

INFLATION TARGETING AND “LEANING AGAINST THE WIND”¹

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Flexible inflation targeting

Let me start from standard flexible inflation targeting, according to which monetary policy aims at stabilizing inflation around an announced inflation target and resource utilization around a long-run sustainable rate. Furthermore, let me for concreteness assume that the unemployment rate is a satisfactory measure of resource utilization, so stabilizing resource utilization means stabilizing unemployment around an estimated long-run sustainable rate.

A main current question is, should standard flexible inflation targeting be combined with some degree of “leaning against the wind”, as discussed, for instance, by Smets (2013) and at this conference by the introductory remarks of NBP President Marek Belka.

Leaning against the wind?

Leaning against the wind implies a bias toward a somewhat tighter policy than justified by stabilizing inflation and unemployment, in order to avoid financial “imbalances” and threats to financial stability. It presumes that (1) macroprudential instruments or policies are ineffective, and that (2) a higher policy rate has a significant negative impact on threats to financial stability.

My view is that presumption (1) varies much from country to country, and that presumption (2) has little theoretical and empirical support, although the latter may depend on the structure of the financial sector, whether it is competitive or oligopolistic, the relative importance of shadow banking, and so on. This means that it is difficult to generalize from one country to another. Each country and economy needs to be scrutinized before one can judge whether there is a case for leaning against the wind or not.

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Case study: Leaning against the wind in Sweden

I will use the experience from Sweden of monetary policy and macroprudential policy as a case study. Regarding monetary policy, the Riksbank has been leaning against the wind quite aggressively since the summer of 2010, stating concerns about risks associated with the household debt-to-income (DTI) ratio. This has led to inflation much below the target and unemployment much above any reasonable long-run sustainable rate.

Regarding presumption (1) above, it seems that macroprudential instruments and policies are indeed both effective and being used in Sweden, as discussed in Svensson (2013c). Finansinspektionen (the Swedish financial supervisory authority) and the government have in the last few years taken or announced several effective measures, namely a mortgage loan-to-value cap of 85 percent (which has had a clear effect on the loan-to-value ratio for new mortgages, according to Finansinspektionen's annual mortgage market report, Finansinspektionen 2013), higher capital-adequacy requirements for systemically-important banks, and higher risk weights on mortgages. Finansinspektionen in its mortgage market reports also thoroughly monitors that mortgage lending standards are strict, that borrowers' debt-service capacity is good, and that borrowers' resilience to disturbances in the form of increased mortgage rates, increased unemployment, and housing price falls is sufficient.

In particular, in August 2013, the government announced a new strengthened framework for financial stability (Swedish Government 2013). Finansinspektionen will have the main responsibility for micro- and macroprudential policy and will control the micro- and macroprudential instruments. Assigning the main responsibility and control of both micro- and macroprudential instruments, including instruments such as the countercyclical capital buffer, to a single authority allows for both efficiency and accountability. A Stability Council has been created, with the Minister of Financial Markets as the chair and with the Director Generals of Finansinspektionen and of the Swedish National Debt Office and the Governor of the Riksbank as additional members. The Council will assess financial stability, manage crises, and publish its positions and assessments. Sweden should now have an effective framework for financial policy and financial stability. Thus, presumption (1) does not seem to apply in Sweden.

What about presumption (2), that a higher policy rate has a significant effect on threats to financial stability? The Riksbank has admitted that a lower policy rate would result in better target achievement for inflation and unemployment, with inflation closer to the target and unemployment closer to a long-run sustainable rate. However, it has stated, that such a policy would lead to a higher household DTI ratio and thereby increase the risks associated with household debt. A minority of the Riksbank's executive board has argued that the beneficial impact of a higher policy rate and tighter monetary policy on any risks associated with household debt in Sweden is too small to compare with the costs of the resulting too low inflation and too high unemployment.² The question is who is right, the majority or the minority?

² During my term as a Deputy Governor and member of the executive board, which ended in May 2013, I belonged to that minority and dissented in favor of easier monetary policy.

The Riksbank’s leaning against the wind was undertaken without presenting any previous supportive analysis of the impact of monetary policy on any risks associated with household debt. In response to this I have undertaken such an analysis in Svensson (2013b).

A higher policy rate has a negative impact on housing prices and nominal debt as well as on the price level and nominal disposable income. Real debt is the ratio between nominal debt and the price level. The DTI ratio is the ratio between nominal debt and nominal income. Since a higher policy rate has a negative impact on both numerator and denominator of both real debt and the DTI ratio, it is a priori likely that the impact of a higher policy rate on these ratios is likely to be small. But it is not a priori obvious whether the impact on the ratios will be positive or negative. That depends on the policy rate’s relative impact on the numerator and denominator.

Svensson (2013b) shows that under assumptions that are realistic for Sweden, the policy rate should have a slower impact on nominal debt than on the price level and nominal disposable income.³ The main reason is that only a fraction of the mortgage stock is turned over each year. In Sweden, the average loan length of a mortgage is about 7 years, and there is little amortization of debt during the length of the loans. This means that nominal debt is quite sticky. As a result, a higher policy rate is more likely to increase real debt and the DTI ratio than to decrease them. But in any case, the impact on real debt and the DTI ratio is likely to be small.

A counterfactual experiment

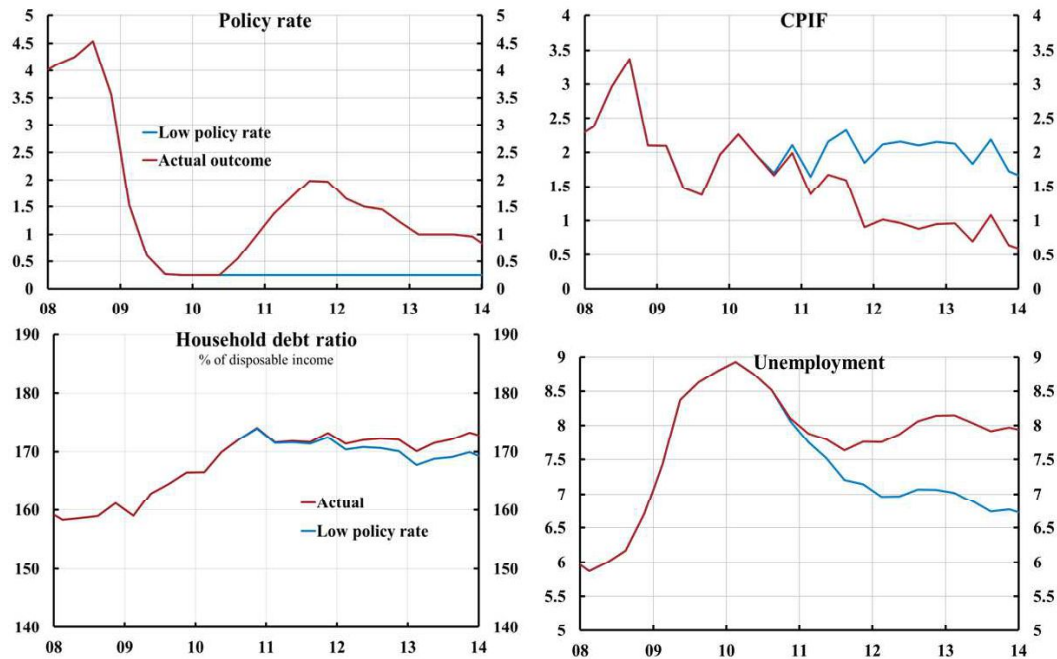
In order to summarize the effects of the Riksbank’s leaning against the wind, I have used the Riksbank’s main DSGE model, Ramses, to conduct a counterfactual experiment. This experiment compares the actual outcome for inflation and unemployment to the outcome if policy had been easier (Svensson 2014a). Furthermore, I have combined this with the results of Svensson (2013b) on the impact of the policy rate on the DTI ratio, in order to compare the actual and counterfactual outcome for the household DTI ratio. The result is shown in Figure 1.

The red lines show the actual outcome for the policy rate, CPI inflation (CPI inflation calculated with constant mortgage rates), the unemployment rate, and the household DTI ratio. The blue lines show the counterfactual outcome, if the policy rate instead of the increase from the summer of 2010 had been kept constant at 0.25 percent until now. Inflation would have remained close to the target of 2 percent, and unemployment might have been 1.2 percentage points lower. Furthermore, the DTI ratio might have been a bit lower, around 170 percent of disposable income instead of around 173, since nominal

³ See Svensson (2013) for details. The assumptions are (1) new mortgages have a constant LTV ratio of 70 percent (the average LTV ratio for mortgages in Sweden in the last few years), (2) mortgages are refinanced every 7 years (the average loan length of mortgages in Sweden), and (3) mortgages are kept constant until refinanced (consistent with current amortization behavior in Sweden). As a result, only a seventh of the mortgages are turned over each year, resulting in the stock of mortgages being sticky. Furthermore, for simplicity, (4) the stock of housing and the number of borrowers is assumed to be constant. In reality, there has been little construction of new housing, but the share of housing owned, and the number of borrowers has increased considerably. This trend may not continue in the future, though.

disposable income would have increased a bit more than the stock of nominal debt. However, the difference in the DTI ratio is too small to have any impact on any risks associated with it.

Figure 1
Actual and counterfactual outcome for the policy rate, inflation, unemployment, and the household DTI ratio



Source: Svensson (2014a)

The Riksbank's recent estimates

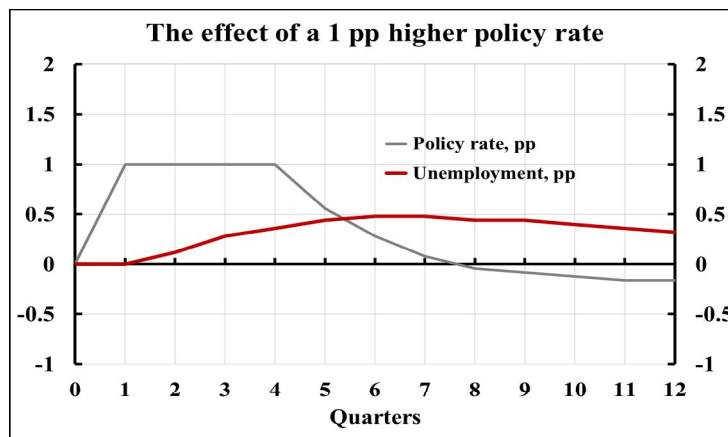
The Riksbank (Sveriges Riksbank 2014a) has recently presented its own estimates of the impact of the policy rate on household real debt and the DTI ratio. The Riksbank also regularly publishes, in its *Monetary Policy Report*, its estimates of the impact of alternative policy-rate paths on inflation and unemployment (Sveriges Riksbank 2014b). This makes it possible to assess the relative costs and benefits of the Riksbank's leaning against the wind, using the Riksbank's own estimated numbers.

The cost of a higher policy rate

A higher policy rate results in higher unemployment. According to Sveriges Riksbank (2014b, Figures 2:13 and 2:15), a 1 percentage point higher policy rate during 4 quarters leads to about 0.5 percentage point higher an unemployment rate during the next few years (the red line in Figure 2).⁴ This represents the *cost* of a higher policy rate, to be compared with the benefits of a higher policy rate.

Figure 2

The effect on the unemployment rate of a 1 percentage point higher policy rate during 4 quarters



Source: Sveriges Riksbank (2014b).

The benefits of a higher policy rate

A higher policy rate might reduce household indebtedness. The reduced indebtedness might lower the *probability* of a future crisis, with its associated bad macroeconomic outcome with low inflation and high unemployment. The reduced indebtedness might also, conditional on a crisis occurring, make the *consequences* of a crisis less severe, for instance with a lower increase in unemployment. This constitutes the *benefits* of a higher policy rate.

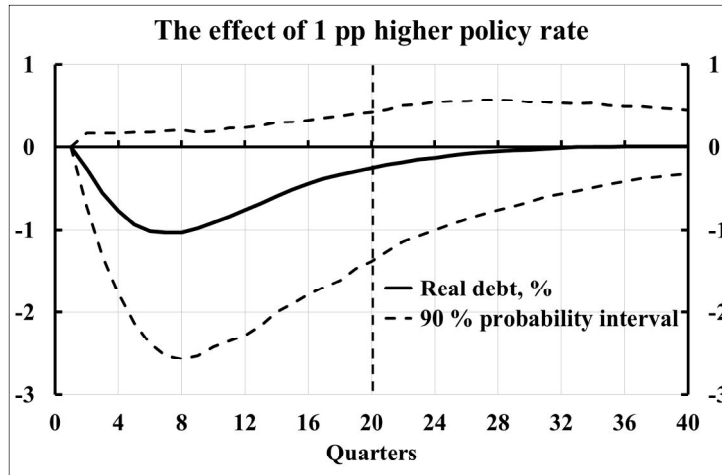
What are then the benefits of a higher policy rate, according to the Riksbank’s own estimates?

⁴ The figure is constructed from the numerical data for Sveriges Riksbank (2014b, Figures 2:13 and 2:15), available at www.riksbank.se. The effect on the unemployment rate of a 0.25 percentage point higher policy rate during 4 quarters has been multiplied by 4 to correspond to the effect of a 1 percentage point higher policy rate during 4 quarters.

How does a higher policy rate affect the probability of a crisis?

So, what is the effect of a higher policy rate on the probability of a crisis? First, according to the Riksbank's own estimate, a 1 percentage point higher policy rate during 4 quarters results in 0.25 percent lower real debt in 5 years (the red line in Figure 3 for quarter 20).⁵

Figure 3
The effect on real household debt of a 1 percentage point higher policy rate during 4 quarters



Source: Sveriges Riksbank (2014a).

Second, regarding how real debt in turn might affect the probability of a crisis, Sveriges Riksbank (2013) refers to Schularick and Taylor (2012). According to that paper, 1 percentage point lower annual growth of real debt during 5 years (that is, 5 percent lower real debt in 5 years) would, everything else equal, reduce the probability of a crisis by 0.4 percentage points.⁶

Altogether, this would thus imply a reduction of the probability of a crisis by $0.25 \times 0.4 / 5 = 0.02$ percentage points. This is of course an insignificant reduction of the risk.⁷

⁵ The figure uses the numerical data for Riksbank (2014a, Figure A20) with the opposite sign. We see that a 90-percent probability interval is not below the zero line, so the effect on real debt is not statistically significantly different from zero, and it may be positive. The policy rate behind Figures 3 and 4 returns to zero after 4 quarters somewhat quicker than in Figure 2, but this does not affect the conclusions.

⁶ See Table 3, Sum of lag coefficients, Column (1)-(3), in Schularick and Taylor (2012). I believe the coefficient 0.4 might be too high, because data for a number of reasonable control variables are not available. A lower coefficient would result in an even less effect of the policy rate on the probability of a crisis.

⁷ According to Schularick and Taylor (2012), the average probability of a crisis is almost 4 percent. A probability of 4 percent corresponds to a crisis on average every 25th year. A reduction of the probability by 0.02 percentage points to 3.98 percent means that the average time between crises increases by 1.5 months to 25 years and 1.5 months. This is hardly a big increase.

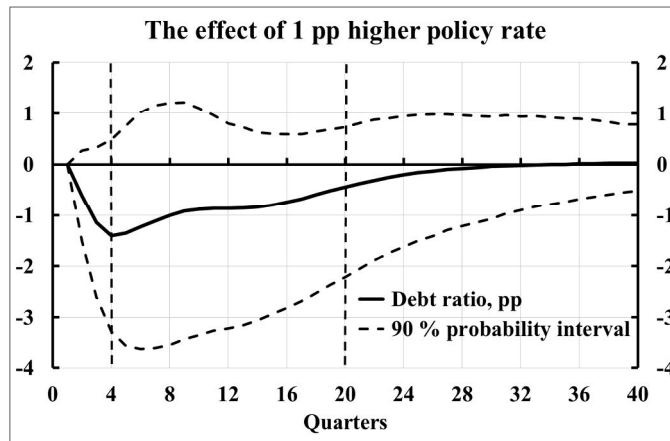
Furthermore, in the long run, as can be seen in Figure 3, the policy rate has no effect on real debt and thus, according to the Riksbank’s estimates, no effect on any long-run risks associated with real debt.

The benefit of a higher policy rate, in the form of a reduced probability of a crisis, is thus completely insignificant, compared to the cost in the form of a 0.5 percentage point higher unemployment rate the next few years.

How does a higher policy rate affect the consequences of a crisis?

But what is the effect of a higher policy rate on the consequences of a crisis? According to Sveriges Riksbank (2014a, Figure A22), a 1 percentage point higher policy rate during 4 quarters would lead to a 1.4 percentage points lower DTI ratio in 1 year and 0.44 percentage points lower DTI ratio in 5 years (the red line in Figure 4 for 4 and 20 quarters, respectively).⁸

Figure 4
The effect on the household DTI ratio of a 1 percentage point higher policy rate during 4 quarters



Source: Sveriges Riksbank (2014a).

According to a note by Riksbank Deputy Governor Martin Flodén (2014), a 1 percentage point lower DTI ratio might, all else equal, result in the increase in the unemployment rate in a crisis being 0.02 percentage points lower.

Altogether, this means that the increase in the unemployment rate might be $1.4 \times 0.02 = 0.028$ or $0.44 \times 0.02 = 0.009$ percentage points lower, depending on whether the crisis occurs after 1 year or after 5 years. If the crisis occurs with the probability 4 percent (the average

⁸ As noted in Svensson (2014b) and can be seen from the dashed lines in Figure 4, the change in the DTI ratio is not statistically significant from zero, and it cannot be excluded that it has the opposite sign.

probability of a crisis according to Schularick and Taylor 2012), the expected lower increase in unemployment is only a 25th of 0.028 and 0.009 percentage points, respectively. It is clearly completely insignificant.

Furthermore, in the long run, as can be seen in Figure 4, the policy rate has no effect on the DTI ratio, and thus, according to the Riksbank's estimates, no effect on any long-run risks associated with the DTI ratio.

The benefit of a higher policy rate, in the form of a lower expected increase in the unemployment rate in a crisis, is then of course completely insignificant, in comparison with the cost, in the form of a 0.5 percentage points higher unemployment rate the next few years.

Conclusions

Thus, according to the Riksbank's own estimates, monetary policy has a very small effect on any risks associated with household indebtedness. Compared to the large costs of too high unemployment and too low inflation, the possible benefit of leaning against the wind is completely insignificant. Monetary policy should not be used to affect household debt, at least not in Sweden.

Also, the Riksbank's estimates are not statistically significant, and, as discussed in Svensson (2014b), there are reasons to believe that the VAR model used is misspecified. A more thorough empirical study is necessary to judge whether leaning against the wind might make real debt and the debt-to-income ratio actually increase rather than decrease.

Furthermore, in the last two years, CPI inflation in Sweden has equaled zero, while household inflation expectations for these years have been at the inflation target of 2 percent or higher. This means that the real value of nominal debt has become higher than expected and planned for. The real value of any mortgage that is two or more years old has become 4 percent bigger, compared to if inflation had equaled 2 percent (Svensson 2013a). This is a much larger effect on real debt than the ones discussed above. Given this effect, Riksbank policy has almost certainly increased real debt and actually been counterproductive; having consequently made any problem and risks with household indebtedness worse.

Thus, if the purpose is to limit household debt, leaning against the wind does not seem to be an effective policy, definitely not in Sweden. Macroprudential policies are more effective, definitely so in Sweden. As discussed above, Finansinspektionen and the government have used several effective macroprudential tools, and since August 2013 Sweden has a new strengthened framework for financial stability, with Finansinspektionen having the main responsibility and being accountable for financial stability.

Given this, I believe the Riksbank's monetary policy should definitely focus on the traditional monetary-policy goals—that is, stabilizing inflation around the inflation target and unemployment around a long-run sustainable rate.

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