To lean or not to lean: The Swedish experience

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Dinner speech
SNB Research Conference 2014,
Zurich, September 26-27, 2014

or…

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A premature exit: The Swedish experience

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Outline

- Should standard flexible inflation targeting be combined with some leaning against the wind, in order to promote financial stability?
- Leaning promoted by the BIS
- Skepticism elsewhere, but debate continues
- Sweden a case study: Quite aggressive leaning since summer 2010
- Outcome: Very low inflation, very high unemployment, probably higher real debt
- Was the Riksbank leaning justified?

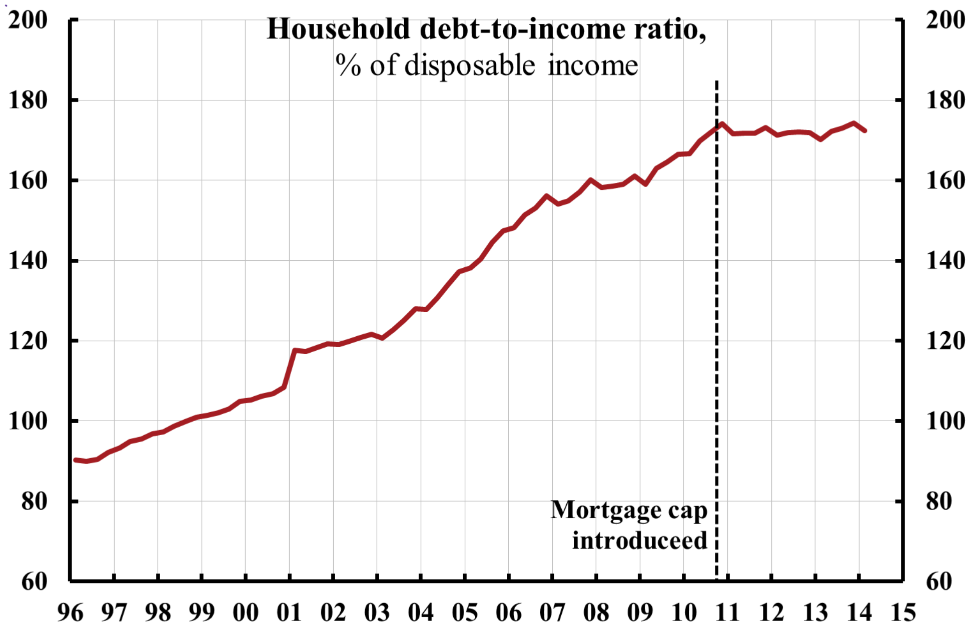
Case study: Sweden

- Riksbank has been leaning against the wind since summer of 2010, referring to concerns about household debt
- This has led to inflation far below the target and unemployment far above a long-run sustainable rate
- With inflation much below expectations, it arguably also led to higher real debt than expected and planned for

Why lean? What is the problem?

- Household debt is high relative to disposable income
- But debt ratio has been stable since LTV cap of 85 % in Oct 2010

Household debt-to-income ratio
(% of disposable income)



Why lean? What is the problem?

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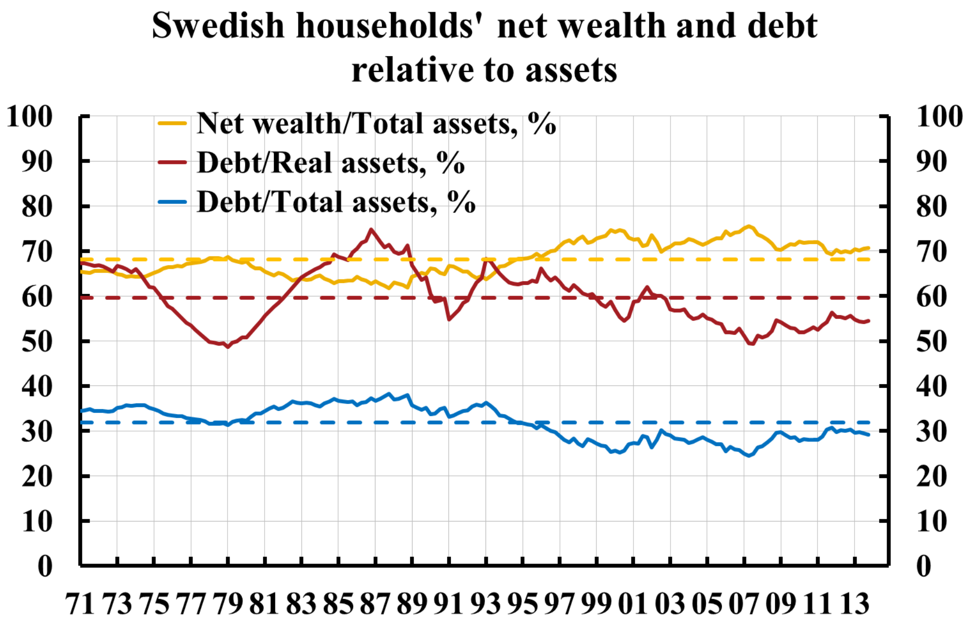
- And debt is normal relative to assets



Why lean? What is the problem?

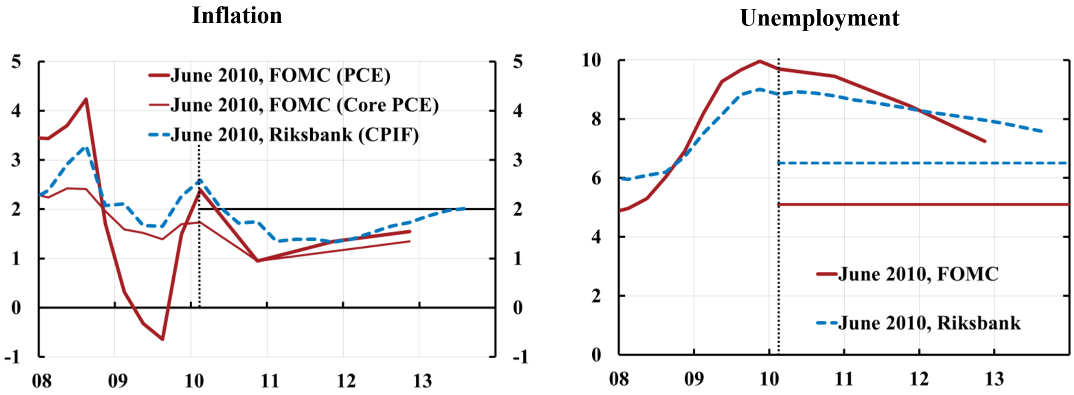
- Household debt is high relative to disposable income
- But debt ratio is stable since LTV cap of 85 % in Oct 2010
- And debt is normal relative to assets
- Housing expenditure is not high (15-20% of disposable income)
- Average LTV for new mortgages has stabilized around 70 %
- Housing prices have not increased faster than disposable income since 2007
- Housing prices are in line with fundamentals (disposable income, mortgage rates, tax reductions, rapid urbanization, little construction…)

Why lean? What is the problem?

- And, the FSA has:
  - introduced an LTV cap of 85 %
  - introduced higher risk weights on mortgages (25 %)
  - introduced higher capital requirements (16 % CET1)
  - proposed individual amortization plans for borrowers
  - produces an annual mortgage market report, according to which
    - lending standards are high
    - households' repayment capacity is good
    - households' resilience to disturbances in the form of mortgage rate increases, housing price falls, and income falls due to unemployment is good
- Macroprudential tools and policy are arguably effective and good in Sweden

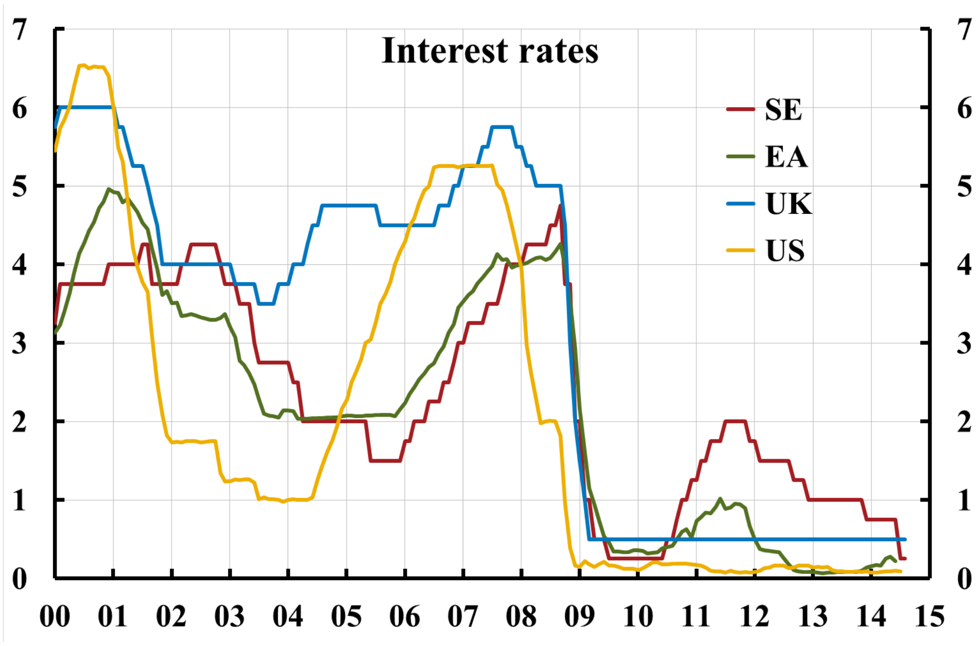
Was it a premature exit?

Fed and Riksbank, June/July 2010
Similar inflation and unemployment forecasts, very different policies

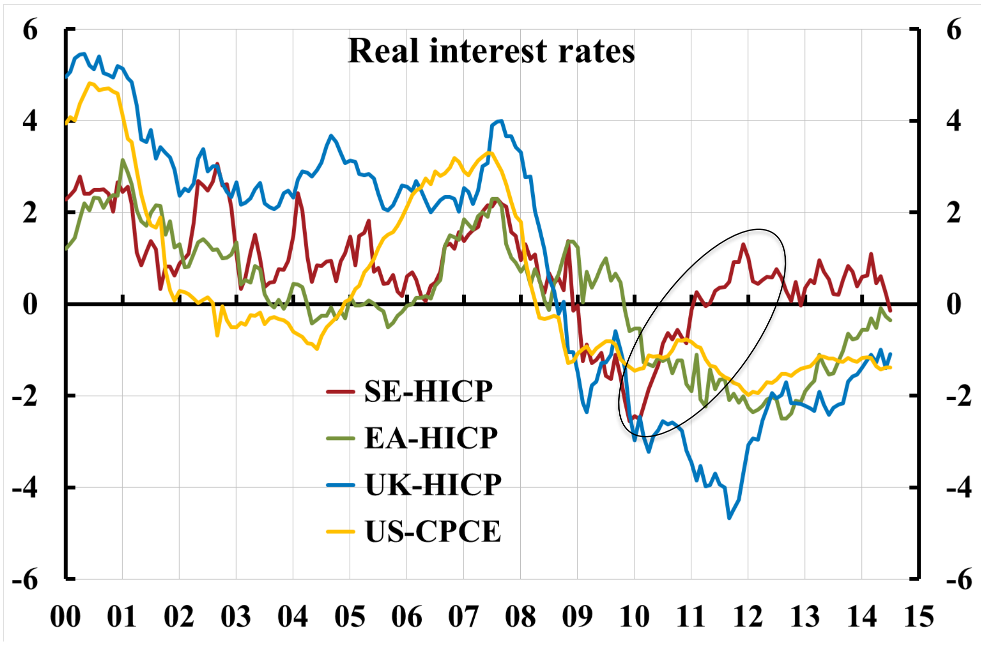


Svensson (2011), "Practical Monetary Policy: Examples from Sweden and the United," *Brookings Papers on Economic Activity*, Fall 2011, 289-332.

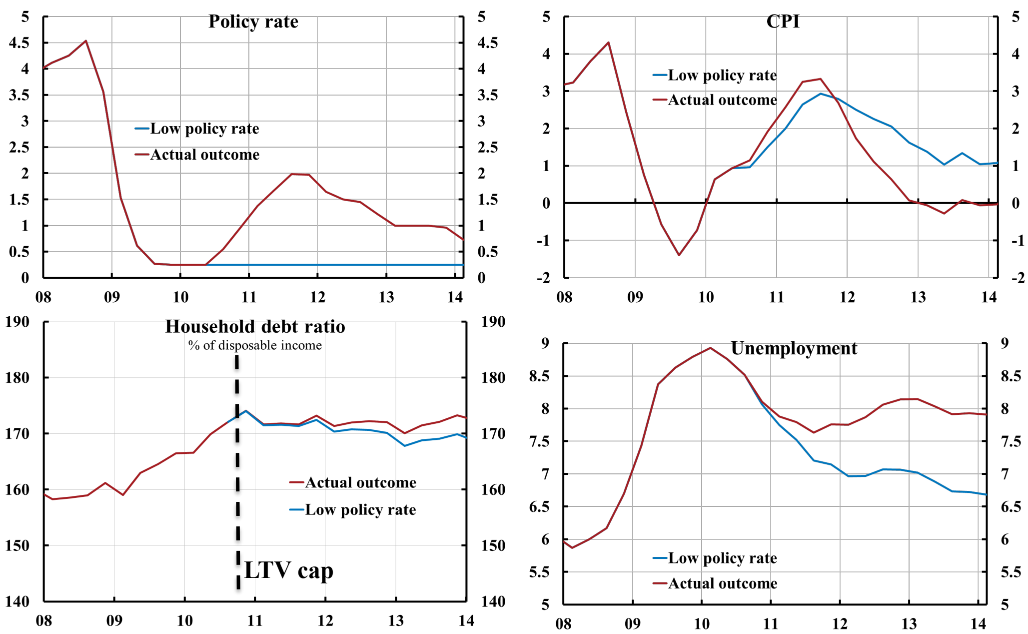
The leaning: Policy rates in Sweden, UK, and US; Eonia rate in euro area



The leaning: Real policy rate in Sweden, UK, and US, real Eonia rate in euro area



The leaning: Policy-rate increases from summer of 2010 have led to inflation below target and higher unemployment (and probably a higher debt ratio)



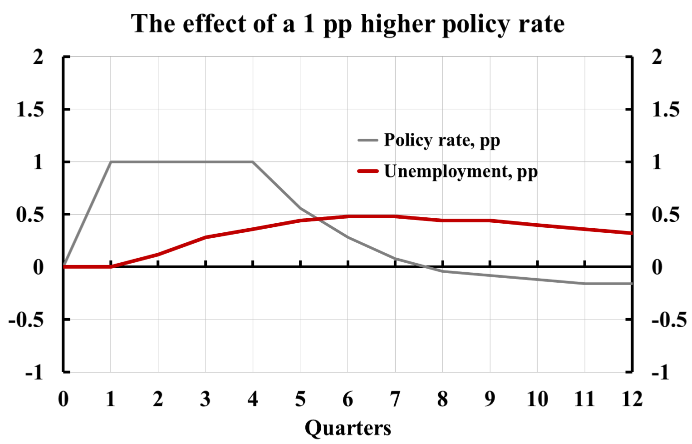
Cont.

Source: Svensson (2013), "Unemployment and monetary policy – update for the year 2013," Svensson (2013), "Leaning against the wind increase (not reduces) the household debt-to-GDP ratio", posts on larseosvensson.se.

Riksbank's case for leaning against the wind

- Higher debt could imply (1) a *higher probability* of a future crisis and/or (2) a *deeper* crisis if it occurs
- Hence, a tradeoff between (1) tighter policy now with lower debt but worse macro outcome now and (2) worse expected macro outcome in the future
- Worse macro outcome now is an insurance premium worth paying
- Is that true?
- The answer can be found from the numbers in the Riksbank's own boxes in MPRs of July 2013 and February 2014, plus Schularick and Taylor (2012) and Flodén (2014)

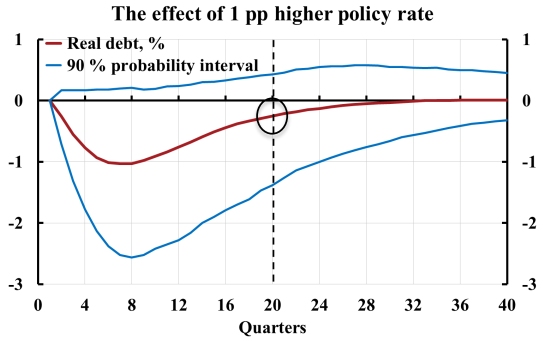
Cost of 1 pp higher policy rate: 0.5 pp higher unemployment rate in next few years



Source: Riksbank MPR July 2013, chapt. 2; Svensson, post on larseosvensson.se, March 31, 2014.

Benefit (1) of 1 pp higher policy rate: Lower probability of a crisis

- Schularick and Taylor (2012): 5 % lower real debt in 5 yrs implies 0.4 pp lower probability of crisis (average probability of crises about 4 %)
- Riksbank MPR Feb 2014, box:

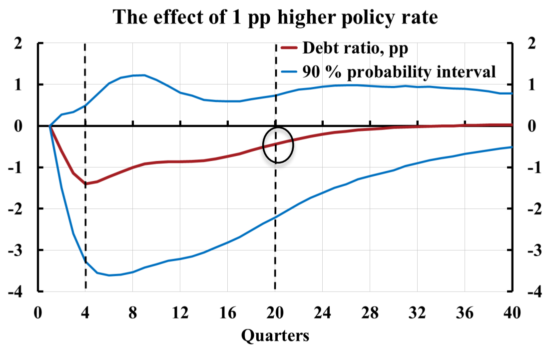


Source: Svensson, post on larseosvensson.se, March 31, 2014.

- 1 pp higher policy rate leads to 0.25 % lower real debt in 5 years
- Lowers probability of crises by 0.25*0.4/5 = 0.02 pp
- Assume 5 pp higher unemployment in crisis (Riksbank crisis scenario, MPR July 2013, box):
- **Benefit**:
  Expected lower future unemployment: 0,0002*5 = **0.001 pp**
- Compare to **cost**: Higher unemployment rate now: **0.5 pp**

Benefit (2) of 1 pp higher policy rate: Smaller increase in unemployment if crisis

- Flodén (2014): 1 pp lower debt ratio may imply 0.02 pp smaller increase in unemployment rate in crisis
- Riksbank MPR Feb 2014, box:



Source: Svensson, post on larseosvensson.se, March 31, 2014.

- 1 pp higher policy rate leads to 0.44 pp lower debt ratio in 5 yrs
- Smaller increase in unemployment in crisis: 0.44*0.02 = 0.009 pp
- With probability of crisis as high as 10 %, divide by 10 (Schularick & Taylor: 4 %)
- **Benefit**: Expected lower future unemployment: **0.0009 pp**
- Compare to **cost**: Higher unemployment now: **0.5 pp**

Summarize cost and benefit of 1 pp higher policy rate

Table 1. Cost and benefit in unemployment of 1 percentage point higher policy rate during 4 quarters

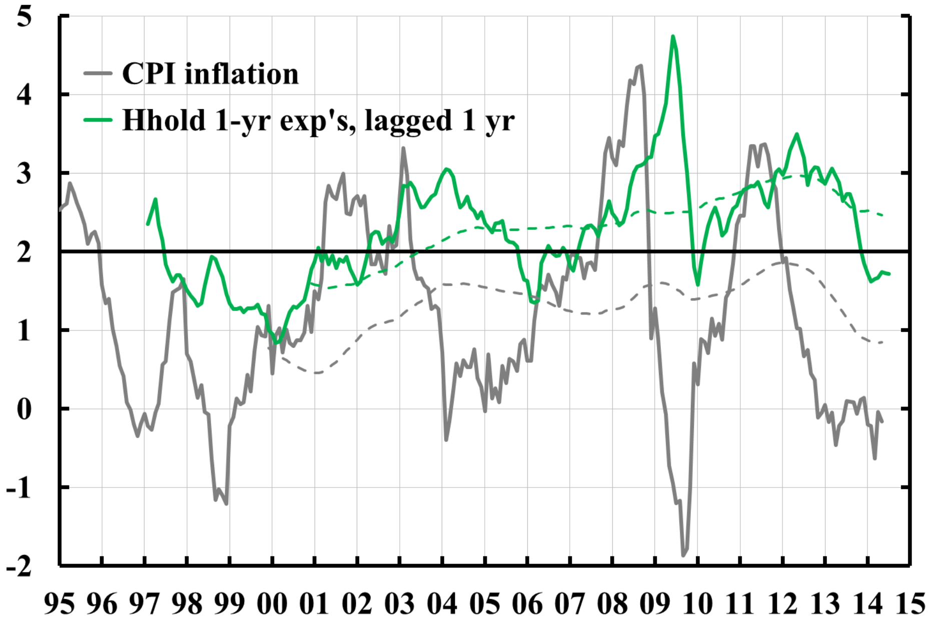
Cost: Higher unemployment during the next few years, percentage points	0.5
Benefit: Lower expected future unemployment, percentage points	
1. Because of lower probability of a crisis	0.001
2. Because of a smaller increase in unemployment in a crisis	0.0009
Total benefit, percentage points	0.0019
Total benefit as a share of the cost **Should have been > 1!**	**0.0038**

- Riksbank case does not stand up to scrutiny

More costs: Inherent flaw in leaning against the wind: Inflation below credible target causes negative real effects

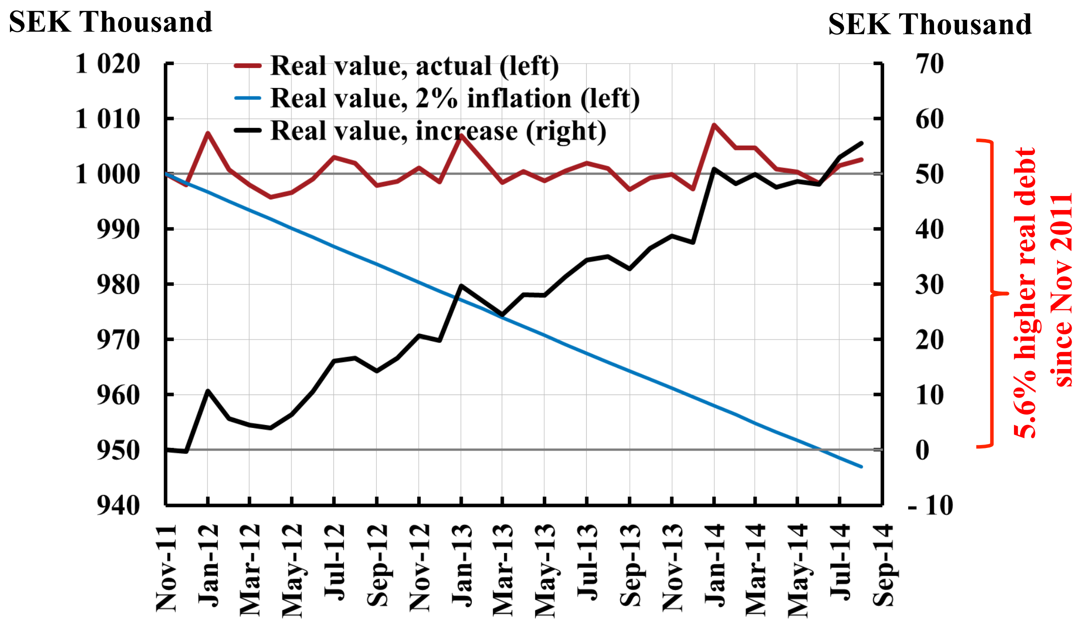
- Leaning: Lower inflation than target
- Inflation expectations anchored at target
- Lower average inflation than expected causes real effects
- Higher unemployment
- Higher *real* debt for households (additional cost of leaning against the wind)
- Fisherian "debt deflation": Inflation *less than expected*, rather than deflation per se

CPI inflation and household inflation expectations



Note: Dashed lines are 5-year trailing moving averages

The real value of an SEK 1 million loan taken out in Nov 2011, actual and for 2 percent inflation



Sum up:
Leaning against the wind and household debt

- ”Leaning against the wind” is counter-productive in Sweden
- Leaning generally involves undershooting (credible) inflation targets
- Leads to lower inflation than expected
- Leads to higher unemployment and higher real debt
- May increase debt ratio by affecting disposable income faster than nominal debt (Svensson 2013)
- Also, may undermine the credibility of the inflation target
- Not the best way to handle any debt problem
- Use macroprudential tools if any problem

Extra slides

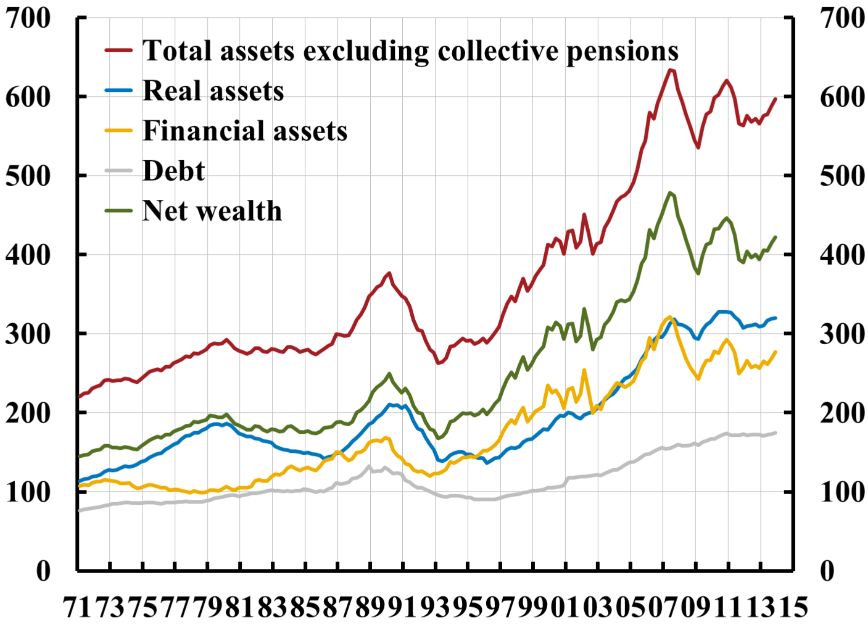
Sum up: Leaning against the wind and household debt

- Q: What is monetary policy's best contribution to debt issue (at least in Sweden)?
- A: Inflation on target, stable growth, and lowest long-run sustainable unemployment
- 2 % real growth, 2 % inflation = 4 % nominal growth
- Doubling of disp. income and housing prices in 18 years
- Debt ratio and LTV ratio for any given nominal debt halved in 18 years
- Financial stability and any problems with debt are better handled with other means than monetary policy: macro- and microprudential tools (lending standards, LTV cap, higher capital, risk weights…), taxes, deduction rules…

Leaning against the wind

- Tighter monetary policy than justified by stabilizing inflation and unemployment
- Purpose is to moderate financial "imbalances" and threats to financial stability
- Presumes (Smets 2013):
  (1) Macroprudential instruments or policies are ineffective
  (2) A higher policy rate has a significant negative impact on threats to financial stability
- My view:
  (1) varies from country to country
  (2) has little theoretical and empirical support, although the latter may vary depending on the structure of the financial sector (competitive/oligopolistic, shadow banking…)

Household debt and assets (excluding collective pensions), % of disposable income



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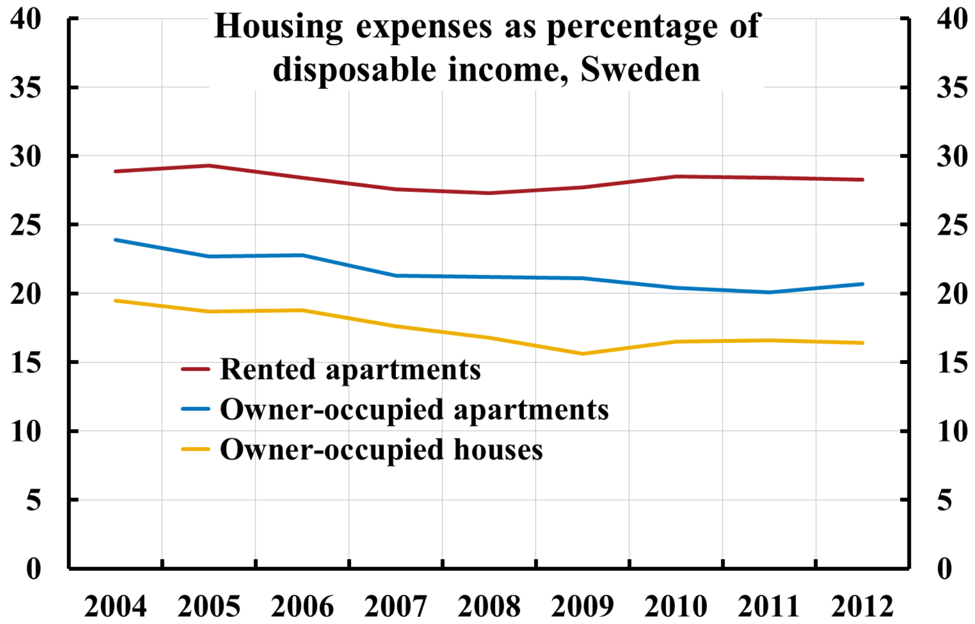
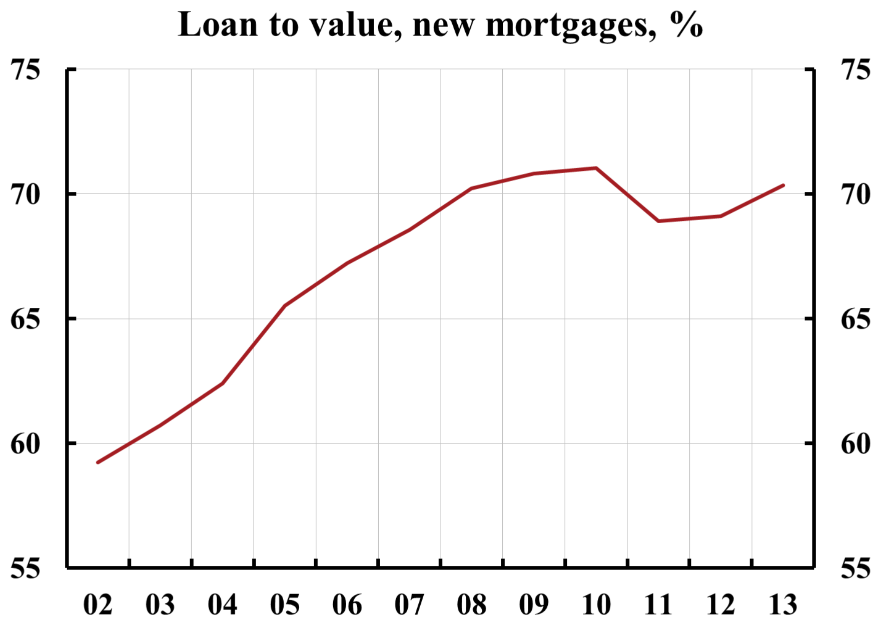
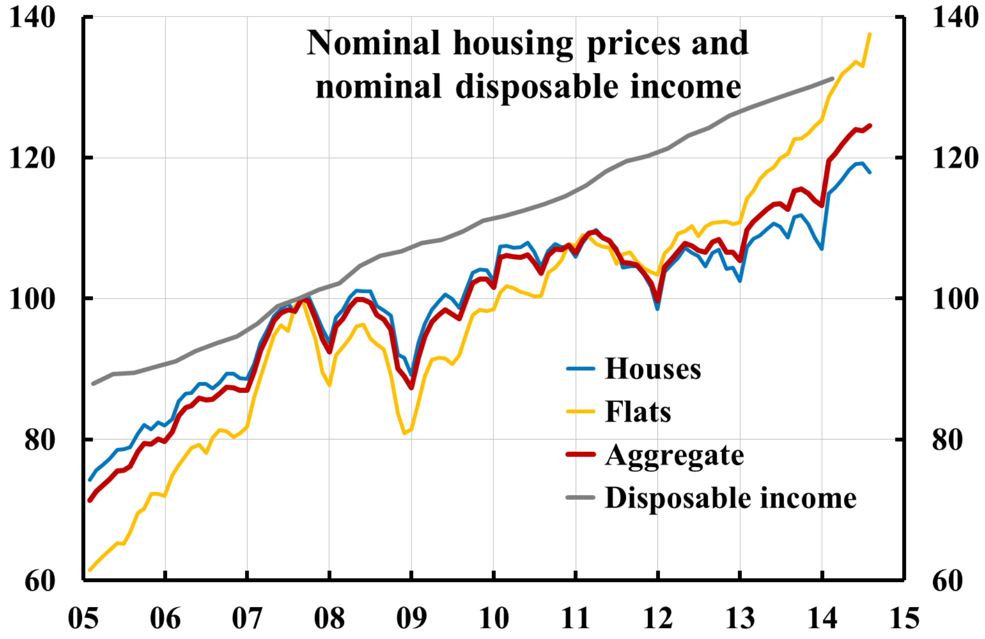
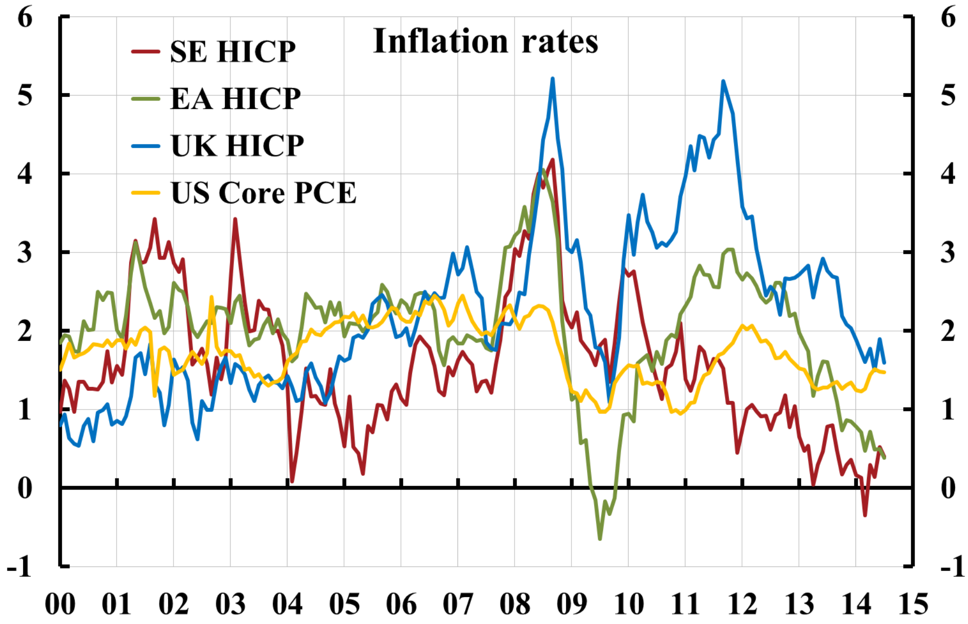
- And debt is normal relative to assets
- Housing expenditure is not high




Loan to value, new mortgages, %
75
70
65
60
55
02
03
04
05
06
07
08
09
10
11
12
13


Nominal housing prices and nominal disposable income
140
120
100
80
60
05
06
07
08
09
10
11
12
13
14
15
Houses
Flats
Aggregate
Disposable income

The leaning: Inflation in Sweden, euro area, UK, and US



Three issues in Williams (2014)

- Williams (Bundesbank conference, 2014), "Financial stability and monetary policy: Happy marriage or untenable union"

1. What are the costs of using monetary policy actions to address perceived and potential risks to financial stability
2. How do monetary policy actions affect financial stability risks?
3. Can monetary policy policy be designed to improve these tradeoffs?

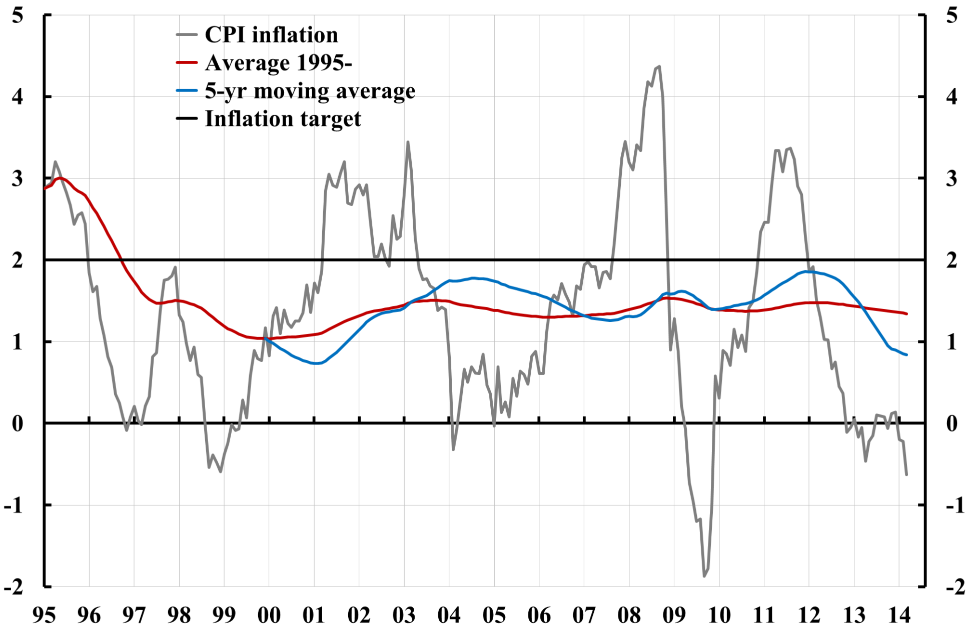
Flexible inflation targeting

- Stabilize inflation around inflation target *and* resource utilization around long-run sustainable rate (employment/unemployment around a long-run sustainable rate)
- Same as Fed's dual mandate

The monetary policy mandate

- Sveriges Riksbank Act
  - "The objective for monetary policy shall be to **maintain price stability**"
- Government bill
  - "In addition, as an authority under the Riksdag, the Riksbank, without prejudice to the price stability target, is to support the goals of general economic policy with the aim to achieve sustainable growth and **high employment**".
  - High employment = highest sustainable rate of employment
- Price stability and the highest sustainable rate of employment
  - Highest sustainable rate of employment = the lowest sustainable rate of unemployment
  - Stabilize inflation around the inflation target and unemployment around a long-run sustainable rate

Target achievement:
Average inflation significantly below target



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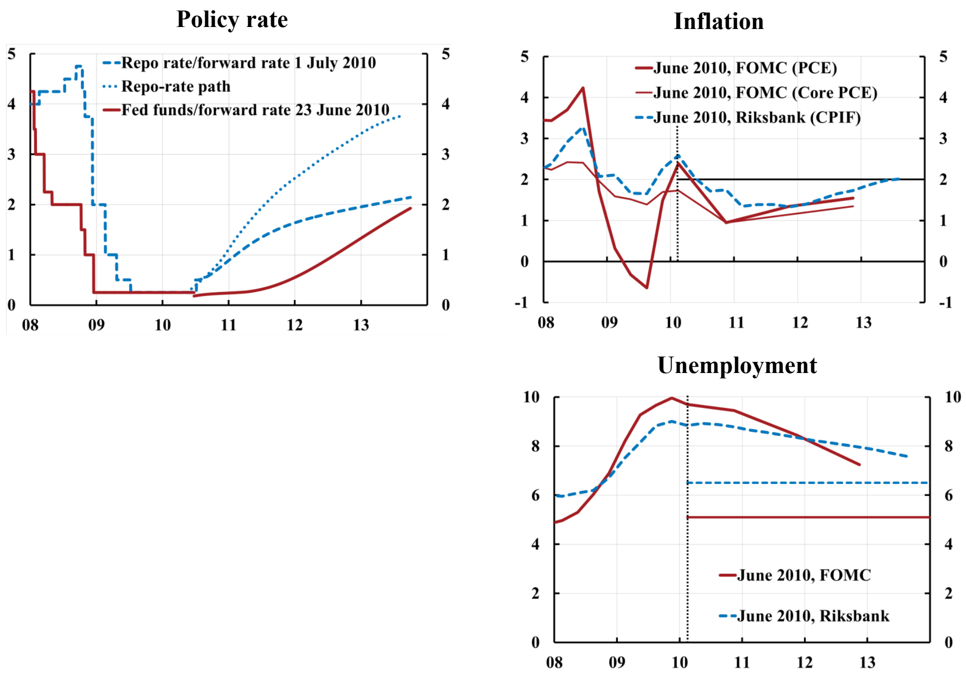


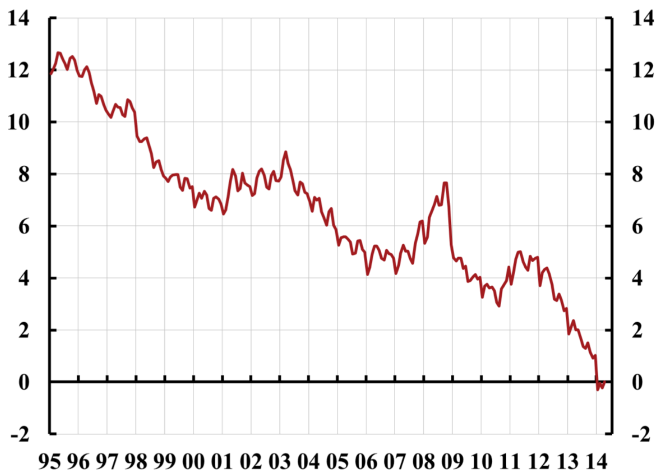
Svensson (2011), "Practical Monetary Policy: Examples from Sweden and the United," *Brookings Papers on Economic Activity*, Fall 2011, 289-332.

Lowflation/deflation and debt: A negative involuntary amortization

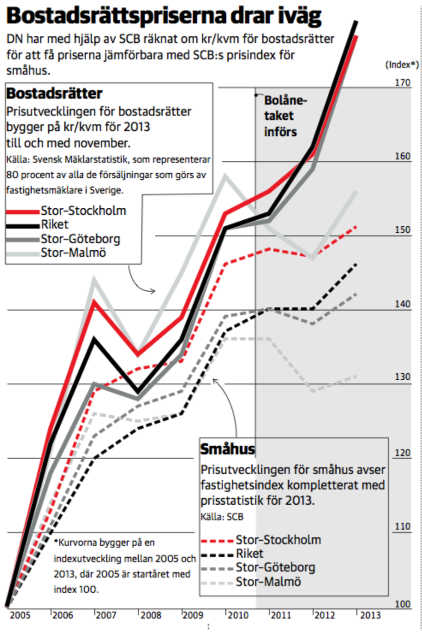
- Chair Yellen: "[W]ith longer-term inflation expectations anchored near 2 percent in recent years, persistent inflation well below this expected value increases the real burden of debt for households and firms, which may put a drag on economic activity."
- Governor Ingves, in reply to a question if low inflation increases indebtedness: "Interest rates are low and then it is easy to borrow… But in this context, the inflation rate is not a particularly significant issue."

Figure 8. The increase to April 2014 in the real value of a given nominal loan, compared to if inflation hade been 2 percent

(depending on when the loan was taken out)



Scaremongering? Dagens Nyheter, January 15, 2013



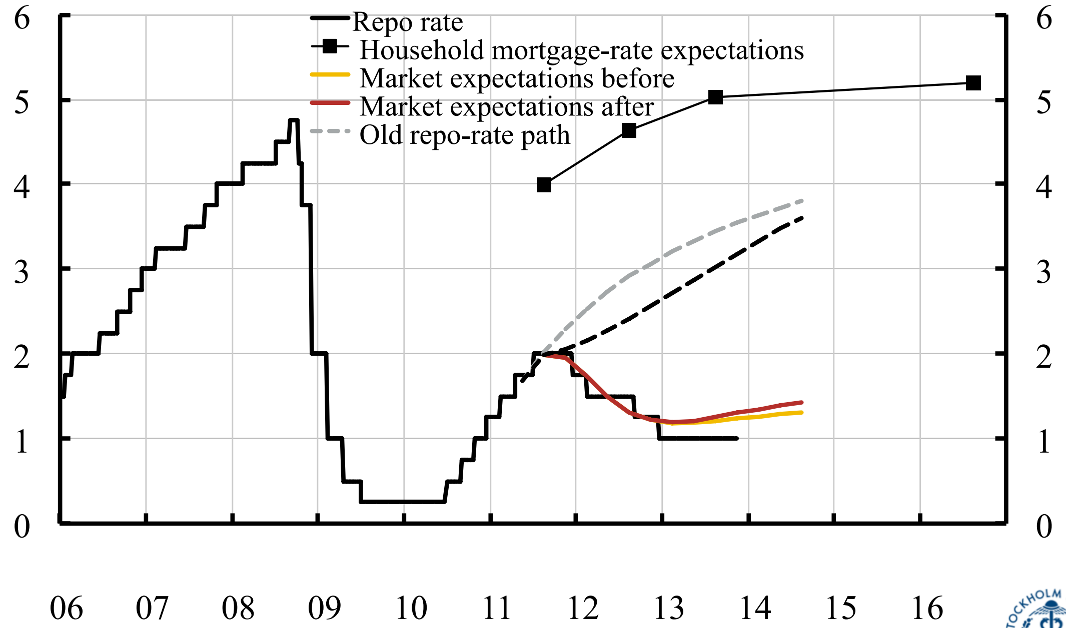
Riksbank I

- Governor Ingves: ”When interest rates are low, people borrow more. If you borrow too much, sooner or later there are problems.”
- Riksbank: Probably no direct credit losses from mortgages
- But housing price fall and doubts about the Swedish housing market might create problems for banks’ funding through covered housing bonds
  - But actually liquidity problem, not solidity problem: Solved by lending of last resort from the Riksbank and the National Debt Office (and information) (Posts on Ekonomistas and larseosvensson.se, Feb 10, 2014)

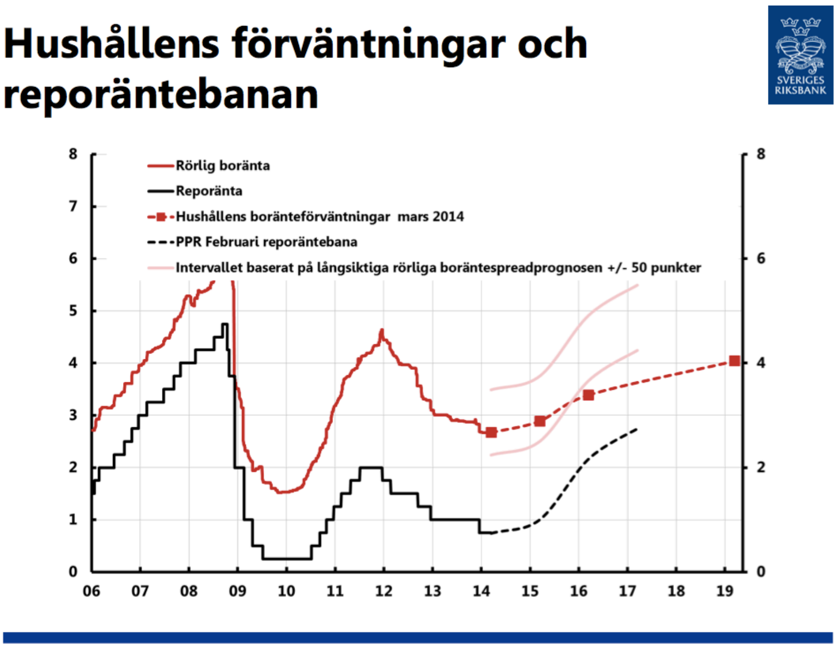
Riksbank III: Households' mortgage-rate expectations are too low

- Households' expectations of mortgage rates in 5 years are low compared to a normal policy rate of 4% and a normal spread
  - But who believes in "normal" interest rates in 5 years?
- Households' mortgage-rate expectations are low relative to the Riksbank's policy-rate path
  - But what credibility does the policy-rate path have?

Policy rate, policy-rate path, market expectations, and household expectations about 3-month mortgage rates: Sep 2011

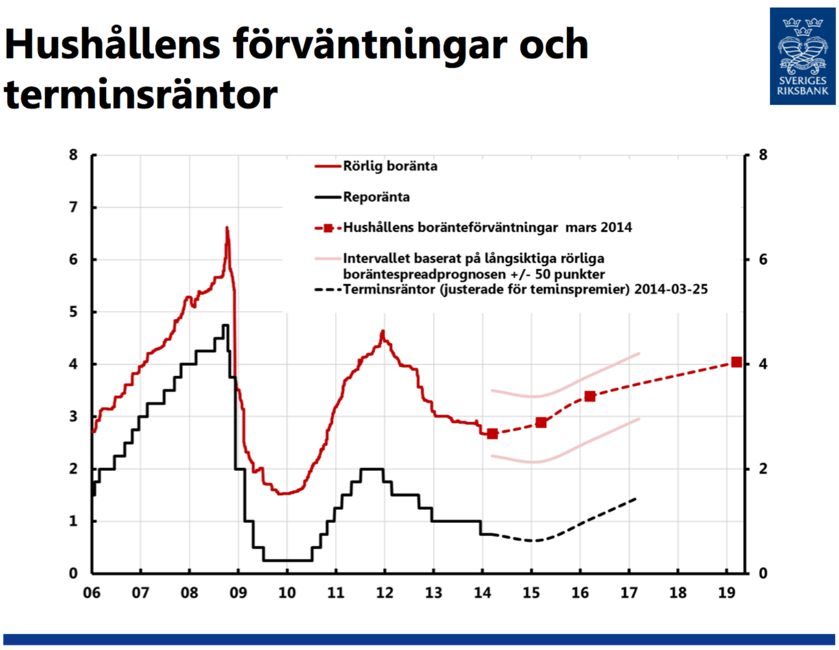


Household expectations and Riksbank policy-rate path



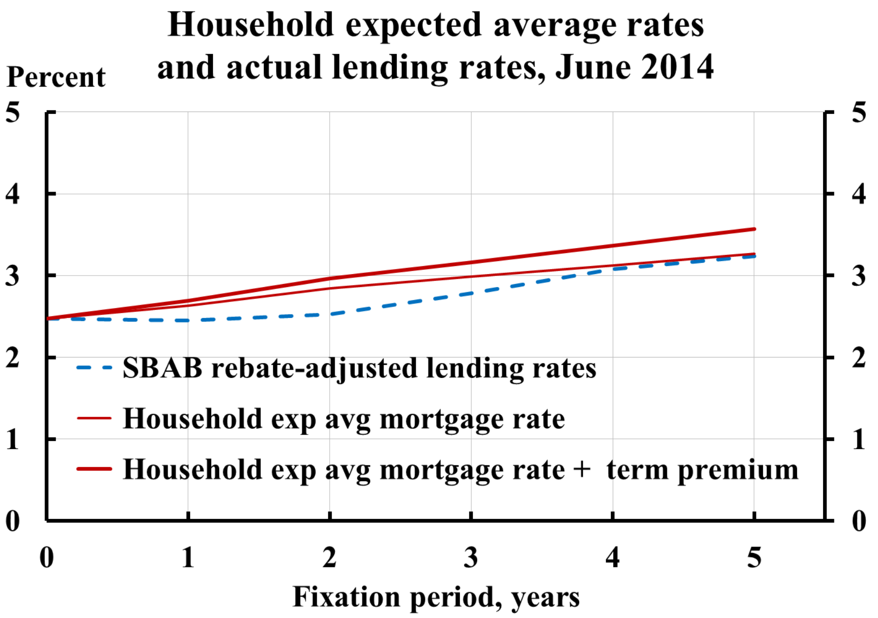
Source: Flodén, "Monetary policy and macroprudential policy" (in Swedish), LO, 2014-03-27

Household expectations and market expectations

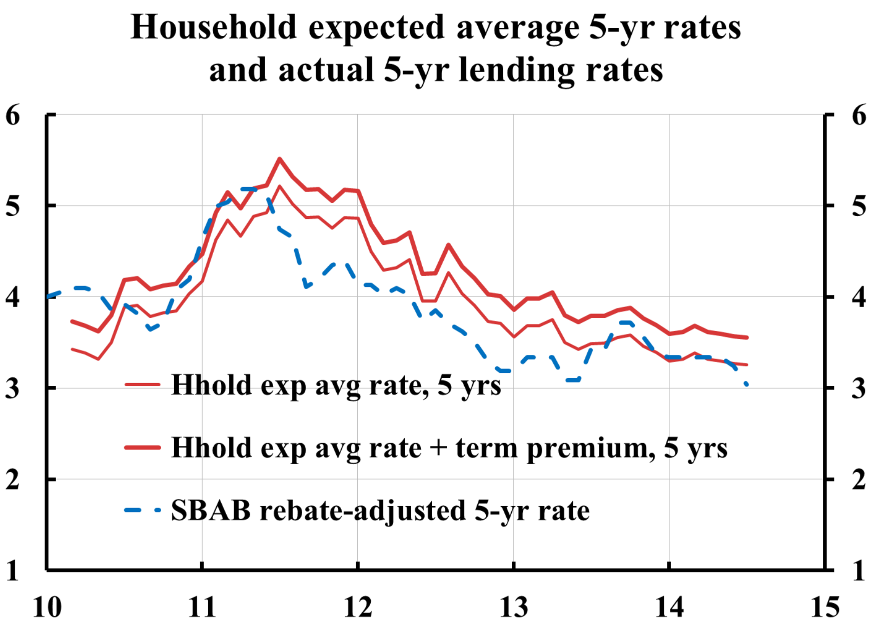


Source: Flodén, "Monetary policy and macroprudential policy" (in Swedish), LO, 2014-03-27

Households' expected mortgage-rate costs and actual yield curve



Households' expected 5-year mortgage-rate costs and actual 5-year mortgage rate



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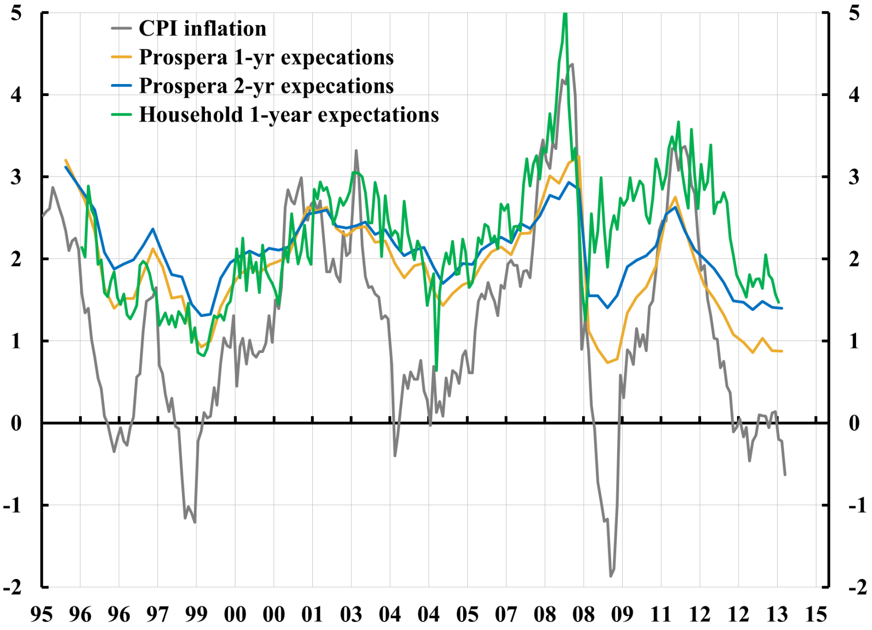
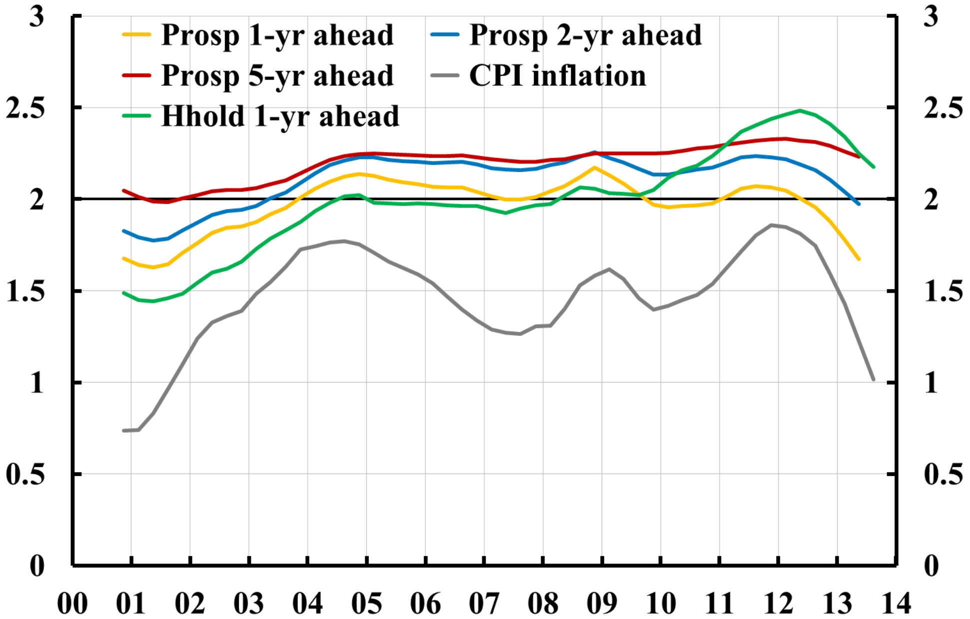
  - But who believes in "normal" interest rates in 5 years?
- Households' mortgage-rate expectations are low relative to the Riksbank's policy-rate path
  - But what credibility does the policy-rate path have?
- At a closer examination, no evidence of too low mortgage-rate expectations

Inflation expectations close to target, in spite of low inflation

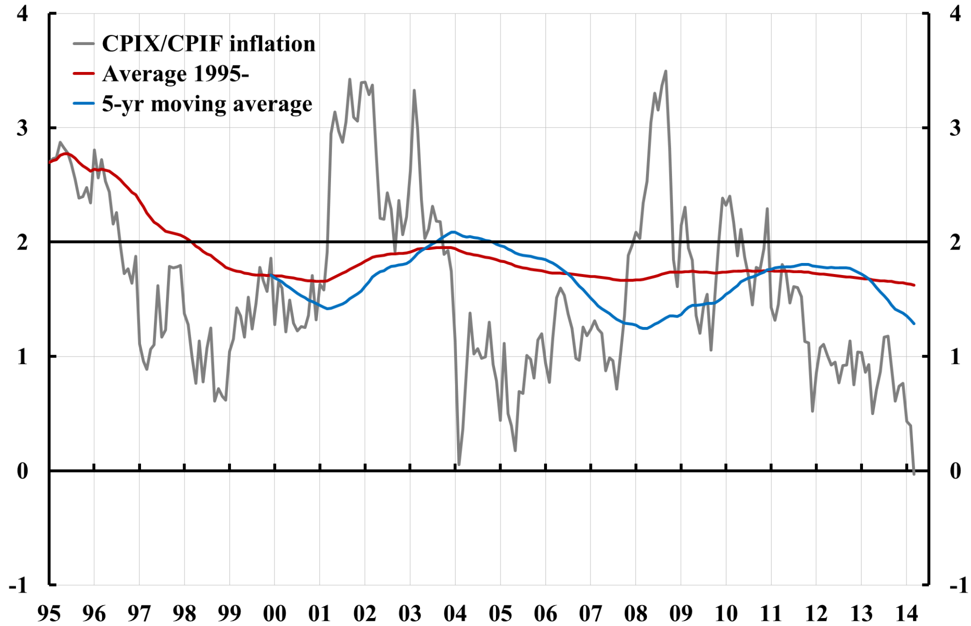


Inflation expectations close to target, in spite of low inflation

5-year trailing moving averages

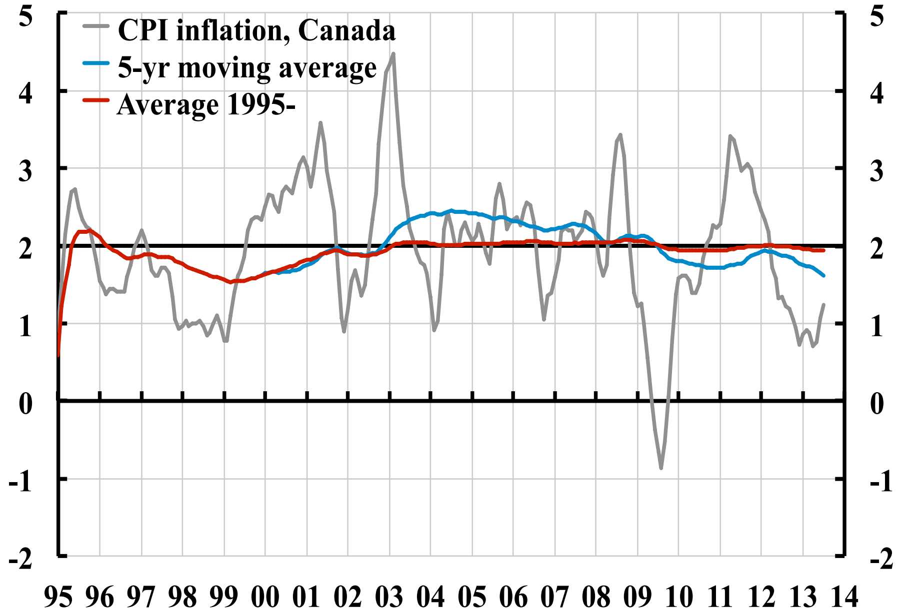


Average CPIX/CPIF inflation also below target



Note: CPIX inflation through March 2008, CPIF inflation from April 2008.

Average inflation in Canada on target

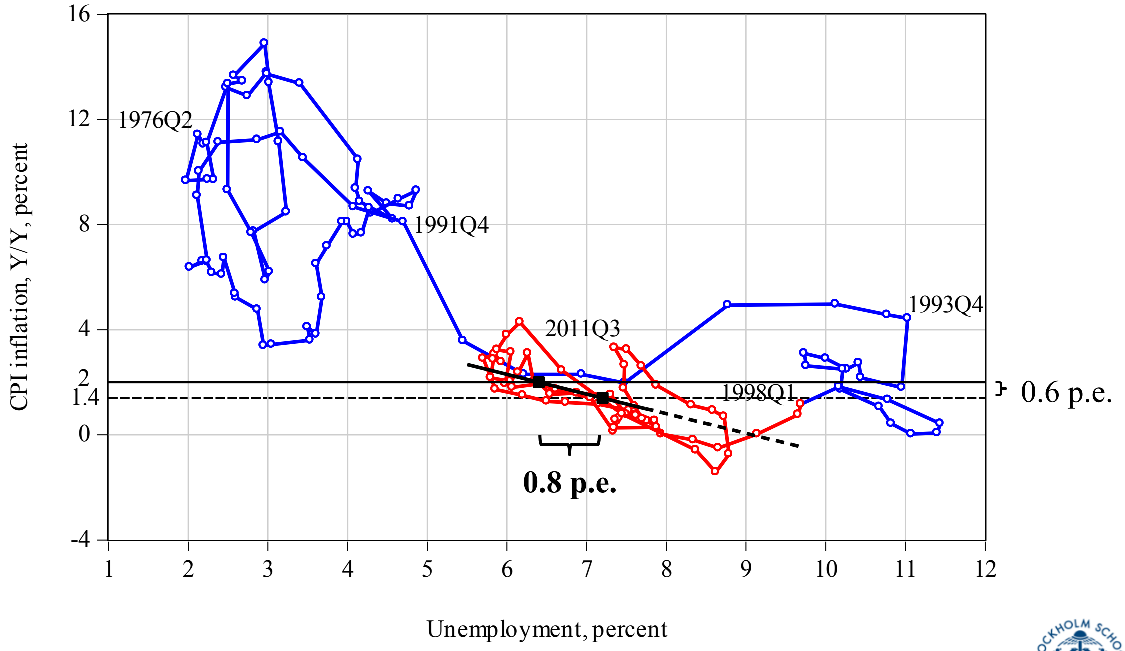


Average inflation in some countries: Sweden an outlier

Country	Target	Index	Period	Average	Deviation
Sweden	**2 (1995-)**	**CPI**	**1997-2011**	**1.4**	**- 0.6**
	2 (1995-)	CPI	1997-2007	1.3	- 0.7
Australia	2-3 (1993-)	CPI	1997-2011	2.7	0.2
Canada	2 (1995-)	CPI	1997-2011	2.0	0.0
UK	2.5 (1992-2003)	RPIX	1997-2003	2.4	- 0.1
	2 (2004-)	CPI	2004-2007	2.0	0.0
	2 (2004-)	CPI	2008-2011	3.4	1.4
Euro zone	(< 2) (1999-)	HICP	2000-2011	2.1	
USA	(≤ 2) (2000-)	core CPI	2000-2011	2.0	
		core PCE	2000-2011	1.9	

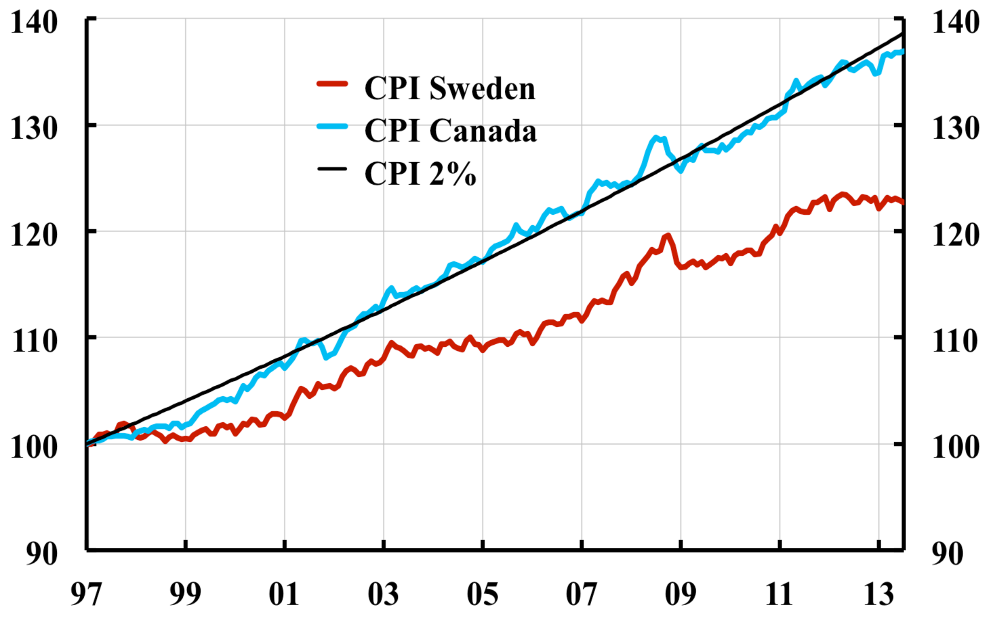
On average 0.8 percentage point higher unemployment since 1997 (downward-sloping long-run Phillips curve)

Unemployment and CPI inflation1976-2012, long-run Phillips curve 1997-2012



Source: Svensson , Lars E.O. (2013), "The possible unemployment cost of average inflation below a credible target", www.larseosvensson.net.

Long-run effect on real debt: Price level lower than expected



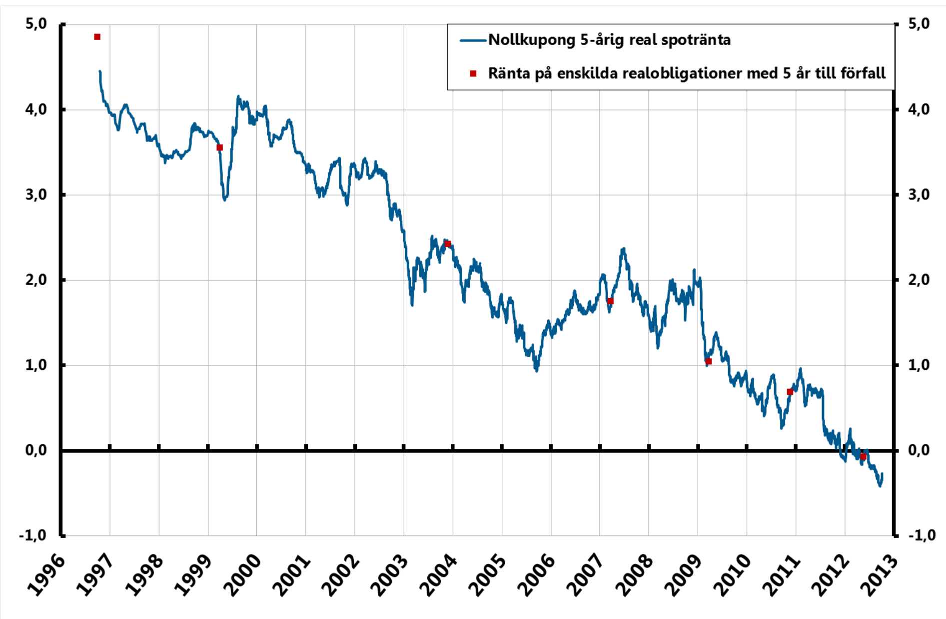
Flodén (2014), very small effect of debt ratio on increase in unemployment rate in crisis (not statistically significant for subsample of countries with falling housing prices)

Tabell: Utvecklingen för konsumtion, arbetslöshet och huspriser 2007-2012

	Konsumtion	Arbetslöshet	Huspriser
Skuldkvot 2007	-0,04**	0,02*	-0,11**
	(0,00)	(0,02)	(0,00)
Skuldtillväxt före 2007	-0,97**	0,28	-2,00**
	(0,00)	(0,16)	(0,01)
Bytesbalans före 2007	0,38**	-0,35**	1,43**
	(0,00)	(0,01)	(0,00)
Konsumtionstillväxt före 2007	2,10**	-0,75	2,64
	(0,00)	(0,21)	(0,19)
Konstant	5,66**	-0,61	15,00*
	(0,00)	(0,71)	(0,01)
R2 (justerad)	0,74	0,38	0,66
Observationer	26	26	26

Anm: Tabellen visar regressionsresultat där den förklarade variabeln anges i kolumnrubriken. "Konsumtion" avser procentuell tillväxt i privat konsumtion per capita 2007-2012. Skuldkvoten är hushållens skulder i procent av disponibel inkomst. Skuldtillväxten är genomsnittlig procentuell ökning i skuldkvot 2003-2007. p-värden i parentes. * och ** anger 5% respektive 1% signifikans.

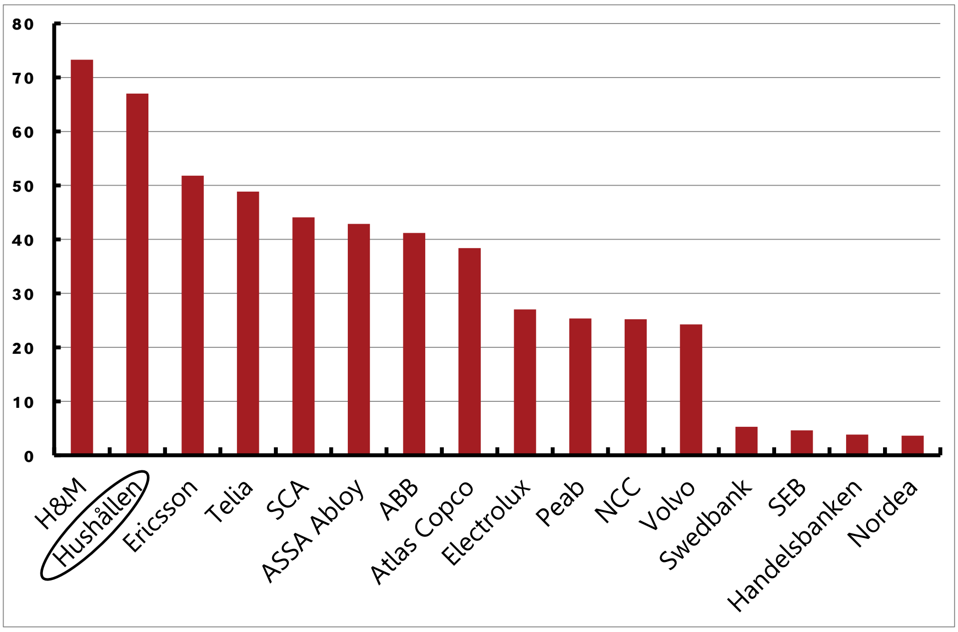
Swedish 5-year zero-coupon real rate



Source: Riksbank and National Debt Office

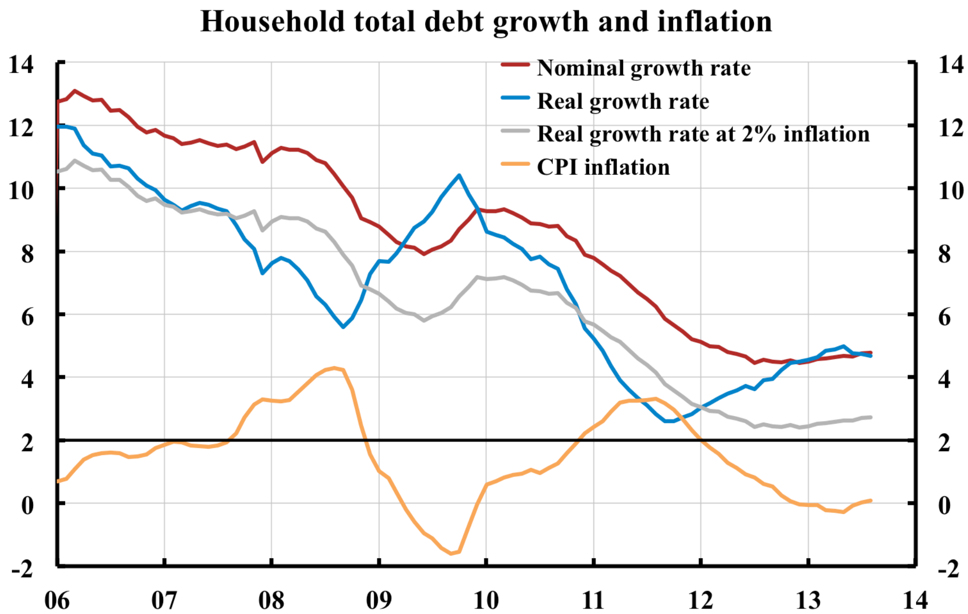
Capital to assets for households, som large listed companies, and Swedish banks

Percent



Källor: Dagens Industri (soliditeten 2011 för börsbolag och svenska banker) och Riksbanken (hushållens soliditet)

Debt growth: Real debt growth higher with low inlflation



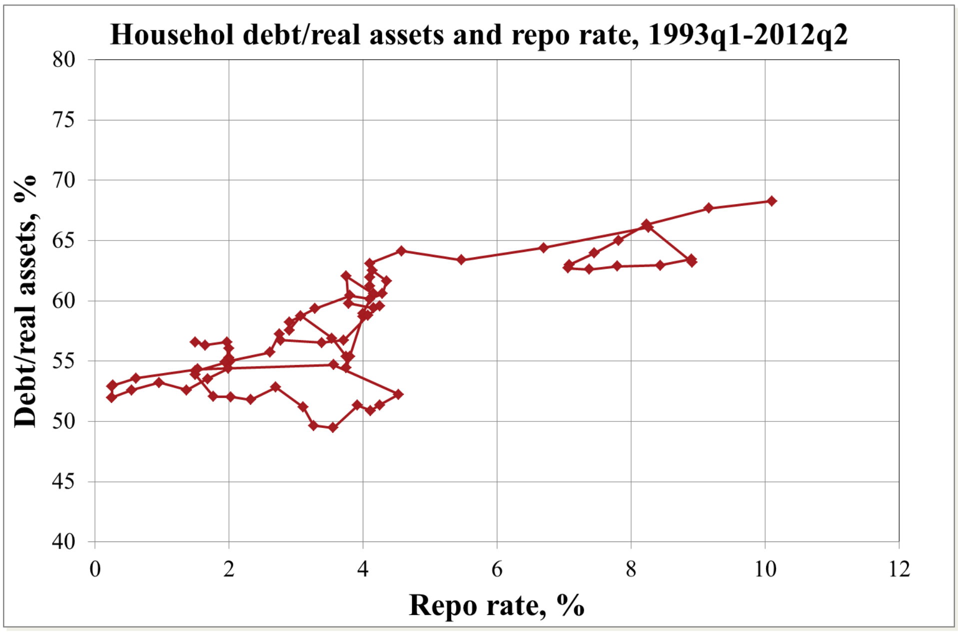
Short- and long-run effects on debt

- Real debt is a ratio:
  Nominal debt/Price level
- Debt ratio:
  Nominal debt/Nominal disposable income
- LTV ratio:
  Nominal debt/Nominal value of housing
- One (and the Riksbank!) must not forget the denominator, and the effect of monetary policy on it
- Reala housing prices is a relative price:
  Nominal housing price/Price level (nom. price on consumption)

Household debt/real assets and repo rate:

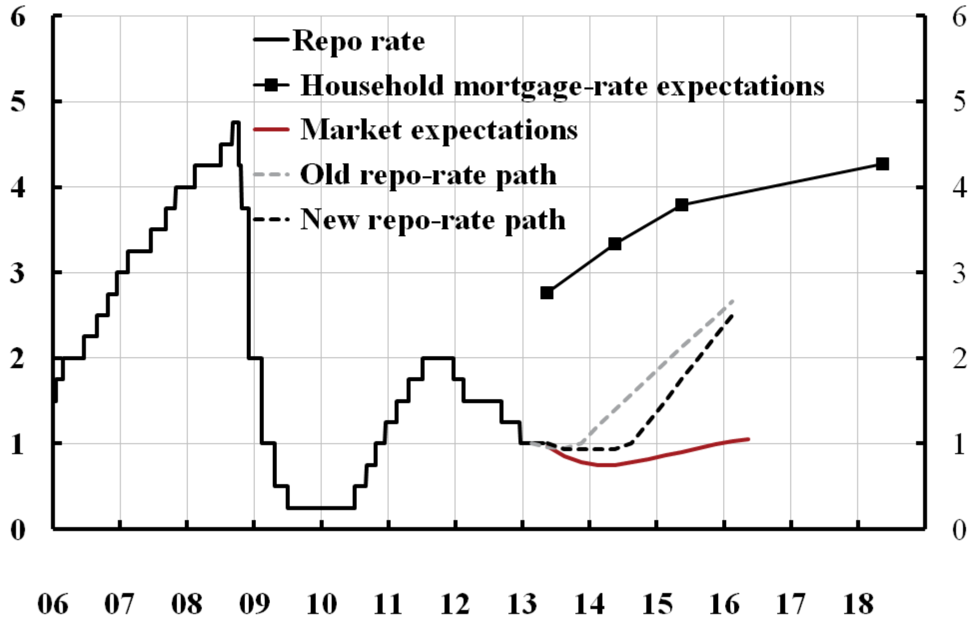
No negative correlation

Percent

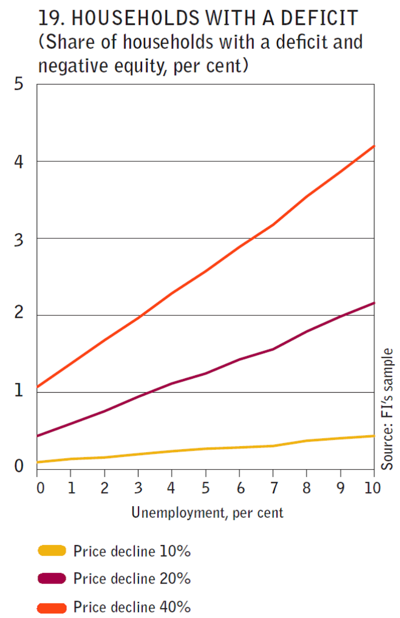


Sources: The Riksbank and Statistics Sweden

Policy rate, policy-rate path, market expectations, and household expectations: April 2013



Stress test of new borrowers

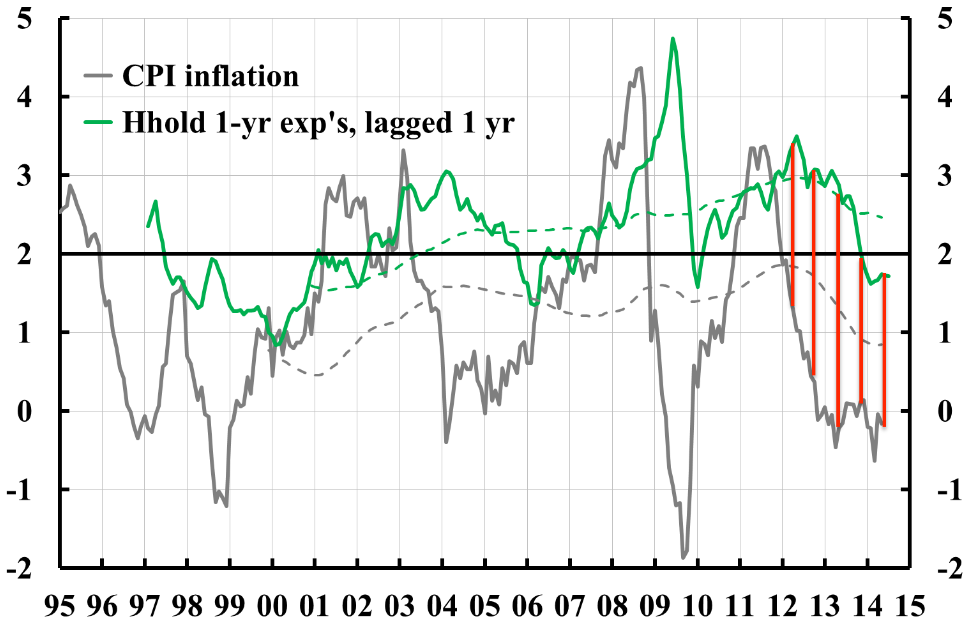


Source: Finansinspektionen (Swedish FSA) (2014), "Mortgage market report"

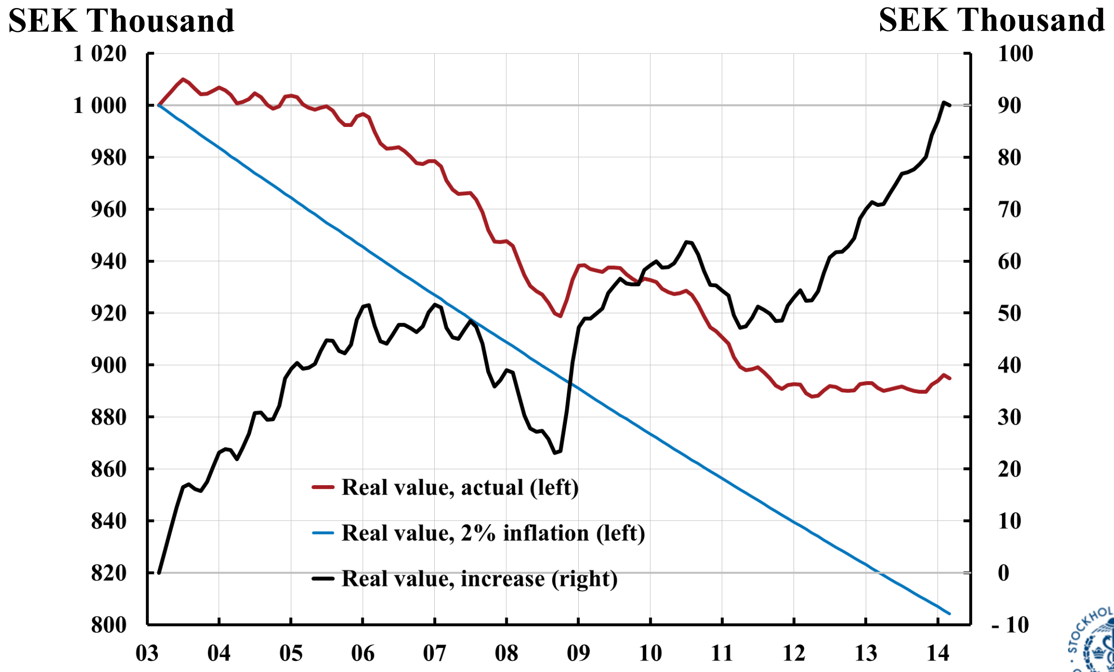
Amortization hysterics?

- Why amortize?
- Depends exclusively on the individual borrower's situation
  - Amortization is fixed saving
  - Comparison of mortgage rate with the return on alternative investments, plus any liquidity needs
  - It may be better to build up a liquidity buffer and/or invest in other assets (diversify)
  - SBAB:s price of liquidity: about 0.27 percentage points
- Besides, 2% inflation and 2% real growth imply considerable automatic amortization
  - Nominal disposable income increase by 4 %/year
  - Doubles in 18 years, halves the debt ratio without nominal amortization
  - Assume real housing prices grow with real disposable income, 2 %/year
  - Nominal housing prices grow by 4 %/year
  - Doubles in 18 years, halves the LTV ratio without nominal amortization

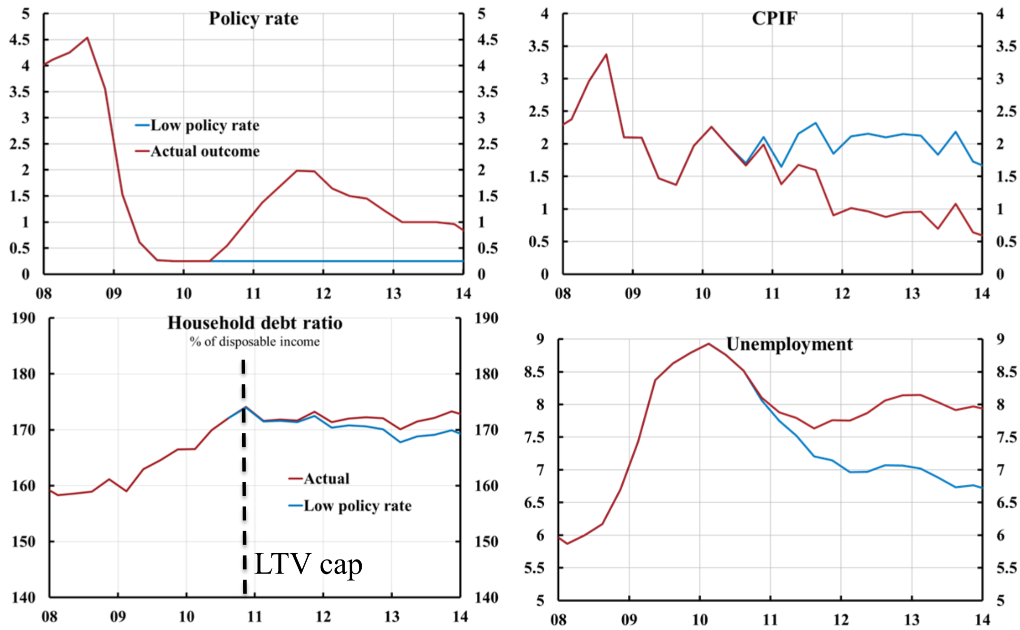
CPI inflation and household inflation expectations



SEK 1 million loan, taken out in March 2003: Real value of loan: Actual and for 2% inflation Incease in real value: Actual compared to 2% inflation



Policy-rate increases from summer of 2010 have led to inflation below target and higher unemployment (and probably a higher debt ratio)

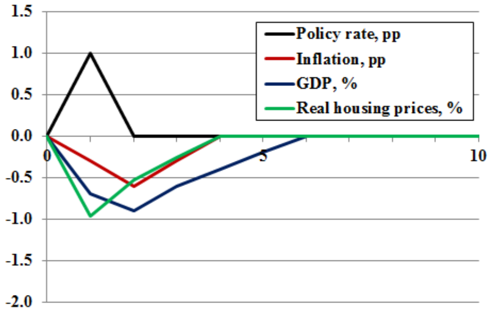


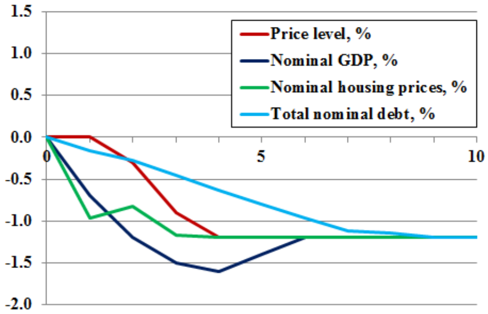
Cont.

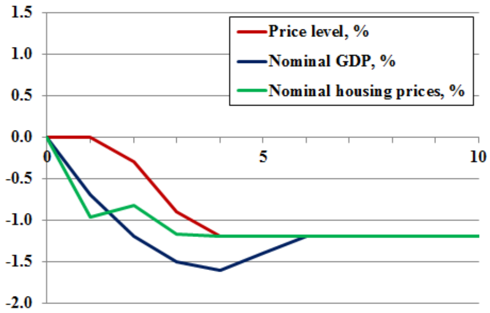
Source: Svensson (2013), "Unemployment and monetary policy – update for the year 2013," Svensson (2013), "Leaning against the wind increase (not reduces) the household debt-to-GDP ratio", posts on larseosvensson.se.

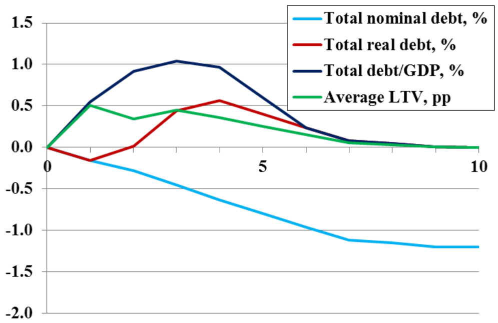
Impulse responses to 1 percentage point higher policy rate during year 1

Deviations from baseline

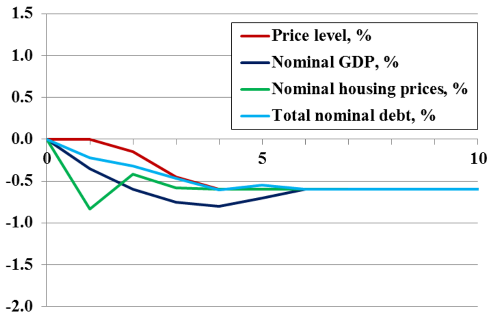








Robustness: $T = 4$ years, inflation and GDP responses half of Ramses



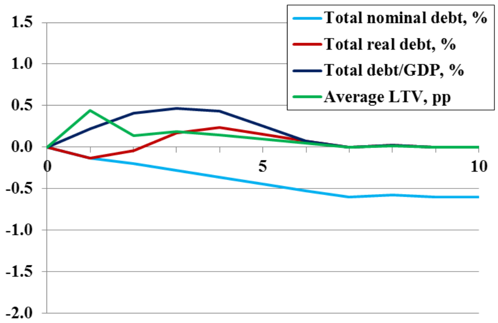


Table 1. The effect on housing prices in percent of a temporary change in the 1-year mortgage rate and in CPI inflation expectations; of a permanent change in the mortgage rate, tax rates, the growth rate of real value of housing services, and the CPI inflation rate; and of the elimination of the deductibility of the capital-income tax and of the capital-gains tax.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Semi-elasticity				**Elimination**	
	Infinitesimal		Finite			
Variable	CGT	No CGT	+1 pp	−1 pp	CGT	No CGT
Mortgage rate, temp.	−0.78	−0.63				
Inflation expectations, temp.	0.87	0.90				
Mortgage rate, permanent	−6.94	−7.61	−6.5	−7.5		
Capital-income tax	0.60	0.65			−15.2	−8.4
Property and wealth tax	−9.92	−10.87	−9.0	−11.0		
Capital-gains tax	−0.40	−0.44			9.6	
Housing services growth	7.74	10.87				
CPI inflation	0.79	3.26				

Note: CGT refers to the case when the capital-gains tax is fully internalized, including that the tax is paid each year. No CGT refers to the case when the capital-gains tax is disregarded. Columns (2) and (3) report the infinitesimal semi-elasticity. Columns (4) and (5) report the finite semi-elasticity of housing prices with respect to plus and minus 1 percentage point change in the variable only for the case when the capital-gains tax is fully internalized. When the capital-gains tax is disregarded, the magnitudes are somewhat higher. Columns (6) and (7) report the change in percent of housing prices with respect to an elimination of the deductibility of the capital-income tax and to an elimination of the capital-gains tax when it is fully internalized before the elimination.