

Conference draft. Preliminary and incomplete. Comments welcome.

# **Forward Guidance as a Monetary Policy Tool in Theory and Practice: The Swedish Experience\***

**Lars E.O. Svensson**

SIFR – The Institute for Financial Research, Swedish House of Finance, Stockholm School of Economics; Stockholm University; CEPR; and NBER

Web: [larseosvensson.se](http://larseosvensson.se)

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## **Abstract**

The Swedish experience of forward guidance in the form of a published policy-rate path is examined, focusing on the big discrepancy between the Riksbank's policy-rate path and market expectations of the future policy rate in September 2011, its consequences and its reasons. The main reason suggested for the discrepancy is that the Riksbank had gradually come to conduct a "leaning-against-the wind" policy because of concerns about housing prices and household indebtedness. This apparently led the Riksbank to publish a high policy-rate path that was deemed unrealistic and irrelevant by the market. As a forecaster of the policy rate, ex post the market was right and the Riksbank was wrong. The paper provides some discussion on how to handle and avoid such situations. The Riksbank's leaning-against-the-wind policy has led to lower inflation than the target, higher unemployment than a long-run sustainable rate and, ironically, to a higher household real debt and debt-to-income ratio than if average inflation had been equal to the inflation target. The paper provides some discussion on how to avoid such outcomes.

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# 1 Introduction

“Forward guidance” in monetary policy means providing some information about future policy settings. In recent years, the Federal Reserve, the Bank of Canada, the ECB, and the Bank of England have used different forms of forward guidance. The forward guidance by these central banks has all been in the special context of a binding lower bound for the policy rate. It has been used as a way of implementing more expansionary policy when the policy rate has been restricted by a lower bound.

In contrast, for many years, some central banks have used forward guidance as a natural part of their normal monetary policy. This forward guidance has been in the specific form of a published forecast for the policy rate, the policy-rate path. The Reserve Bank of New Zealand has published a policy-rate path from 1997, Norges Bank from 2005, Sveriges Riksbank from 2007, and the Czech National Bank from 2008.

The recent Swedish experience during and after the financial crisis 2008-2009 provides a case study of forward guidance in the form of a published policy-rate path. For instance, by comparing the published policy-rate path with market expectations of the future policy rate before and after the publication, one may assess both the predictability of monetary policy and the credibility of the policy-rate path. Regarding the predictability and credibility of the policy-rate path, the Swedish experience includes examples of both great successes and great failures.

An example of a success of both predictability and credibility is during the difficult situation in February 2009, when the Swedish economy was in free fall after having been hit by the consequences of the international financial crises and the degree of uncertainty was exceptionally large. The Riksbank lowered the policy rate in a large step, and the policy-rate path was shifted down even further. This was very well predicted by the market before the announcement and after the announcement, market expectations shifted further towards the announced path, indicating its high credibility.

An example of a great failure is in September 2011, when the Riksbank announced a high and increasing policy-rate path. It indicated a rise in the policy rate by about 75 basis points over the next six quarters. Market expectations were not affected by the announcement. Before and after the announcement then indicated a *fall* of about 75 basis points over the next six quarters. Ex post, the market expectations were right and the Riksbank policy-rate path was wrong. The Riksbank actually lowered the policy rate by 100 basis points over the next six quarters.

This paper focuses on the large discrepancy between the Riksbank’s path and market expectations in September 2011, discusses reasons for and consequences of the discrepancy, and how it can be avoided. The main reason suggested for the discrepancy is that the Riksbank had gradually come to conduct a “leaning-against-the wind” policy, with a higher policy rate and policy-rate path than what was justified by its mandate of price stability and highest sustainable unemployment. The reason for this policy was concern about housing prices and household indebtedness. Such concerns would apparently lead the Riksbank to publish a high policy-rate path that was deemed unrealistic and irrelevant by the market.

This raises the question of how to avoid deciding in favor of and publishing such unrealistic policy-rate paths. The paper discusses how to handle large discrepancies between market expectations and the central bank’s policy-rate path and what policy procedures can maintain the consistency and relevance of the published policy rate path and corresponding forecasts of target variables such as inflation and unemployment.

The Riksbank's leaning-against-the-wind policy led to much lower inflation than the target and much higher unemployment than a long-run sustainable rate. Ironically, it also led to higher real debt and a higher debt-to-income ratio than if average inflation had been equal to the inflation target. Thus, the Riksbank's policy was apparently a considerable mistake, given its objectives. The paper provides some discussion of the broader questions of how to avoid such policy mistakes.

Section 2 discusses forward guidance as a special or normal part of monetary policy. Section 3 discusses the practical experience of forward guidance in Sweden, in particular the large discrepancy between the Riksbank's policy-rate path and market expectations of future policy rates in September 2011. Section 4 discusses some specific consequences of the discrepancy of September 2011, whereas section 5 discusses some broader aspects of the Riksbank policy. Section 6 discusses the reasons for the discrepancy in September 2011 and for the particular leaning-against-the-wind policy pursued by the Riksbank to restrict household indebtedness. Section 7 discusses whether the leaning-against-the-wind policy actually succeeded in reducing household indebtedness. Section 8 discusses how inconsistencies such as those that appeared in September 2011 can be handled and avoided, as well as how some broader policy problems at the Riksbank could have been avoided, including how they could be avoided in the future. Section 9 [to be written] presents some general conclusions.

## **2 Forward guidance as a special or normal policy**

In recent years, the Federal Reserve, the Bank of Canada, the ECB, and the Bank of England have used different forms of forward guidance – meaning some information about future monetary-policy settings. The forward guidance by these central banks has all been in the context of a binding lower bound for the policy rate. It has been used as a way of implementing a more expansionary policy when the policy rate has been restricted by a lower bound.

Forward guidance in the specific form of a published forecast for the policy rate has been used by the Reserve Bank of New Zealand from 1997, by Norges Bank from 2005, and the Riksbank from 2007, and the Czech National Bank from 2008. That kind of forward guidance is a normal part of the policy and communication of these central banks.<sup>1</sup>

These central banks all pursue flexible inflation targeting, meaning that the objective of the policy is to stabilize both inflation targeting around an announced inflation target and stabilizing resource utilization around a long-run sustainable rate. In my view, unemployment is normally the most relevant single measure of resource utilization in this context.<sup>2</sup> In this paper, I consistently use unemployment as the measure of resource utilization, and I consider inflation and unemployment to be the target variables of flexible inflation targeting. Thus, I consider the mandate of the Riksbank to be to stabilize inflation around the inflation target and unemployment around a long-run sustainable rate of unemployment.<sup>3</sup>

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<sup>1</sup> The RBNZ and the CNB publish a forecast for a three-month interest rate, not their actual policy rate, but this difference does not matter here, as long as the published forecast is consistent with the bank's forecast for its policy rate.

<sup>2</sup> If the labor-market participation rate depends on monetary policy, employment is a better indicator; see Erceg and Levin (2012). In Sweden, the labor-market participation rate is currently considered to be approximately independent of monetary policy.

<sup>3</sup> The Riksbank's legislated mandate for monetary policy follows from the Sveriges Riksbank Act 1988:1385 and the preparatory works of the Act, the Government Bill 1997/98:4 to the Riksdag (Swedish Government 1997) that contained the proposal for this legislation. In Sweden, the preparatory works of laws carry legal weight, since they contain guidance on how the laws should be interpreted. According to the Riksbank Act, the

Several reasons can be given as to why forward guidance in the form of a published forecast for the policy rate (a policy-rate path) is a natural part of a monetary policy in the form of flexible inflation targeting, a policy that aims at stabilizing inflation around an explicit inflation target and stabilizing employment or unemployment around a long-run sustainable rate:

- (1) Transparency. Since the economy reacts with a lag to monetary-policy actions, monetary policy has to be guided by central-bank forecasts of inflation and unemployment. A coherent forecast for inflation and unemployment requires a forecast for the policy rate. Coherent flexible inflation targeting requires “forecast targeting,” that is, choosing a policy-rate path such that the corresponding forecasts for inflation and unemployment “look good,” meaning that they best stabilize both inflation around the target and unemployment around a long-run sustainable rate. Since the policy-rate path is inherent in forecast targeting, transparency of policy requires the publication of forecasts of both the target variables (inflation and unemployment) and the policy rate.
- (2) Effectiveness. A published policy rate should affect market expectations of future policy rates and thereby the yield curve and longer market rates that have an impact on economic agents’ decision and this way contribute to a more effective implementation of monetary policy.<sup>4</sup> (The publishing of forecasts of inflation and unemployment should also affect the expectations of those variables and contribute to a more effective implementation of policy; see Svensson and Woodford 2005).
- (3) Informativeness. Generally, the central bank should have better information about its plans for the future policy rate than any other agent. A published policy-rate path should therefore provide useful information for the private sector and the public authorities about future policy rates, which should contribute to more informed decisions.
- (4) Justification. Published forecasts for the policy rate, inflation and unemployment allow a transparent and coherent way of justifying the policy choice by comparing the policy choice with the policy alternatives.
- (5) Accountability. Published forecasts for the policy rate, inflation and unemployment simplify an external evaluation of monetary policy and thereby increase the accountability of the central bank. It allows an external assessment of the tradeoff between target variables and the consistency of the policy-rate path with the forecasts of the target variables. If other instruments than the policy rate were also used, such as balance-sheet policies, logic and consistency would demand the publication of forecasts of those as well.

When inflation targeting was new, several inflation-targeting central banks were assuming a constant future policy rate underlying their inflation forecasts. The idea was that a constant-policy-rate inflation forecast that overshoots (undershoots) the inflation target at some horizon such as two years indicates that the policy rate needs to be increased (decreased) (Jansson and Vredin 2003; Vickers 1998).

However, those central banks gradually became aware of a number of problems with the assumption of constant interest rates (Leitemo 2003; Woodford 2005). The assumption may often be unrealistic and therefore imply biased forecasts, and it may imply either explosive or indeterminate behavior in standard models of the transmission mechanism of monetary policy. In particular, even if a constant-

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objective of monetary policy is “to maintain price stability.” The Bill further states (p. 1): “As an authority under the Riksdag [the Swedish parliament], the Riksbank should, without prejudice to the objective of price stability, support the objectives of the general economic policy with the aim to achieve sustainable growth and *high employment*.” [Italics added.] The Riksbank has specified the price stability as a target of 2 percent for the annual increase in the CPI.

<sup>4</sup> If the central bank’s implementation of its monetary policy allows a substantial difference between the central bank’s policy rate and the market overnight rate, as is the case for the euro area, the relevant interest-rate forecast is really the forecast for the overnight rate.

interest-rate inflation forecast is on target at an appropriate horizon, it will typically overshoot or undershoot the target shortly after that horizon, meaning that the policy-rate will have to be adjusted soon, thus violating the assumption of a constant future policy rate, and making rational market expectations deviate from the constant policy rate. Furthermore, the forecasting process will use inputs such as asset prices that are conditional on market expectations of future interest rates rather than a constant interest rate and will therefore produce inconsistent and difficult-to-interpret forecasts.

Some inflation-targeting central banks then moved to a policy-rate assumption equal to the market expectations of future interest rates, as they can be extracted from explicit forward rates and implied forward rates from the yield curve. This reduces the number of problems mentioned above but does not eliminate them. For instance, the central bank may have a view of the appropriate future interest-rate path that differs from that of the market. The move to publishing a policy-rate path solves all the above problems only if the policy-rate path is credible, that is, if market expectations adjust to the policy-rate path when it is published. If not, this means that some inputs in the forecasting process, such as the exchange rate and other asset prices, are still not consistent with the published policy-rate path, making the forecasts of inflation and unemployment inherently inconsistent. As we shall see, this particular problem has been an issue in Sweden in the last few years.<sup>5</sup>

### **3 The Swedish experience of forward guidance**

The recent Swedish experience during and after the financial crisis 2008-2009 provides a fascinating case study of forward guidance in the form of a published policy-rate path. By comparing the published policy-rate path with market expectations of the future policy rate before and after the publication, one may assess both the predictability of monetary policy and the credibility of the policy-rate path.

Market expectations of future policy rates – which I will call market policy-rate paths – are constructed at the Riksbank as implied forward-rate curves. They are adjusted by the Riksbank staff for liquidity, credit, and term premia, so as to be the staff's best estimate of market expectations of future policy rates.<sup>6</sup>

- (1) Predictability. Ideally, monetary policy should be so predictable that markets anticipate the Riksbank policy-rate path well. This should show up as the market policy-rate path the day before the publication of the new Riksbank policy-rate path being close to the published policy-rate path.
- (2) Credibility. Furthermore, after the publication of the Riksbank policy-rate path, its credibility with the market should ideally be so high that the market policy-rate path shifts in the direction of the path and lines up well with it.

The period from the start of the publication of the policy-rate path in February 2007 until the summer of 2009 was relatively successful regarding the predictability of policy and the credibility of the Riksbank policy-rate path. It is discussed in more detail in Svensson (2009, 2010b) and Woodford (2012, 2013). Here I will focus on some recent problems.

Regarding predictability and credibility according to (1) and (2) above, figure 1 shows an example of a great success in panel (a), at the policy meeting in February 2009, and an example of a great failure in

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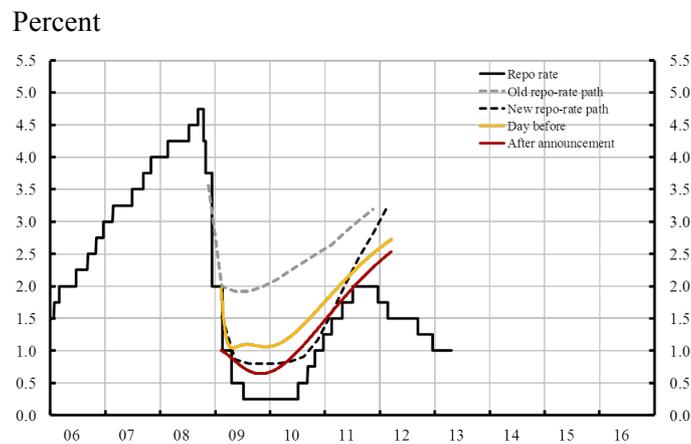
<sup>5</sup> Gosselin, Lotz and Wyplosz (2008) provide a theoretical analysis of transparency and opaqueness of the central bank's policy-rate path. The pros and cons of publishing a policy-rate path are discussed in further detail in Svensson (2007, 2009) and Woodford (2005, 2007).

<sup>6</sup> Depending on the maturity, the implied forward rates are derived from the rates for STINA (Tomorrow-Next Stibor interest-rate swaps) contracts, FRAs (Forward Rate Agreements) or interest-rate swaps.

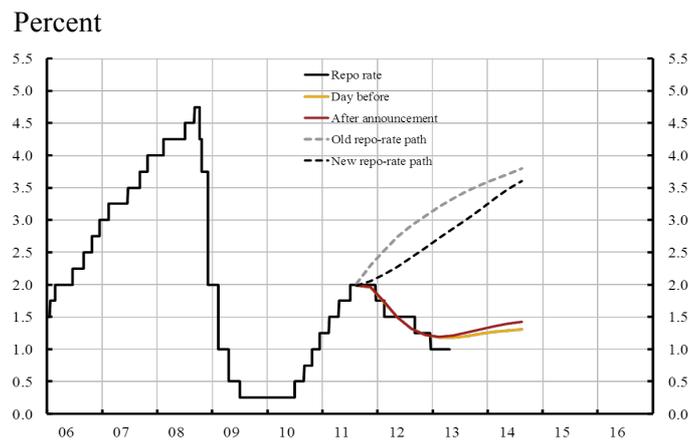
panel (b), at the policy meeting in September 2011. The grey dashed line shows the Riksbank policy-rate path from the previous decision (the repo rate is the Riksbank’s policy rate), the black dashed line shows the published new policy-rate path, the yellow solid line shows the market policy-rate path the day before the publication, and the red solid line shows the market policy-rate path after the announcement.

Panel (a) shows the very difficult situation in February 2009, in the middle of the 2008-2009 crises, when the Swedish economy was in a free fall, the policy rate was reduced by 1 percentage point from 2 percent to 1 percent, and the Riksbank policy-rate path was shifted down even further. The market anticipated this dramatic shift downwards quite well, and after the announcement, the market policy-rate path lined up even closer to the repo-rate path.

**Figure 1. The policy rate, the Riksbank policy-rate path, and the market policy-rate path before and after the announcement**  
**(a) February 2009**



**(b) September 2011**



Source: The Riksbank.

Panel (b) shows the very different situation in September 2011, when the Riksbank announced a “postponement” of further increases in the policy rate and the steeply rising policy-rate path was shifted somewhat to the right. The discrepancy between the Riksbank path and the market path was exceptionally large. The Riksbank path indicated a rise in the policy rate by about 75 basis points over the next six quarters. The market path was not affected by the announcement and indicated a *fall* of about 75 basis points over the next six quarters before and after the announcement. Ex post, the market

policy-rate path was right and the Riksbank policy-rate path was wrong. The Riksbank actually lowered the policy rate by 100 basis points over the next six quarters.<sup>7</sup>

Thus, in September 2011, the Riksbank policy-rate path completely lacked credibility. The market apparently found the Riksbank path to be completely irrelevant. The market path did not move when the new Riksbank path was published. Furthermore, the market was predicting the actual future policy-rate path quite well. The market apparently had a much better idea of what the Riksbank would be doing in the future than what the Riksbank itself communicated. The Riksbank policy-rate path had apparently lost touch with reality.

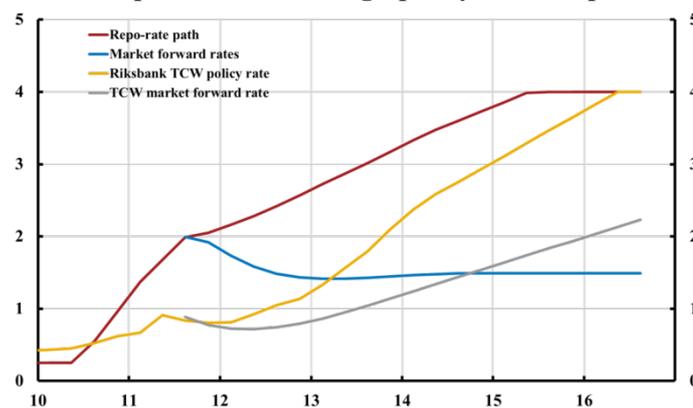
What were the consequences of such a discrepancy between market expectations and the policy-rate path? What was the reason why the Riksbank published such a policy-rate path? I will try to answer these questions.

#### 4 What were the consequences of the September 2011 discrepancy?

In order to understand the consequences of the discrepancy between market expectations and the policy-rate path, we need to note another discrepancy, namely that between the Riksbank forecast for foreign policy rates and the market expectations of future foreign policy rates. This is something that was discussed at several policy meetings, including the September 2011 meeting (Sveriges Riksbank 2011b).

In figure 2 below (Sveriges Riksbank 2011b, figure 1), the yellow line shows the Riksbank forecast for (TCW-weighted) foreign policy rates, whereas the grey line shows (TCW-weighted) market expectations of foreign policy rates, extended to a five-year horizon.<sup>8</sup> We see that the Riksbank forecast is considerably above market expectations. The red and blue lines in the figure show the Riksbank and market policy-rate paths from figure 1b extended to a five-year horizon.

**Figure 2. Riksbank and market policy-rate paths, Riksbank forecast for foreign policy rates, and market expectations of foreign policy rates, September 2011**



Source: Sveriges Riksbank (2011b, figure 1).

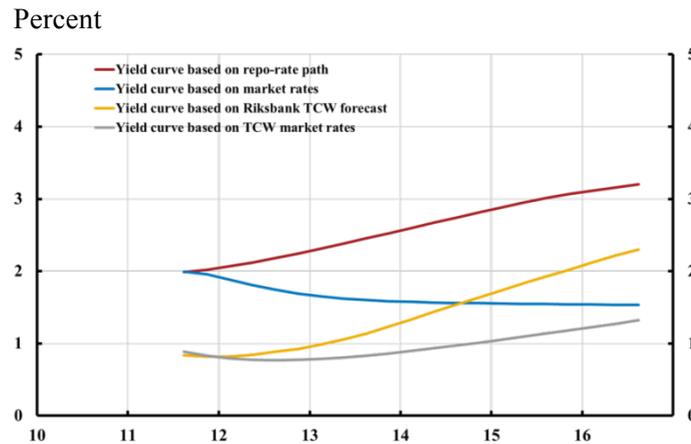
The big discrepancy between the Riksbank path and the market path in figures 1b and 2 means that the market yield curve consistent with the market policy-rate path was very different from the yield curve

<sup>7</sup> The September 2011 case is further discussed in Woodford (2013).

<sup>8</sup> The TCW index (Total Competitiveness Weights) is a geometric index. Its weights are based on the average aggregate flows of processed goods for 21 countries. The weights take account of exports and imports, as well as third-country effects. They are calculated by the IMF.

consistent with a credible Riksbank policy-rate path. The discrepancy between the Riksbank forecast for foreign policy rates and the market expectations of foreign policy rates also means that the market yield curve for foreign interest rates was quite different from the yield curve consistent with the Riksbank forecast. This is illustrated in figure 3 (Sveriges Riksbank 2011b, figure 2). The blue line shows the Swedish market yield curve, whereas the red line shows the yield curve consistent with a credible Riksbank policy-rate path, both extended to a five-year maturity. The grey line shows the foreign market yield curve, whereas the yellow line shows the Riksbank forecast for foreign policy rates.

**Figure 3. Actual Swedish and foreign yield curves and yield curves consistent with Riksbank forecasts**



Source: Sveriges Riksbank (2011, figure 2)).

In figure 3 it can be seen that a Swedish five-year market interest rate (that is, maturing in September 2016) was just over 1.5 percent. But the five-year interest rate compatible with the Riksbank policy-rate path was about 3.2 percent, which is to say about 1.7 percentage points higher.<sup>9</sup> Furthermore, the foreign five-year market interest rate was about 1.3 percent whereas the foreign five-year interest rate consistent with the Riksbank forecast was about 2.3 percent, that is, about 1 percentage point higher.

These discrepancies mean that the Riksbank forecast for inflation and unemployment was inherently inconsistent. The Swedish and foreign financial conditions assumed in the forecast and the models used to construct the forecast were much tighter than the actual financial Swedish and foreign conditions. But inputs such as the exchange rate and other asset prices that are used in the forecast were conditional on the market's lower Swedish and foreign yield curves, not on the Riksbank's higher forecasts of the Swedish and foreign policy rate.

In particular, we realize that the forecast for foreign policy rates had the effect of supporting a higher policy-rate path. Suppose that the forecast for foreign policy rates had been shifted down to equal the market expectations of foreign policy rates, that is, shifted down from the yellow to the grey line in figure 2. For an unchanged Riksbank policy-rate path, the forecasted interest-rate differential between Swedish and foreign interest rates would have increased. This would have induced a forecast of a much stronger Swedish krona, which would have caused forecasted export and employment as well as the forecasted import-price inflation. The forecast for inflation would have shifted downwards, and that for unemployment would have shifted upwards. Everything else equal, there would have been a strong case for the policy-rate path to be shifted downwards. Such a shift would have countered these

<sup>9</sup> The yield curve consistent with a credible repo-rate path is adjusted for normal liquidity, credit and term premia.

shifts in the forecasts for inflation and unemployment and resulted in forecasts of inflation and unemployment that better stabilized inflation around the target and unemployment around a long-run sustainable rate.

Thus, everything else equal, the high forecast for foreign policy rates served to shift the inflation forecast upwards and shift the unemployment forecast downwards, thereby supporting a high policy-rate path.

Obviously, the market did not agree with either the high forecast for foreign policy rates or the high policy-rate path. The market apparently realized that the Riksbank's high policy rate path would bring too strong a krona, with the above consequences, and force the Riksbank to adjust its policy.

As noted, the big discrepancy between the market yield curve and the yield curve consistent with the policy-rate path in figure 2 means that the actual financial conditions in the Swedish economy were much easier in September 2011 than if the policy-rate path had become credible. Suppose that the market had suddenly started to believe in the high policy-rate path. That is, assume that the market policy-rate path, the blue line in figure 2, had shifted up to the red line. This means that the blue yield curve in figure 3 would have shifted up to the red yield curve, which means that a five-year interest rate would have increased by 1.7 percentage points, and the krona would have appreciated considerably. As I argued at the September 2011 meeting (Sveriges Riksbank 2011b), it would have been a devastating shock to the Swedish economy if the Riksbank policy-rate path had suddenly become credible. It seems that it was the economy's good luck that the Riksbank policy-rate path lacked credibility.<sup>10</sup>

## 5 What were the broader consequences of the Riksbank policy?

The September 2011 decision and policy-rate path were part of a bigger picture. In the summer of 2010, the Riksbank had started a period of policy tightening, in spite of a low forecast for inflation and a high forecast for unemployment. This is discussed in detail in Svensson (2011), in a comparison between Riksbank and Federal Reserve policy at the time.

Figure 4 summarizes the relevant information. The top left panel shows the realized Federal funds rate and market expectations estimated from implied forward rates. It also shows the realized repo rate as well as market expectations and the Riksbank's repo-rate path. The top right panel shows realized and forecasted PCE and core PCE inflation for the Fed and realized and forecasted CPIF inflation for the Riksbank.<sup>11</sup> The bottom right panel shows realized and forecasted unemployment for the Fed and the Riksbank. We see that the inflation forecasts are similar, in that they are below the Riksbank's explicit and the Fed's assumed implicit target of 2 percent. Moreover, the unemployment forecasts are similar, in that they are above the Fed's and Riksbank's estimates of long-run sustainable rates (the horizontal red solid and blue dashed straight lines, respectively, on the bottom right panel). In this situation, with

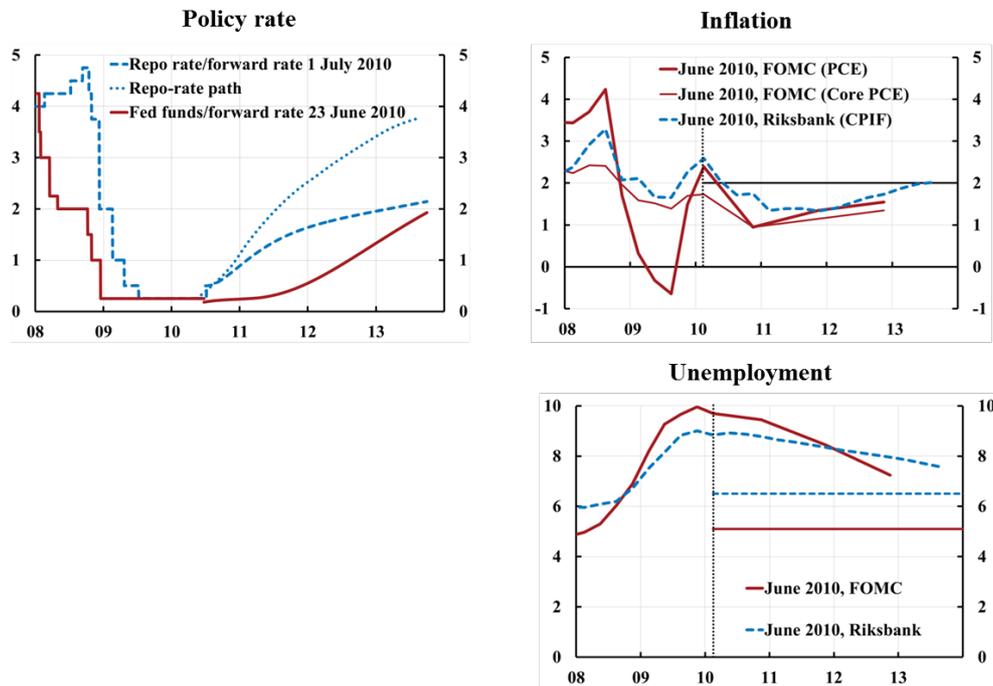
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<sup>10</sup> The consequences of the market implementing more expansionary financial conditions than what is consistent with the policy-rate path and apparently intended by the Riksbank are also discussed in Svensson (2011).

<sup>11</sup> CPI inflation includes effects on housing costs of changes in mortgage rates. This means that in the short term, CPI inflation is directly affected by the Riksbank's own policy-rate adjustments. There is a generally accepted principle at the Riksbank that monetary policy should not respond to these short-term changes in CPI inflation. Therefore, the policy for the next few years is guided by the CPIF forecast, which is why CPIF inflation is shown in the figure. If there is reason to believe that average CPIF and CPI inflation would differ in the longer run, due to a trend in the housing-cost component of the CPI, this could be managed by monetary policy aiming at an average CPIF inflation rate that deviates from the target, so that average CPI inflation is in line with the target.

similar forecasts, the two central banks took very different policy actions. The Fed kept its policy rate near zero and started to prepare for QE2, whereas the Riksbank started a period of rapid policy-rate increases. It is clear from these graphs that a lower policy-rate path for the Riksbank would have brought better target achievement for both inflation and unemployment.

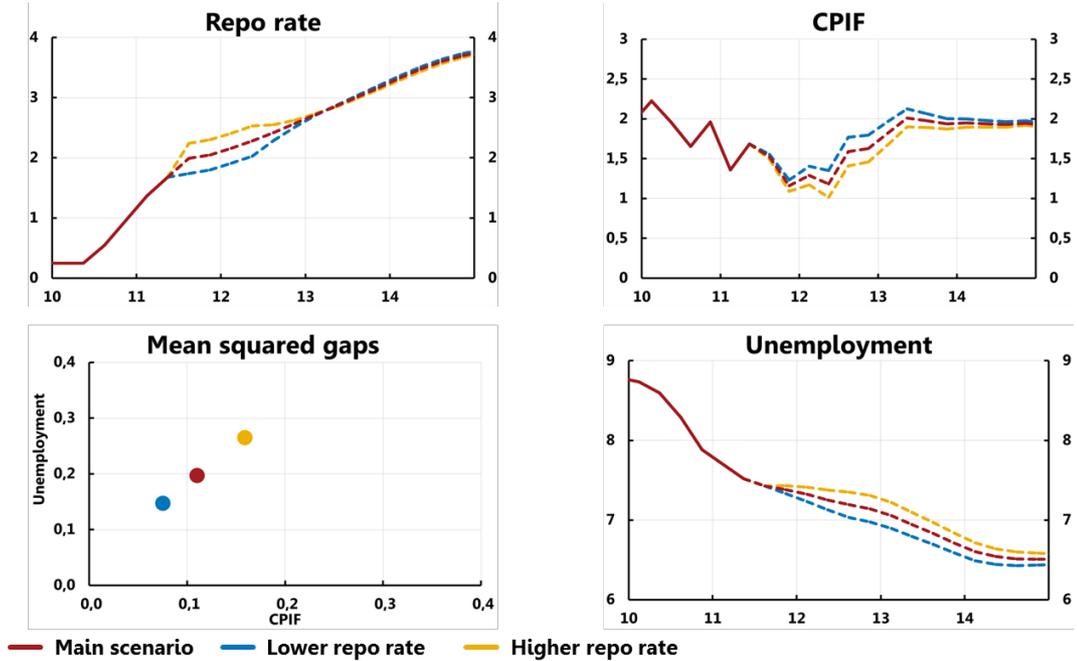
**Figure 4. Policy rates, forward rates, and inflation and unemployment forecasts, FOMC and Riksbank, June 2010**



Source: Svensson (2011, figures 1-3).

In September 2011, the Riksbank would publish a CPIF forecast that would be below the target and would not reach the target until the 2<sup>nd</sup> quarter of 2013 (the “main scenario,” the red lines in figure 5). The unemployment forecast showed unemployment falling and reaching 6.5 percent in 2014. Even conditional on the high forecast for foreign policy rates, it was clear that a somewhat lower policy-rate path (such as the blue curve in figure 5), would imply better target achievement.

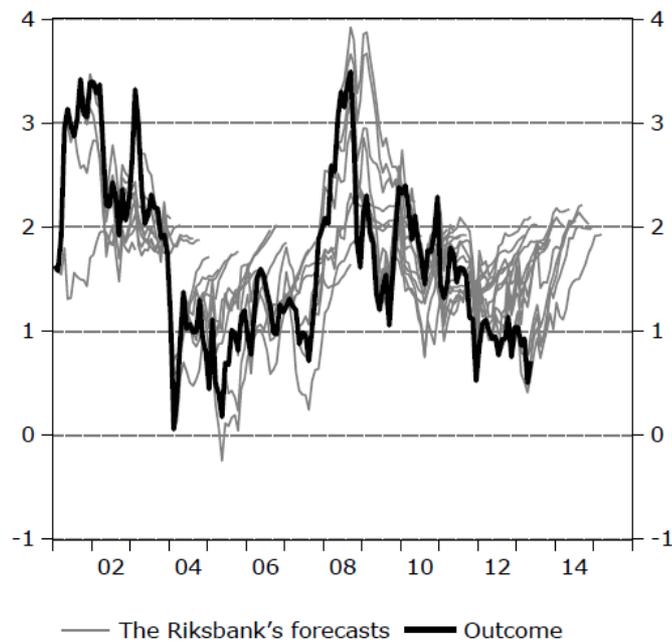
**Figure 5. Main scenario and policy alternatives, September 2011**



Source: The Riksbank.

The September 2011 inflation forecast was actually a substantial overestimation of inflation. Indeed, the Riksbank inflation forecasts were substantially biased upwards at this time, as shown in a later evaluation of the Riksbank forecast by the National Institute of Economic Research (2013); see figure 6.

**Figure 6. The Riksbank's CPIF forecasts and outcome**

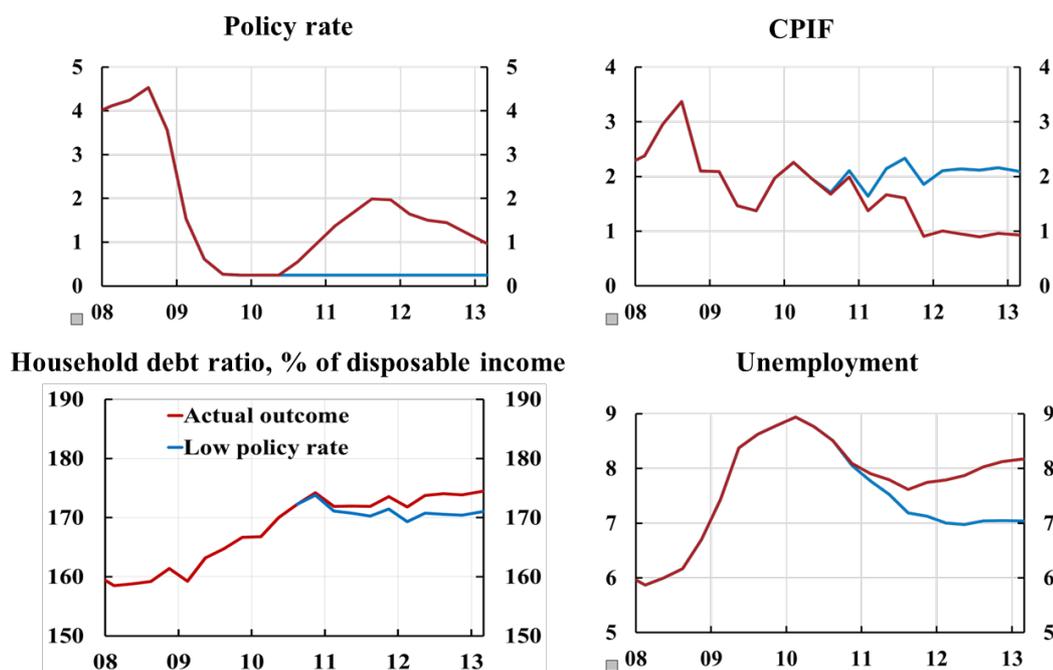


Source: National Institute of Economic Research (2013, diagram 35).

Furthermore, if the Riksbank forecast for foreign policy rates is considered as too high, not only was the inflation forecast biased upwards, the unemployment forecast in figure 5 was also biased downwards.

The policy conducted actually led to a fall in inflation, both absolutely and in relation to the forecasts. It also led to higher unemployment than if the policy rate had been kept at 0.25 percent from the summer 2010 onwards. The red lines in figure 7 show the actual outcome for the policy rate, CPIF inflation, and unemployment (disregard the panel with the household debt ratio for now; it will be discussed below). The figure also shows the outcome of a counterfactual policy that would have kept the policy rate at 0.25 percent from the summer 2010 (see Svensson 2013c for a discussion of the counterfactual analysis). The counterfactual policy would have led to higher CPIF inflation very close to the target and much lower unemployment as compared to the actual policy.

**Figure 7. Policy rate, CPIF inflation, unemployment, and the debt ratio; actual outcome and outcome from a counterfactual low policy-rate path from 2010**



Sources: Statistics Sweden, the Riksbank and own calculations. Svensson (2013c, figure 7).

Overall, it is clear that the Riksbank policy was not aimed at stabilizing inflation around the target and unemployment around a long-run sustainable rate. What then was the policy aimed at?

## 6 What was the reason for the September 2011 discrepancy and the Riksbank policy from June 2010?

What could possibly explain the publication of the high policy-rate path in September 2011 and the tight policy initiated in the summer of 2010?<sup>12</sup> Given all its obvious inconsistencies and problems, why did the Riksbank not publish a more realistic path in September 2011? More generally, why did the Riksbank apparently deviate from a policy that would best stabilize inflation around the inflation target and unemployment around a long-run sustainable rate?

In their evaluation of Swedish monetary policy 1995-2005, Giavazzi and Mishkin (2006, p. 53-55, 71-73, 77-78) noted that the policy seemed to have been too tight since the fall of 2003 because of concerns about housing prices and indebtedness. They criticized the Riksbank for having justified policy-rate increases with reference to rising household debt and housing prices, thereby creating

<sup>12</sup> [The Riksbank has insisted that its policy is loose. Briefly discuss relevant measures of policy stance.]

confusion about the Riksbank's policy objectives. Indeed, they draw the attention to a confusing statement in the Riksbank's press release in February 26, 2006:

As before, there is also reason to observe that household indebtedness and house prices are continuing to rise rapidly. *Given this*, the Executive Board decided to raise the repo rate by 0.25 percentage points at yesterday's meeting." (Sveriges Riksbank 2006, italics added.)

This statement could be interpreted as housing prices and household indebtedness having become targets for monetary policy.

There are more recent statements that indicate that household debt may have become an additional target variable. In the press release of July 1, 2010, (about the June 30 decision), there is a paragraph that reads:

Inflationary pressures are currently low, but are expected to increase as economic activity strengthens. The repo rate now needs to be raised gradually towards more normal levels to attain the inflation target of 2 per cent and at the same time ensure stable growth in the real economy. The Executive Board of the Riksbank has therefore decided to raise the repo rate by 0.25 of a percentage point to 0.5 per cent. *Another factor is that household indebtedness has increased significantly in recent years.* (Sveriges Riksbank 2010b, italics added.)

As noted above, the inflation forecast in the July 2010 *Monetary Policy Report* actually shows the CPIF inflation forecast falling significantly below the inflation target except towards the end of the forecasting period when it hits the inflation target from below. Does the above "factor" indicate an indicator, a target, or an intermediate target for future inflation and unemployment?

Furthermore, in the minutes from the June 30 meeting, Governor Ingves stated:

Mr Ingves further said that *an interest rate increase was also a signal to avoid new financial imbalances from building up and that household indebtedness ought not to rise too much.* Mr Ingves pointed out that this was something he had noted on several earlier occasions. A low interest rate for too long could lead to a troublesome situation beyond the forecast horizon as a result of a credit expansion. It is of course difficult to measure when house prices and the debt/equity ratio are reaching excessively high levels. But this does not mean it is less important to take them into account in monetary policy. By the time we know all the facts, it is often too late to slow down developments, and this often results in large costs to society. (Sveriges Riksbank 2010a, p. 18. Italics added.)

Thus, a higher policy rate (and a higher policy-rate path) could be seen as a warning signal to households about their debt. In the same quote, there is also an argument that an interest-rate increase is a complement to the loan-to-value cap of 85 percent for new mortgages that Finansinspektionen (the Swedish financial supervisory authority) was proposing at the time.

An interest rate increase today is also in line with the proposal from Finansinspektionen to limit the loan-to-value ratio for households. This is part of the work on finding a suitable combination of monetary policy and regulation so that the financial risks will not grow too large in the future. *It is a reason in itself for raising the repo rate now.* (Sveriges Riksbank 2010a, p. 18. Italics added.)

However, if one assumes that the policy rate and the loan-to-value cap can both limit household indebtedness, it would seem that the two instruments are substitutes rather than complements.

Furthermore, if the loan-to-value cap does not have the negative effect on inflation and unemployment that a higher policy rate has, one would think that this is a situation when the loan-to-value cap would be assigned to affect the debt and the policy rate to stabilizing inflation and unemployment.

Since the policy tightening in summer 2010 in spite of a low inflation forecast and a high unemployment forecast, it gradually became clear for observers of the Riksbank that the majority of the Executive Board had come to focus the monetary policy on limiting household debt instead of stabilizing inflation and unemployment. The majority apparently believed that household indebtedness had become a serious problem and that “leaning against the wind” – meaning a higher policy rate and policy-rate path than what is justified by best stabilizing inflation and unemployment – was effective in limiting household debt.

Nevertheless, this change of focus, and in particular that it would have an impact on inflation and unemployment, was not clearly explained to the general public before an op-ed article by the Governor, Stefan Ingves, in a Swedish daily in October 2012 (Ingves 2012).<sup>13</sup>

...The high unemployment these days is a problem, but as a Governor I cannot just act with a view to the short run. I must also take responsibility for the long-run consequences of today’s monetary policy. And there are risks associated with too low an interest rate under a long period that one cannot disregard.

...Further stimulus must therefore be traded against increased risks, since even lower interest rates under an even longer period would further increase indebtedness. [My translation from Swedish.]<sup>14</sup>

Here, it is clear that the policy rate is kept higher with the aim of limiting household indebtedness in spite of its causing higher unemployment (and, of course, lower inflation). Before that, the reasons for the tight policy were repeatedly explained in somewhat contradictory terms, for instance, that monetary policy was still very expansionary even after the tightening starting in the summer of 2010 and focused on the stabilization of inflation and resource utilization, and that any restraining impact on household debt was only a welcome side effect.

Importantly, the change in policy was not preceded by any debate or analysis of whether the policy was consistent with the Riksbank’s legislated mandate and whether it would be effective. The issue of effectiveness would involve the impact of a higher policy rate on household indebtedness and any risks associated with the debt as compared to the impact on inflation and unemployment. Furthermore, when the actual analysis undertaken did not support the shift in the policy, it was quickly disregarded.

## **7 Did “Leaning Against the Wind” succeed in limiting household debt?**

Thus, the Riksbank has not published any analysis that supports its policy of “leaning against the wind.”<sup>15</sup> An ambitious commission of inquiry into the risks on the Swedish housing market, with

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<sup>13</sup> This article appeared shortly before a policy meeting, thus violating a general agreement among Board members that there should not be any signaling of the policy decision before the policy meeting.

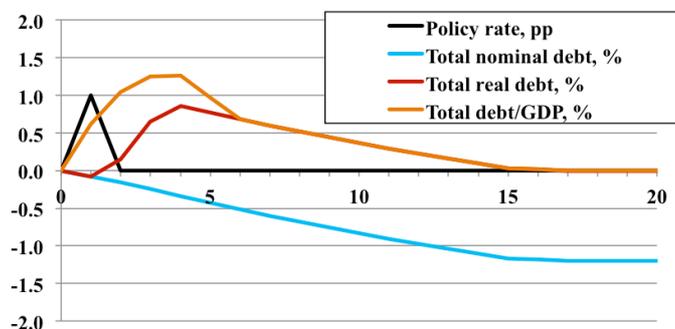
<sup>14</sup> In the original Swedish, these quotes read: “... Dagens höga arbetslöshet är ett problem, men som riksbankschef kan jag inte bara agera kortsiktigt. Jag måste även ta ansvar för de långsiktiga konsekvenserna av dagens penningpolitik. Och det finns risker förknippade med en alltför låg ränta under en lång tid som inte går att bortse från.

... Ytterligare stimulanser måste därför vägas mot ökade risker, eftersom ännu lägre räntor under ännu längre tid skulle öka skuldsättningen ytterligare.”

several papers by staff members as well as independent academics, was published in the spring of 2011 (Sveriges Riksbank 2011a). It concluded that Swedish housing prices were not overvalued but could be explained by fundamentals (Englund 2011, see also a separate paper by Claussen 2012), and that monetary policy only had a small impact on housing prices and household debt (Claussen, Jonsson, and Lagerwall 2011). In particular, using the policy rate to prevent the rise in housing prices 2004-2011 above the previous trend would have been very costly and would have led to very big output losses and very high unemployment. Clearly, the commission of inquiry did not support the policy change that had taken place.

More recently, Svensson (2013a) has examined the impulse response of household debt and the debt ratio to the policy rate. It turns out that a higher policy rate actually *increases* (not reduces) real household debt and the debt ratio. The reason is that a higher policy rate reduces the price level and nominal disposable income and nominal GDP much faster than it reduces total nominal debt. This is because total nominal debt adjusts very slowly, since only a small fraction of the debt, which mainly consists of mortgages, is refinanced each year. More precisely, under reasonable assumptions, a 1 percentage point higher-than-baseline policy rate during 4 quarters increases real debt and the debt-to-disposable income ratio relative to the baseline by about 1 percent within 3-5 years, after which real debt and debt-to-disposable income slowly fall back to the baseline and reach the baseline after more than a decade. Figure 8 shows the impulse response of total nominal debt, total real debt and the total debt-to-GDP ratio to a 1 percentage point higher policy rate during year 1. The response of the debt-to-disposable income ratio (not shown) falls between the responses of total real debt and the debt-to-GDP ratio.

Figure 8. Policy rate, total nominal debt, total real debt, and the total debt-to-GDP ratio, deviation from the baseline



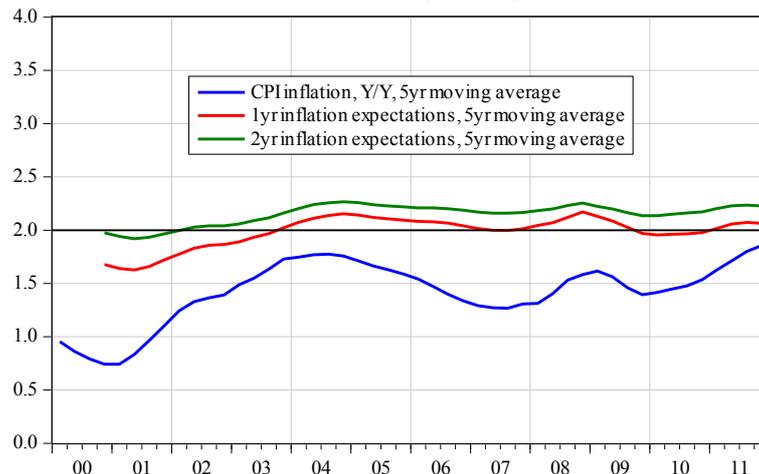
Source: Svensson (2013a).

Using these impulse responses as a rule of thumb, I have also included the actual and counterfactual outcome for the household debt-to-disposable income in figure 7 above. Instead of the actual slow increase to about 174 percent of disposable income in 2013, it would have been relatively flat and reached 171 percent in 2013. That is, the debt ratio is 3 percentage points, almost 2 percent higher with the Riksbank policy as compared to the low policy rate. This is still too small to have any impact on any risks associated with the debt, but it does go in the wrong direction from the Riksbank’s point of view.

<sup>15</sup> For instance, an article in the Monetary Policy Report July 2013 (Sveriges Riksbank 2013) and a recent speech by Governor Ingves (2013) on the topic of “leaning against the wind” avoid specifying the channels for and the magnitude of the effect of the policy rate on household indebtedness.

A more sizable impact on the debt follows from the fact that, as discussed in detail in Svensson (2013b), the Riksbank has on average undershot the inflation target of 2 percent whereas one-, two- and five-year-ahead inflation expectations have been very close to the inflation target since 1997. This means that the price level has substantially undershot the price level consistent with average inflation on target and, importantly, the expected price level. Figure 9 shows five-year moving averages of CPI inflation and CPI inflation expectations one and two years ahead. Inflation expectations five years ahead (not shown) are slightly above the two-year-ahead expectations.

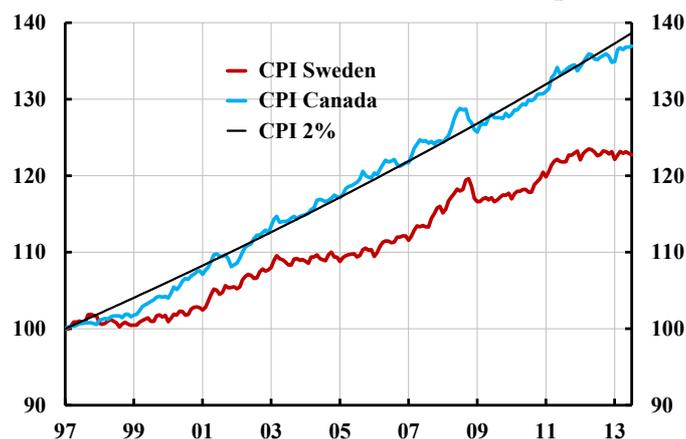
Figure 9. CPI inflation expectations one and two years ahead (all interviewees) and CPI inflation, five-year moving averages.



Source: Statistics Sweden and TNS Sifo Prospera. Svensson (2013b, figure 3).

In figure 10 we see that the CPI would by now have increased by almost 40 percent since 1997 if average inflation had equaled 2 percent as expected. In reality, the CPI has just increased somewhat more than 20 percent.

Figure 10. The CPI in Sweden, Canada and for 2 percent inflation



Source: Statistics Sweden and Datastream.

This relates to Fisher’s (1933) idea of “debt deflation,” that is, that deflation increases the real value of nominal debt and deteriorates the balance sheets of households and firms.<sup>16</sup> Naturally, the important aspect of the idea of debt deflation is not deflation in itself; it is that the price level falls below the anticipated price level, so that the real value of debt becomes higher than anticipated and planned for.

<sup>16</sup> Arguably, the phenomenon could have been called “debt inflation by deflation,” since deflation actually *inflates* the real debt.

By conducting a monetary policy that has resulted in a price level substantially below the anticipated price level, the Riksbank has caused some significant debt deflation – higher real debt – in Sweden.

That the price level has fallen below the anticipated level means that a nominal loan taken out in a previous year now has a higher real value than anticipated at the time when the loan was taken out. Figure 11 shows the percentage increase of the real value in July 2013 of a loan taken out on a previous date, compared to if average inflation had been equal to expectations and the 2 percent inflation target. We see in the figure that the real value of a loan taken out at the beginning of 2003 is about 9 percent higher in July 2003 than it would have been if average inflation had been on target. That is, the real value of the loan is 9 percent higher in July 2013 than what the borrower anticipated and planned for in early 2003. This is a substantial increase. For given real total assets of the borrower, it means that net worth is correspondingly lower. And for a given real disposable income, it means that the debt-to-income ratio for this loan is also 9 percent higher. Since real disposable income may be lower because of the tight monetary policy, the debt-to-disposable income rate may actually be more than 9 percent higher than if average inflation had been kept on target. A 9 percent higher debt-to-disposable income ratio is a substantial increase.

**Figure 11. The increase in the real value in July 2013 of a loan compared to if inflation had been 2 percent, depending on the date the loan was taken out**



Source: Statistics Sweden and own calculations.

Thus, the Riksbank has hardly been successful in limiting household debt. Overall, it has not only neglected the price-stability objective and caused higher average unemployment than if average inflation had been on target, it has also caused real debt and the debt-to-GDP and debt-to-disposable income ratios to be higher, actually substantially higher.

## 8 How to avoid such policy?

How to avoid such policy as the Riksbank has conducted? This question can be separated into a narrower and broader question. The narrower question is how to avoid deciding in favor of and publishing such an irrelevant policy-rate path as the September 2011 one. The broader question is how to avoid neglecting the price stability-objective and the goal of the general economic policy of high employment.

Let me start with the narrower question, how to avoid deciding in favor of and publishing such a policy-rate path as that of September 2011? First, I think it is important to take the framework of the

policy-rate path and the corresponding inflation and unemployment forecasts seriously, in particular in the sense of not neglecting and ignoring glaring inconsistencies and problems.

Second, if a substantial discrepancy arises between the central-bank policy-rate path and the market policy-rate path (the market expectations of the future policy rate), I believe that it is important to sort out this situation by first constructing forecasts of inflation and unemployment conditional on the market policy-rate path. This forecast will, in principle, be internally consistent, since it will use forecasting-process inputs of the exchange rates and other asset prices that are consistent with the market policy-rate path.<sup>17</sup> This forecast for inflation and unemployment is hence the one that would apply if the central bank policy-rate path were equal to market expectations. For the central-bank policy rate to differ from the market policy-rate path, it must be that the forecast for inflation and unemployment conditional on the market policy-rate path does not “look good,” meaning that it does not sufficiently well stabilize inflation around the inflation target and unemployment around the long-run sustainable rate of unemployment. For the central-bank policy-rate path to differ from the market policy-rate path to any considerable extent, the forecast for inflation and unemployment conditional on the market policy-rate path must look rather bad.

Third, if the forecast for inflation and unemployment for the market policy-rate path does not look good, the policy-rate path should be adjusted such that the resulting forecast for inflation and unemployment for the adjusted policy-rate path looks good. Here, I am in favor of constructing and showing several alternative policy-rate paths and corresponding forecasts for inflation and unemployment (as in figure 5), so as to make it possible both to choose the policy-rate path that results in reasonably good forecasts of inflation and unemployment and to justify the choice in a transparent way.<sup>18</sup>

Fourth, when a central-bank policy-rate path other than the market policy-rate path is considered, one also has to consider whether or not the central-bank policy-rate path will immediately be credible when it is announced. If it is considered to be immediately credible, the forecast for inflation and unemployment should be constructed under the assumption of a credible policy-rate path (see Laséen and Svensson 2011 for details).

If the central-bank policy-rate path is considered to only gradually become credible, such that the market keeps being surprised if the central bank follows its policy-rate path, the forecast for inflation and unemployment has to take this into account. More precisely, forecasts of inflation and unemployment must be constructed conditional on the market policy-rate path being different from the central-bank policy-rate path and shifting over time when the realized policy rate follows the central-bank policy-rate path. That is, the forecast for inflation and unemployment is constructed under a particular learning behavior by the market.<sup>19</sup>

If the central-bank policy-rate path and the forecast for inflation and unemployment were to be constructed according to these principles, I believe that inconsistencies and problems such as those

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<sup>17</sup> [Homogenous private-sector expectations are assumed here; if heterogeneous expectations it is more complicated.]

<sup>18</sup> [Possibly extend: These forecasts are mean forecasts. There is normally not enough information to adjust policy to be more or less aggressive than certainty-equivalent policy. The main exception is when there is a risk of hitting the lower bound for the policy rate. Then the optimal policy is to lower the policy rate sooner and keep it low longer than the certainty-equivalent policy, lower quicker and keep low longer than CE policy. See Svensson (2010a) for details.]

<sup>19</sup> [Possibly explain forecasts conditional on exogenous policy rates up to some horizon and then either a shift to a policy rule that leads to determinacy or a terminal condition equal to the steady state, cf. Laséen and Svensson (2011), Svensson (2005).]

apparent for the September 2011 would be spotted and handled, so that in the end, a consistent and satisfactory set of the policy-rate path and forecast if inflation and unemployment could be decided on and published.

Fifth, more generally, I believe that central banks that publish their own policy-rate path and forecasts should generally also publish forecasts conditional on the market policy-rate path. This may not only help in spotting inconsistencies and problems such as those discussed above; it may also help in justifying the policy and managing market expectations. Thus, central banks that move on to publish forecasts conditional on their own policy-rate path may prefer to also publish continued forecasts conditional on the market policy-rate path.

Furthermore, the principle of publishing forecasts for inflation and unemployment for both the market and the central-bank policy rate when these differ can also be applied to the market and central-bank forecasts of *foreign* policy rates when these differ, as they do in figure 2. If the Riksbank had made forecasts of inflation and unemployment conditional on market expectations of foreign policy rates and not only on its own forecast for foreign policy rates, the related inconsistencies and problems might have been handled better than what was done.

The broader question raised above is how to avoid neglecting the price stability objective and the goal of the general economic policy of high employment? Here I believe that before a substantial change in policy such as “leaning against the wind,” it is important to conduct a thorough analysis and have an open debate about whether such a change is (1) consistent with the central bank’s mandate and (2) whether it is likely to be effective, that is, whether in this case a higher policy rate would actually substantially limit household indebtedness without too much collateral damage in the form of too low inflation and too high unemployment. Such an analysis and debate could have revealed the futility, and even counter-productivity, of leaning against the wind in this case. Instead, apparently because of strong preconceived views, leaning against the wind was gradually sneaked into the Riksbank’s policy.

Furthermore, an intellectual climate that welcomes a free and open policy debate among staff and board members would reduce the risks of policy mistakes. Good policy should stand and even welcome scrutiny and debate. Conclusions should not be determined before the analysis. Staff members should not be criticized for finding theoretical or empirical evidence against existing views, in particular views held among the Board members, including the Governor. In contentious issues, the side with the best support from theoretical and empirical research and practical experience should be allowed to win. If the dominant view cannot stand up to scrutiny, it does not deserve to be the main view.

In particular, external scrutiny and evaluation of the central bank must be thorough and detailed, for the central bank to be held accountable for achieving its objectives. With regard to the Riksbank, the external scrutiny and evaluation are apparently not working. How to set up an effective way of holding the Riksbank accountable and ensuring that it does not deviate from its assigned objectives is a challenging task that remains to be undertaken.

## 9 Conclusions

[To be written.]

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