of households expects major price increases.

Stockholm households obviously do not expect the sharp price increases that US households did ten years ago. The key issue is whether the expectations of price growth in Stockholm should still be considered unrealistic, and whether they include tangible expectations of future capital gains?

Assuming that households can reasonably foresee the coming five-year period and are unlikely to buy a home that leads to payment difficulties or far too restrictive budgetary conditions over those five years, should the five-year expectations provide good information about the degree of realism in the expectation scenario. Are expectations of about 5% annual price growth unrealistic?

Evidens’ survey also showed that households have an average long-term inflation expectation of about 2.5% annually, giving an expected real price growth rate of about «Stockholm households expect average price growth of about 5-6% annually over the next ten years.»
2.5% annually over the next 5 years. According to SCB, as shown in table 4 above, the total disposable income of households in the City of Stockholm grew in real terms by slightly more than 5% annually between 2005 and 2012, on average, despite the financial crisis. (Real disposable income per capita grew 3.1%, while population grew 1.9%. The corresponding national figures were 2.5% and 0.8%, respectively. See table 4).

A reasonable assumption is that housing prices, all things being equal, should grow in line with household incomes. In Stockholm, due to the growing competition for existing homes, it would be reasonable to expect that housing prices grow even faster. Household expectations of price growth over the next five years would therefore appear highly realistic, and do not contain potentially problematic expectations of future capital gains. Unlike US households in 2003, Stockholm households have apparently much more well-founded expectations of both long and short-term growth. The facts therefore show that assertions about Swedish household views of the housing market being based on unreasonable expectations do not seem consistent with available data.

FINANCE POLICY AND ADVANCED HOUSING POLICY BETTER THAN CREDIT CONTROL

Overall, the data provides no support for the claim that the price growth is unsustainable – it is supported by changes in fundamental factors:

- Growing population in metropolitan regions
- Rapidly rising incomes and net worth (particularly in metropolitan regions)
- Falling interest rates
- Rent levels for rental units with market rent increase housing costs
- Reasonable expectations of long-term price growth among households
- Significantly lower levels of housing construction than during the 1970-1995 period

However, this does not mean that rapid price growth is not problematic from other perspectives. Rising house prices, in real terms, make it more difficult for young households, for example, to enter the housing market and move to large cities. Households outside the homeowner sector are at risk of considerably lower net worth growth than homeowners over time, which could eventually lead to major differences in net worth between generations and household groups. However, these types of real distribution problems do not seem to underlie the regulators’ concerns about housing price growth. And these types of problems should be addressed with fiscal policy (tax, infrastructure and contributions) and a more advanced housing policy (changed rent legislation, planning legislation, forms of assistance to individual households, etc.) – not with increased credit control. Increased credit control risks instead that the displacement effects on economically weaker groups in the housing market will become even greater.

There is, of course, also a risk that fundamental factors develop negatively, and thereby contribute to falling housing prices. This occurred, for example, in the dot-com crash in the early 2000s and during the financial crisis. During the financial crisis, both the stock exchange and GDP fell sharply, while housing prices declined. However, these are exactly the stressful scenarios that FI evaluates in its annual mortgage market report, which has been discussed earlier. These stress tests show, as described earlier, that households, at the current level of debt, are resistant to powerful shocks in the form of interest rate increases, unemployment and relatively sharp falls in housing prices.

«Increased credit control could mean that the displacement effects on economically weaker groups in the housing market will become even greater.»
4. “Households are not paying off their mortgages”

In recent years, mortgage payments have been discussed with increasing intensity and many commentators, particularly at policy level, claim that a new “repayment culture” needs to be created. However, it is difficult to determine the extent to which the debate is based on economic rationality in relation to pure morality.

The exact definition of a new repayment culture is unclear, but one interpretation is that all mortgages should always require regular payments, in addition to the mortgage payment when a home is sold (which is actually the entire loan amount), and in addition to the automatic mortgage payments due to inflation and the increase in value of the home. The automatic mortgage payment created by 2% annual inflation and 2% annual increase in value means that the mortgage is reduced by half, in real terms, in less than 20 years. That is important to remember when commentators maintain that amortisation periods in Sweden are more than 100 years. Such assertions reveal a lack of knowledge. A 2% inflation target is therefore important, and probably a key target for monetary policy, particularly when the level of household debt is considered problematic.

WHAT DOES A “REPAYMENT CULTURE” MEAN?

There is no reason to believe that the “repayment culture” was particularly strong during the 1980s and 1990s. A genuine repayment culture has probably not existed for a very long time. In the decades prior to the 1990s crisis, state home loans and first-lien mortgages were repaid according to 50 and 60-year-old annuity tables. With the prevailing inflation and interest rates, this meant in practice that repayments were negligible during the first 30 or 40 years. The banks hardly required any substantial amortisation.

To improve the “repayment culture,” the Swedish Financial Supervisory Authority (FI) introduced the amortisation schedule requirement in 2014, which meant that households had to gradually increase the percentage of equity in their housing investment if requested by the bank, but that this increase could be adapted to the unique situation and circumstances of each household. The schedule was drawn up in negotiations between the bank and the individual household. In this way, the bank and the household could balance the repayment level according to the household’s age, income, and other assets and savings. The repayments would then be adapted to the risk profile and life cycle position of each individual household. It is obviously justified to pay off a mortgage if the LTV is high and other savings are limited.

It should also be remembered that higher monthly payments significantly increase a household’s housing costs. This, in turn, reduces housing demand among households with liquidity constraints, which are often young households. It is difficult to know how large this group of households is but, in principle, the group’s demand for newly constructed housing would decline. However, the amortisation schedule regulations provide opportunities for adapting mortgage payments to age,
incomes and savings patterns. This creates flexibility, and probably means that the decline in demand for newly constructed homes is limited.

In 2014, FI proposed new regulations for compulsory and mandatory mortgage repayment requirements. While the financial regulator did not have the legal basis to introduce such requirements, the Swedish Government intends to pursue the proposal, with any adjustments arising from discussions with the opposition during 2015-2016.

In FI’s initial proposal, the same requirements applied to all households, which gives the impression that the introduction of voluntary amortisation schedules was unsuccessful in that repayment has not increased.

**EIGHT OF TEN HOUSEHOLDS ARE PAYING OFF THEIR MORTGAGES**

FI’s evaluation of the effects of the amortisation schedule requirement showed, however, that just one year after introduction, the repayment behaviour of households had been significantly impacted (fig. 19). Nearly all households with loan-to-value ratios of more than 75% make regular mortgage payments. In 2013, 40% of all households with an LTV of 50-75% made mortgage payments, and FI’s evaluation shows how that figure had risen to 60% within one year. The percentage of households with an LTV of less than 25% that make mortgage payments has also increased, from over 40% to more than 60%. The amortisation schedule requirement (and the debate on 100-year amortisation schedules) has thus significantly increased the percentage of households that make mortgage payments and 80% of households make mortgage payments, compared with 60% one year earlier. In 2014, the average mortgage payments of households amounted to about 4% of disposable income, representing a year-on-year increase of one percentage point.

In addition, households that do not make regular payments on their mortgages, pay off the mortgage when their home is sold. Since most households own a specific home for a limited period, which could last from 30 to 50 years but rarely for longer than 50 years, amortisation periods, in practice, are no longer than 30 to 50 years. If households want to purchase a new home, a credit check is performed to test the household’s repayment capacity and resistance to falling house prices. And once again: automatic mortgage payment due to inflation and income growth should be added. An average annual inflation rate of 2% and long-term value growth of 2% means a halving of the loan’s value in real terms, relative to market value in 18 years, without making any regular mortgage payments.

These simple facts stand in stark contrast to the commonly held perceptions of leading politicians, and possibly even government officials. As late as 11 November 2014, after the publication of FI’s report on the effects of
the amortisation schedule, representatives of several political parties wrote in an opinion piece in the business newspaper Dagens Industri:

“The repayment culture has changed in Sweden in recent decades. Today, not even half of households are repaying their mortgages.”

Given that the article was signed by leading spokespeople on economic issues from four parliamentary parties, one could ask who was responsible for fact-checking their information? That not even half of households are paying off their mortgages is obviously not true, eight of ten households made regular mortgage payments in 2014, compared with six of ten households in 2013.

Mortgage payments are a form of savings. The total savings of households are historically high and currently at record levels (fig. 20). It is not, therefore, low saving rates that justify an introduction of mandatory repayment requirements. On the contrary, it would appear questionable economic policy when growth in 2014 and 2015 has been dependent on household consumption and housing investment. One of FT’s justifications for forcing households to pay off their mortgages is, instead, that consumption declined after the financial crisis in countries where many households were highly leveraged. Thus, it is argued, consumption could also decline sharply in Sweden in a recession. Mandatory repayment requirements would therefore help to prevent such a situation. Denmark and the UK are used as a basis for their decision. However, in the decisio-

2 Erik Ullenlag, Anna Kinberg Batra, Emil Källström and Jakob Forssmed. Opinion piece in Dagens Industri, Regeringen tar en farlig väg (The government is going down a dangerous path). 11 November 2014.
basis for the proposed mandatory mortgage repayment requirements, a key difference between Sweden and these countries is overlooked, in addition to the fact that highly leveraged households are already, to a major extent, paying off their mortgages (fig. 19). In an international comparison, the savings rate of Swedish households appears high (fig. 21). In those countries where consumption fell significantly after the crisis, such as Denmark and the UK, the savings rate was negative before the crisis, meaning that households in these countries overconsumed. They consumed more than their disposable income, meaning they borrowed for consumption. This is obviously not sustainable over a longer period of time and over-consuming households must sooner or later reduce their consumption. These conditions will be further developed in the next section, but provide an explanation for why the regulators have pushed hard for mandatory repayment requirements.

«Why should households be forced to save on their homes when the return on their savings is higher and more effective with other types of saving?»

One key difference between the negotiable amortisation schedules and mandatory mortgage repayment requirements is that opportunities for households to diversify their savings portfolio and thus optimise the return on equity in their portfolio decrease. The possibility of receiving a better return on investments other than mortgage payments is, and has been for a long time, relatively good.

In an analysis of portfolio decisions for household savings, FI and the Riksbank write the following (Riksbank, 2014):

“We have arrived at the conclusion that when the analysis is based on data concerning yields on real and financial assets from 1997 to 2012, there appear to be few incentives for the households to prepay mortgages. A portfolio-selection analysis shows that for most households, it is probably more advantageous to save by investing in financial assets such as equity and fixed-income funds than to save by prepaying mortgages.”

“Finally, there are many indications suggesting that high retirement savings through collective pension systems reduce the households’ incentives to prepay mortgages.”

In light of the regulators’ own analyses, it would seem reasonable to ask the following question: Why should households, given they...
The results showed that the estimated price effect of compulsory mortgage repayment requirements, compared with current regulations, was about -4 to -5%. This corresponds to about half of the price decline during the European debt crisis in 2011. The main reason is probably that housing costs are increasing, which raises the thresholds for liquidity-constrained households and reduces the relocation propensity of other households, since the proposal only applied to new loans.

The survey responses also showed that mobility in the housing market would probably decline if the proposed mandatory mortgage repayment requirements were introduced (table 5). While this was particularly significant for liquidity-constrained households, the survey responses also showed that FI’s proposal could also increase the housing market’s lock-in effects for other groups. The combination of capital gains tax, stamp duty and mandatory mortgage repayments also reduces the relocation propensity of households with a high ability to service debt. Lock-in effects in the housing market ultimately mean that the demand for new construction will be hampered, which, in turn, could increase the price pressure on existing homes.

To summarise, this discussion on mortgage loan payments raises a number of questions:

1. What does recreating a healthy repayment culture really mean? Mortgage repayments in the 1980s and 1990s primarily comprised automatic mortgage payments due to high inflation and nominal appreciation. Regular mortgage payments were relatively low, because they were based on the applicable annuity tables at the time.

2. Why do leading government representatives claim that most households are not paying off their mortgages, when they are in fact doing so? A large number of highly leveraged households, in particular, are paying off their mortgages.

3. Why should the government force households with low LTVs to pay off their mortgages when saving rates in Sweden are high, unlike some other countries, and the return on their savings portfolio would then decline?

4. Why should older homeowners in metropolitan areas be forced to reduce their consumption and leave a sky-high inheritance against their will, when the same demands do not apply to other types of households, such as those in rental housing?
5. "In a future crisis, mortgage loans could lead to such a dramatic decline in consumption that Sweden would be at risk of financial instability"

As discussed in the preceding section, it would be difficult to suggest, on the basis of available data and theory, that household debt in general would be particularly problematic. In the most alarmist official communication, the situation is often described quite differently. Not infrequently with reference to a debt ratio that is “high,” housing prices that are rising “far too fast,” or mortgage payments that are “too low.” Alongside of these arguments, the regulators also claim that Swedish household debt could be problematic, since the level of debt in Sweden could lead to a sharp drop in consumption in a crisis. So sharply that credit losses in the banking sector would rise to a level that could pose a risk to financial stability. These are examples of the central justification for the regulators’ decision support for the introduction of mandatory mortgage repayment requirements. However, as indicated in the preceding section, a closer examination of this problem scenario also shows that it can be reasonably disputed on good grounds, see Svensson, 2014c.

DECLINING CONSUMPTION IS DUE TO OVERCONSUMPTION, NOT THE ACTUAL LEVEL OF DEBT

There is obviously a risk that consumption could fall in a crisis, when households are

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**Fig. 22. Consumption levels for various LTVs among Danish households in 2007.**

<table>
<thead>
<tr>
<th>LTV ratio in 2007</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 60 percent</td>
<td>LTV ratio in 2007</td>
</tr>
<tr>
<td>btw. 60 and 80 percent</td>
<td>LTV ratio in 2007</td>
</tr>
<tr>
<td>btw. 80 and 100 percent</td>
<td>LTV ratio in 2007</td>
</tr>
<tr>
<td>&gt; 100 percent</td>
<td>LTV ratio in 2007</td>
</tr>
</tbody>
</table>

Source: Andersen, Asger Lau, Duus, Charlotte and Jensen, Thais Lærholm.
less optimistic about future employment and incomes, and one can assume, for example, that they would want to compensate for falling home prices by increasing their savings. However, the Riksbank claims that a high level of household debt, measured as the debt ratio, would lead to an even more severe economic downturns. The Riksbank refers to several international studies that are claimed to support this assertion. Studies by Andersen, et al (2014) in Denmark and Mian & Sufi (2014) in the US are cited.

However, a closer examination of these studies provides no clear-cut support for such an assertion. The conclusion of the Danish study is that high levels of debt in Denmark did not lead to abnormally low consumption and an abnormally high savings rate after the crisis. Instead, highly leveraged households – households with a high LTV – had unsustainable levels of overconsumption and unsustainably low savings rates before the financial crisis. During the crisis, highly leveraged households returned to normal levels of consumption and savings rates (fig. 22).

Figure 22, from the Danish study, shows how households with high LTVs (more than 60% of their property’s market value) consumed more than their disposable incomes before 2007 and then reduced their consumption to more normal levels. Overconsumption led to the fall in consumption, not debt levels. The Danish researchers write: “Our analysis … shows that the difference in the change in consumption between high- and low-leverage Danish households is almost exactly mirrored by an opposite-signed difference in pre-crisis consumption levels: In 2007, highly leveraged households spent a much higher fraction of their income on non-housing consumption than households with less leverage, conditional on other characteristics. However, by 2010 this level difference had vanished completely.”

“In light of this latter result, we question the view that the high debt level of Danish households has suppressed private consumption in the aftermath of the financial crisis. Rather, it seems plausible that the build-up of debt prior to the crisis helped high-leverage families reach unsustainably high consumption levels in the years leading up to the crisis, prompting a large reduction in spending when the Danish economy was hit by the international financial turmoil.”

A British study also shows that it was in fact overconsumption among highly leveraged households before the financial crisis that caused a decline in consumption, down to a normal level after the crisis, rather than actual levels of debt (Bunn and Rostom, 2014).

In Sweden, there is no sign of overconsumption among Swedish households, since the savings ratio has been historically high in recent years (fig. 18 and 19). As presented in the preceding section, the percentage of indebted households is higher among high-income households, and high-income households account for the heaviest debt. At the same time, normal households with high disposable incomes have higher savings rates than low-income households. This, combined with the high Swedish savings ratio, indicates that highly leveraged households hardly engage in overconsumption. On the contrary, Swedish household consumption has grown slower than incomes for several years. In this case, a large number of overconsuming households should appear in the form of a low savings ratio. The data thus suggests that the growing debt in Sweden is due to increased investment in assets and not, as in Denmark or the UK, the effect of too high and therefore unsustainable, debt-financed consumption.

The main difference between Sweden and countries with unsustainable debt is primarily, therefore, what the debt is used for. Sooner or later, overconsumption will lead to problems and falling consumption, while productive investments, such as investing in homes will, on the contrary, generate a positive return.

The Riksbank also refers to House of Debt, a book written by the American researchers and writers, Mian and Sufi. The book shows that in terms of the impact on consumption and savings, the main problem in the US was the huge expansion of credit to low-income households with a totally inadequate ability to service their debts. These conditions are completely different from lending in Sweden and are not, therefore, relevant to the argument that current debt levels could deepen a recession due to a sharp fall in consumption in Sweden.

INTERNATIONAL STUDIES PRESENT A VERY WEAK CORRELATION BETWEEN LEVELS OF DEBT AND DECLINE IN CONSUMPTION DURING A CRISIS

There are also international studies with data for many different countries, in which...
the relation between consumption and debt levels has been studied. The British study presented above contains such an analysis (fig. 23 and 24).

The conclusion is that the level of debt does not impact changes in consumption, while a rapid increase in the debt ratio has a slightly negative effect. However, the correlation is weak, and the fact that the Swedish debt ratio has remained virtually unchanged in recent years indicates very minor consumption effects for Sweden.

«A one-percentage point higher debt ratio would have increased the fall in consumption by 0.04 percentage points.»

The First Deputy Governor of the Riksbank and Professor Martin Flodén have also analysed the effects of debt levels on consumption during a crisis (Flodén, 2014). Flodén’s study, based on data from a number of OECD countries, showed that a one-percentage point higher debt ratio would have increased the fall in consumption by 0.04 percentage points between 2007 and 2012. Subsequently, the 10 percentage-point higher debt ratio meant that the fall was only 0.4 percentage points higher. The effect of debt levels on changes in consumption therefore appears marginal.

WHAT IS FINANCIAL INSTABILITY?

Support for the idea that the debt level alone impacts consumption in a crisis can be summarised as very weak. It is more likely that a savings ratio that is far too low, and thus the existence of overconsumption and/or incorrectly valued homes, could lead to rapid changes in consumption during a crisis. However, despite the weak links between levels of debt and declines in consumption during crises, you could still ask a hypothetical question: Is this sufficient reason to demand new regulations for reducing the consumption of highly indebted households?
more than other households? For such a hypothetical decline in consumption to justify measures such as credit rationing, the regulators must also reasonably demonstrate that the fall in consumption would be so dramatic that the banks would risk losses that are difficult to manage. In other words: that the fall in consumption would cause financial instability. The key question would then be how large the credit losses in the banking sector would be if Swedish households with an LTV of more than 50% were to reduce their consumption to the same level as other households during a crisis (if they haven’t already done so). To the best of our knowledge, no such analysis has ever been published.

To enable a comparison, consumption also fell in Sweden during the financial crisis. The level of debt between 2008 and 2010 was only marginally lower than it is today. However, the loan losses incurred by Swedish banks were very small, and hardly due to falling consumption among Swedish households. Overall bank profits remained substantial. This raises some important questions: How broad is the definition of financial instability? Does FI, for example, have a mandate to determine economic policy, even when such regulations will only have a marginal effect on the consumption trend? The cost of such regulations could however be substantial in terms of reduced mobility in the housing market and the negative impact on housing construction.
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