

Monetary policy, macroprudential policy, household debt, and macroeconomic risk

Lars E.O. Svensson

Stockholm School of Economics, CEPR, and NBER

Web: larseosvensson.se

Email: Leosven@gmail.com

Guest lecture,

EC7213 Financial Development and Financial Crises,

Stockholm University, October 14, 2019

Outline

1. Monetary policy and financial stability
 - The relation between monetary policy and macroprudential policy: Different and separate?
 - Leaning against the wind and the Swedish experience
2. Macroprudential policy, household debt, and macroeconomic risk

Readings

- * “Monetary policy and macroprudential policy: Different and separate?” *Canadian Journal of Economics* (2018) 51(3) 802-827.
- * “Cost-Benefit Analysis of Leaning Against the Wind,” *Journal of Monetary Economics* 90 (2017) 193-213.
- “The Future of Monetary Policy and Macroprudential Policy,” in ECB (2018), *The Future of Central Banking*, Festschrift in honour of Vitor Constancio, December 2018, European Central Bank, 69-123.
- * “Housing Prices, Household Debt, and Macroeconomic Risk: Problems of Macroprudential Policy I,” October 2019.
- “Amortization Requirements, Distortions, and Household Resilience: Problems of Macroprudential Policy II,” September 2019.

1. Monetary policy and financial stability

- The relation between monetary policy and macroprudential policy: Different and separate?
- Leaning against the wind and the Swedish experience

Some general questions

- What is the relation between monetary policy and financial-stability policy?
- How can they be distinguished?
- Should they have the same or different goals?
- Should they be conducted separately or coordinately?
- Should they be conducted by the same or different authorities?
- What if monetary policy would pose a threat to financial stability?
- Should monetary policy ever “lean against the wind” (of credit booms and asset prices)?
- The answers to these questions continue to be debated

The questions examined here **and short answers**

- How can different economic policies be distinguished?
By their goals, instruments, and authorities
- How can monetary and financial-stability policies be distinguished? **They are very different, and mostly orthogonal**
- Should monetary policy have a third goal, financial stability? **No!**
- Should monetary and financial-stability policies be conducted separately or coordinately? **Normally separately**
- Should they be conducted by the same or different authorities?
Separate decision-making **bodies essential**
- What if monetary policy would pose a threat to financial stability?
BoE model: Financial-stability authority judges and warns
- Should monetary policy ever “lean against the wind” (LAW)?
Only if supported by convincing cost-benefit analysis.
Remember the Swedish LAW 2010-2013 and U-turn 2014.
Systematic LAW implies lower average inflation and interest rate!

How can different economic policies be distinguished?

- Goals, instruments, responsible authorities
- Example: Fiscal policy and monetary policy
- Different goals, different instruments, different authorities
- Considerable interaction
 - Fiscal policy affects inflation and real activity
 - Monetary policy affects government revenues and expenditures
- Conducted separately, not coordinately: Nash equilibrium
- Is the relation between monetary and financial-stability policies any different?

How can monetary and financial-stability policies be distinguished? **Monetary policy**

- Goals (simple)
 - Flexible inflation targeting: Price stability and full employment
 - Stabilize inflation around inflation target and unemployment around its long-run sustainable rate
- Instruments
 - Normal times: Policy rate and communication (forecasts, forward guidance, ...)
 - Crisis times, crisis management: Unconventional measures, balance sheet policies (QE), FX policy (interventions, currency floors) ...
- Authority: Central bank

How can monetary and financial-stability policies be distinguished? **Financial-stability policy**

- Goal (complex)
 - **Financial stability**
 - Definition: Financial system can fulfill its three main functions (submitting payments, transforming saving into financing, and allowing risk management/sharing), with sufficient **resilience** to disturbances that threaten those functions
 - **Resilience** crucial
 - Also secondary goal: “Support government policies”
 - Not the stability of the graveyard (Tucker: Political decision on standard of resilience)
- Instruments
 - Normal times, crisis prevention: Supervision, regulation, communication, stress tests ...
 - Crisis times, crisis management: ...
- Authority(ies)
 - Varies across countries: FSA(s), CB, Treasury, ...
- **Monetary and financial-stability policies are very different**

Should monetary policy have a third goal, financial stability? 1

- Answer: No
- **Economic policies should only have goals that they can achieve**
- Monetary policy **can** achieve price stability and full employment (thus suitable goals)
- Monetary policy **cannot** achieve financial stability (thus **not** suitable goal)
- There is no way monetary policy can achieve sufficient resilience (more capital, less funding risk,...) of the financial system
- **No systematic effects** of MP on financial stability:
Signs often indeterminate, effects normally small
- Leaning against the wind (LAW)? (Higher interest rate for financial-stability purposes)

Should monetary policy have a third goal, financial stability? 2

- Best **theoretical** argument for LAW (Jeremy Stein, 2013):
“[W]hile monetary policy may not be quite the right tool for the job, it has one important advantage relative to supervision and regulation – namely that **it gets in all of the cracks**”
- But **empirical** estimates indicates that a modest policy-rate increase will **barely cover the bottom of those cracks**
- To fill the cracks, the policy rate would have to be increased so much that it might kill the economy
- **Qualitative** results are not enough;
quantitative results are needed, **numbers!**

Should monetary policy have a third goal, financial stability? 3

- Car metaphor 1 (Bill White, BIS)
 - Currently MP on accelerator; FSP on brake: Not good
 - Policies are close substitutes
- Car metaphor 2
 - MP keeps steady speed: Uphill accelerator, downhill brake
 - FSP keeps airbags and safety belts on
 - Policies are mostly orthogonal
- **MP** tightens/eases **financial conditions** through policy-rate path to achieve price stability and full employment
 - This has **no systematic effect** on financial stability (sometimes positive, sometimes negative, usually small or zero, depending on circumstances)
- **FSP** affects **resilience** through capital and funding regulation
 - This has **no systematic effects** on financial conditions (may sometimes tighten, sometimes ease, usually small or zero, depending on circumstances)
- Policies **mostly orthogonal**

Should monetary policy and financial-stability policies be conducted separately or coordinately?

- In normal times, crisis prevention: Conducted separately, also when conducted by the same authority
 - But each policy should be fully informed about the conduct and impact of the other policy and take that into account
 - Nash equilibrium rather than coordinated equilibrium/joint optimization
 - MP much more effective in achieving price and real stability
 - FSP much more effective in achieving financial stability
- In crisis times, crisis management: Full cooperation and coordination of policies by FSA, CB, MoF, bank-resolution authority, ...

Should monetary policy and financial-stability policies be conducted by the same authority or different ones?

- Separate decision-making bodies w/ separate goals and instruments
- Accountability and efficiency justify all financial-stability instruments in one authority
- Two clean models that should work well: UK and Sweden
- UK model
 - BoE: Two committees, MPC and FPC (Kohn, Tucker)
- Swedish model
 - FSA: Financial stability, all macro- and microprudential instruments
 - Riksbank: Monetary policy, no financial-stability instruments (except liquidity support in crises, but **not monopoly** on that)

Swedish model

- Gov't Aug 2013: New strengthened framework for financial stability
- Swedish FSA
 - Main responsibility for financial stability
 - All macro- and microprudential instruments
 - Boundary between macro- and microprudential policy unclear, especially in Sweden (oligopoly of 4 banks dominate financial sector)
 - Efficiency and accountability: Micro- and macropru together, in one authority
 - FSA proposes regulation: Government says yes or no
- Riksbank
 - No macroprudential instruments
- Financial Stability Council
 - Members: MoF (chair), FSA, NDO (bank resolution authority), RB
 - Forum for discussion and exchange of information, not decisions
 - Published minutes, reports from workgroups
 - FSC will lead crisis management in crisis

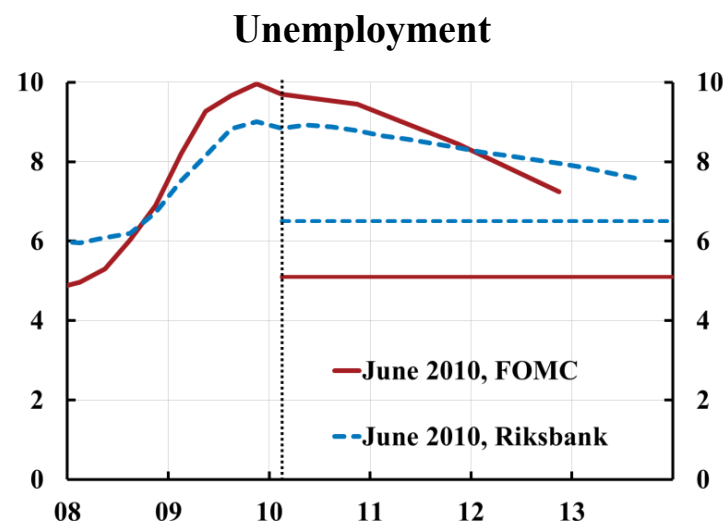
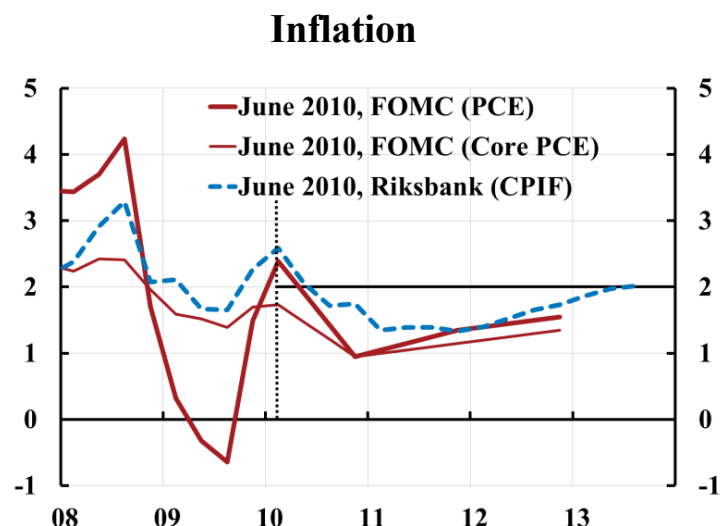
What if monetary policy would pose a threat to financial stability?

- BoE model, Aug 2013: Forward-guidance promise
- 3rd “knockout”: If the FPC would judge that monetary policy poses a significant threat to financial stability that it cannot contain with its instruments
- It should be the FS authority, not the MP one, to make the judgement and warn the MP authority
- The MP authority may then adjust monetary policy or not
- Effectively “comply or explain”
- But preserves the independence of monetary policy

Leaning against the wind (LAW)

- Policy strongly promoted by BIS
- Followed by Norges Bank and RBA
- Previously followed by the Riksbank, but now dramatically abandoned

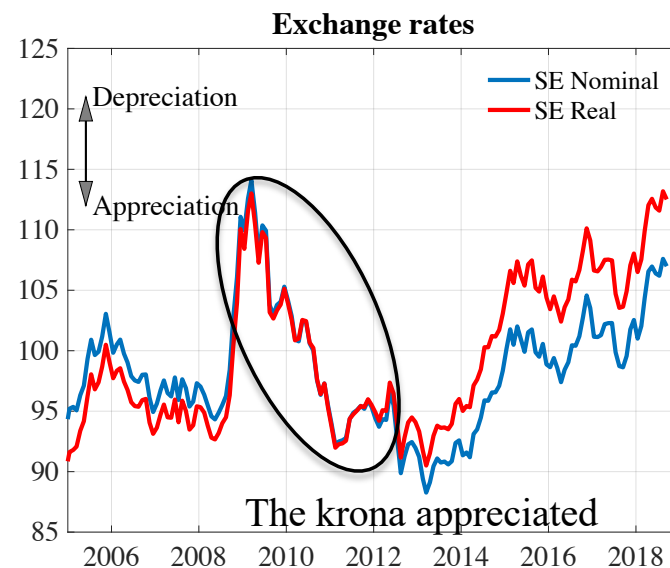
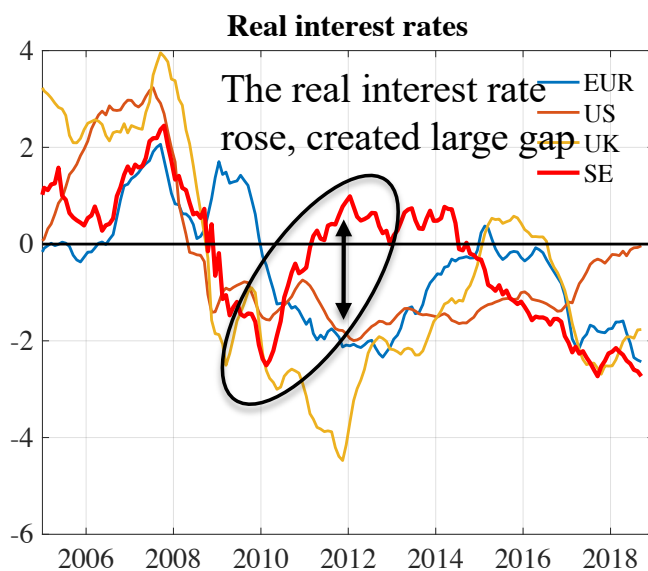
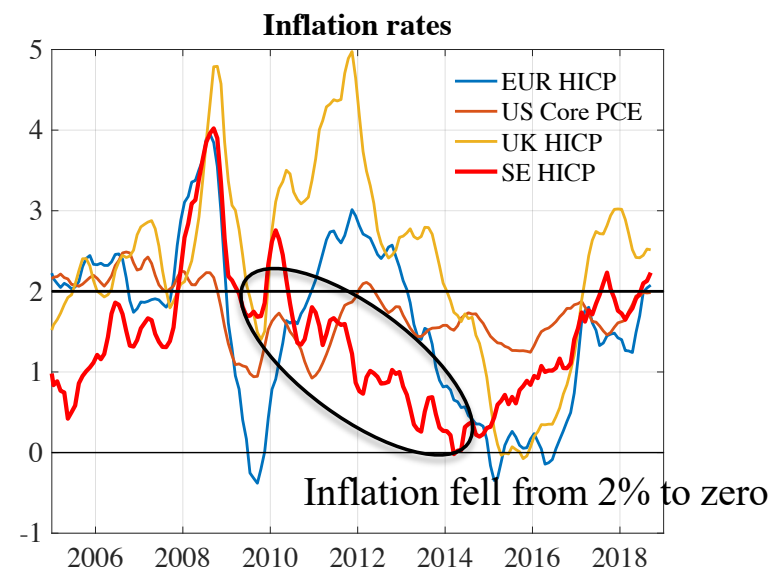
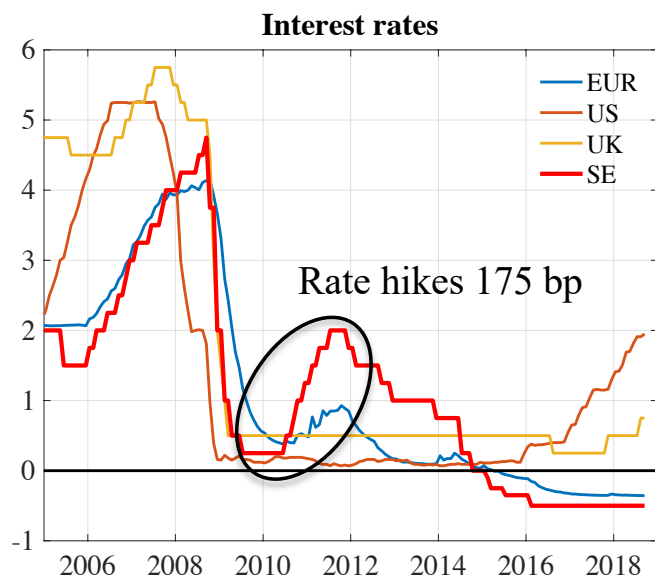
Fed and Riksbank forecasts June 2010



- Riksbank and Fed forecasts quite similar
- Policies very different
 - Fed: Continue to keep policy rate between 0 and 0.25%, forward guidance, prepare QE2, start in fall of 2010
 - Riksbank: Start raising the policy rate from 0.25% to 2% in July 2011
 - What if the Fed had followed the Riksbank example?

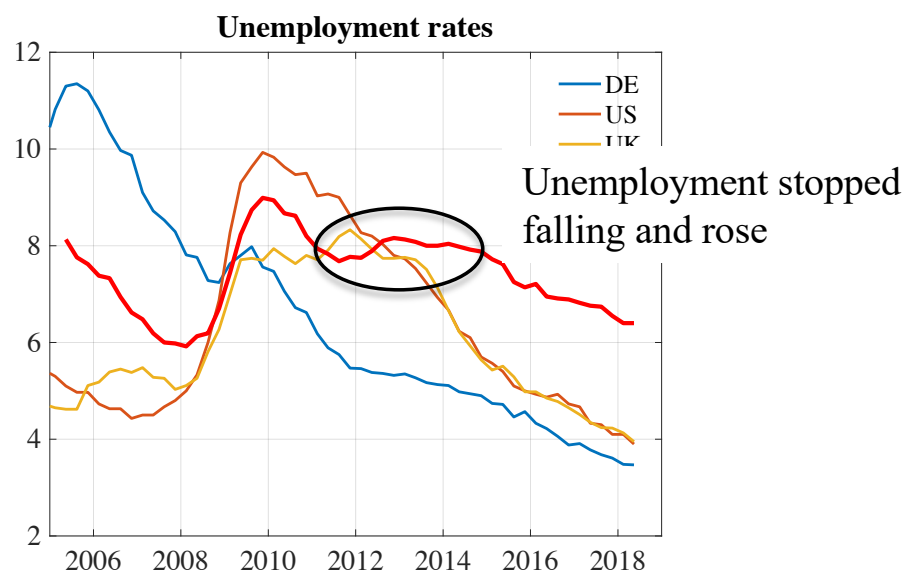
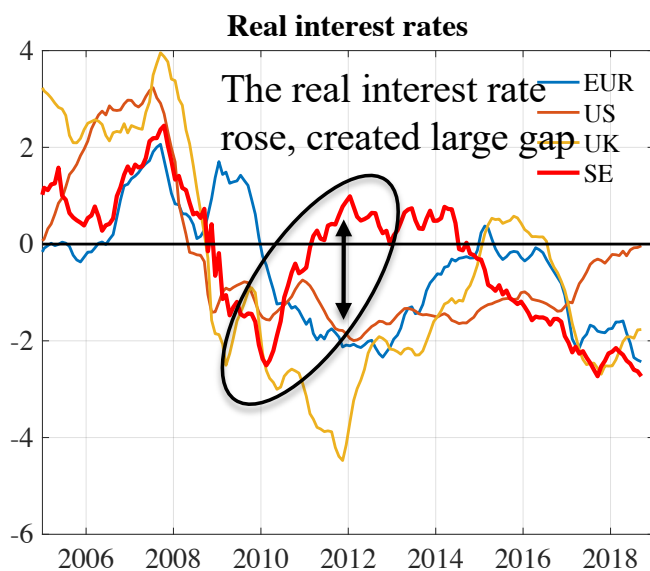
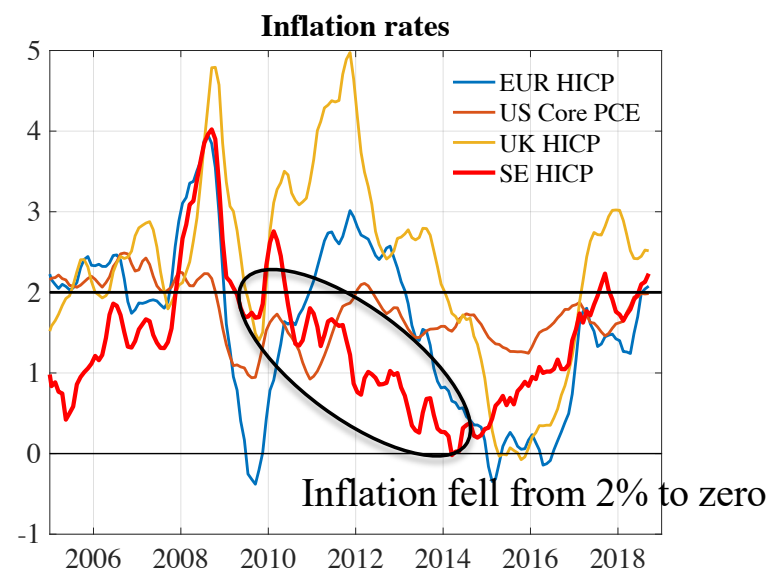
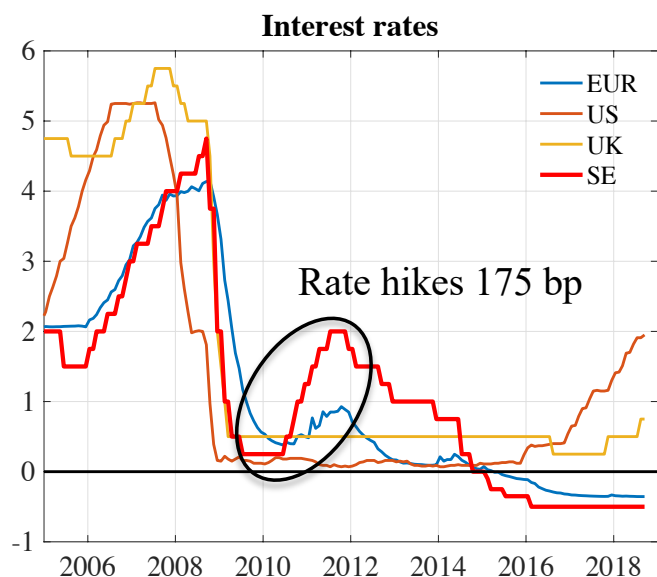
Source: Svensson, Lars E.O. (2011), "Practical Monetary Policy: Examples from Sweden and the United," *Brookings Papers on Economic Activity*, Fall 2011, 289-332.

The Swedish experience: Rate hikes 2010-2011



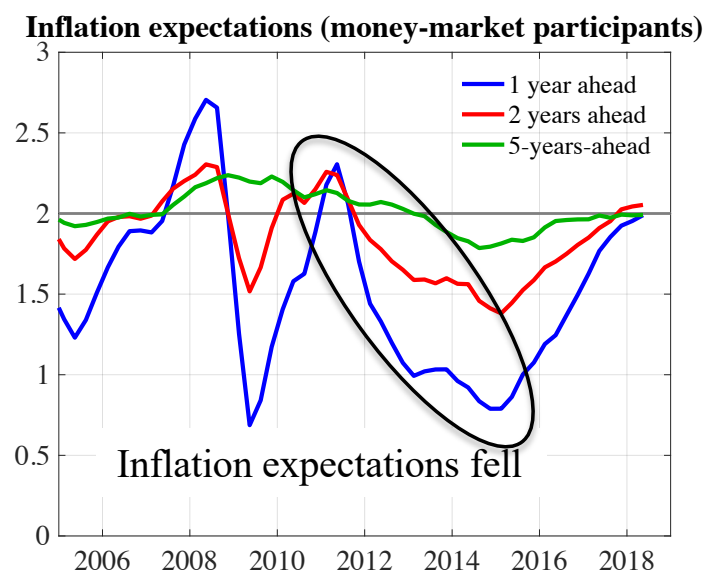
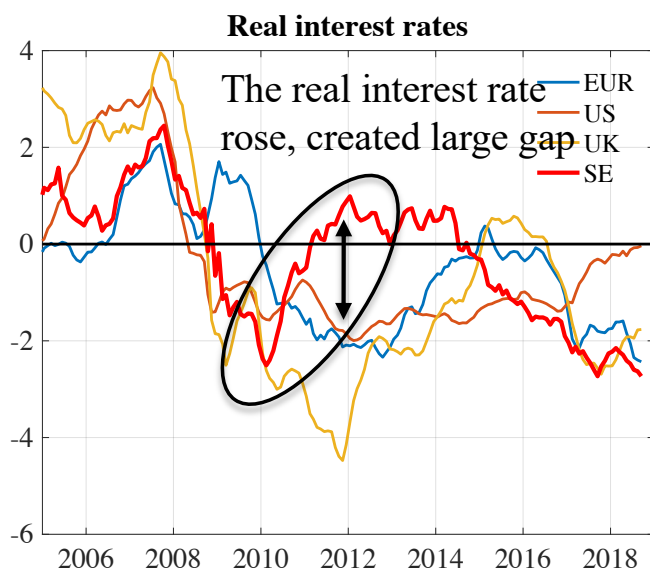
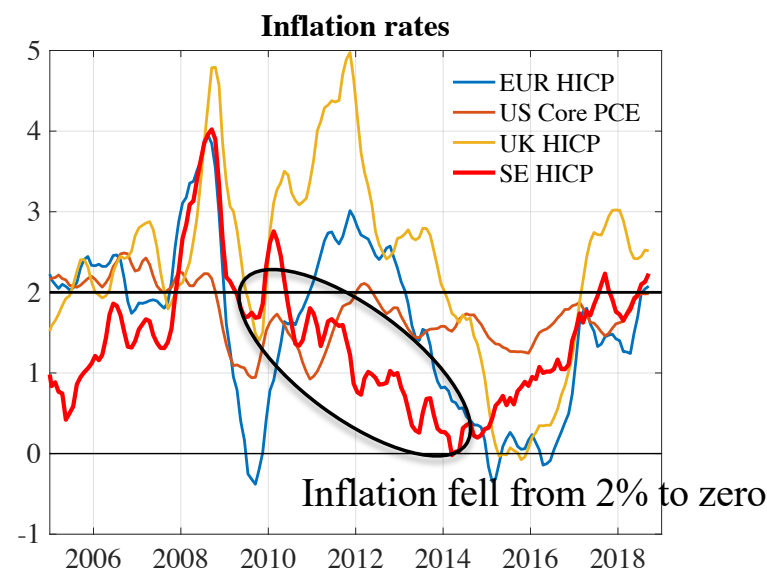
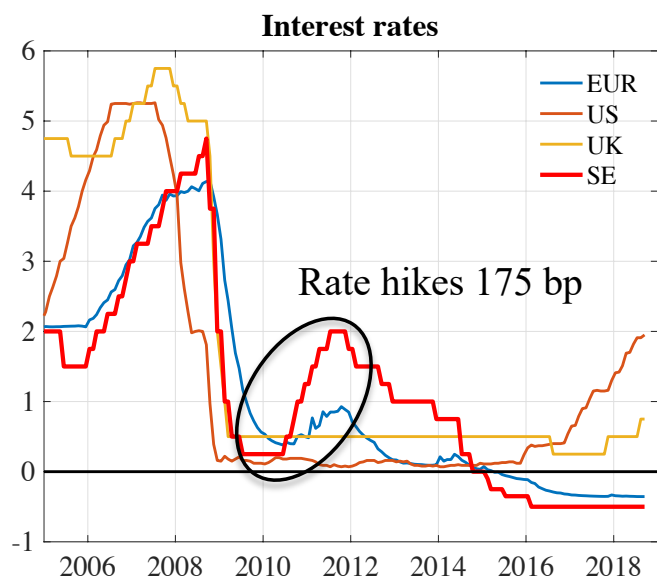
Source: Svensson (2018), “The Future of Monetary Policy and Macprudential Policy,” paper prepared for the “The Future of Central Banking: An ECB Colloquium Held in Honour of Vitor Constancio,” Frankfurt, May 16-17, 2018.

The Swedish experience: Rate hikes 2010-2011

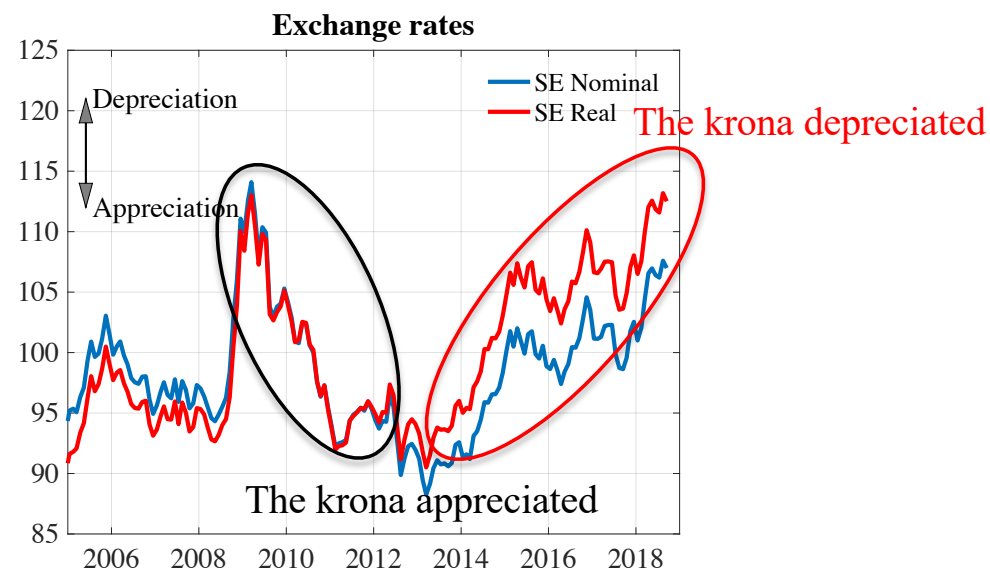
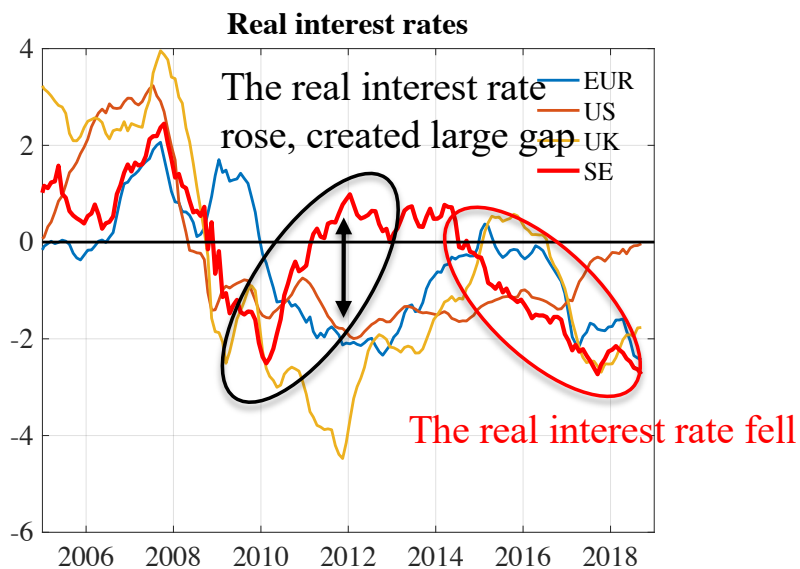
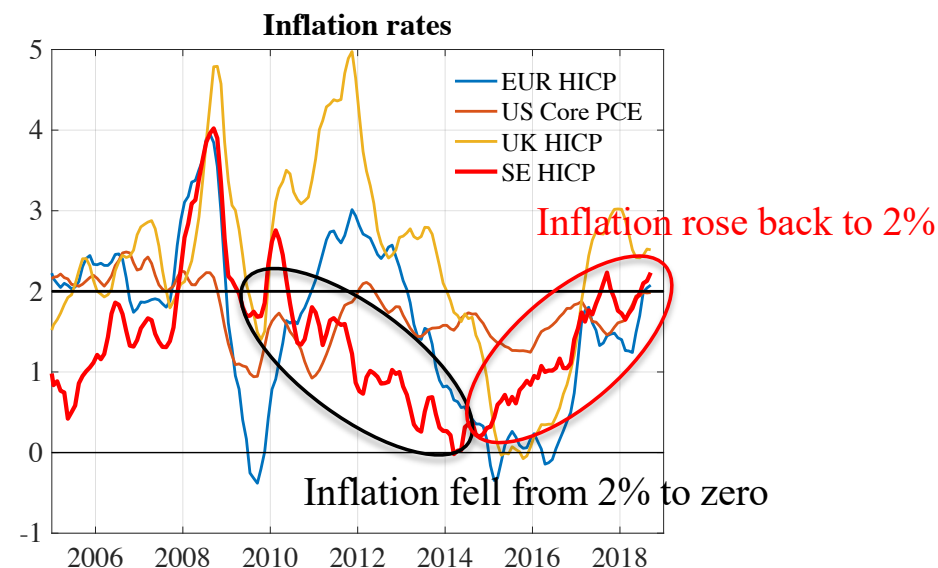
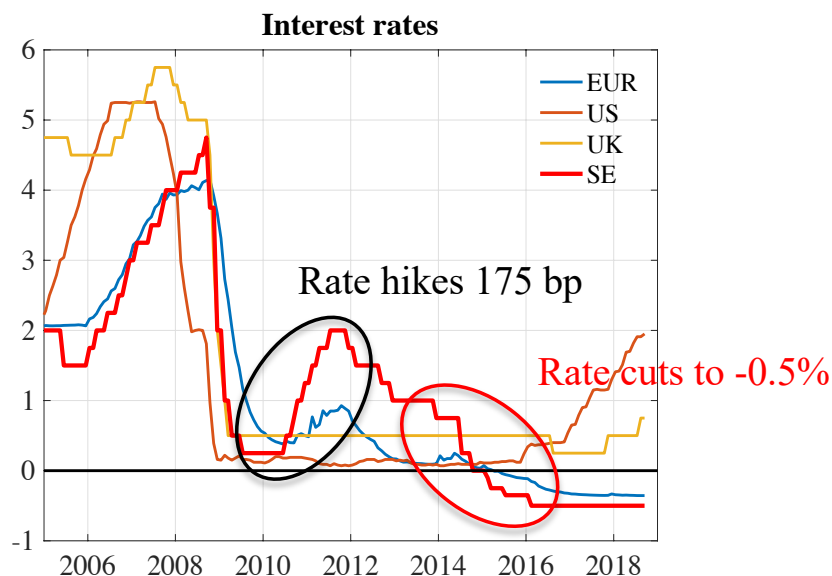


“The Future of Monetary Policy and Macprudential Policy,” paper prepared for the “The Future of Central Banking: An ECB Colloquium Held in Honour of Vitor Constancio,” Frankfurt, May 16-17, 2018. www.larseosvensson.se

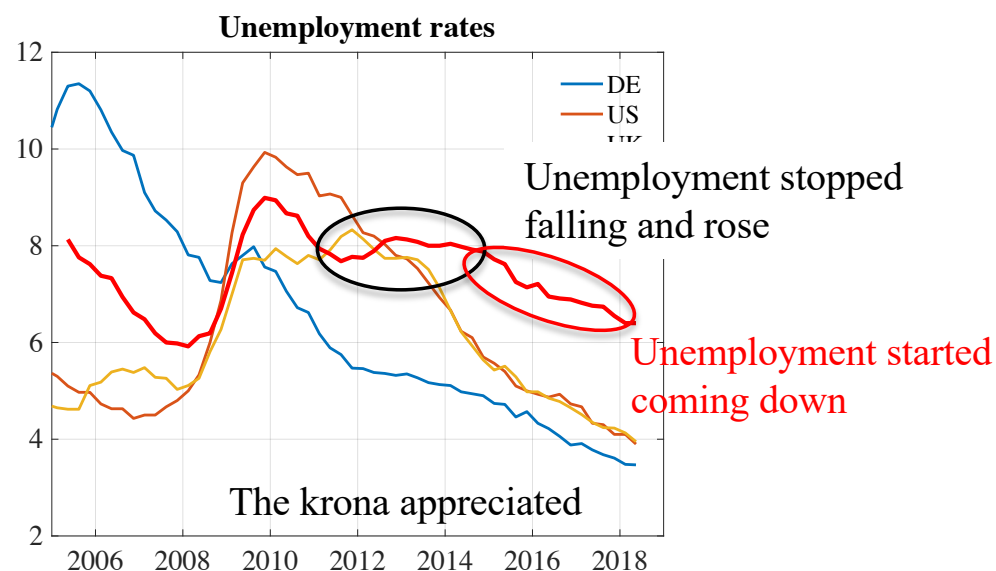
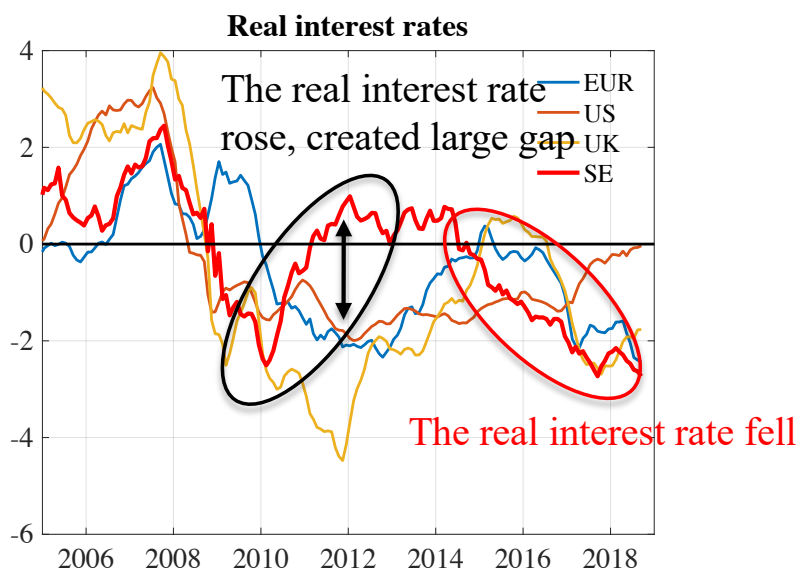
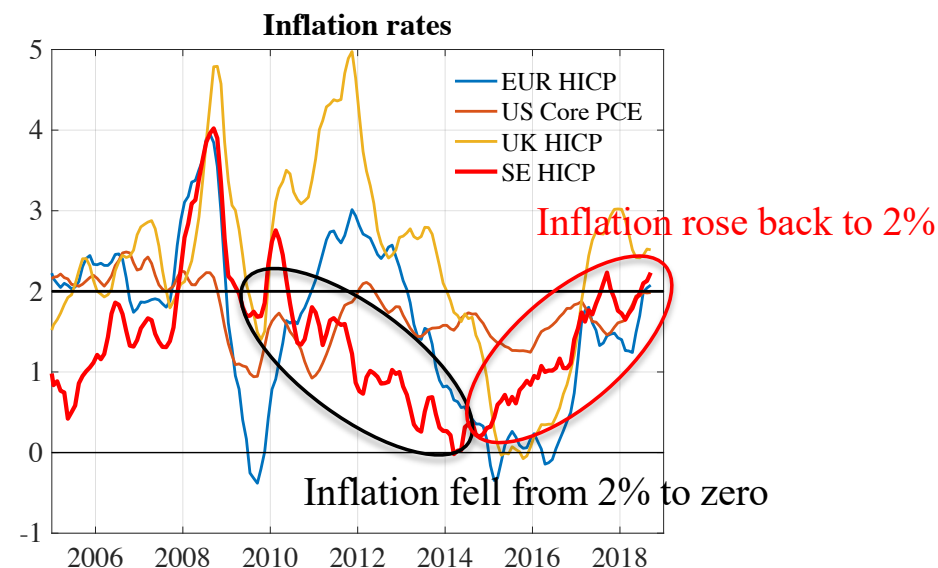
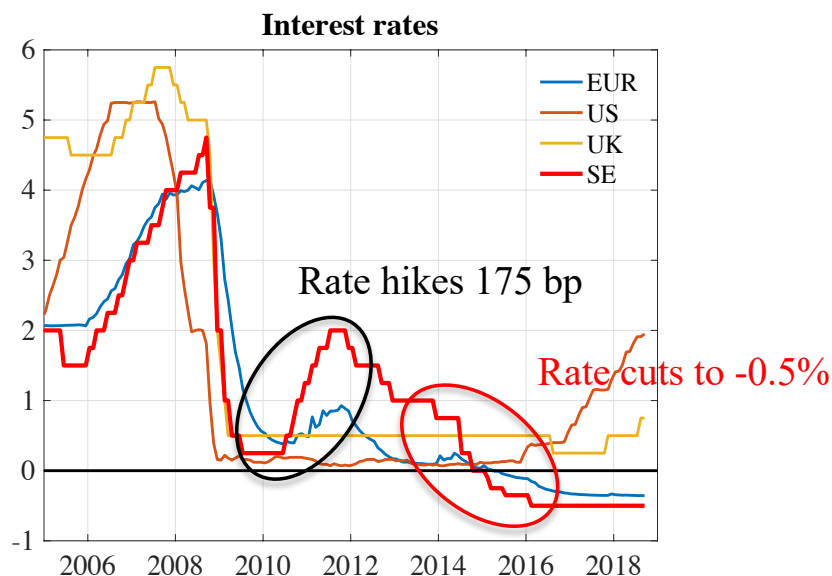
The Swedish experience: Inflation expectations



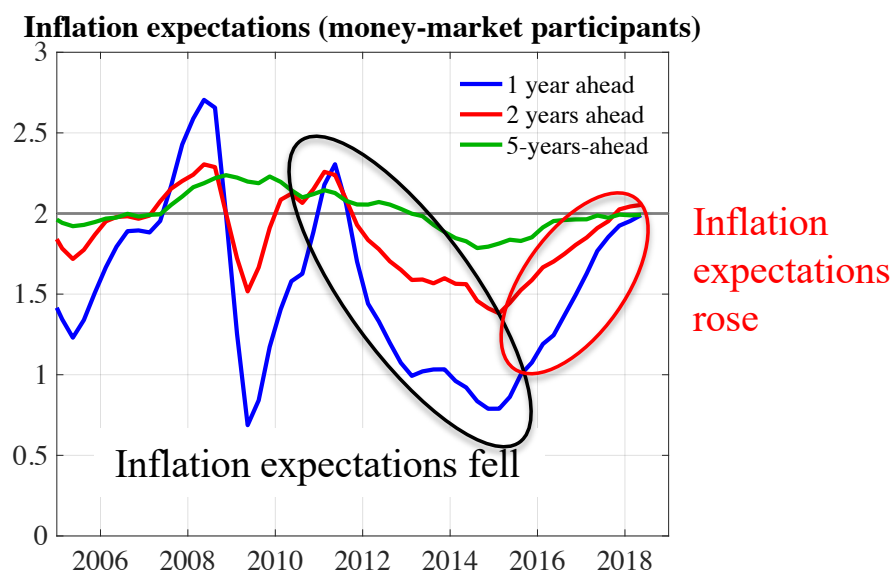
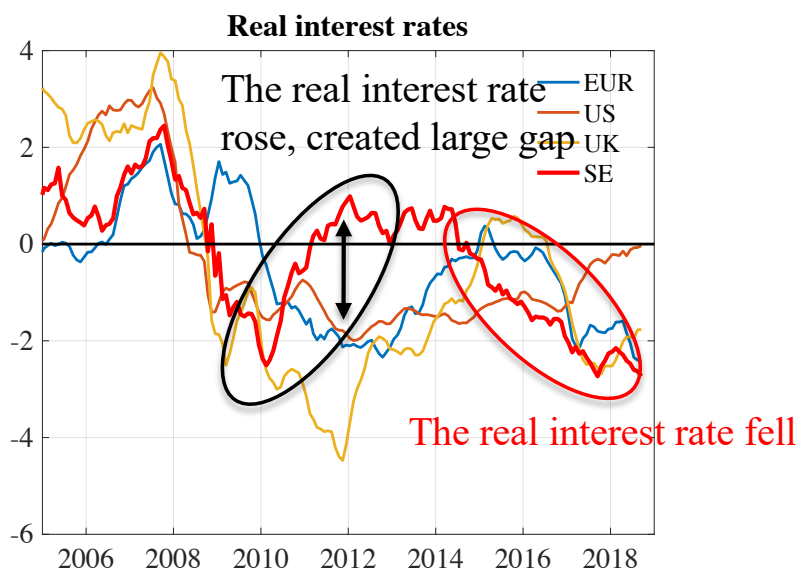
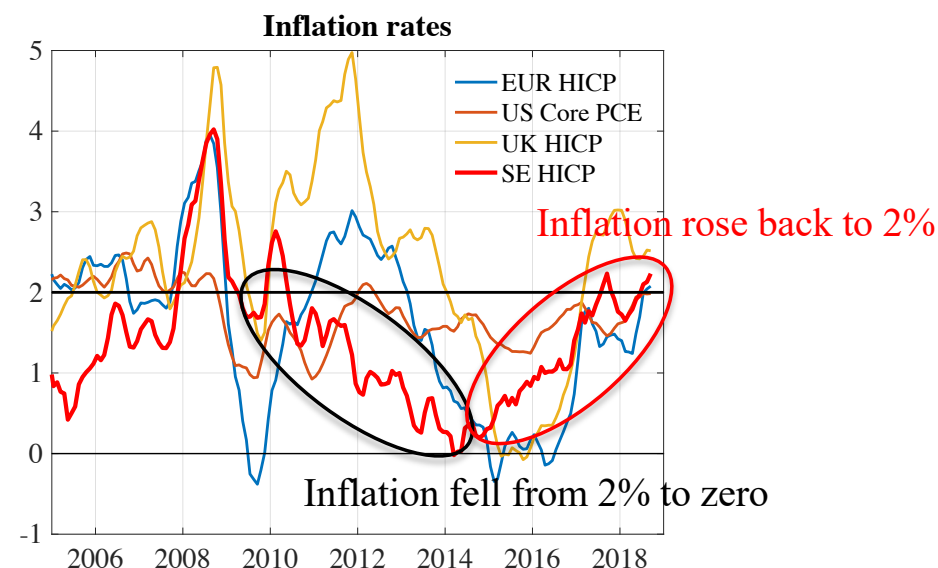
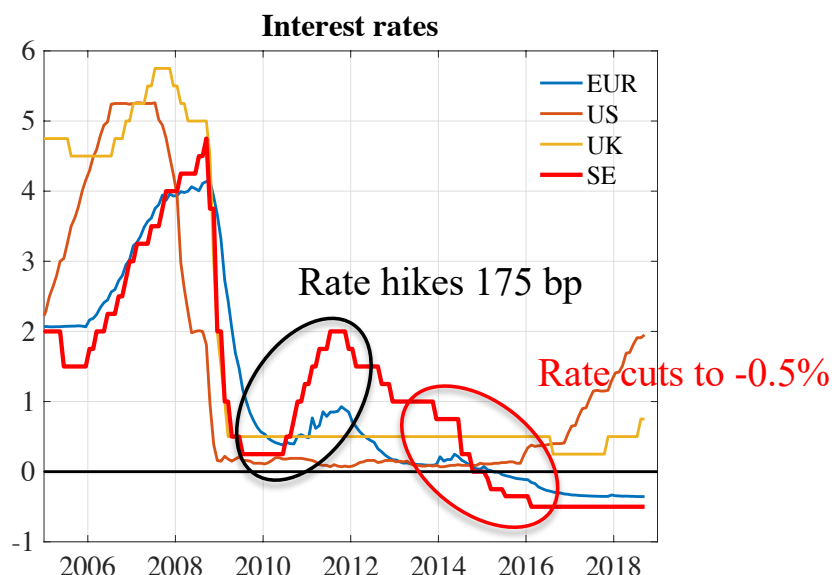
The Swedish experience: U-turn Spring 2014



The Swedish experience: Turnaround Spring 2014



The Swedish experience: Inflation expectations



Leaning against the wind (LAW)?

- Widespread skepticism against LAW beyond BIS, Norges Bank, RBA
- Bernanke; Draghi; Yellen; Evans; Williams; IMF 2015; FOMC 2016; Allen, Bean, De Gregorio 2016, “Independent Review of BIS Research”; Sveriges Riksbank 2017
- But the debate seems to continue

Widespread skepticism against LAW

- **Bernanke (2015):** “As academics (and former academics) like to say, more research on this issue is needed. But the **early returns don't favor the idea** that central banks should significantly change their rate-setting policies to mitigate risks to financial stability.”
- **Evans (2014):** “Indeed, any decision to instead rely on more-restrictive interest rate policies to achieve financial stability at the expense of poorer macroeconomic outcomes must pass a cost-benefit test. And such a test would have to clearly illustrate that the adverse economic outcomes from more-restrictive interest rate policies would be better and more acceptable to society than the outcomes that can be achieved by using enhanced supervisory tools alone to address financial stability risks. **I have yet to see this argued convincingly.**”
- **Williams (2015):** “[M]onetary policy is **poorly suited** for dealing with financial stability, **even as a last resort.**”
- **IMF (2015),** “The question is whether monetary policy should be altered to contain financial stability risks. ... Based on our current knowledge, and in present circumstances, the **answer is generally no.**”
- **FOMC (2016):** “Most participants judged that the **benefits** of using monetary policy to address threats to financial stability would **typically be outweighed by the costs** ... ; some also noted that the **benefits are highly uncertain.**”
- **Allen, Bean, and De Gregorio (2016), “Independent Review of BIS Research”:** “so far the **[BIS] argument for LAW** seems to have **cut relatively little ice** with those actually responsible for setting monetary policy. In part, that is because of the **lack of convincing evidence** that the expected benefits outweigh the expected costs. ...in some cases the research programme appeared **somewhat one-eyed**. [Of 9 projects on financial stability and monetary policy] the first and (to some extent) the fifth seem **motivated primarily by a desire to overturn Svensson's [2017] conclusion on the inadvisability of LAW.** ...the research effort ... seems **excessively focussed on building the case for LAW**, rather than also investigating the scope for other policy actions to address financial stability risks.” [Reference updated.]
- **Sveriges Riksbank (2017, p. 13):** “It is not likely that small increases in the repo rate would have any tangible effects on household indebtedness. **A large increase in the repo rate could certainly slow down the buildup of debts but would also lead to higher unemployment, a much stronger krona and lower inflation.** Other measures more specifically aimed at reducing the risks associated with household debt have less negative effects on the economy as a whole.”

Cost-benefit analysis of LAW 1

- **Costs** of higher policy rate:
A weaker economy: Lower inflation and higher unemployment
 - If no crisis: Non-crisis loss is larger (1st cost)
 - If crisis occurs: Crisis loss is larger if the economy is initially weaker because of LAW (**2nd cost**, the main cost)
 - 2nd cost disregarded in previous literature (including my own previous work)
- Possible **benefits**: Lower probability or magnitude of crisis
- **Empirically, costs exceed benefits by a substantial margin**
- Reason: **Policy-rate effects on probability and magnitude too small**
- Robust result: **Overturing** it requires policy-rate effects on crisis probability or magnitude **5-40 std. errors larger** than benchmark empirical estimates
- Somewhat surprisingly, **less effective financial-stability policy**, with higher probability, larger magnitude, or longer duration of a crisis tends to **increases costs more than benefits** (increases 2nd cost)

Svensson (2017), “Cost-Benefit Analysis of Leaning Against the Wind,”
Journal of Monetary Economics 90 (October)

Cost-benefit analysis of LAW 2

$$E[L_t] = (1 - p_t)E[L_t^n] + p_tE[L_t^c]$$

$$= (1 - p_t)E(u_t^n - u_t^*)^2 + p_tE(u_t^n + \Delta u_t - u_t^*)^2$$

p_t prob. of crisis; L_t^n non-crisis loss; L_t^c crisis loss (indirect loss functions, flexible inflation targeting); u_t^n non-crisis unempl.; u_t^c crisis unempl.; u_t^* optimal unempl. for $p_t = 0$ (optimal flexible infl. targeting); Δu_t crisis unempl. increase (magnitude of crisis) (net of “cleaning”);

- LAW: $di > 0$ at $u_t^n = u_t^*$ (optimal FIT for $p_t = 0$):

$$\frac{d}{di} E[L_t]_{|u_t^n = u_t^*} = 2p_tE[\Delta u_t] \frac{du_t^n}{di} \text{ [Costs: 1st } \frac{dL_t^n}{du_t^n} = 0, \text{ 2nd } \frac{dL_t^c}{du_t^n} > 0]$$

$$- E[(\Delta u_t)^2] \left(-\frac{dp_t}{di} \right) - 2p_tE[\Delta u_t] \left(-\frac{d\Delta u_t}{di} \right)$$

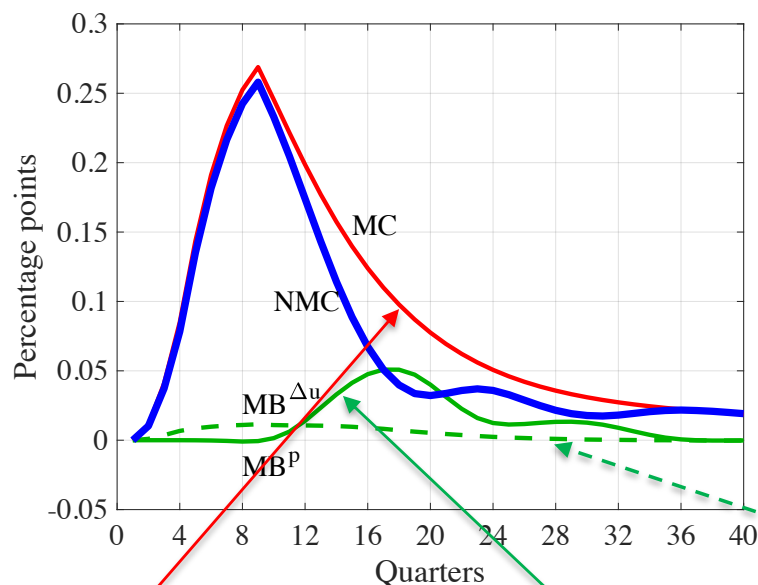
$$\equiv MC_t - MB_t^p - MB_t^{\Delta u}$$

Svensson (2017), “Cost-Benefit Analysis of Leaning Against the Wind,”
Journal of Monetary Economics 90 (October)

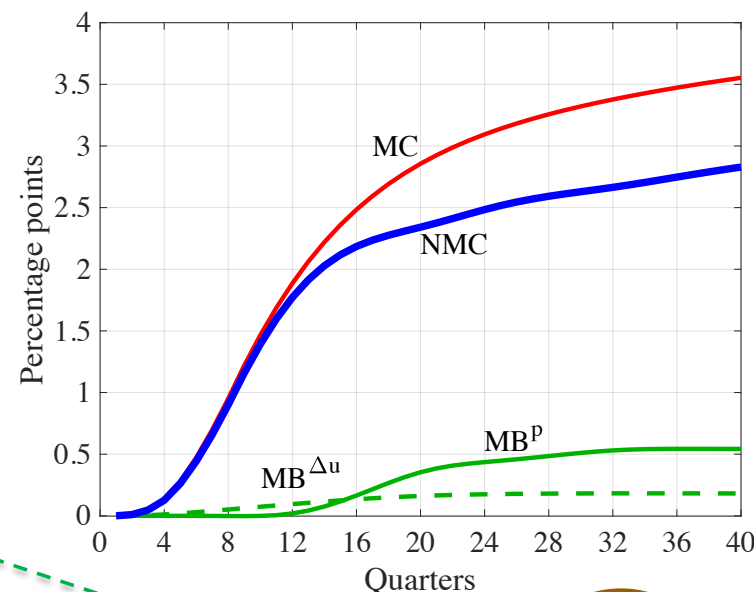
Cost-benefit analysis of LAW 3

Interest rate 1 pp higher during qtrs 1–4

MC, MB, NMC

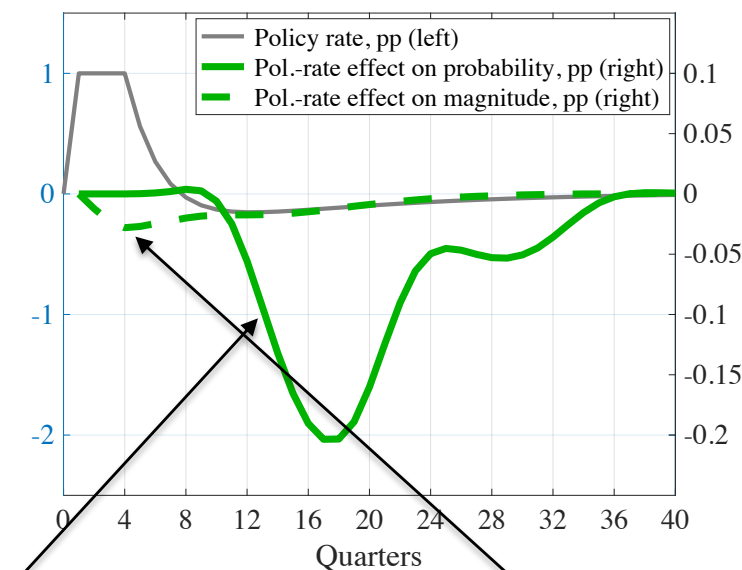
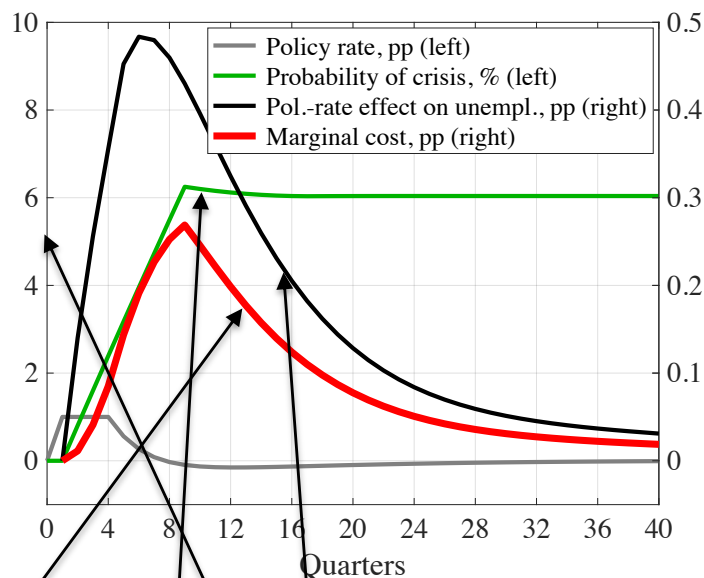


Cumulative MC, MB, NMC



- $MC_t = 2p_t\Delta u \frac{du_t}{di}$; $MB_t^P = (\Delta u)^2 \left(-\frac{dp_t}{di}\right)$; $MB_t^{\Delta u} = 2p_t\Delta u \left(-\frac{d\Delta u_t}{di}\right)$
- 5 inputs: Probability of crises (p_t); magnitude of crises (Δu); policy-rate effects on unemployment (du_t/di), probability (dp_t/di), and magnitude ($d\Delta u_t/di$)
- Few assumptions, very simple, transparent (preferred to complicated analysis)
- Easy to redo
- Framework for comparing new and old results

Cost-benefit analysis of LAW 4 Components MC, MB

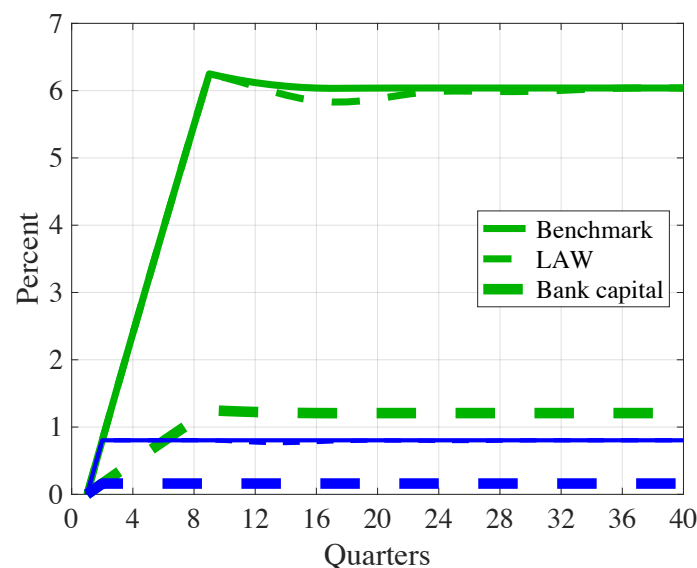


- $MC_t = 2p_t \Delta u \frac{du_t}{di}$; $MB_t^p = (\Delta u)^2 \left(-\frac{dp_t}{di}\right)$; $MB_t^{\Delta u} = 2p_t \Delta u \left(-\frac{d\Delta u_t}{di}\right)$

- Representative benchmark estimates:
Policy-rate effects on unemployment (IMF 2015, Riksbank),
on probability (IMF 2015, Schularick and Taylor 2012; Riksbank 2014), and on
magnitude (Flodén 2014; Jorda, Schularick, and Taylor 2013; Riksbank 2014)

For financial stability, no choice but to use financial-stability policy

- Probability of **crisis** and **crisis start** (solid)
- Annual prob of crisis start 3.2% (1 in 31 yrs)
- Crisis lasts 2 yrs: Prob being in crisis $\approx 6\%$
- Policy-rate effects (dashed)
- Dagher, Dell’Ariccia, Laeven, Ratnovski, Tong (2016), “Benefits and Costs of Bank Capital,” IMF SDN/16/04
- 20% bank capital relative to risk-weighted assets might have avoided 80% of historical banking crises in OECD since 1970 (DDLRT, 2016, fig. 7)
- Effect of capital on probability of crises:
Shift from solid to thick dashed lines



Summing up

- **Economic policies should only have goals that they can achieve**
- **Monetary policy should not have financial stability as a goal**
- Monetary and financial-stability policies
 - Have different goals, instruments, effects, and (often) authorities
 - **Are very different, mostly orthogonal**
 - **Should normally be conducted separately**, by separate decision-making bodies (also when conducted by the same authority), but each policy under full information about the conduct of the other policy
 - The UK and Sweden provide two clean systems, with clear separation and accountability
- What if monetary policy would pose a threat to financial stability?
 - **FS authority judges and warns**, MP authority decides whether to act
- Should monetary policy ever “lean against the wind” (LAW)?
 - **Only if supported by convincing cost-benefit analysis**
 - **Remember the Swedish LAW 2010-2013 and turnaround 2014**
 - **The cost-benefit framework presented is simple, transparent, and easily applied**
 - **Systematic LAW may lower average inflation and interest rate**

Systematic LAW?

- Implies lower average inflation and interest rates, larger risk for ELB
- Policy rule, no LAW: $i_t = r + \pi_t + \gamma(\pi_t - \pi^*)$
- Take (unconditional) mean: $E[i_t] = r + E[\pi_t] + \gamma(E[\pi_t] - \pi^*)$ (1)
- Assume avg Fisher eqn: $E[i_t] = r + E[\pi_t]$ (2)
- By (1) and (2): $E[\pi_t] = \pi^*, \quad E[i_t] = r + \pi^*$
- LAW: $i_t = r + \pi_t + \gamma(\pi_t - \pi^*) + \alpha_t, \quad E[\alpha_t] = \alpha > 0$
- Take mean: $E[i_t] = r + E[\pi_t] + \gamma(E[\pi_t] - \pi^*) + \alpha$ (3)
- By (2) and (3) : $E[\pi_t] = \pi^{**} \equiv \pi^* - \alpha/\gamma < \pi^*$
 $E[i_t] = r + \pi^{**} < r + \pi^*$
- Lower average inflation and policy rate
- Larger risk for ELB
- Good?

1. Monetary policy and financial stability

- The relation between monetary policy and macroprudential policy: Different and separate?
- Leaning against the wind and the Swedish experience

2. Macroprudential policy, household debt, and macroeconomic risk

“Mistaken reasons, negative effects, and reduced household resilience”

- Since 2010, the FI (Swedish FSA) has achieved a considerable tightening of the mortgage market (LTV limit, more recently amortization requirements, “communicative supervision,” higher affordability-test interest rates, etc.)
- A tightening for mistaken reasons: Lacks theoretical and empirical support
- Large negative welfare and distribution effects
- Hurts first-time buyers without high incomes or wealth (the tightening is regressive)
- Less mobility in the housing market
- Reduced construction, continued large structural housing deficit
- Reduced household resilience (increased vulnerability) and if anything increased risk of larger economic downturns – counter to the declared purpose of the amortization requirements

Background 1

- Rising housing prices and household debt in Sweden
 - The Swedish FSA (Finansinspektionen, FI):
 - “The big problem today is that **household indebtedness may contribute to or reinforce a recession.**”
 - “Even if the financial-stability risks are judged to be small at present, **high and rising debt-to-income ratios among many borrowers** therefore **poses an elevated macroeconomic risk.**”
 - “**The households' debt is still increasing faster than their income and housing prices are still high. Consequently, the need for action remains.**”
- (FI Director General, op-ed in Dagens Nyheter, Nov 2017)

Background 2

- The action: Dramatic tightening of lending standards
- 2010: LTV cap 85%
- 2016–2018: New compulsory amortization requirements: 3% of mortgage at origination (LTV>70%, LTGI>4.5), corresponding to $3/(1-0.3)=4.3$ pp pre-tax mortgage-rate increase (30% capital-income tax)
- FI recommending tighter affordability test (KALP) interest rate: 7% instead of 6%
- Welcomed/encouraged tighter banks' internal LTGI limits (average 5.5)
- Before tightening:
6% affordability test interest rate on interest-only loan
SBAB 2010: Interest-only loan up to 85% LTV ratio
- After tightening: Equivalent to $7+4.3 = 11.3\%$ on interest-only loan
- 7% affordability test interest rate: More than 5.5 pp higher than current variable mortgage rates (less than 1.5%)
- For a given income, mortgage reduced by 47% $(1-6/11.3)$

Three questions

1. Are Swedish housing prices too high?
2. Is Swedish households' debt too high?
3. Does Swedish household indebtedness imply an “elevated macroeconomic risk”?

- Answers?
- FI: **Yes** on all three questions
- LS: **No** on all three (“no evidence of...”)
- Today only the third question

Much is good with Swedish macroprudential policy

- Finansinspektionen (FI) has taken a series of actions to make sure that **banks are well capitalized** (minimum bank capital 24% of RWA, current capital 28% of RWA, 22% CET1) and very resilient in stress tests
- FI's report *The Swedish Mortgage Market* with stress tests of households:
Households have substantial and over time increasing debt-service capacity and resilience to housing-price falls, interest-rate increases, and income losses due to unemployment.
- LTV cap of 85%; average LTV 63% for new mortgages, 55% for total stock.

The tightening is **not** motivated by **risks to financial stability**

- “FI’s judgment is **that the financial-stability risks associated with households’ debt are relatively small.**
- ... This is because the mortgage holders generally have good possibilities to continue to pay their interest and amortization also if interest rates rise or incomes fall.
- ...The households have also on average good margins to manage a fall in housing prices.
- ...In addition, the Swedish banks are judged to have satisfactory capital buffers if credit losses nevertheless would materialize.”

Instead it is justified by an “elevated macro risk”

- FI: “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. [The only justification!]
- ... 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 borrowers, they represent an elevated macroeconomic risk.” (FI Decision Memo Dec 11, 2017, p. 1)

Research contradicts FI: The consumption fall in the other countries did **not** depend on household indebtedness 1

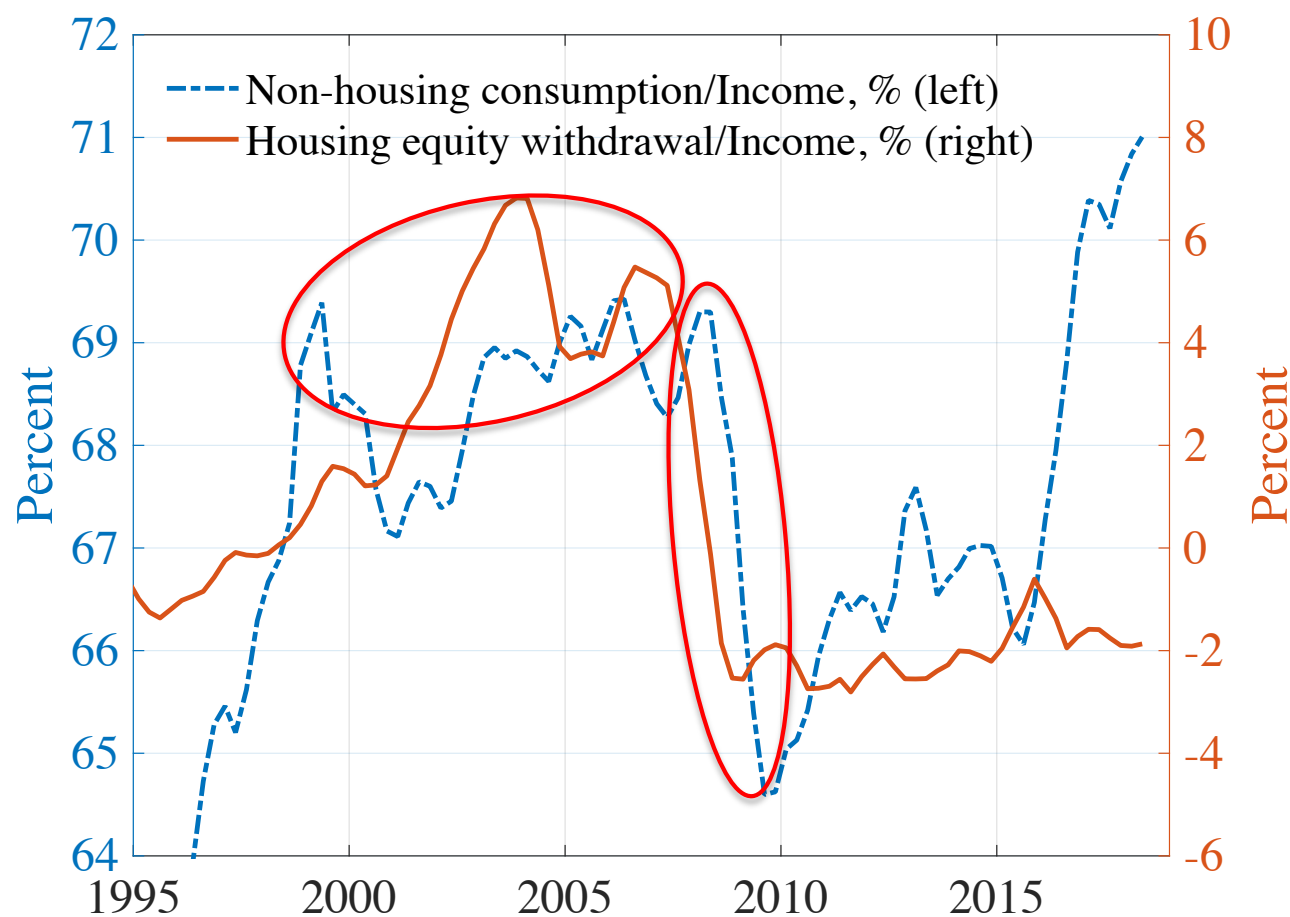
- FI believes that “developments in other countries” [Denmark, UK, US] imply that high indebtedness cause a risk for large consumption falls and increase the risk of larger downturns
- But research has shown that **large consumptions falls** in other countries during the crisis 2008–2009 **did not depend on high indebtedness but on debt-financed overconsumption**
- In Denmark, the UK, and the US households **increased their mortgage** (housing equity withdrawal, **HEW**) when housing prices rose **in order to finance overconsumption** relative to disposable income.
- An active “**housing collateral channel**” (Muellbauer) (“**credit-driven household demand channel**,” Mian & Sufi) made aggregate **consumption depend on housing-price increases**
- Overconsumption is undersaving and showed up in **low and falling saving ratios (high and rising consumption ratio)**
- When the crisis came, housing prices stopped rising and started to fall
- The overconsumption could not continue
- Consumption fell back to normal levels and the saving ratio rose

(Andersen et al. 2016; Bunn and Rostom 2014, 2015; Baker 2019)

Research contradicts FI: The consumption fall in the other countries did **not** depend on household indebtedness 2

- **The decisive regression result** (Andersen et al., individual registry data, 0.5 mn home-owning Danes):
Highly indebted household that were **not** engaged in debt-financed overconsumption did **not** reduce their consumption **more** than less indebted households
- **The consumption fall was entirely due to debt-financed overconsumption, not to indebtedness**
- Same regression result for Bunn and Rostom data (unpublished)

UK: High correlation between HEW and non-housing consumption to disposable income

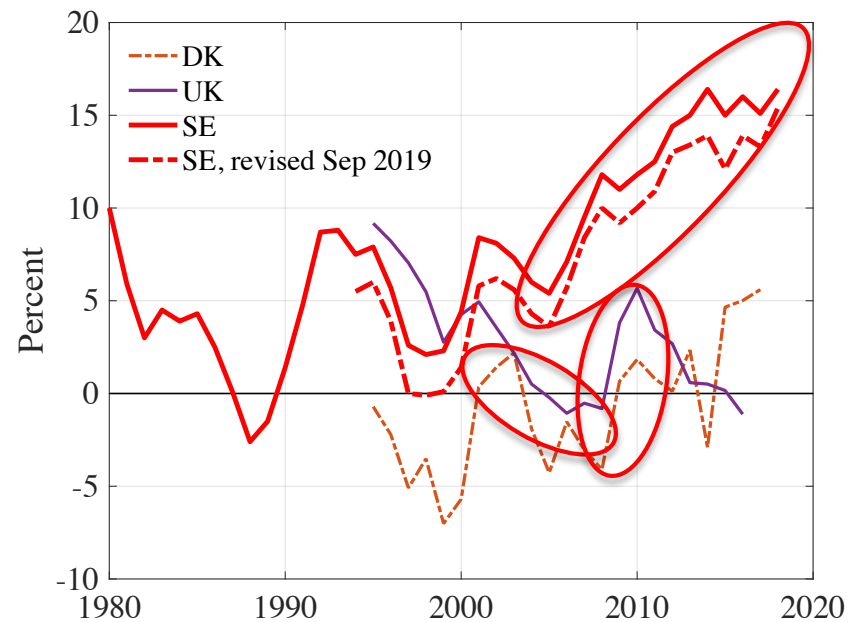


Elevated macroeconomic risk in Sweden?

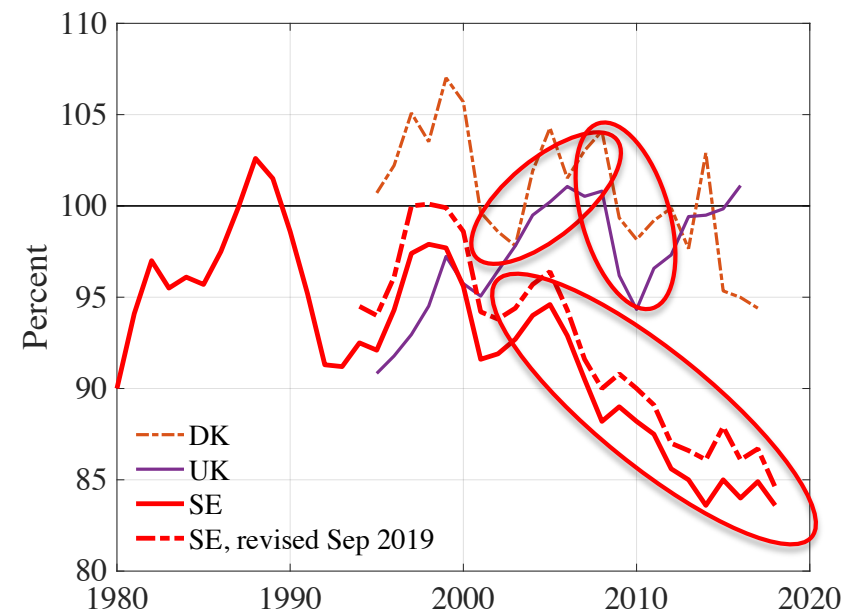
- If debt-financed aggregate overconsumption, risk for a consumption fall and a thus a macroeconomic risk
- Shows up in unsustainably low saving rate/high consumption rate
- But no evidence of debt-financed overconsumption in Sweden
 - Rising and now historicly high saving rate
 - HEW is used for other purposes than overconsumption (home improvement, helping family members buy housing, buying summer homes, financing start-ups, ...)
 - Consumption of durable goods below average
- No evidence of any elevated macroeconomic risk in Sweden
- The tightening has been introduced for mistaken reasons
- The tightening lacks theoretical and empirical support
- But it has very negative welfare and distributional consequences

Saving and consumption rates in Denmark, Sweden, and the UK

Saving rates



Consumption rates



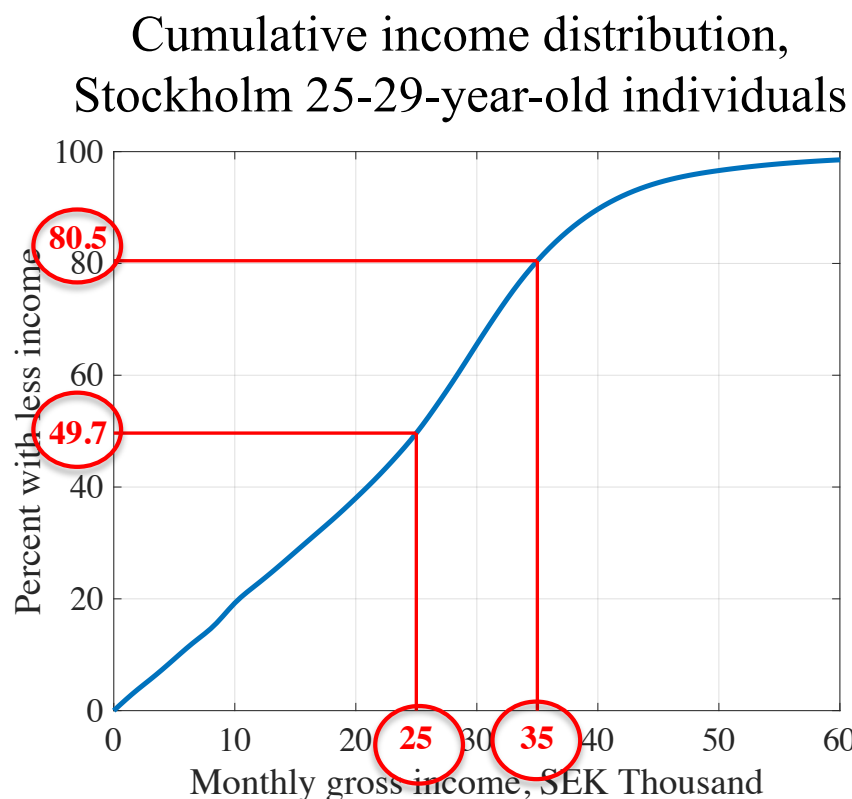
Conclusions 1

- There is no evidence that Swedish housing prices and household debt are too high relative to their fundamental determinants
- There is no evidence that Swedish household indebtedness poses an “elevated macroeconomic risk”
- The correlation in several countries between pre-crisis household indebtedness and consumption falls during the crisis is best explained by HEW-financed overconsumption that stopped when the crisis came
- There is no evidence of HEW-financed overconsumption in Sweden
- Microdata studies of HEW in Sweden indicate that HEW increases resilience by allowing a more efficient debt composition and some consumption smoothing for negative income shocks

Conclusions 2

- No evidence that Swedish household indebtedness poses an “elevated macroeconomic risk” means **no rationale for FI’s tightening of lending standards**
- **Few or no benefits** of tightening, but **substantial welfare costs**

- Share of 25-29-year-olds with sufficient income to get a loan to buy an average Stockholm studio 2017
- Before (SEK 25,000/m): **50%**
- Before (SEK 35,000/m): **20%**
- **Share excluded**
 $(50 - 20)/50 = 60\%$
- More about consequences (**reduced resilience**) in companion paper: “Amortization Requirements, Distortions, and Household Resilience: Problems of Macroprudential Policy II”

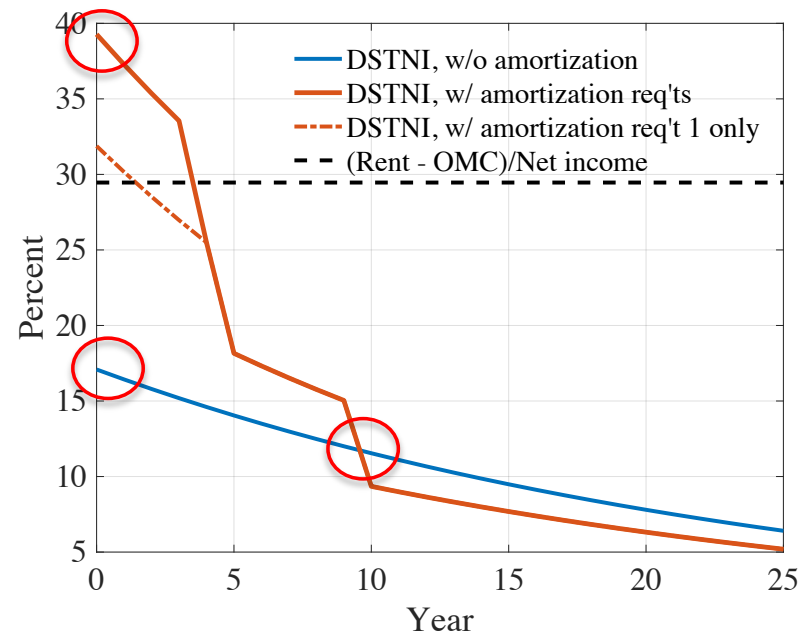
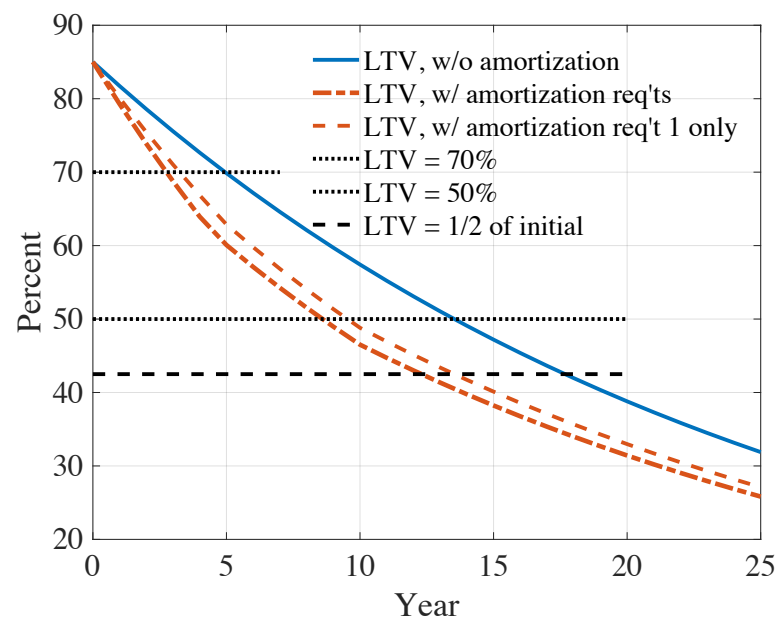


A long list of distortions

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.
-

Less resilience: Debt-service-to-net-income ratios,
Initial gross income SEK 35,000/m (net 27,000), 4% growth



- Amortization requirements force mortgagors to oversave and underconsume
- Very high DSTNI ratios, higher for 10 years compared to interest-only loan
- Higher fixed payments, less cash-flow margins, more liquidity constrained, more likely hand-to-mouth consumers,
- Especially bad for young and for retired
- Forced to save in housing equity (an illiquid asset) instead of in liquid financial assets (creating a liquidity buffer)