



Assessing risks to financial and macroeconomic stability from housing prices and household debt: The Swedish case

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Lecture builds on these papers

- Svensson, Lars E.O. (2019a), “Housing Prices, Household Debt, and Macroeconomic Risk: Problems of Macroeconomic Policy I”
<https://larseosvensson.se/2018/12/16/housing-prices-household-debt-and-macroeconomic-risk-problems-of-macroprudential-policy-i/>
- Svensson, Lars E.O. (2019b), “Amortization Requirements, Distortions, and Household Resilience: Problems of Macroprudential Policy II,”
<https://larseosvensson.se/2019/04/23/amortization-requirements-distortions-and-household-resilience-problems-of-macroprudential-policy-ii/>
- Svensson, Lars E.O. (2019c), “Macroprudential Policy and Household Debt: What is Wrong with Swedish Macroprudential Policy?”
<https://larseosvensson.se/2019/12/05/macroprudential-policy-and-household-debt-what-is-wrong-with-swedish-macroprudential-policy/>

Outline

- EU Council Recommendation, European Commission Country Report:
Sweden experiencing **macroeconomic imbalances** in the form of **overvalued housing price levels** and **high and rising household debt**
- Evidence of overvaluation?
- Risk from high household debt?
 - Financial-stability risk?
 - Macroeconomic risk?
- Sum up

Council recommendation on Sweden 2019

- The Commission's analysis led it to conclude that **Sweden is experiencing macroeconomic imbalances**. In particular, **overvalued house price levels coupled with a continued rise in household debt poses risks of a disorderly correction**. (p. 2)
- The Council hereby recommends that Sweden take action in 2019 and 2020 to:
 1. [Regarding house prices and household debt] Address risks related to high household debt by gradually **reducing the tax deductibility** of mortgage interest payments or **increasing recurrent property taxes**. **Stimulate investment in residential construction** where shortages are most pressing, in particular by **removing structural obstacles to construction**. **Improve the efficiency of the housing market**, including by introducing more **flexibility in rental prices** and revising the design of the **capital gains tax**. (p. 5)

Commission analysis

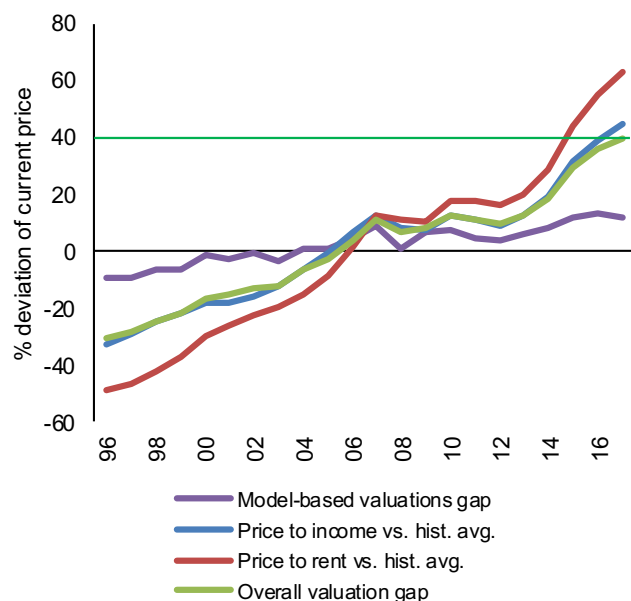
- The Commission's analysis led it to conclude that **Sweden is experiencing macroeconomic imbalances**. In particular, **overvalued house price levels** coupled with a **continued rise in household debt** poses **risks of a disorderly correction**. (Council Recommendation 2019, p. 2)
- **Sweden faces sources of imbalances in the form of high private debt and overvalued house prices**. The elevated private indebtedness, in particular of households, makes the economy **vulnerable to macroeconomic shocks**. Such a shock could trigger **deleveraging**, potentially leading to **harmful adjustment**, with **lower consumption and investment**. Although **house prices** have stabilised well below their 2017 peak, they continue to appear **overvalued**. In the event of a **large, disorderly downturn in the housing market**, there is a risk of **negative spillover effects acting on other Nordic countries** through the financial system. (Commission Country Report, p. 18)

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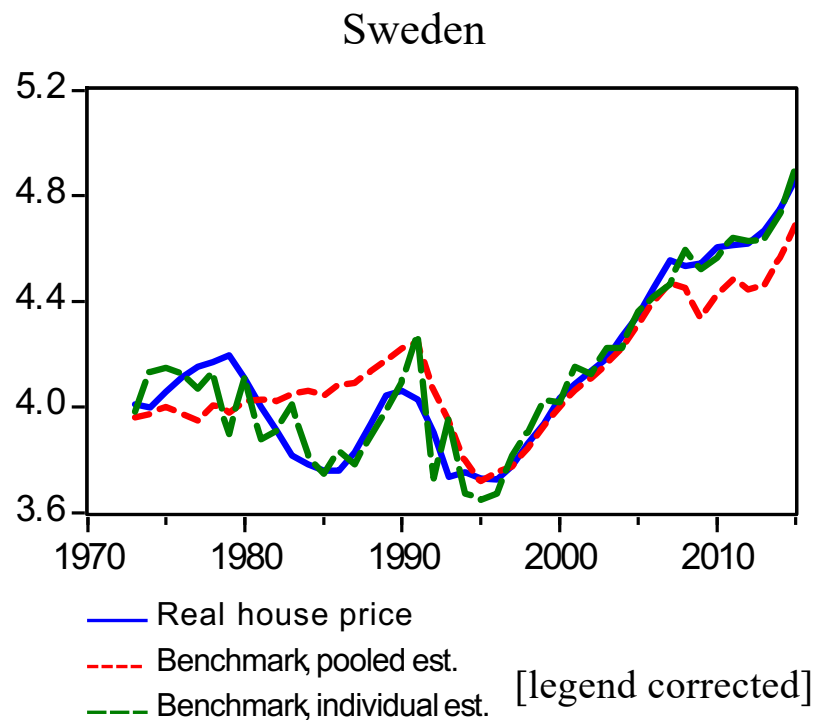
Commission: Housing prices overvalued by about 40%

Graph 4.2.2: Estimated house price valuation gaps based on different indicators (1)



- 40%: Average of
 - PTI/Long-term average
 - PTRent/Long-term average
 - Actual price/Model price from cointegration vector for EU excl. Sweden
- PTI misleading: Not buy house w/income (mortgages are not consumer loans); structural changes (interest rate trend, tax changes, housing shortage, etc.)
 - User Cost/Income, Housing Payment/Income, relevant indicators
 - Generally: Stock/stock or flow/flow indicators preferred (Balance Sheet vs. Profit & Loss Statement)
- PTRent misleading: Rent control
 - User Cost/Market rents relevant indicator
- Model problems?
 - EU (excl. Greece, Ireland, Spain, Sweden!) considered the same
 - Sweden compared to EU **excluding Sweden**
 - But housing markets different: National, more granular analysis required

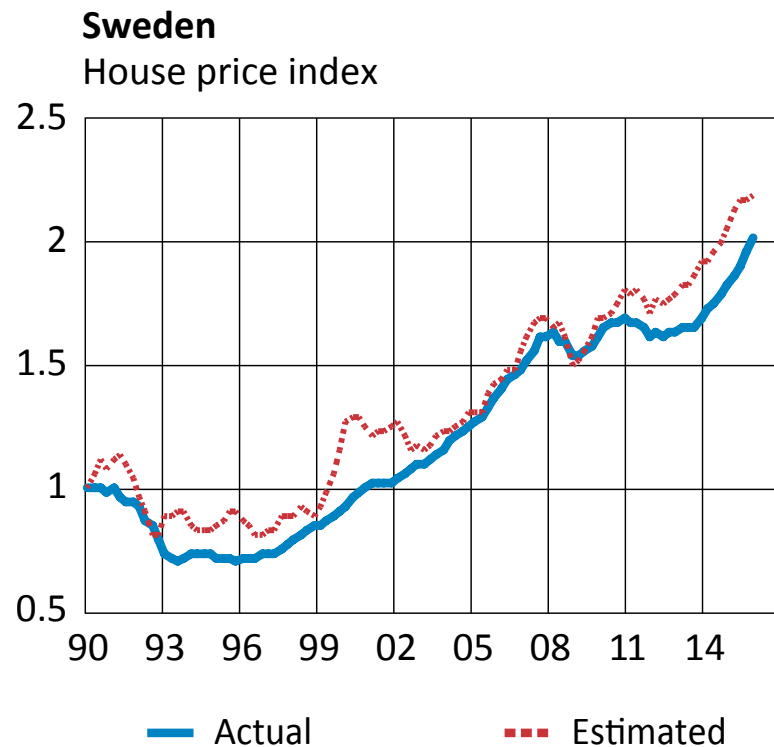
Commission model (Philipponnet & Turrini 2017)



- **Overvaluation** when estimated on EU data excluding (!) Sweden
- **No overvaluation** when estimated on Swedish data

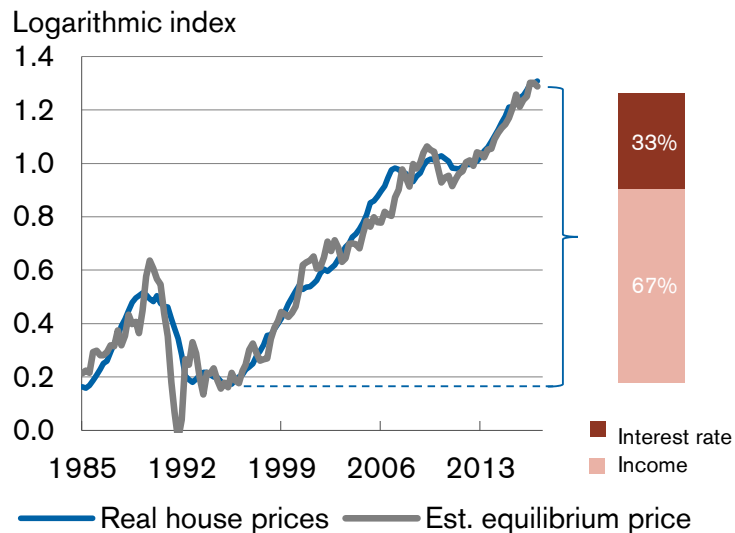
Riksbank staff model

- No **over**valuation,
some **under**valuation



National Debt Office staff model

Figure 31. Driving forces behind the rise in house prices 1996-2017



- Prices consistent with fundamentals
- Neither over- nor undervaluation

Note: The calculated driving forces relate to the change in the estimated equilibrium price between 1996Q1 and 2017Q4.

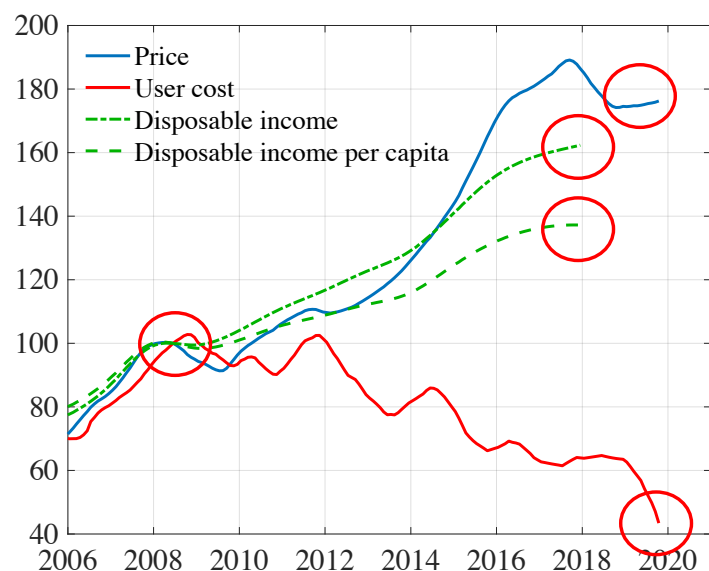
Sources: Statistics Sweden and own calculations.



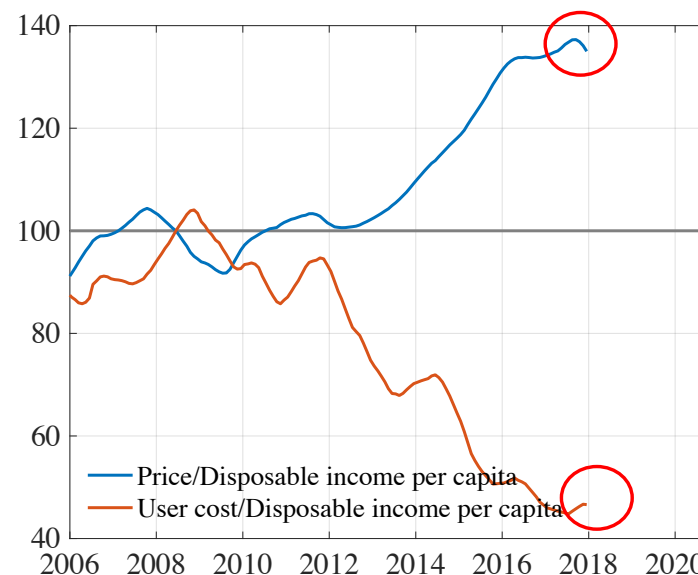
Source: Bjellerup & Majtorp (2019), Swedish NDO.

Prices, user cost, and disposable income, Stockholm

Prices, user cost, and disposable income



Price and user cost to disposable income per capita



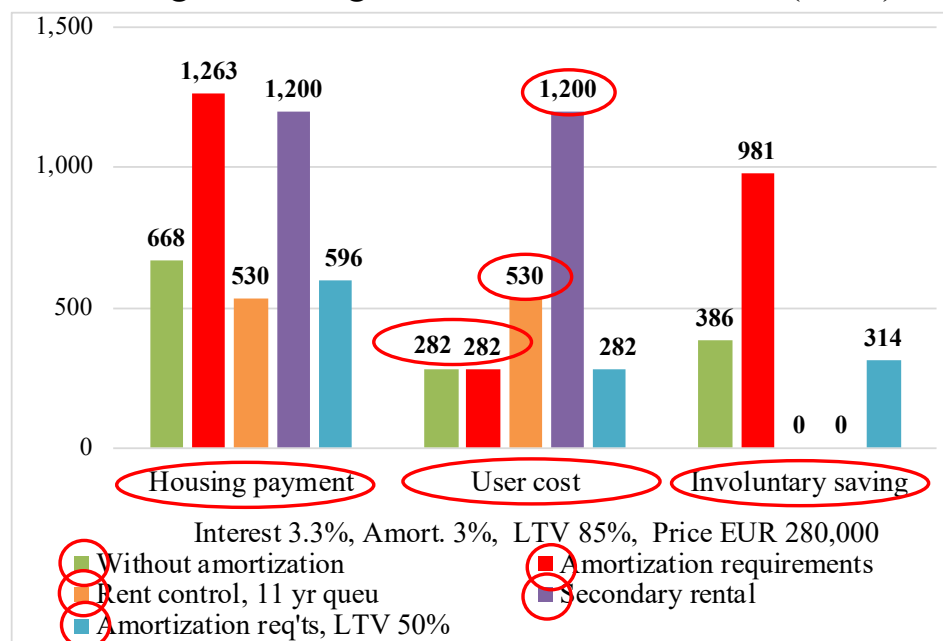
- **User cost** = Imputed rent = after-tax interest payments
 + real cost of equity + operating and maintenance cost
 – real after-tax capital gains
 (10 yr mortgage rate, 2% inflation, 30% capital-income tax,
 zero real post-tax capital gains assumed)



Source: Svensson (2019), “Housing Prices, Household Debt, and Macroeconomic Risk: Problems of Macroprudential Policy I”

Average Stockholm Studio 2017

Monthly housing payment, user cost, and involuntary saving for average Stockholm studio 2017 (EUR)



- **User cost** for owner-occupied housing **much below** both regulated and 2ndary-market rent
- Not consistent with overvalued housing

Source: Svensson (2019), "Macroprudential Policy and Household Debt: What is Wrong with Swedish Macroprudential Policy?", figure 4.1.

Outline

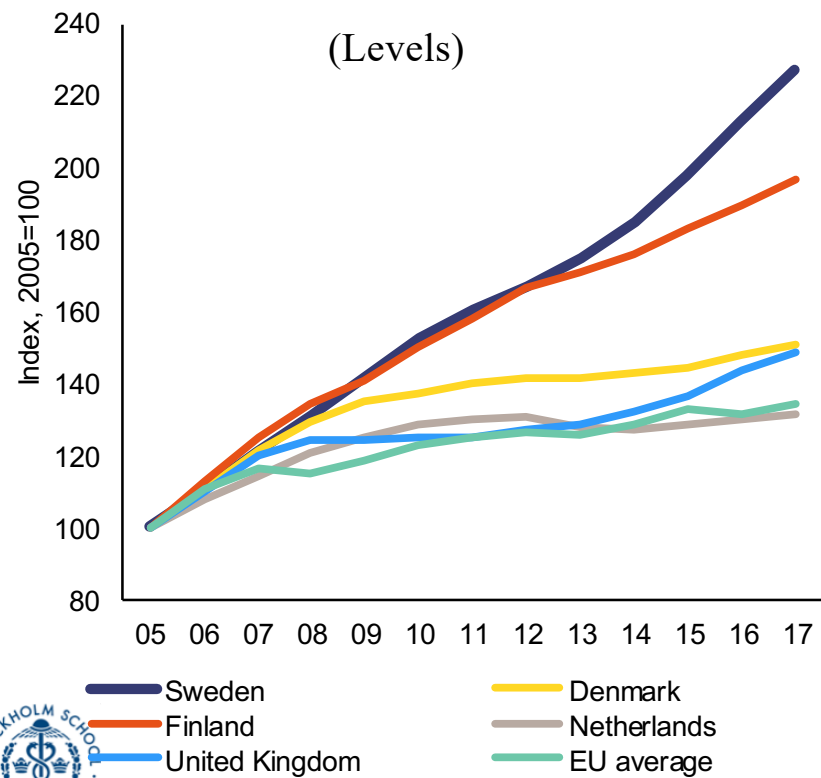
- EU Council Recommendation, European Commission Country Report:
Sweden experiencing macroeconomic imbalances in the form of overvalued housing price levels and high and rising household debt
- Evidence of overvaluation? **No**
- **Risks from high household debt?**
 - Financial-stability risk?
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Commission Country Report

- **Household indebtedness has continued to rise rapidly from an already elevated level....**Household debt also stands **above fundamental and prudential benchmark levels**, suggesting that Sweden's household debt load is **higher than can be justified by fundamental drivers**, and **above levels at which the risk of crisis becomes elevated** (p. 32)
- **Growing household debt** coupled with **elevated house prices** makes the Swedish **economy vulnerable to shocks**. If **incomes were to fall** due to an external shock to the economy, or if there was a **sharp rise in mortgage risk premiums**—triggered, for instance, by a renewed housing market downturn or by higher bank funding costs as perceptions about their riskiness worsen—**highly-leveraged households may need to rapidly reduce consumption to meet their mortgage payments**. (p. 34)

Household debt-to-income ratio

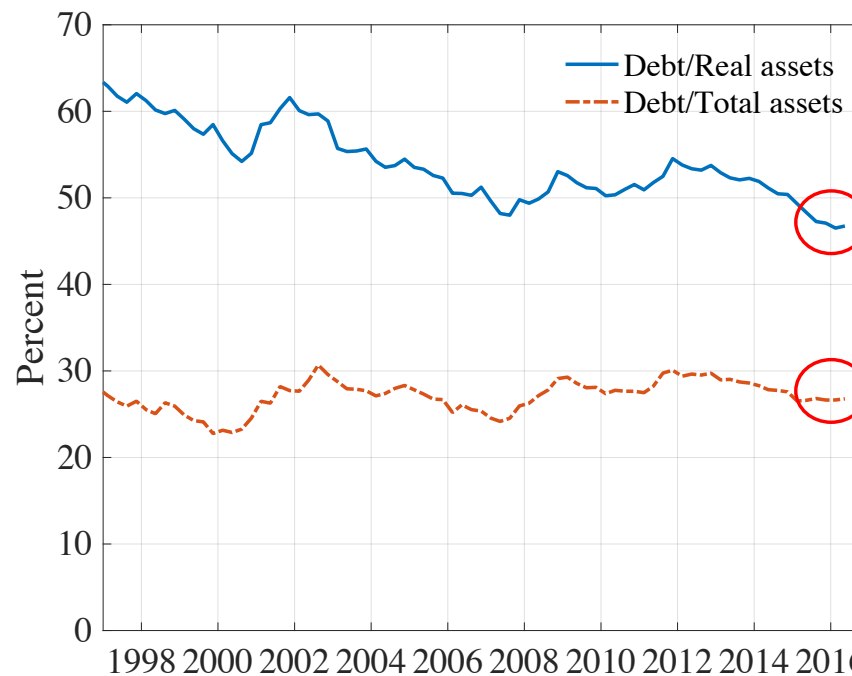
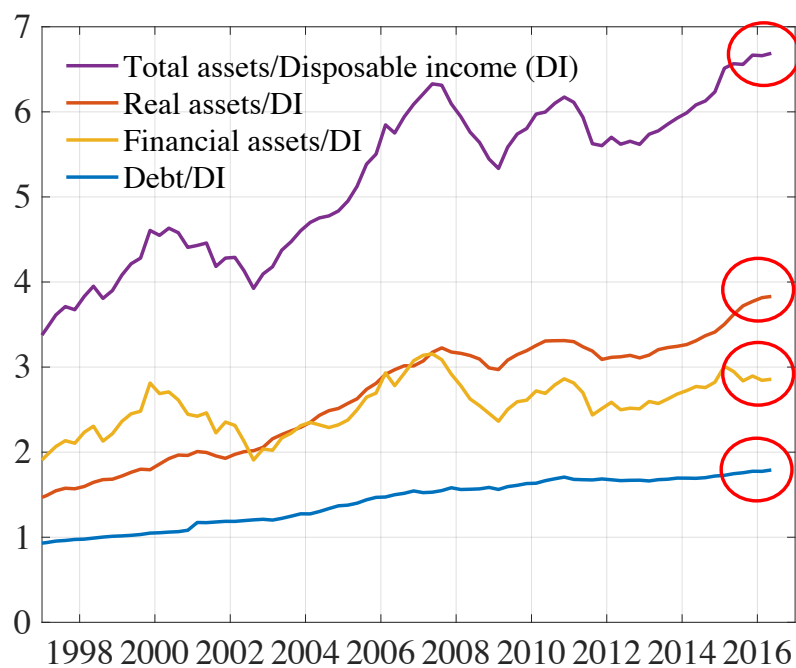
Graph 4.2.8: Household debt evolution (indexed, 2005=100)



Source: European Commission

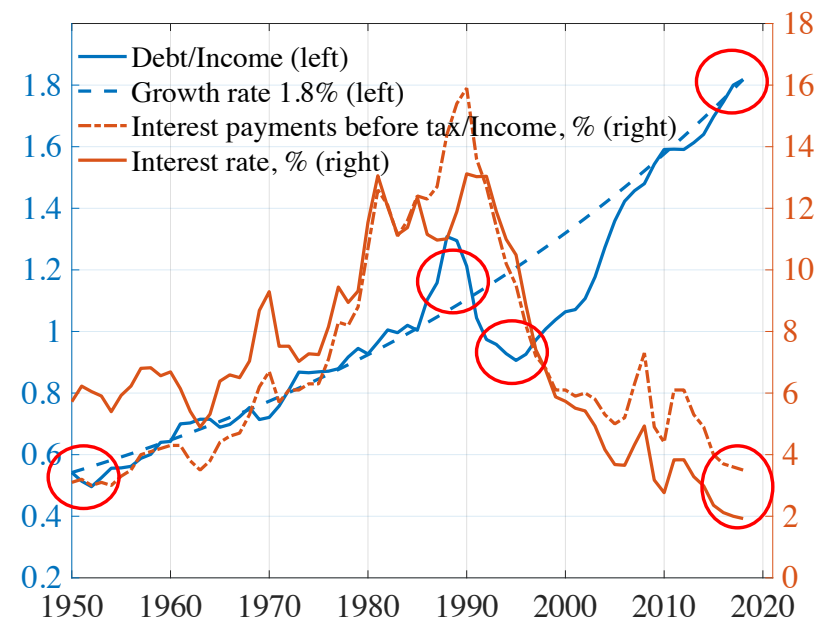
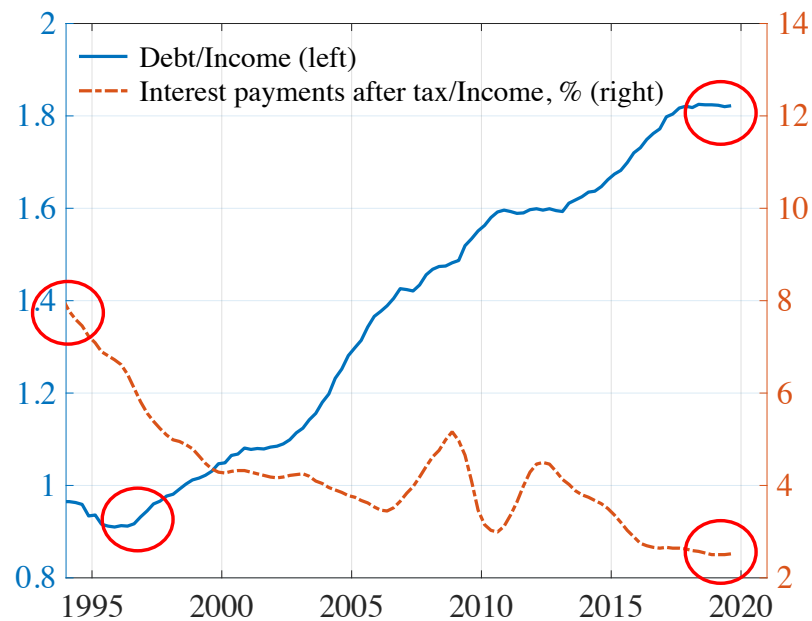
- Growth and level of Swedish household debt and DTI high
- Instead of DTI, stock/stock and flow/flow indicators more relevant
- Debt/assets, debt service/income
- Household debt-service capacity, resilience to shocks, and lenders' loss absorption capacity
- Sensitivity of household consumption to shocks

Stock/stock measures



- Debt/Real assets **downward trend**
- Debt/Total assets **stable/downward trend**

Interest and DTI; DTI in the long run



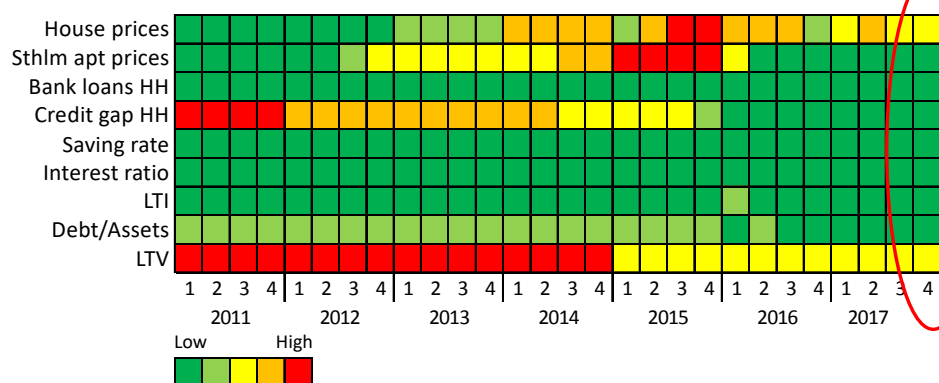
Source: Statistics Sweden and own calculations. Disposable income.

Finansinspektionen (FI, the Swedish FSA) on Swedish household debt and risks to financial stability:

- “FI’s current assessment is that the financial-stability risks associated with households’ debt are **relatively small**.
- ... This is because the mortgagors generally have **good potential to continue to pay the interest and amortization** on their loans, even **if interest rates rise or their incomes fall**.
- ...On average, the households have comfortable **margins with which to cope with a fall in house prices**.
- ...Swedish **mortgage firms are also deemed to have satisfactory capital buffers** should credit losses still arise.”

FI: Risks to financial stability from household debt “relatively small”

Vulnerability indicators for the household sector



Share of new mortgagors with “double trigger” at housing-price fall and unemployment increase, 2016



- Stress tests on households (*Swedish Mortgage Market*)
- “Double trigger”: Both being underwater and having cash-flow problem due to income fall.

Risks to financial stability?

- There is no evidence that Swedish household debt is too high given housing prices and the value of household assets
- Household debt/total assets is on a downward trend, debt/housing is stable
- LTV limit of 85%, average LTV 63% for new borrowers and 55% for all borrowers: Ample housing equity
- Households have good and increasing debt-service capacity and resilience to housing-price falls, interest-rate increases, and income losses due to unemployment
- Thus, probability of credit losses on mortgages are very small; should they nevertheless materialize, banks have sufficient capital to absorb losses

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Household debt and risks to **macroeconomic stability**

- When **negative shocks occur**, households may **continue to service their debt** but **cut down on their consumption** (especially when debt is “full recourse”)
- This reduces aggregate demand and **may add to an economic downturn**.
- If household debt is such that there is **a risk of macroeconomically significant spending cuts** if negative shocks occur, household debt may imply a **risk to macroeconomic stability** (especially if monetary policy is restricted by the effective lower bound on the policy rate)

FI: “Elevated macroeconomic risk” in Sweden: Mandatory amortization requirements

- FI: “Despite the risks to financial stability being assessed as low at present, the trend of high and rising loan-to-income ratios among many borrowers ... means that there is an **elevated macroeconomic risk**”
- To counteract the growth of household debt, the FI have introduced **mandatory amortization requirements on new mortgages** and induced **further tightening of lending standards in other ways** through “soft power” (“communicative supervision”)

Assessing risks from household debt to macroeconomic stability

- Arguably **more difficult** to assessing risks to macroeconomic stability than to financial stability
- **High household indebtedness** suggested as a major **factor behind the severity of the recent financial crisis**
- Microdata evidence of **correlation** between pre-crisis **household indebtedness** and subsequent **spending cuts** (Denmark: Andersen et al.; UK: Bunn & Rostom; US: Mian & Sufi, Dynan; ...)
- But **correlation is not causality**
- **What is the mechanism?**

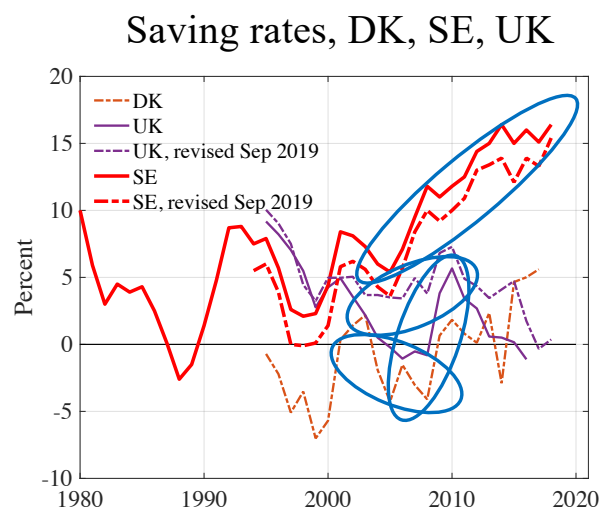
The evidence is that there is **no causality** but a **common factor, debt-financed overconsumption**

- In Denmark, UK, and the US, when **housing prices rose** before the crisis, households **increased their mortgages** (housing equity withdrawal, HEW) to finance an **unsustainable overconsumption** (undersaving) relative to disposable income (Muellbauer: “housing-collateral channel,” Mian & Sufi: “debt-driven household demand channel”)
- When the **crisis came**, this **HEW and overconsumption could not be maintained**
- **Overconsuming highly-indebted households reduced their consumption back to normal** relative to disposable income; less-indebted household adjusted their consumption much less
- **Debt-financed overconsumption explains** both **high household indebtedness** before the crisis and **spending cuts** during the crisis
- The **crucial research result** is that **highly indebted households that had *not* engaged in mortgage-financed overconsumption did *not* reduce their consumption more than less-indebted households**. The consumption fall was thus due to debt-financed overconsumption, not to high indebtedness in itself (Andersen et al. 2016, **table 4** [typo!]).

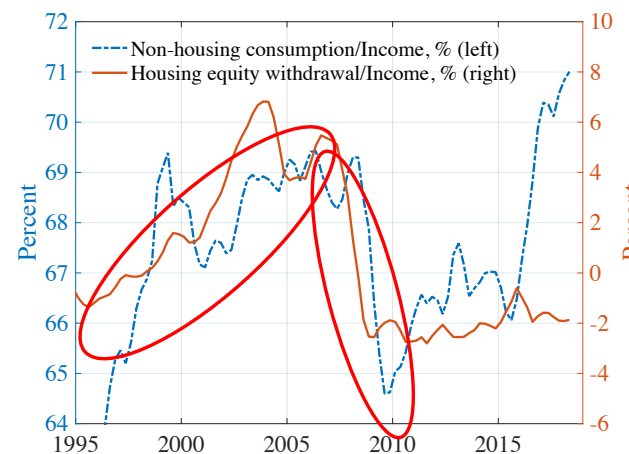
Macroeconomic risk assessment: Evidence of debt-financed overconsumption (macroeconomic significance)

- Strength of housing-collateral channel varies across countries (Muellbauer: weak in Germany, Italy, France; strong in Ireland, Spain, UK. Me: weak in Sweden)
- Shows up in a low aggregate household saving rate and high durable-goods consumption
- Examine relation between aggregate HEW and consumption
- Look for micro-evidence of HEW and any use for unsustainable overconsumption

Example: Saving rates in Denmark, Sweden, and UK. Non-housing consumption and HEW in UK



Non-housing consumption and HEW, UK



- This **and other** evidence implies **for Sweden:**
- **No evidence** of any **debt-financed overconsumption (undersaving)**
- **No evidence** of an “**elevated macroeconomic risk**” (contradicting FI)
- **No rationale** for FI’s **mandatory amortization requirements**

Summarize sensitivity of household consumption to housing prices, interests, and income 1

- **Housing prices**: Active housing-collateral channel means consumption sensitive to housing price (changes).
Inactive channel little sensitivity to housing prices
- **Interest rates**: High household debt and ARMs makes household cashflow and consumption more sensitive to interest rate;
cash-flow channel of monetary policy
 - Easier for Riksbank to stabilize consumption and aggregate demand
 - With flexible exchange rates and inflation targeting, interest rates and payments are low in bad times;
insurance against bad times (different from fixed exchange rates and 1990s crisis)
 - The authorities have effective tools to **prevent a rise in the margin** between mortgage rates and policy rates; used successfully during the 2008-2009 crisis
 - Arguably from this channel **less risk for a consumption fall and economic downturn**

Sensitivity of household consumption to housing prices, interests, and income 2

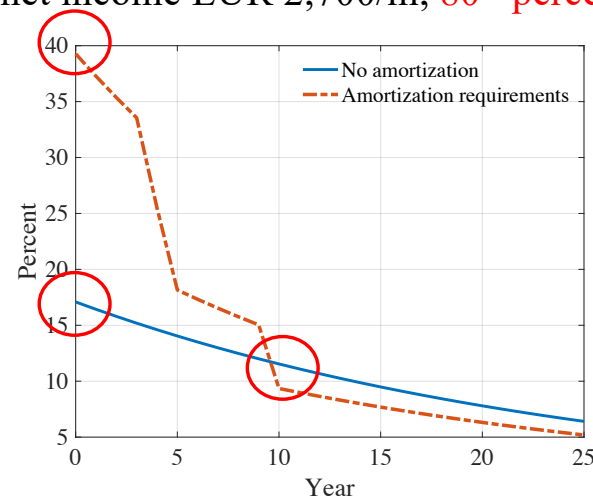
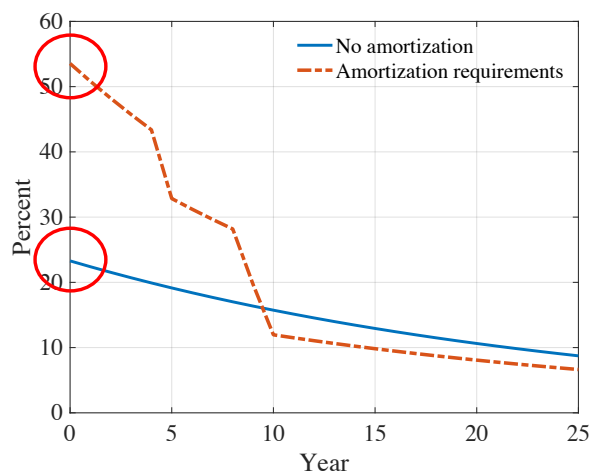
- **Income**: Sensitivity of consumption determined by **household cashflow margin** (between cash inflows and fixed cash outflows) and access to credit and liquidity. If not credit constrained, MPC independent of indebtedness (Baker 2018). (Permanent-income hypothesis)
- **Amortization requirements** reduce cashflow margins, access to credit and liquidity, and **reduce resilience** to income shocks; strongly frontloaded debt-service-to-income profile. Oversaving and underconsumption: **Hand-to-mouth consumers**.
- Amortization requirements **counter-productive**
- **Optimal mortgage contract is an interest-only loan with credit line; increases resilience** (Cocco 2013, Piskorski & Tchisty 2010)
- To my knowledge, **no scientific support for amortization requirements** (mortgages are not consumer loans; also literature on reverse mortgages)

Amortization requirements counterproductive: Reduce resilience and increase risk. Large welfare costs

- Increases housing payment, reduces households' cash-flow margin, reduces resilience; increases liquidity constraints, increases consumption sensitivity to income (share of hand-to-mouth consumers), increases macroeconomic risk
- Frontloaded debt-service, backloaded cash-flow margin profiles
- Negative welfare and distribution effects: Increased housing payment (and large involuntary saving) excludes large share of households (especially the young) from getting a mortgage and enjoy a low user cost of housing.
- Outsiders may have to resort to the secondary rental market, with high housing payments = high rent = high user cost.
- Falling housing demand and housing prices implies less construction of new housing, when housing construction already too low

Debt-service-to-net income profiles, median and 80th percentile individuals, average Stockholm studio, 4% nominal income and housing-price growth

Initial net income EUR 2,000/m, **median individual** Initial net income EUR 2,700/m, **80th percentile individual**



- W/o amortization, median individual just passes affordability test
- W/ amortization requirements, median individual does not; 80th pctl individual just does
- Instead of 50%, only 20% get the mortgage
- Amortization requirements lead to strongly front-loaded DSTI ratios compared to interest-only loan
- Falls somewhat below that of interest-only loan only after 10 years
- Much less resilience to income shocks for many years

A long list of distortions from the mortgage credit tightening

Table 8.1: A non-exhaustive summary of distortions caused by the tightening of lending standards, especially by the mandatory amortization requirements.

-
1. Households without high income or wealth face higher barriers to entry into owner-occupancy.
 2. The mobility within the market for owner-occupied housing is reduced.
 3. First-time buyers without high income or wealth are excluded from the owner-occupancy market in Stockholm Municipality and many have to resort to the secondary-rental market.
To prevent such exclusions, housing prices may have to fall by almost 40%.
 4. Less-than-high-income outsiders have higher housing user cost than high-income insiders.
 5. A less wealthy outsider has a higher user cost than a high-wealth insider with similar income.
 6. Mortgagors are forced to oversave and underconsume.
 7. Mortgagors' consumption becomes more sensitive to income shocks.
 8. Mortgagors have to save in illiquid housing equity instead of more liquid and diversified assets.
 9. Mortgagors are less resilient to shocks for many years, for a small gain in resilience later.
 10. Secondary-rental outsiders are forced to overpay, undersave, and underconsume.
 11. Secondary-rental outsiders' consumption is more sensitive to income shocks.
 12. Secondary-rental outsiders are less resilient to shocks, without any gain in resilience later.
 13. By design the amortization requirements make amortization and involuntary saving counter-cyclical, which makes consumption more procyclical and sensitive to income shocks.
 14. Reduced demand for and lower prices of housing reduce already too-low housing construction and worsen the structural problem of excess demand for housing.
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- Sum up

Sum up

- Little or no current risk of Swedish household debt and housing prices for financial stability or macroeconomic stability, when the relevant evidence and indicators are used
- Generally a more national and granular risk assessment regarding housing prices and household debt is necessary because of country heterogeneity
- **No benefit** (no reduction in macroeconomic risk) from the Swedish FSA's amortization requirements (and other mortgage credit tightening), but **large individual and social cost**
- The Council's **recommendations** are fine with me (except removing interest deduction, which will benefit the wealthy and be distortionary by treating own capital favorably compared to borrowed capital). The other recommendations address structural problems, which should be addressed regardless of any overvaluation of housing prices or macroeconomic risk from household debt.

Extra slides



Distortion caused by no interest deductibility: Different treatment of borrowed vs. own capital – good for the wealthy

Stockholm 25-29-year-olds: Median monthly net income EUR 2,000 (gross income EUR 2,500)

Housing payments, user cost, involuntary saving, average Stockholm studio (EUR)

