



Macroprudential policy and household debt: What is wrong with Swedish macroprudential policy?

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Outline

2. Several things are right with Swedish macroprudential policy, but...
3. The amortization requirements have no demonstrable benefits: A faulty theoretical framework
4. The consequences and costs of the credit tightening
5. Reforms for a better-functioning mortgage market
6. Conclusions

Several things are right with Swedish macroprudential policy

- 2013: Government introduced a framework for macroprudential policy with Finansinspektionen (FI, the Swedish FSA) in charge of the policy and with all instruments (Riksbank has none)
- FI: A series of actions to strengthen the stability of the financial system. High capital requirements for banks; banks are well capitalized and very resilient in stress tests
- 2010: Mortgage LTV cap of 85%
- Annual mortgage market report with stress tests of mortgagors using microdata: Monitors households' debt-service capacity and resilience to shocks

FI 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.”
- But instead, according to the FI...

...there is an “elevated macroeconomic risk”

- “The risks associated with household debt are primarily related to the possibility that highly indebted households may sharply reduce their consumption in the event of a macroeconomic shock.
- ...This development was noted in other countries during the financial crisis in 2008–2009.
- [Only rationale; only foundation for policy and theoretical framework!]
- ...If many households reduce their consumption at the same time, this can amplify an economic downturn.
- ...Because loan-to-income ratios are high and rising among many mortgagors, they represent an elevated macroeconomic risk.”

FI theoretical framework and actions

- The macroeconomic risk of a consumption fall and a deeper economic downturn increases with household indebtedness (measured by LTV and LTI ratios)
- Then, reducing LTV and LTI ratios decreases the macroeconomic risk
- The FI has therefore introduced mandatory amortization requirements on new mortgages
 - 2016: 1st amortization requirement, LTVs: 1% for $50\% < \text{LTV} < 70\%$, 2% for $\text{LTV} > 70\%$
 - 2018: 2nd amortization requirement, LTIs: +1% for $\text{LTI} > 4.5$
- Since 2010–2011, it also induced further tightening of lending standards in other ways through “soft power” (“communicative supervision”), resulting in higher affordability-test interest rates as well as internal amortization requirements and internal LTI limits
- “The purpose of the measures is to increase households’ resilience to shocks”

Does high household indebtedness cause macroeconomic instability?

- 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 underlying mechanism?

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

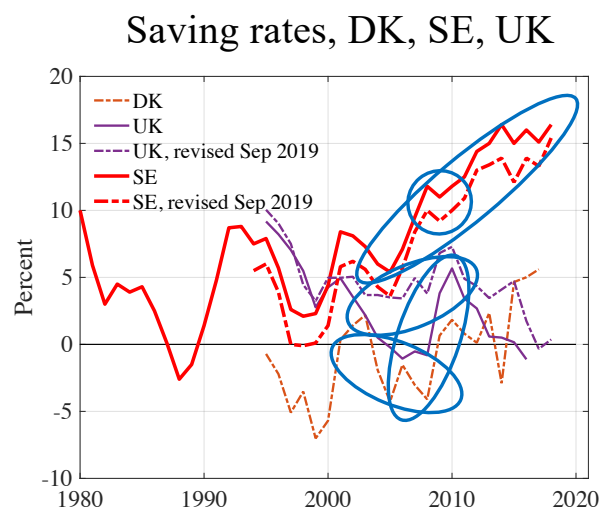
- In Denmark, UK, and US, when **housing prices rose** before the crisis, households **increased their mortgages** (housing equity withdrawal, HEW) to finance an **unsustainable overconsumption** (undersaving) relative to disposable income (Muellbauer: “housing-collateral channel,” Mian & Sufi: “debt-driven household demand channel”)
- When the **crisis came**, this **HEW and overconsumption could not continue**, the **saving rate rose**, and consumption fell (more than disposable income fell)
- 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**. Thus, the consumption fall was due to debt-financed overconsumption, **not** to high indebtedness in itself (Andersen et al. 2016, **table 4** [typo!]; unpublished results on UK microdata).

Macroeconomic risk assessment:

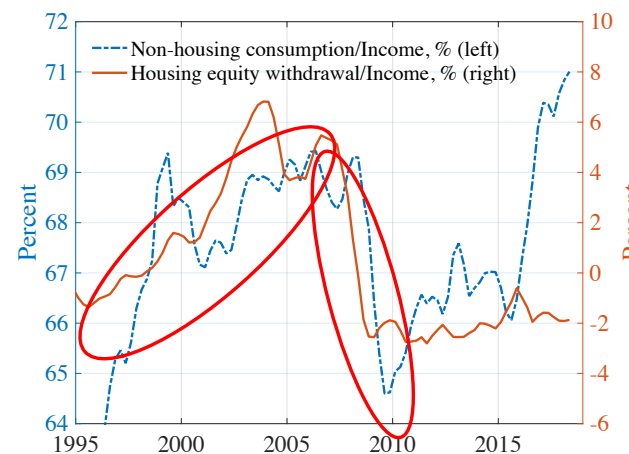
Evidence of debt-financed overconsumption? (of macroeconomic magnitude)

- Strength of **housing-collateral channel varies across countries**
(Muellbauer: weak in Germany, Italy, France; strong in Ireland, Spain, UK.
Me: weak in Sweden)
- Active channel 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 of it 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 (microdata) evidence implies for Sweden:
- No evidence of any debt-financed overconsumption (undersaving)
- No evidence of an “elevated macroeconomic risk” (contradicting FI)

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

- **1 Housing prices.** Active housing-collateral channel: consumption sensitive to housing price (changes).
Inactive channel (Sweden): little sensitivity to housing prices
- **2 Interest rates:** High household debt and ARMs make household cashflow and consumption more sensitive to interest rate;
the **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
 - From this channel, arguably **less risk for a consumption fall and economic downturn**

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

- **3 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 and access to credit and liquidity, and thus **reduce resilience** to income shocks

Amortization requirements counterproductive:

Reduce resilience and increase the 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
- Strongly frontloaded debt-service and 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

Benchmark assumptions for average Stockholm Municipality studio (one-room apartment) 2017

Price	SEK 2.8 mn
Size	31 m ²
Price/m ²	SEK 90,323
Monthly operating and maintenance cost (OMC)	SEK 2,100
Down payment, 15%	SEK 0.42 mn
Mortgage, LTV ratio 85%	SEK 2.38 mn
Interest rate	3.3%
Nominal capital-income tax rate	30%
Nominal capital-gains tax rate	22%
Expected inflation rate	2%
Real after-tax capital gains	0%
Monthly standardized (basic) (non-housing) living expenses	SEK 9,300
Monthly rent on secondary rental	SEK 11,000–13,000

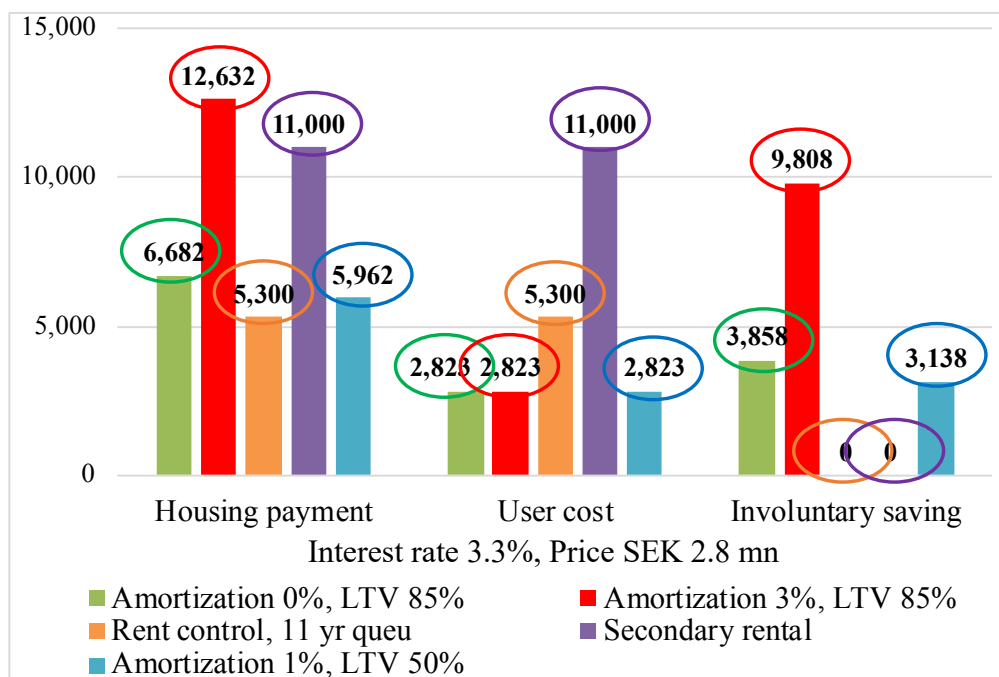
Before/without the tightening: IO loan, LTV 85%, ATIR 6%

After/with the tightening: Amortization requirements, ATIR 7%

- **ATIR 6%** (FI: 2012 ATIR 5.7–8%, other evidence)
- **IO loan, LTV 85%**
 - FI: 2011 21% of new loans with LTV 76–85% were IO
 - Some banks offered “bottom” loans up to LTV 85%
 - At least one bank did not include amortization in the affordability test for bottom loans
 - SBAB Bank reports IO loans up to LTV 85% in late 2010
 - Riksbank’s Inquiry 2011 clearly worried about “little or no amortization”
 - [Ingves SvD 2010: “As far as I know, almost no one amortizes on new loans”]
 - More evidence/indications in paper

Monthly housing payment, user cost, and involuntary saving

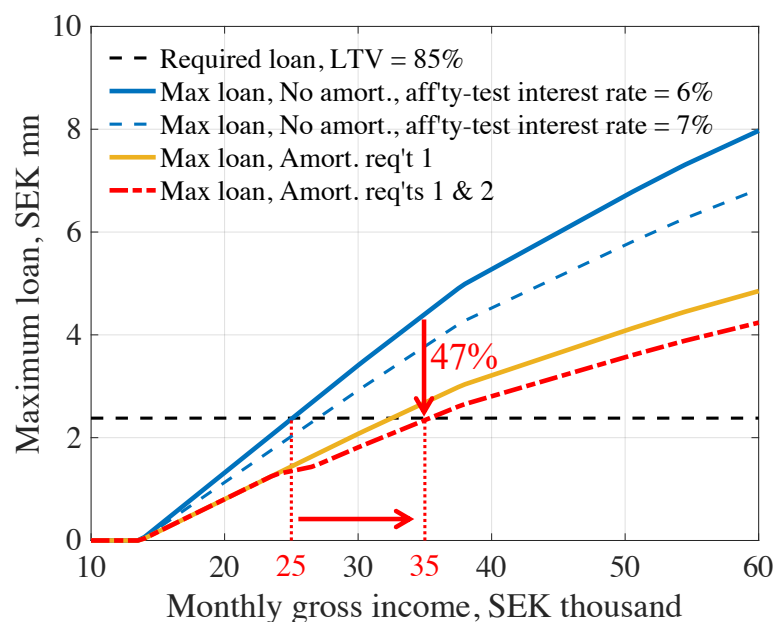
Stockholm studio, price SEK 2.8 mn, 3.5% interest rate



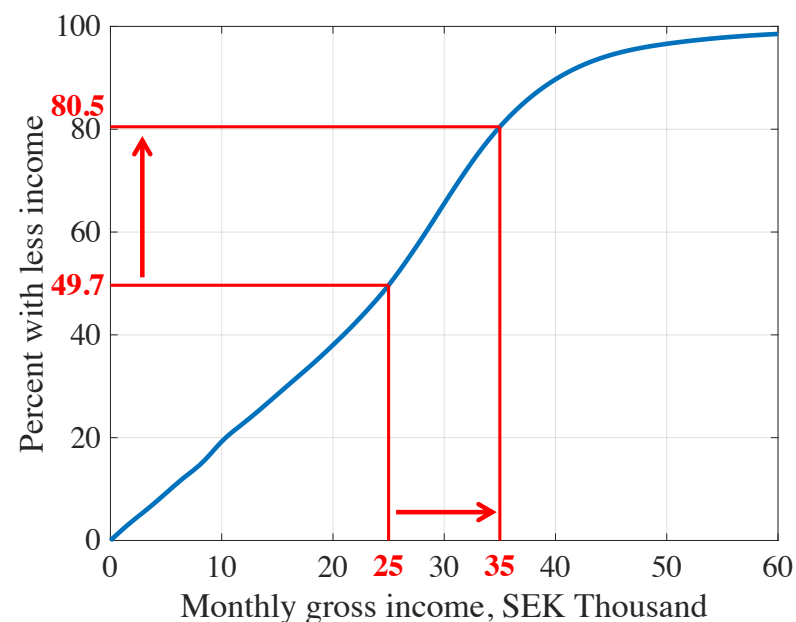
- Median Stockholm 25-29-yr-old:
Gross income SEK 25,000/m
Net income SEK 20,000/m
- Interest-only loan, LTV 85%
- Amortization requirements 3%, LTV 85%
- Rent control (11-yr que)
- Secondary rental
- Amortization requirements 1%, LTV 50%

Substantial credit contraction; large fraction of 25-27-yr-olds excluded (average Stockholm studio 2017)

Required and maximum loan

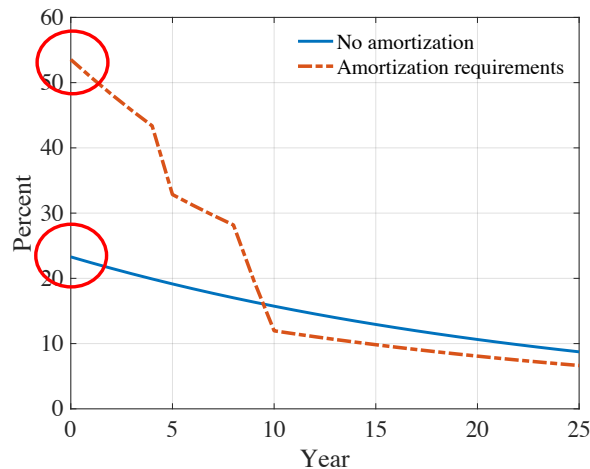


Cumulative income distribution, Sth 25-29-yrs, 2017

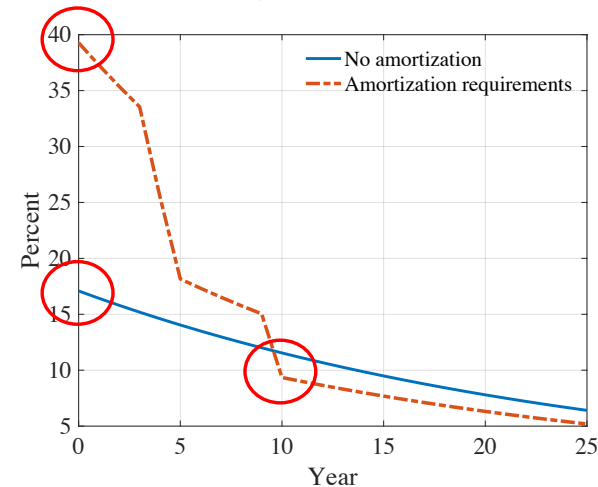


Debt-service-to-net-income profiles, median and 80th percentile individuals, average Stockholm studio, 4% nominal income and housing-price growth

Median individual, initial net income SEK 20,000/m



80th percentile individual, initial net income SEK 27,000/m



- W/o amortization, median individual just passes affordability test. “Automatic” amortization 4%
- W/ amortization requirements, median individual does not; 80th percentile 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
- DSTI ratio falls somewhat below that of an interest-only loan only after 10 years
- Much less resilience to income shocks for many years

A long list of distortions from the credit tightening

Table 4.1: A non-exhaustive summary of distortions caused by the credit tightening, especially the mandatory amortization requirements.

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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 exacerbates the structural problem of excess demand for housing.
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Reforms for a better-functioning mortgage market

- Amortization *requirements* abolished; do not exclude interest-only loans
 - IO loans (with credit line) optimal (Piskorski & Tchisty 2010, Cocco 2013)
 - **No scientific report for amortization requirements** (mortgages are not consumer loans)
- Banks' internal LTI limits abolished (serve no function beyond affordability tests)
- Introduce more reasonable affordability-test interest rates
- Review the 85% LTV cap and probably raise it
- Monitor indicators to ensure that no mortgage-financed overconsumption of macroeconomic significance arises; take action if required
- Introduce deeper and more thorough risk assessments, built on scientific research

Conclusions 1

- Economic policy measures should pass a cost-benefit analysis
- The FI's credit tightening does not pass: There is **no demonstrable benefit**, but there are **large individual and social costs**
- The reforms mentioned would remedy and or alleviate the costs of the tightening and make the mortgage market work better

Conclusions 2

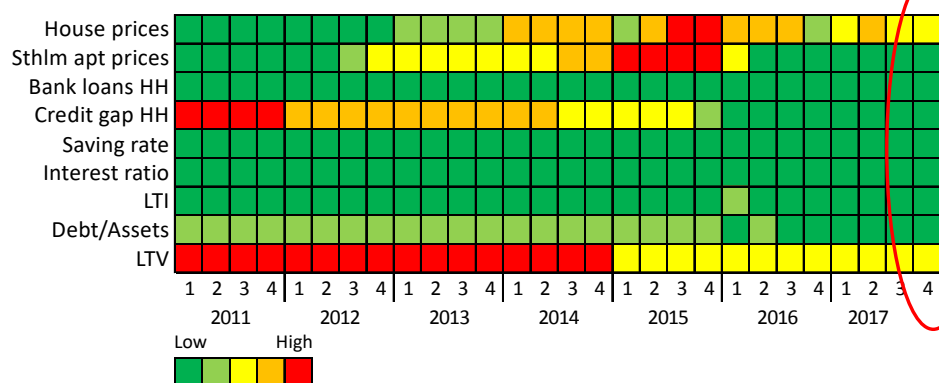
- An **ambiguous clause** in FI's mandate should be deleted:
 - The FI is responsible for "...taking measures to **counteract financial imbalances** with a view to **stabilising the credit market**..."
 - What are "financial *balances*"? What is meant by "stabilising the credit market"?
- The FI should not violate an important part of its mandate, namely to ensure that
 - "...the financial system...has well-functioning markets that **meet the needs of households... for financial services**, and provides comprehensive **consumer protection**.
- **Governance** of macroprudential needs to be **improved** (cf. monetary policy)
 - Macroprudential policy is as important as monetary policy
 - Policy should be decided by a new **Macroprudential Policy Committee**
 - **Accountability improved** by regular evaluation by a new **Macroprudential Policy Council** (cf. Fiscal Policy Council), hearings with experts in the Riksdag, and an annual conference
 - This should **improve policy** and **reduce the risk of policy mistakes**

Extra slides

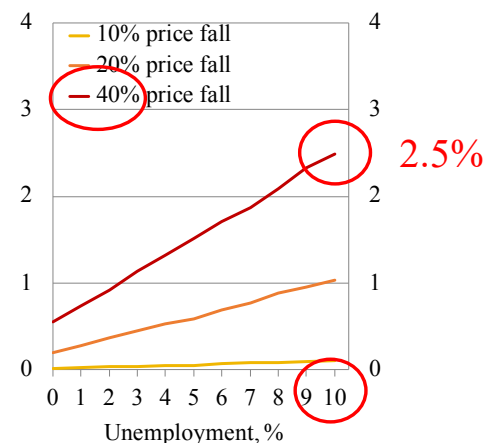


FI: Risks to financial stability from household debt “relatively small”

Vulnerability indicators for the household sector



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

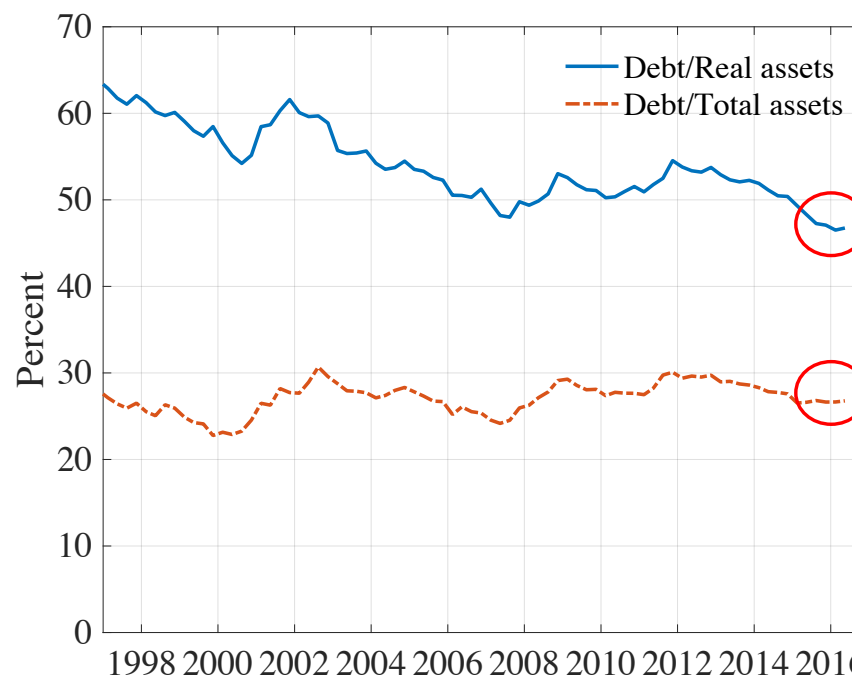
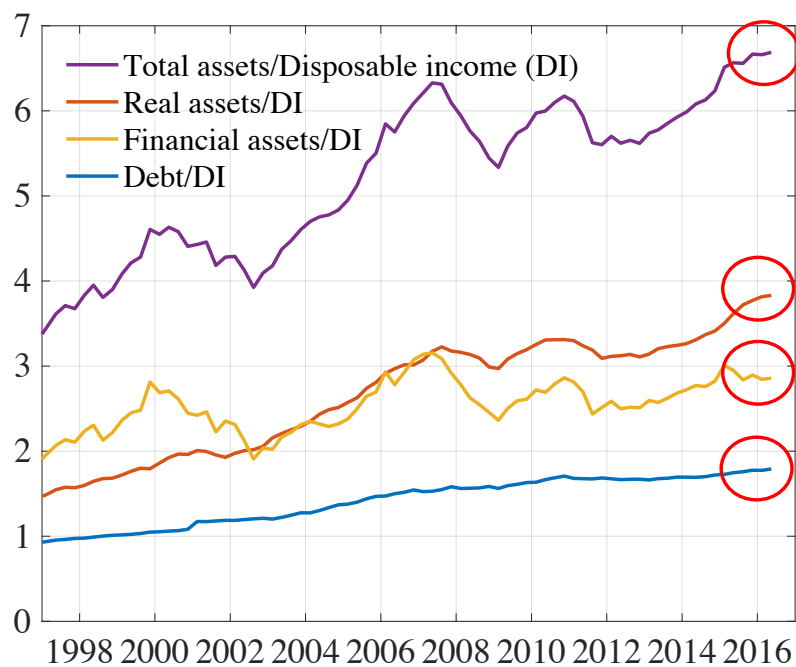


- Stress tests on households (*Swedish Mortgage Market*)
- “Double trigger”: Both being underwater and having cash-flow problem due to income fall.

Risks to financial stability?

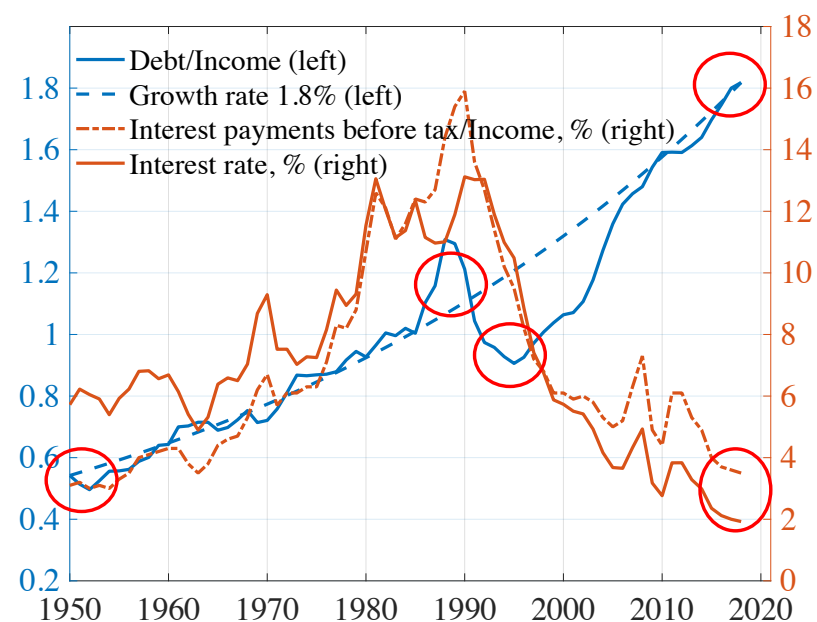
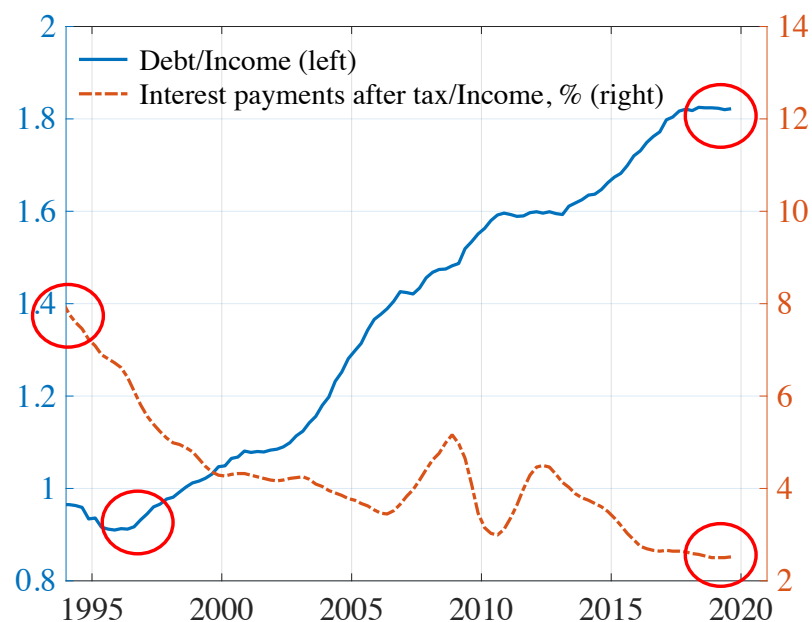
- There is no evidence that Swedish household debt is too high given housing prices and the value of household assets
- Household debt/total assets is on a downward trend, debt/housing is stable
- LTV limit of 85%, average LTV 63% for new borrowers and 55% for all borrowers: Ample housing equity
- Households 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

Stock/stock measures



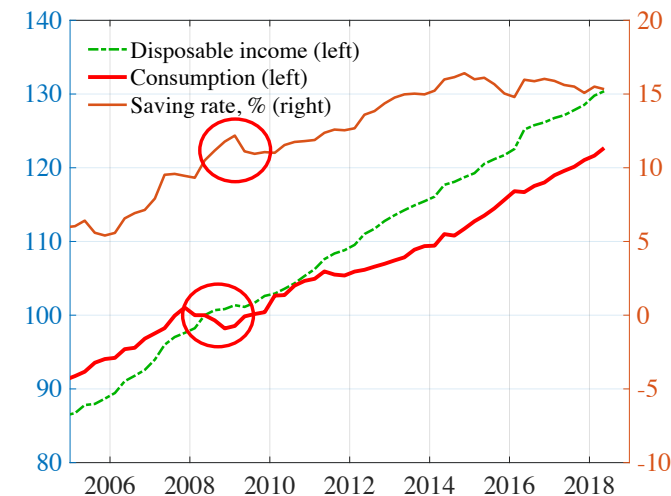
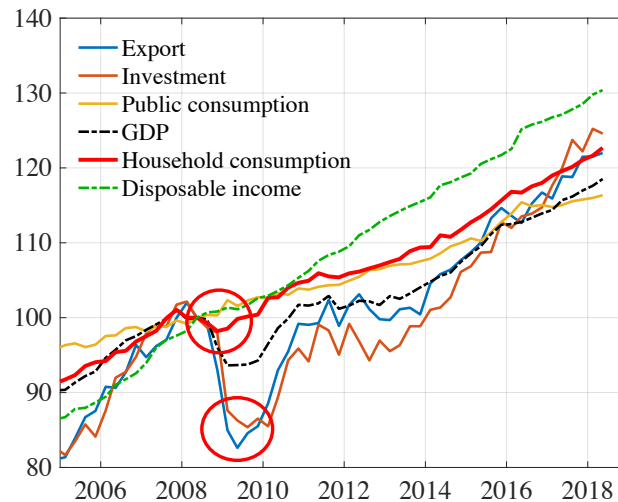
- Debt/Real assets **downward trend**
- Debt/Total assets **stable/downward trend**

Interest and DTI; DTI in the long run



Source: Statistics Sweden and own calculations. Disposable income.

Real-time stress test 2008-2009: How did household consumption adjust?



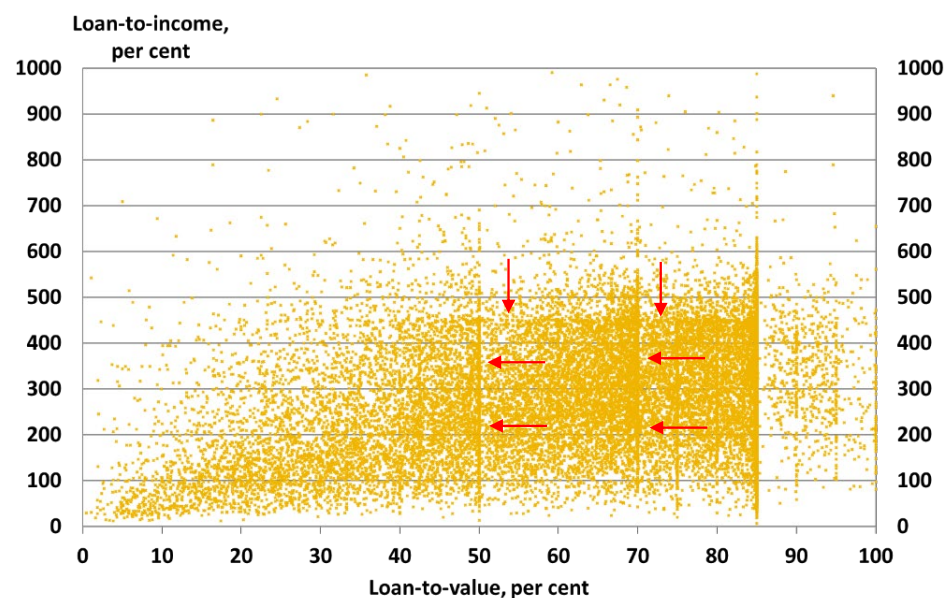
- 2008–2009 crisis: Housing prices fell 13%, unemployment rose 3.5 pp
- Export and investment collapsed
- Consumption fell only by 2%
- Saving rate rose only 1.5 pp
- Disposable income did not fall (cash-flow channel)
- Real-time stress test does not support “elevated macroeconomic risk”

The specific design of the amortization requirements reduces resilience 1

- The design makes amortization increasing in LTV and LTI ratios
- Make amortization counter-cyclical and cash-flows and consumption cyclical
- In a recession, if housing prices fall, LTV ratios increase, and some households move above the 50% and 70% thresholds and have to amortize more. [5-year re-evaluation rule.]
- In a recession, if incomes fall, LTI ratios increase, and some households move above the 4.5 threshold and have to amortize.
- More amortization reduces cash-flow and consumption
- Without amortization requirements, these channels would not be operating

The specific design of the amortization requirements reduce resilience 2

- The problem is made worse by “bunching”



FI's exemptions will not work

- The FI is aware of the problem and suggest allowing exemptions from amortization for a “limited period” on “special grounds.”
- Mentions “unemployment, long periods of absence from work due to illness and the death of a close relative.”
- Situations when individual mortgagors would have individual debt-service problems.
- Not a situation when many mortgagors would fulfill their debt service but not be able to maintain their normal consumption.
- Also, no right to exemptions. Up to the discretion of the mortgage firm.

Sweden is not Denmark

- Denmark: Before 2003, amortization requirements by law; from 2003 abolished, in order to increase flexibility in lending to temporarily credit-constrained households
- Very popular among young, low-income, and retired, but also used by middle- and high-income households
- Abolishing amortization requirements in Denmark for *all* does not say much about introducing them in Sweden for *some* (new mortgages for households without high income and wealth).
- Not level playing field in Sweden. Amortization requirements are regressive and hurt now mortgagors without high income and wealth.
- Also, Denmark is textbook example of that HEW-financed overconsumption caused the consumption fall, not high indebtedness itself
- In Sweden, there is no evidence of any HEW-financed overconsumption of macroeconomic relevance
- For young to gain from amortization requirements and lower housing prices, prices have to fall by 40%
- For a given income, the FI's credit tightening reduces the maximum loan by 47%



Svensson (2019), “Sweden is not Denmark – price fall of 40% may be needed for the amortization requirements not to exclude the young [in Swedish],” *Ekonomistas* blog post, April 24, 2019.

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)

