



# Leaning against household debt: The Swedish experience

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Conference on Housing and Monetary Policy,  
Federal Reserve Bank of San Francisco,  
UCLA Ziman Center for Real Estate,  
San Francisco, September 4-5, 2014

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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 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 Riksbank leaning justified?



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## 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...)

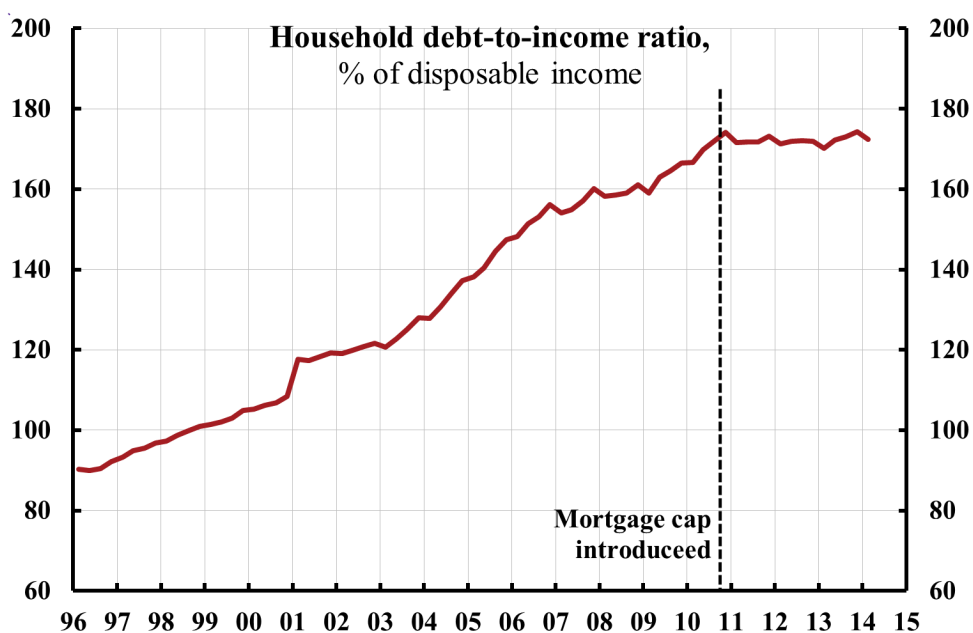
## Case study: Sweden

- 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

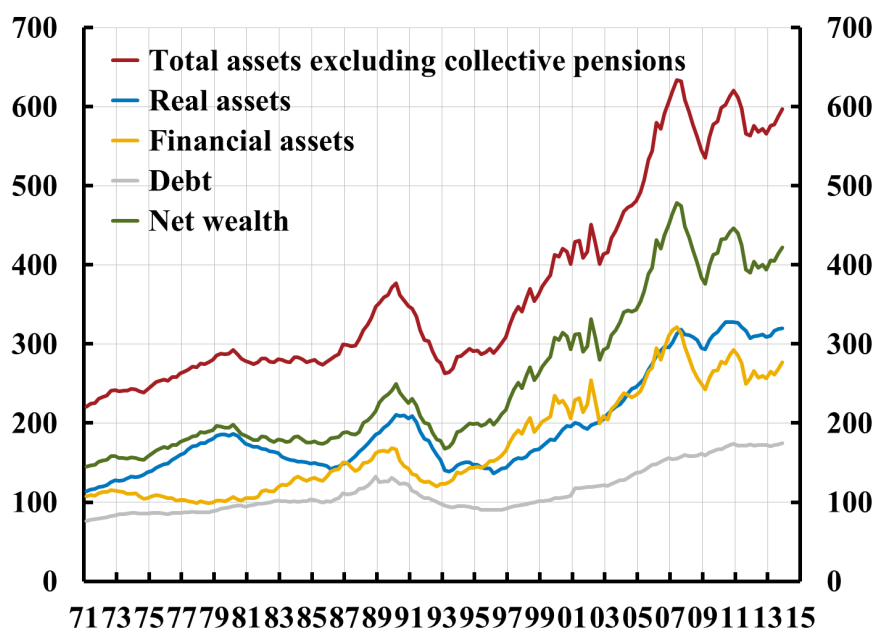
### Household debt-to-income ratio (% of disposable income)



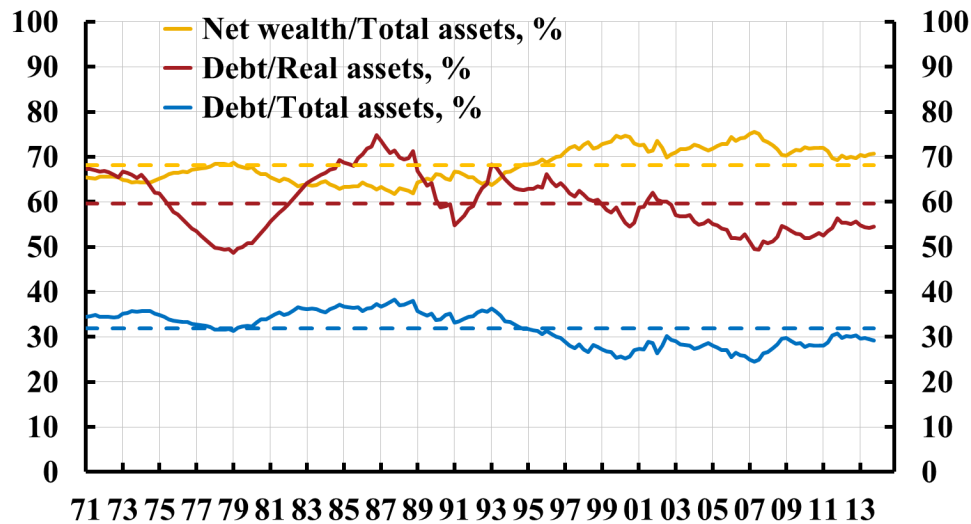
## Why lean? What is the problem?

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- And debt is normal relative to assets

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

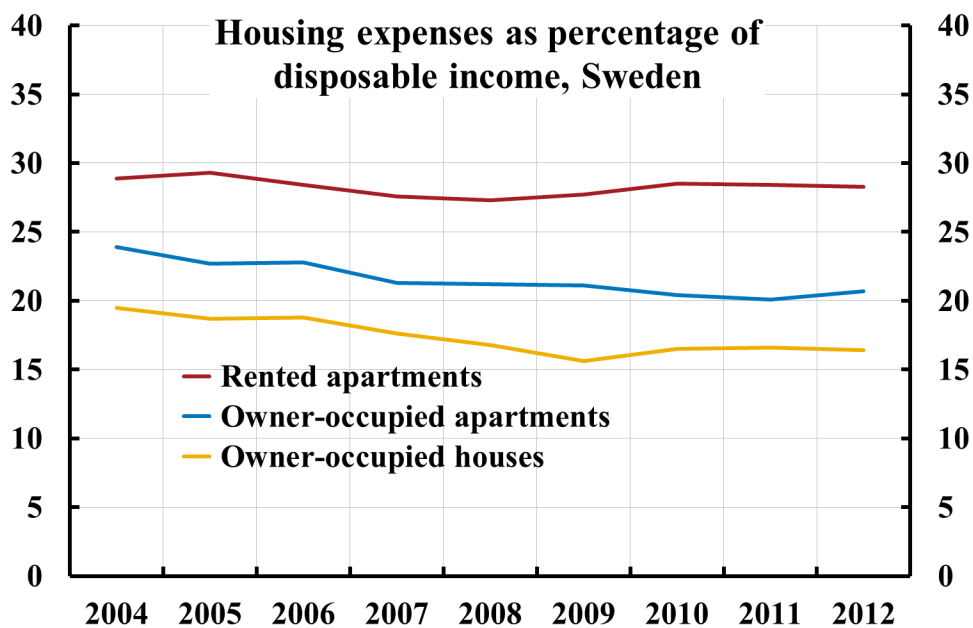


### Swedish households' net wealth and debt relative to assets



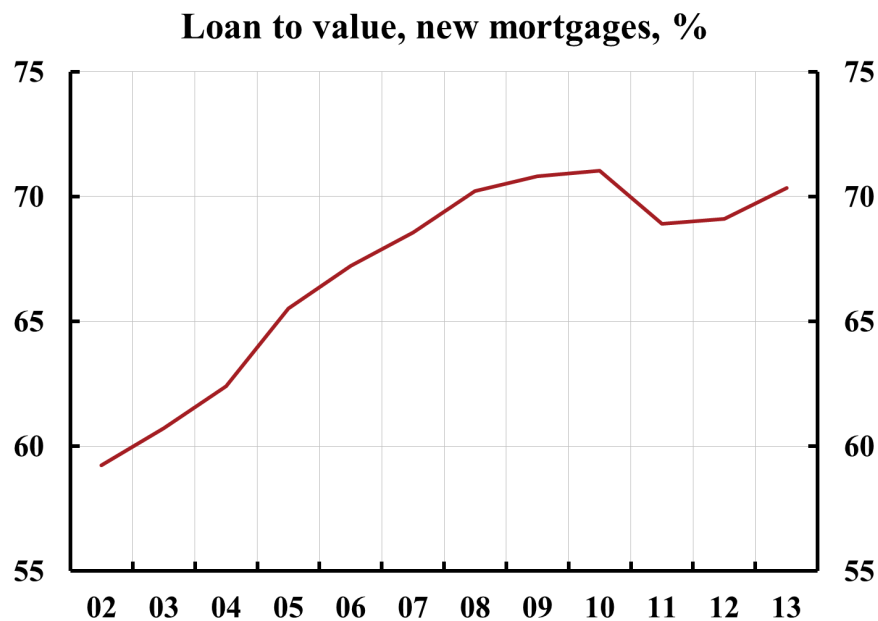
## Why lean? What is the problem?

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



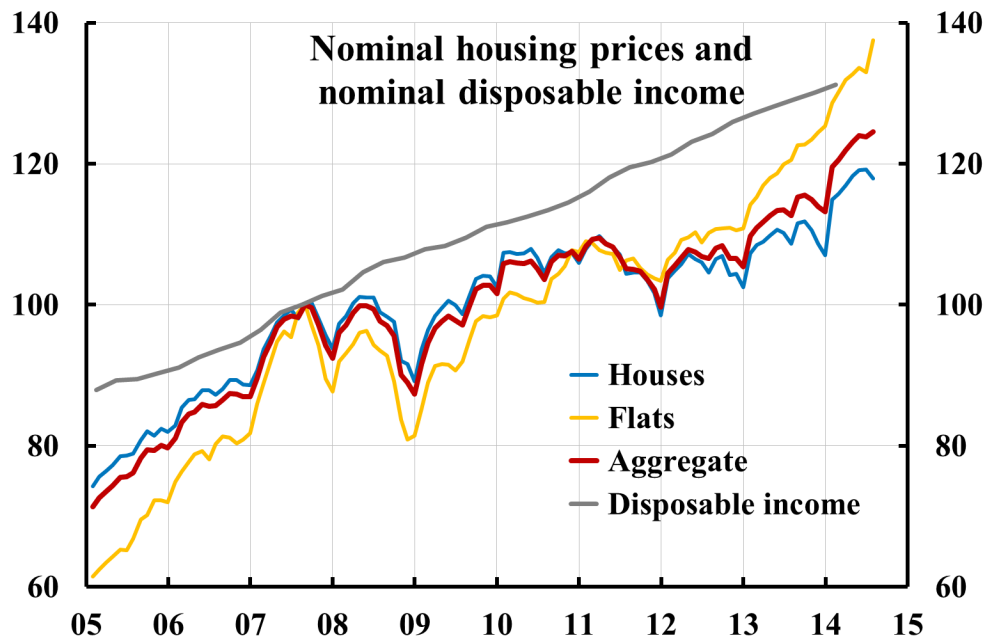
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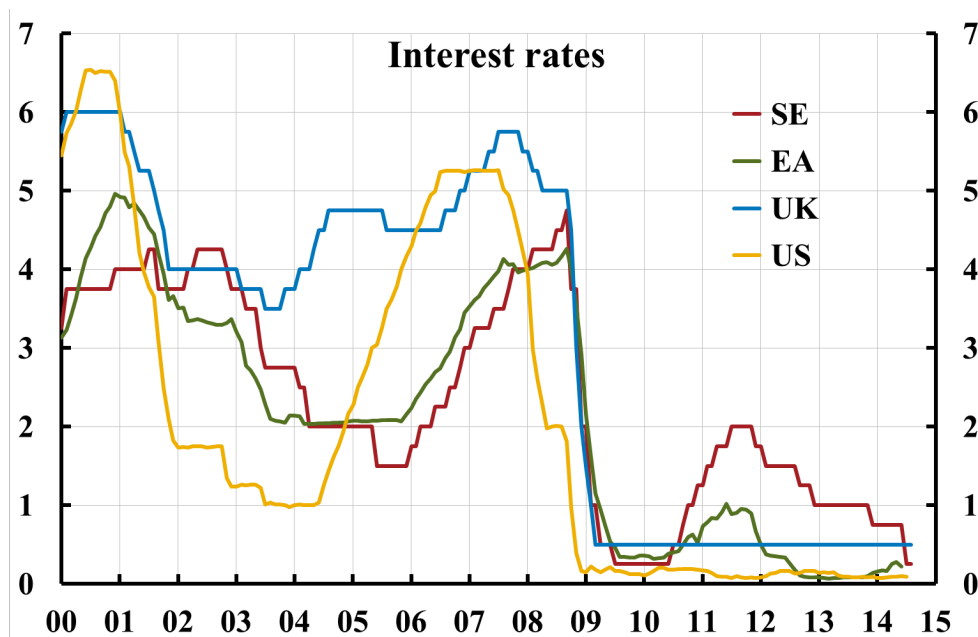
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- Housing expenditure is not high
- Average LTV for new mortgages has stabilized around 70 %
- Housing prices have not increased faster than disposable income since 2007
- Housing prices are in line with fundamentals (disposable income, mortgage rates, tax changes, urbanization, construction...)



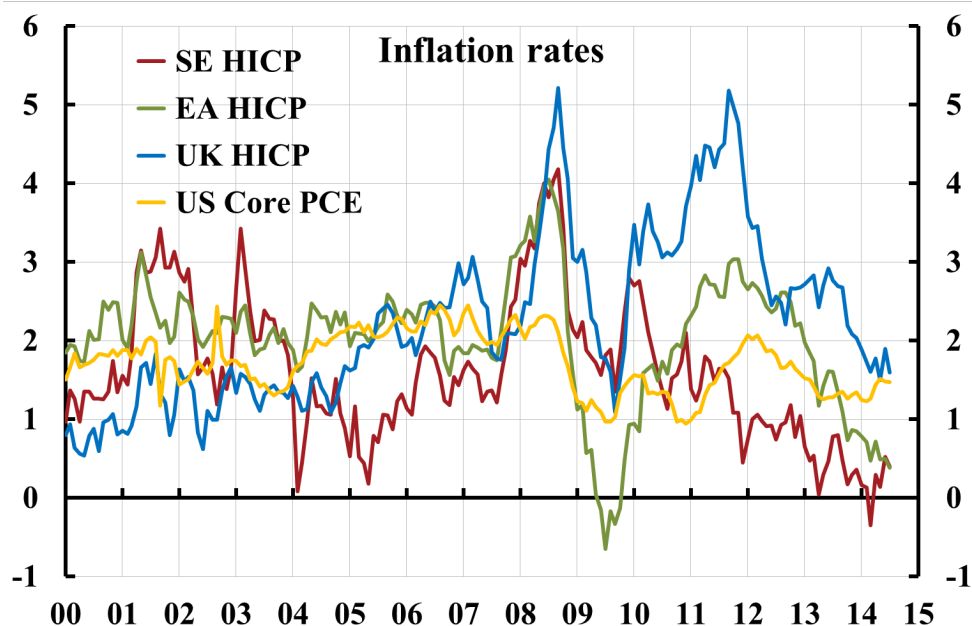
## Why lean? What is the problem?

- 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 in Sweden

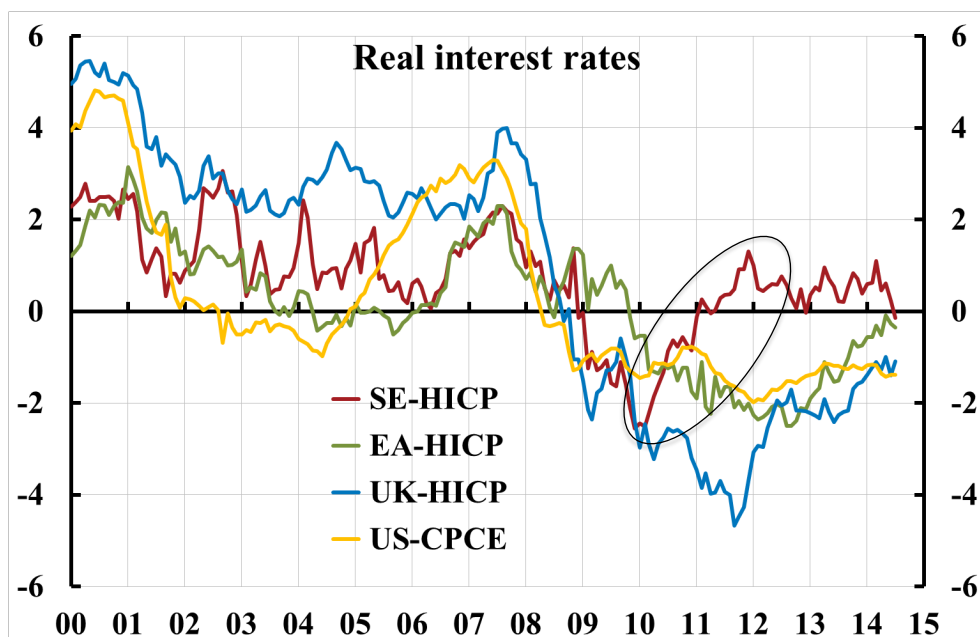
## The leaning: Policy rates in Sweden, UK, and US; Eonia rate in euro area



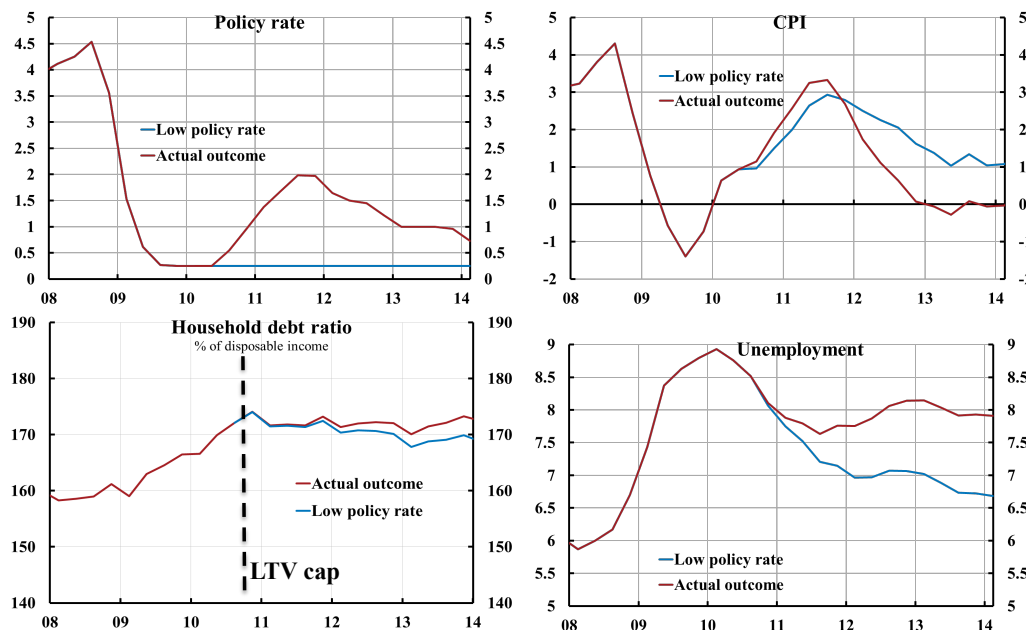
## The leaning: Inflation in Sweden, euro area, UK, and US



## 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)



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](http://larseosvensson.se).

Cont.



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## Riksbank's case for leaning against the wind

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

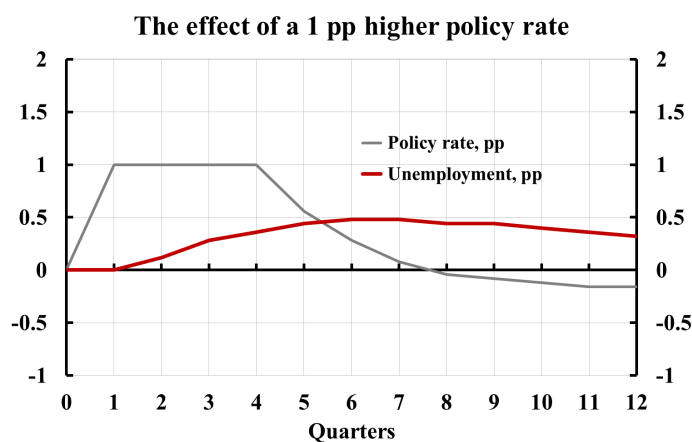


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## Three issues in Williams (2014)

- 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?

## Williams issue (1): Cost of 1 pp higher policy rate: 0.5 pp higher unemployment rate

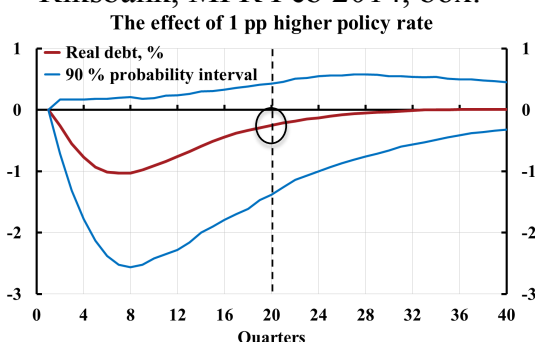


Source: MPR July 2013, chapt. 2; Svensson, post on [larseosvensson.se](http://larseosvensson.se), March 31, 2014.

## Williams issue (2): Benefit 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.

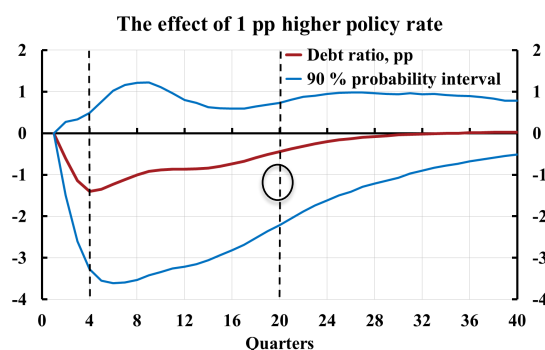
- 1 pp higher policy rate leads to 0.25 %  
lower real debt in 5 years
- Lowers probability of crises by  
 $0.25 \times 0.4 / 5 = 0.02$  pp
- Assume 5 pp higher unemployment in  
crisis (Riksbank crisis scenario, MPR  
July 2013, box):
- **Benefit:**  
Expected lower future unemployment:  
 $0.0002 \times 5 = \mathbf{0.001}$  pp
- Compare to **cost:** Higher  
unemployment rate now: **0.5 pp**



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

- 1 pp lower debt ratio may imply  
0.02 pp smaller increase in  
unemployment rate in crisis  
(Flodén 2014)



(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:  
 $0.44 \times 0.02 = 0.009$  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**



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## Williams issue (1) and (2): 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**

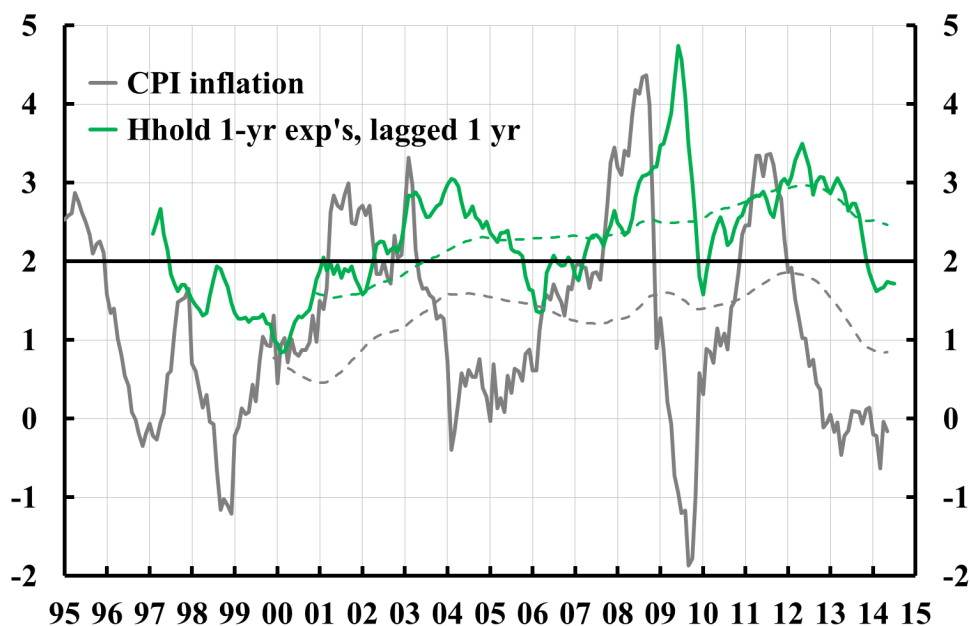
|   |  |
|---|--|
| <b>Cost:</b> Higher unemployment during the next few years, percentage points | 0.5                                    |
| <b>Benefit:</b> Lower expected future unemployment, percentage points         |  |
| 1. Because of lower probability of a crisis                             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

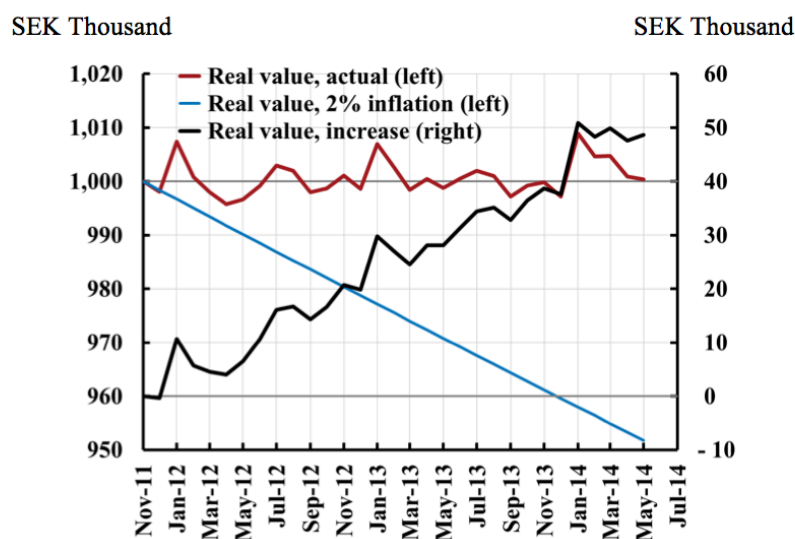
- Inflation expectations anchored at target
- Lower average inflation than expected causes real effects
- Higher unemployment
- Higher *real* debt for households (additional cost of leaning against the wind)

## CPI inflation and household inflation expectations



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

Figure 7. The real value of a SEK 1 million loan taken out in November 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



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## **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
- Provides an answer to Williams issue (3): improved design of MP?
- 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...



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## **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

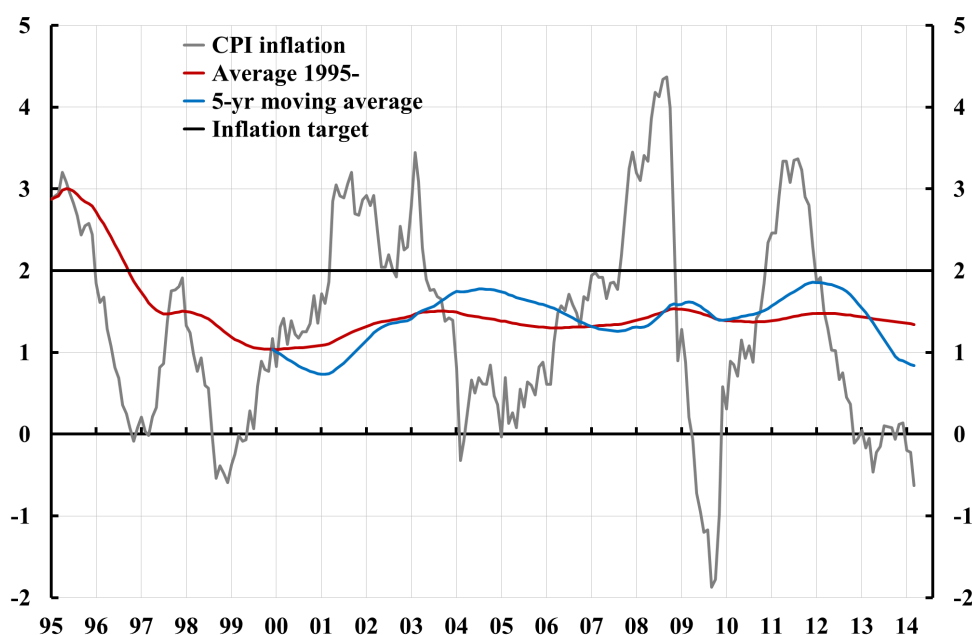
- "In addition, as an authority under the Riksdag, the Riksbank, without prejudice to the price stability target, is to support the goals of general economic policy with the aim to achieve sustainable growth and **high employment**".
- High employment = highest sustainable rate of employment

### ■ 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

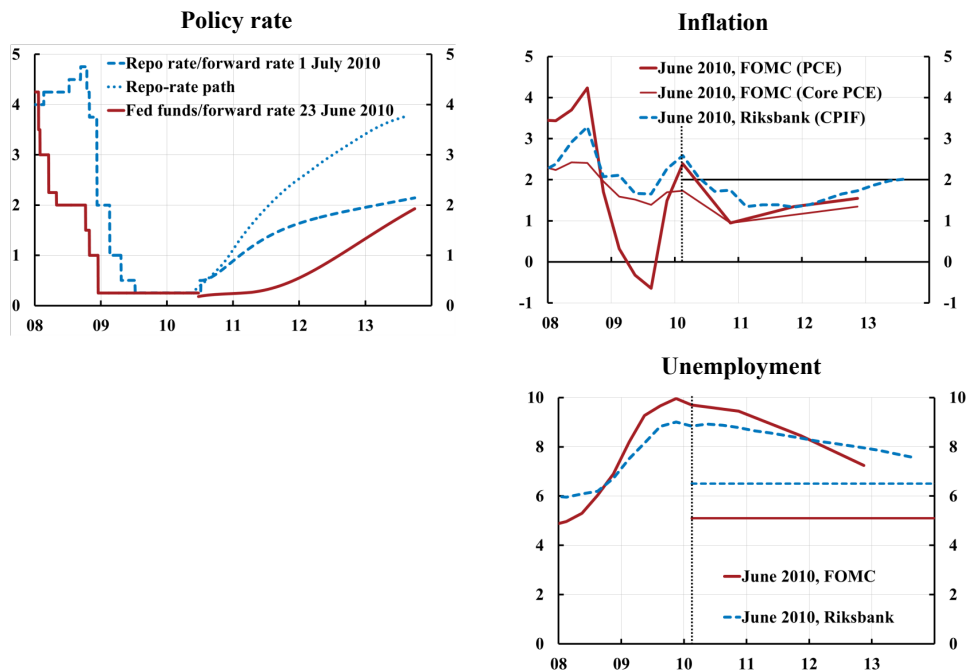
## Target achievement:

### Average inflation significantly below target



## Fed and Riksbank, June/July 2010

### Similar forecasts, very different policies



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



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## Lowflation/deflation and debt:

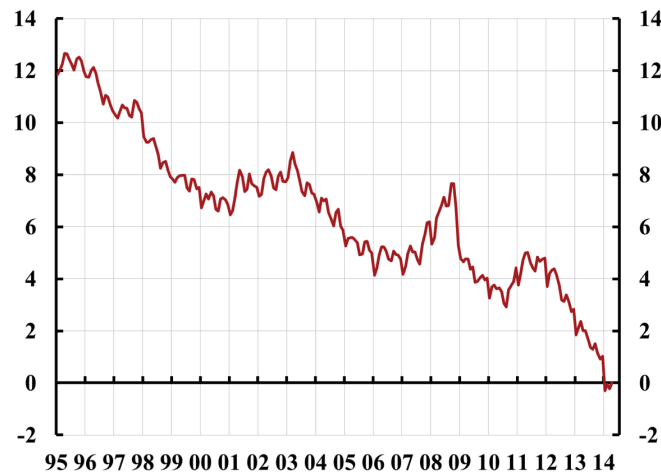
### A negative involuntary amortization

- 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."

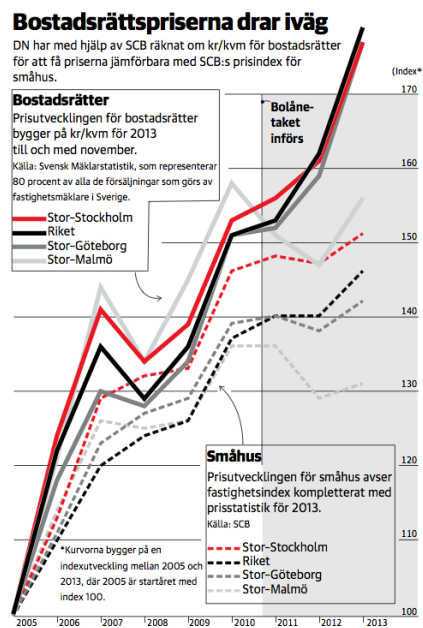


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**Figure 8. The increase to April 2014 in the real value of a given nominal loan, compared to if inflation had been 2 percent (depending on when the loan was taken out)**



## 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)

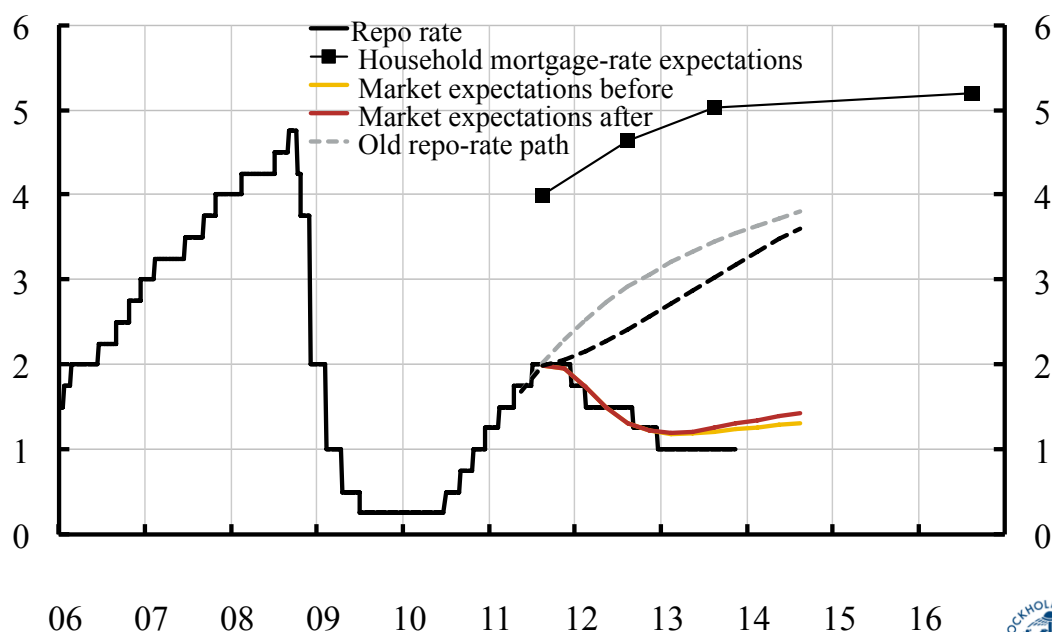


## Riksbank III: Households' mortgage-rate expectations are too low

- 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?

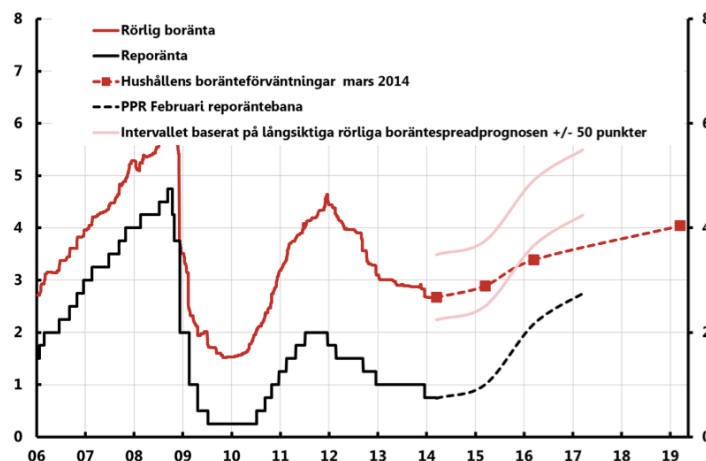


## Policy rate, policy-rate path, market expectations, and household expectations about 3-month mortgage rates: Sep 2011



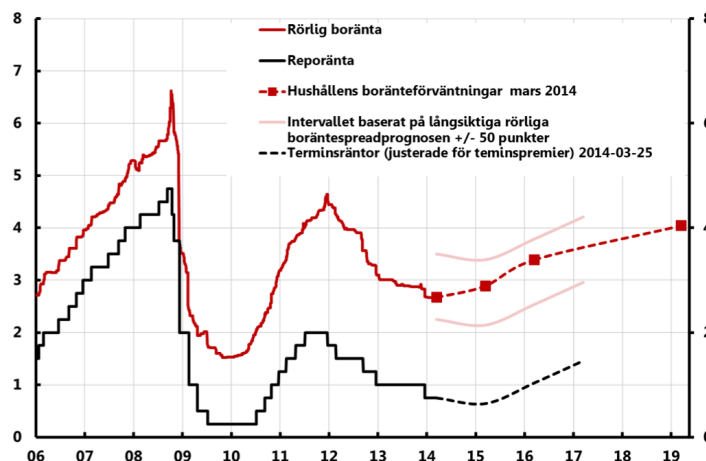
## Household expectations and Riksbank policy-rate path

### Hushållens förväntningar och reporäntebanan



# Household expectations and market expectations

## Hushållens förväntningar och terminsräntor



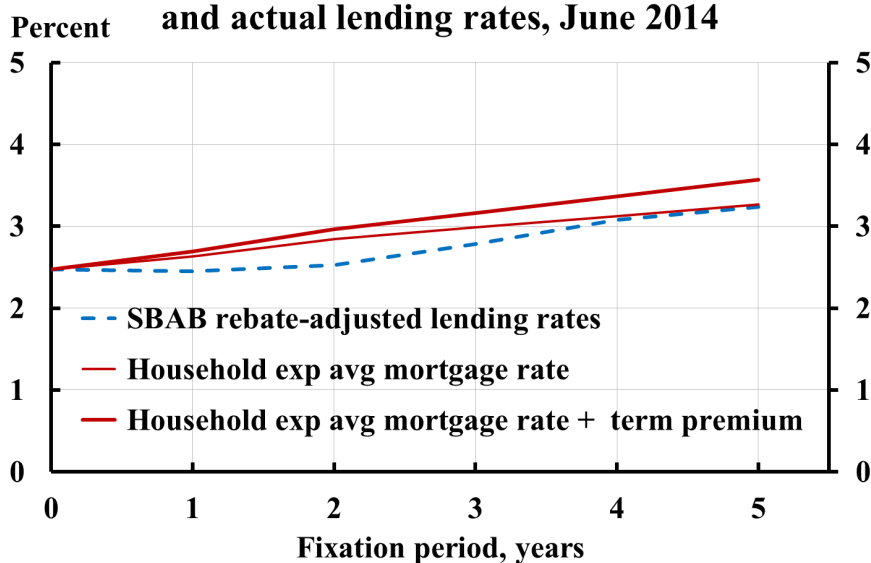
Source: Flodén, “Monetary policy and macroprudential policy” (in Swedish), LO, 2014-03-27



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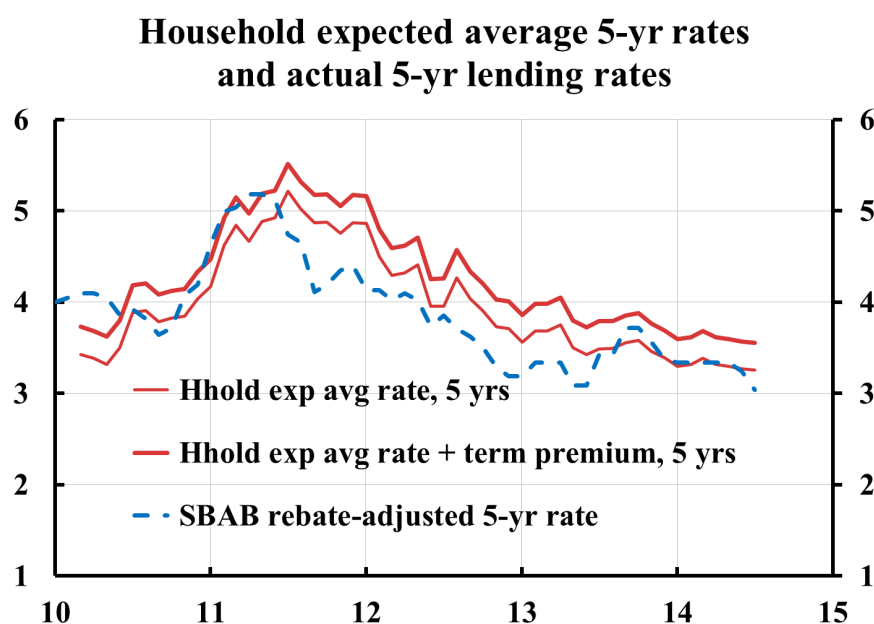
## Households' expected mortgage-rate costs and actual yield curve

### Household expected average rates and actual lending rates, June 2014



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

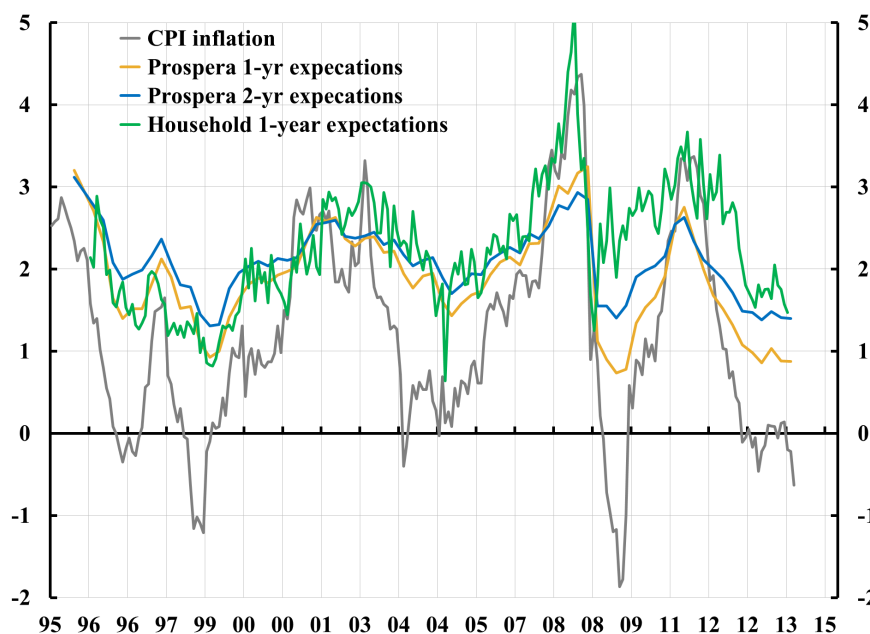


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- Households' mortgage-rate expectations are low relative to the Riksbank's policy-rate path
  - But what credibility does the policy-rate path have?
- At a closer examination, no evidence of too low mortgage-rate expectations

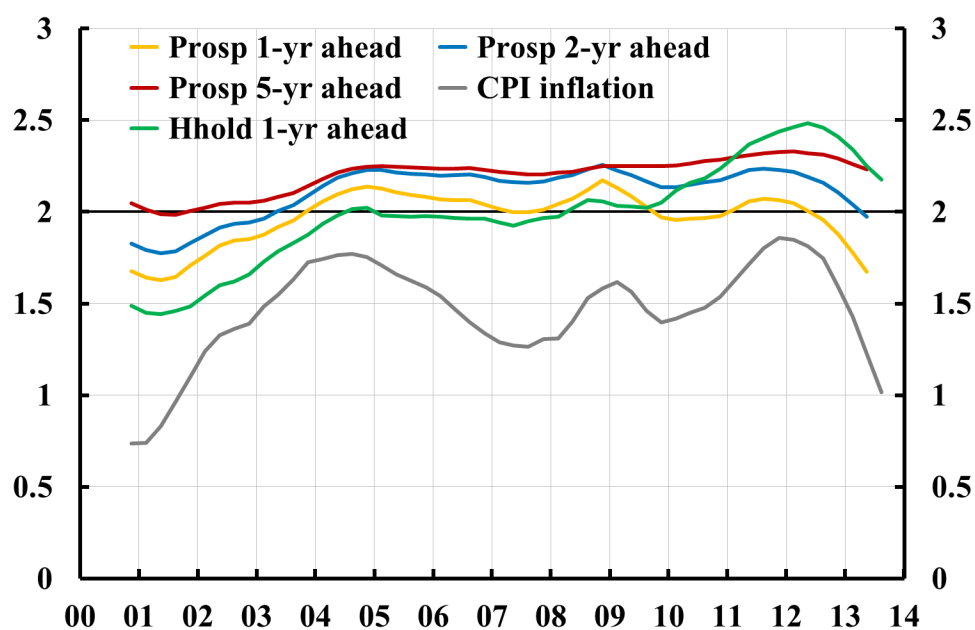


## Inflation expectations close to target, in spite of low inflation

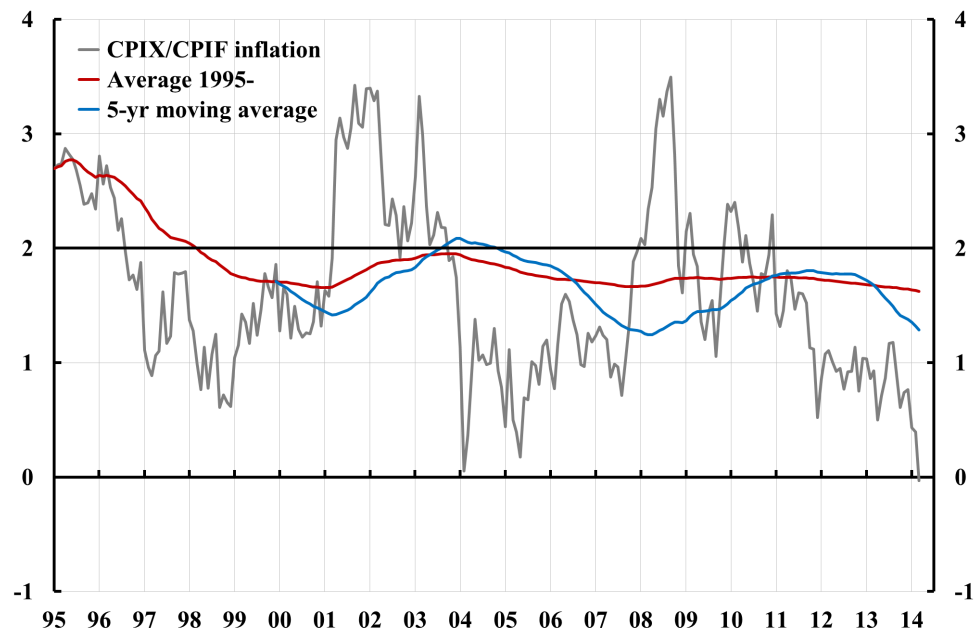


## Inflation expectations close to target, in spite of low inflation

5-year trailing moving averages

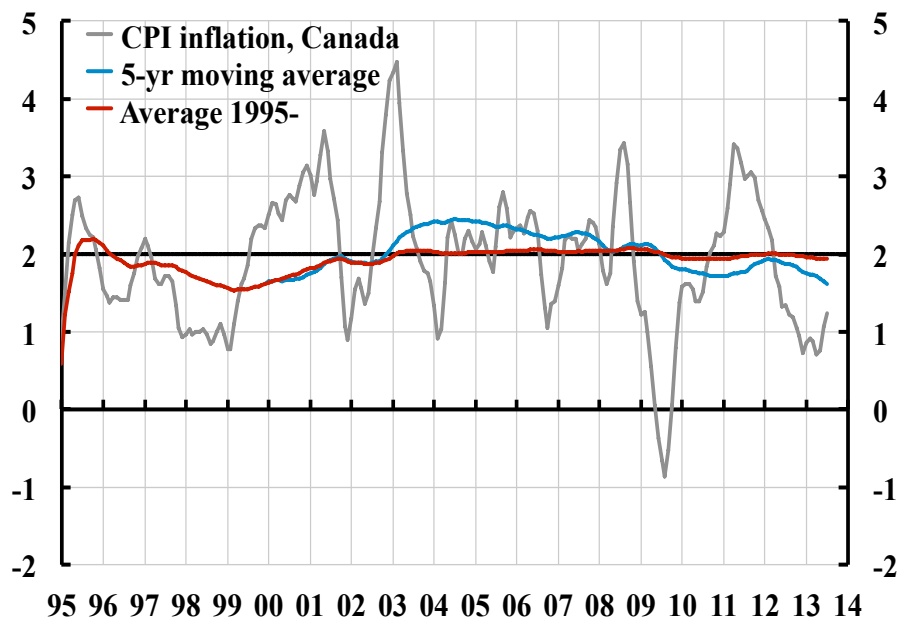


## Average CPIX/CPIF inflation also below target



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

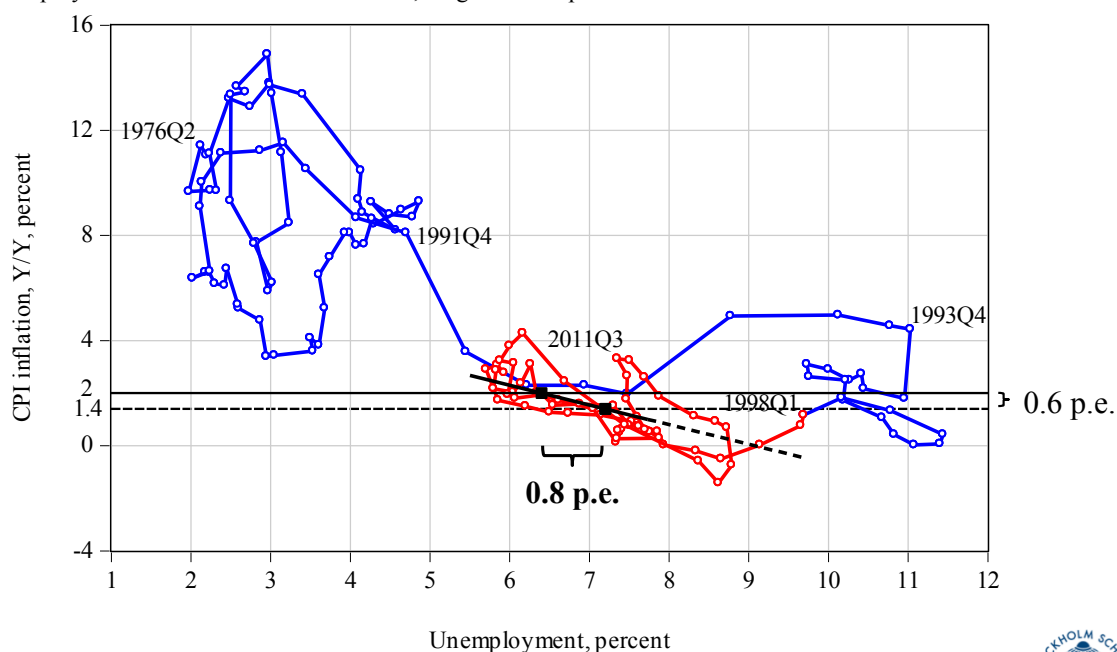
| Country   | Target          | Index    | Period    | Average | Deviation |
|-----------|-----------------|----------|-----------|---------|-----------|
| Sweden    | 2 (1995-)       | CPI      | 1997-2011 | 1.4     | - 0.6     |
|           | 2 (1995-)       | CPI      | 1997-2007 | 1.3     | - 0.7     |
| 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     |           |



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

Unemployment and CPI inflation 1976-2012, long-run Phillips curve 1997-2012

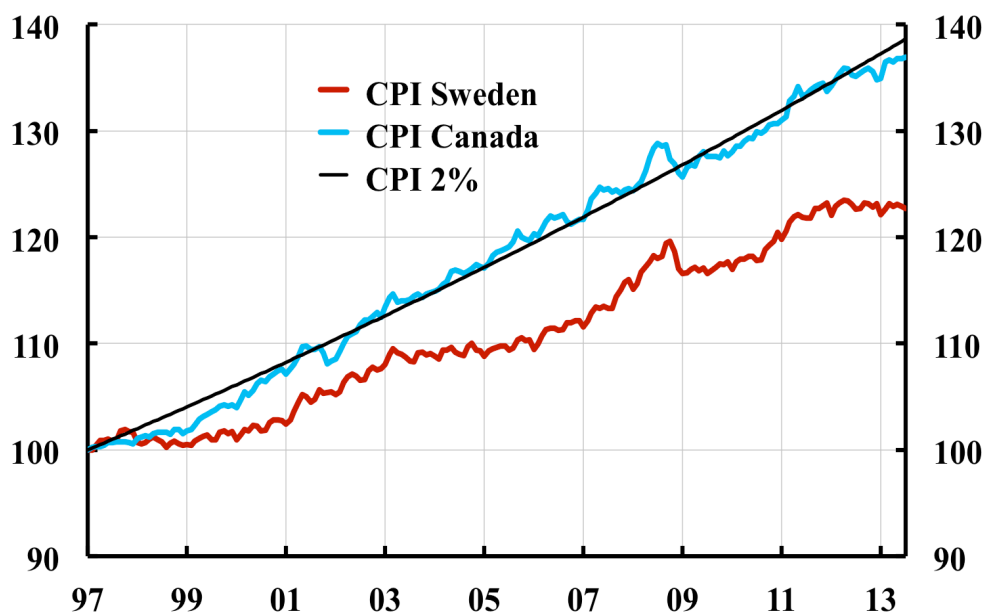


Source: Svensson, Lars E.O. (2013), "The possible unemployment cost of average inflation below a credible target", [www.larseosvensson.net](http://www.larseosvensson.net).



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



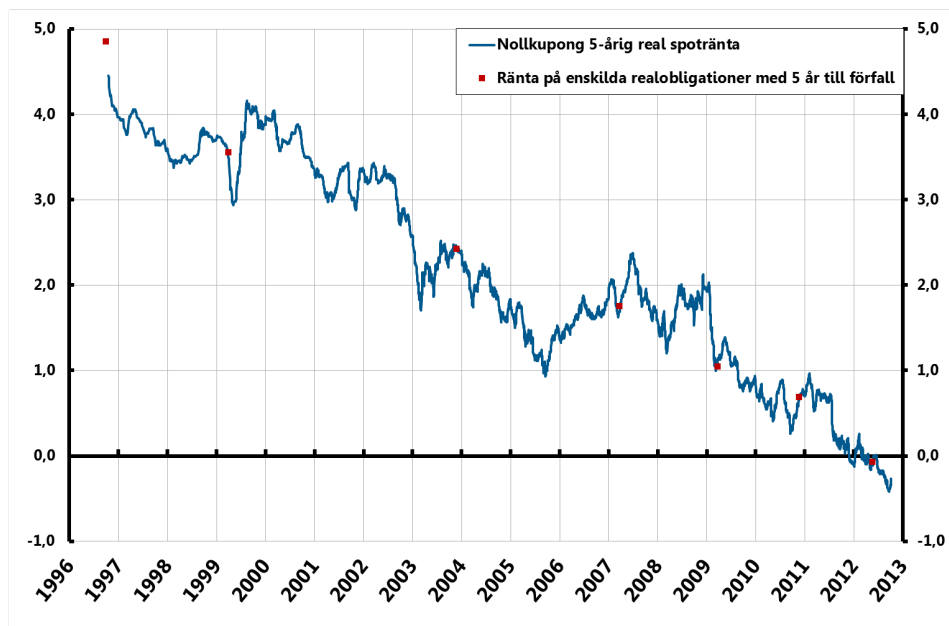
Flodén (2014), very small effect of debt ratio on increase in unemployment rate in crisis (not statistically significant for subsample of countries with falling housing prices)

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

|                               | Konsumtion        | Arbetslöshet      | Huspriser         |
|-------------------------------|-------------------|-------------------|-------------------|
| Skuldkvot 2007                | -0,04**<br>(0,00) | 0,02*<br>(0,02)   | -0,11**<br>(0,00) |
| Skuldtilllväxt före 2007      | -0,97**<br>(0,00) | 0,28<br>(0,16)    | -2,00**<br>(0,01) |
| Bytesbalans före 2007         | 0,38**<br>(0,00)  | -0,35**<br>(0,01) | 1,43**<br>(0,00)  |
| Konsumtionstillväxt före 2007 | 2,10**<br>(0,00)  | -0,75<br>(0,21)   | 2,64<br>(0,19)    |
| Konstant                      | 5,66**<br>(0,00)  | -0,61<br>(0,71)   | 15,00*<br>(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. Skuldtilllväxten 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



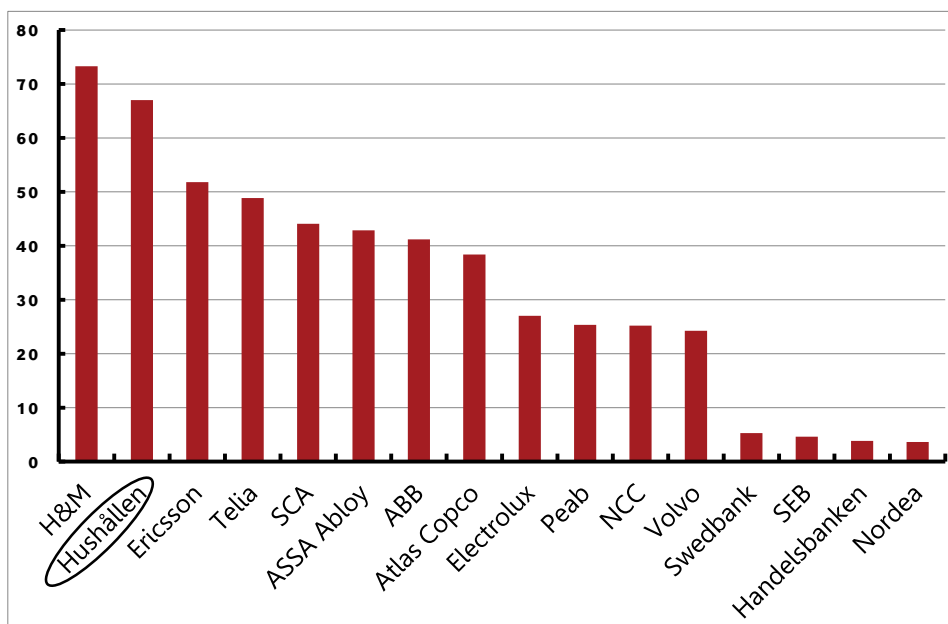
Source: Riksbank and National Debt Office



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

Percent

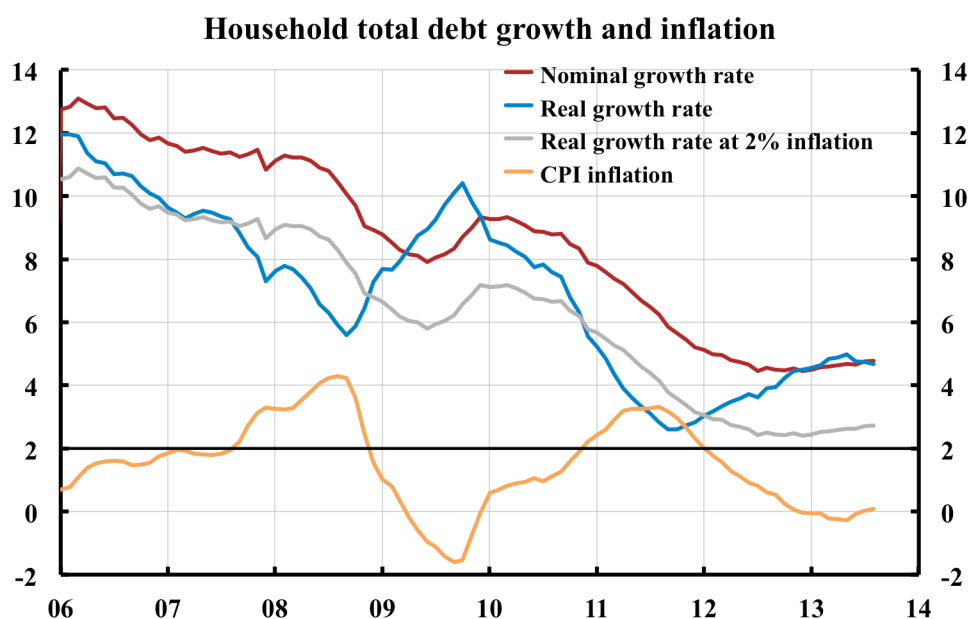


Källor: Dagens Industri (soliditeten 2011 för börsbolag och svenska banker) och Riksbanken (hushållens soliditet)



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## Debt growth: Real debt growth higher with low inflation



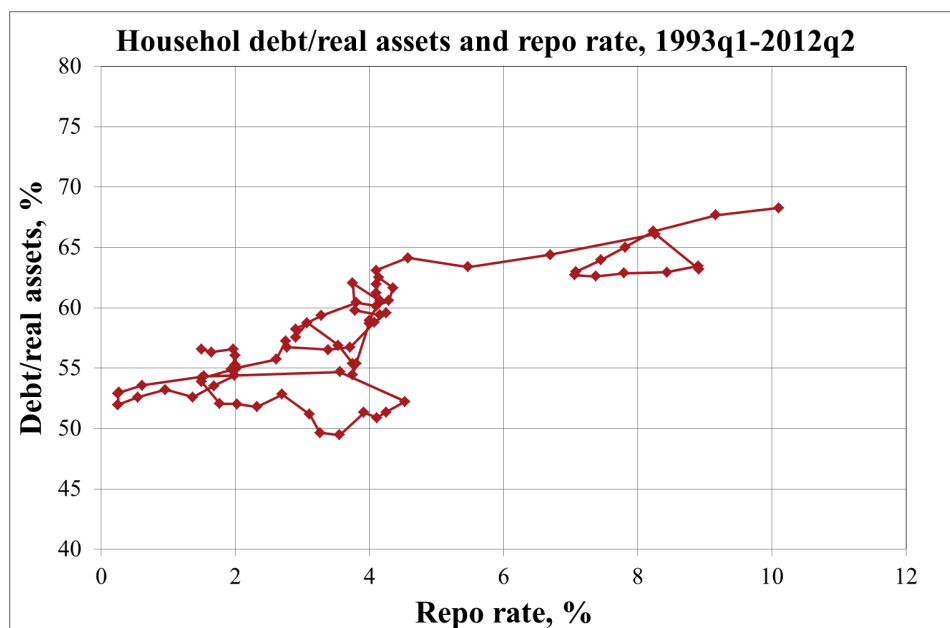
## Short- and long-run effects on debt

- 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
- Real 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

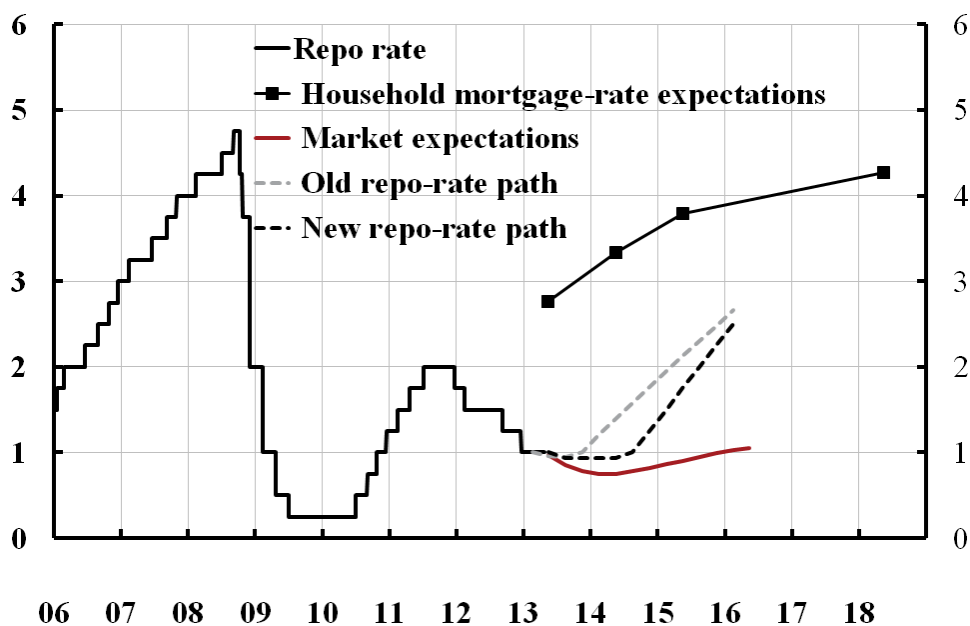


Sources: The Riksbank and Statistics Sweden



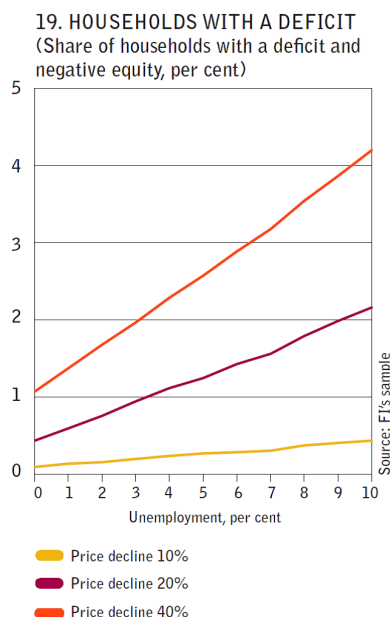
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## Policy rate, policy-rate path, market expectations, and household expectations: April 2013



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## Stress test of new borrowers



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



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## Amortization hysteresis?

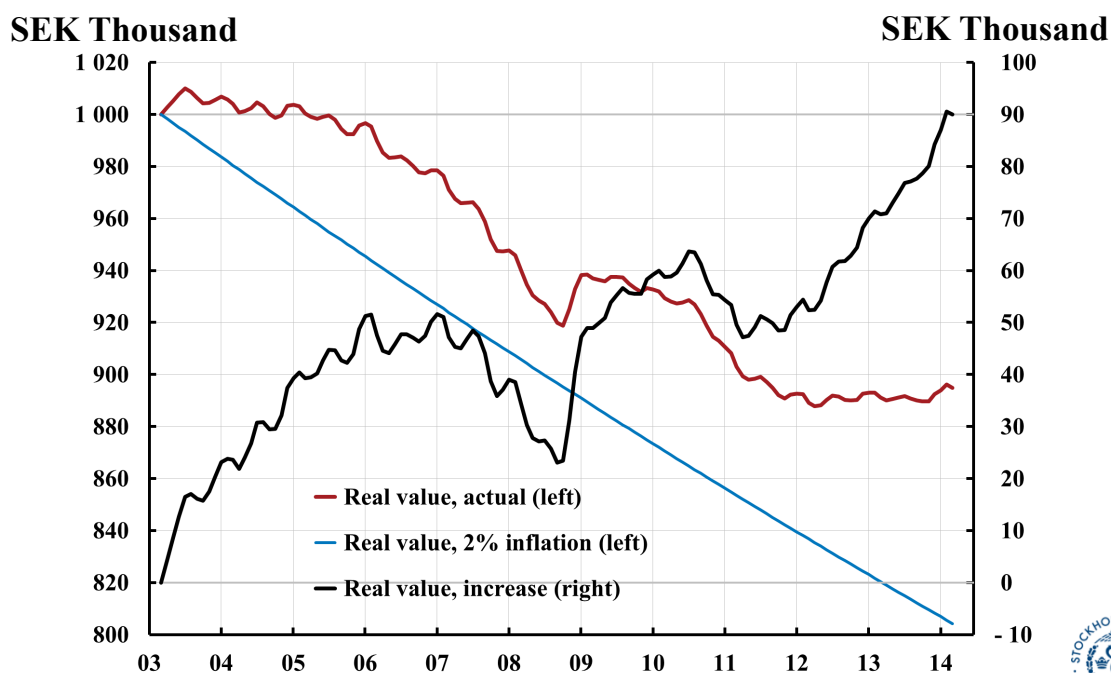
- Why amortize?
- Depends exclusively on the individual borrower's situation
  - Amortization is fixed saving
  - Comparison of mortgage rate with the return on alternative investments, plus any liquidity needs
  - It may be better to build up a liquidity buffer and/or invest in other assets (diversify)
  - 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



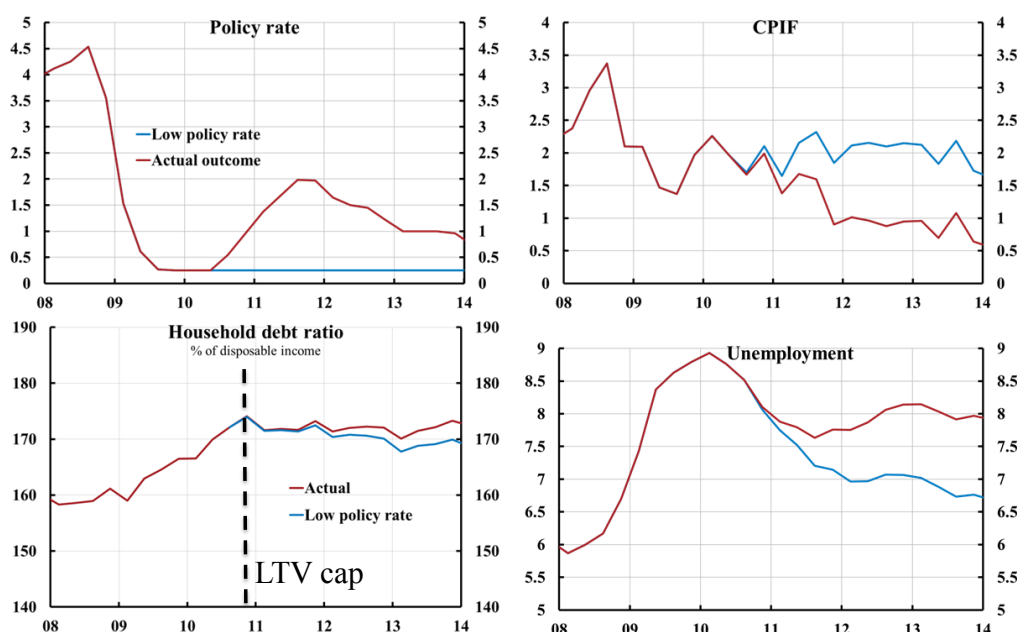
64



**SEK 1 million loan, taken out in March 2003:  
Real value of loan: Actual and for 2% inflation  
Increase 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)**

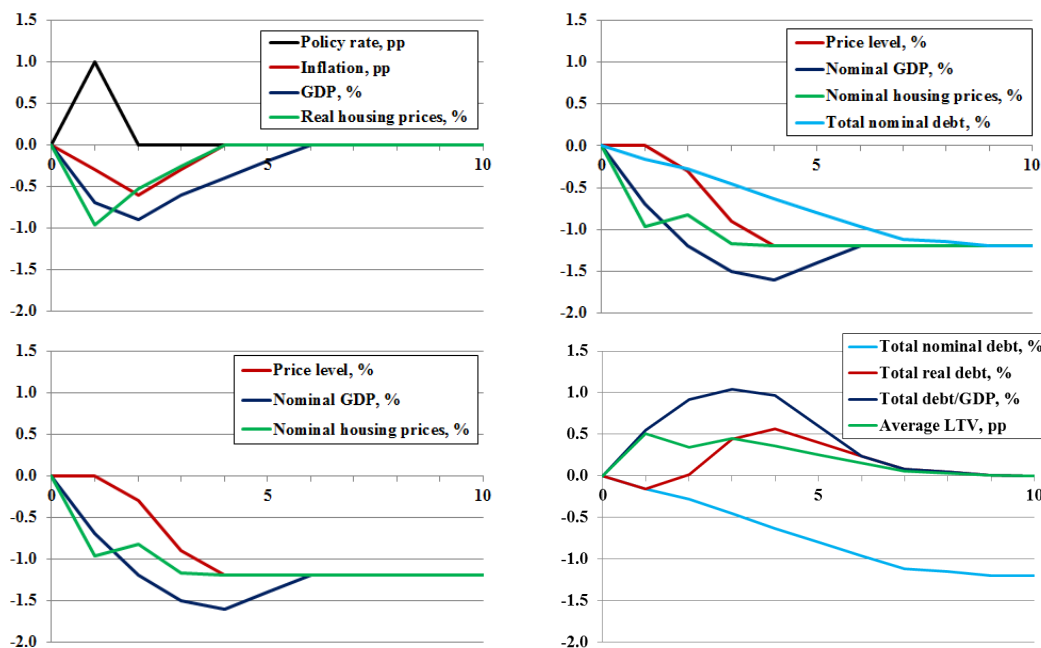


Cont.

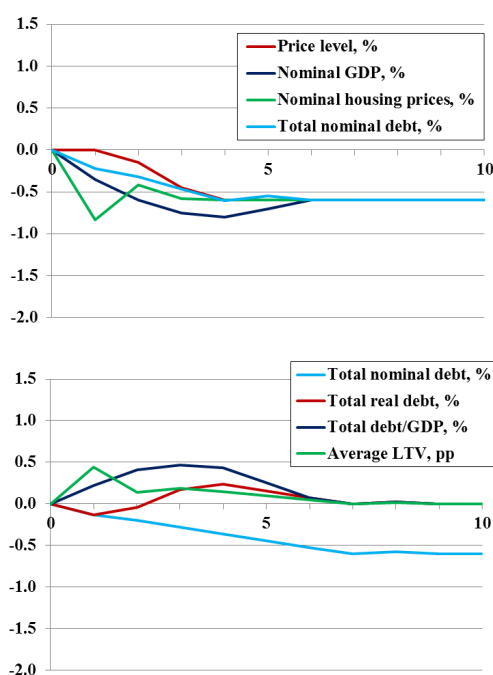
Source: Svensson (2013), "Unemployment and monetary policy – update for the year 2013,"  
Svensson (2013), "Leaning against the wind increase (not reduces) the household debt-to-GDP ratio",  
posts on larseosvensson.se.

## 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) |
|-------------------------------|-----------------|--------|--------|-------|-------------|--------|-----|
| Variable                      | Semi-elasticity |        |        |       | Elimination |        |     |
|                               | Infinitesimal   |        | Finite |       |             |        |     |
|                               | 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.