SPEECH

Limits to central bank objectives in a small open economy

I would like to thank you for inviting me to celebrate the anniversary of the autonomy of the Banco de México. At home we recently celebrated our 20th anniversary of inflation targeting. Mexico and Sweden have a lot in common; we are both inflation targeters, we are located next to a large trading partner, we have had our share of experiences with crises, and we have managed to escape from crises in better shape. I would therefore like to take this opportunity to share some of my experiences from central banking in Sweden, and draw some tentative conclusions for the future.

The last few years have been turbulent in the world economy. Naturally, this has had a big impact on a small open economy like Sweden with an exports-to-GDP ratio of 50 percent, and a financial sector amounting to 400 percent of GDP. Still, we have managed to do quite well through it all. GDP-growth has on average been almost four percent per year since the crisis and inflation has on average been slightly under two. However, we are still struggling domestically with high levels of household debt. Perhaps we fared reasonably well this time because we learned our lesson the last time we had a crisis. Sweden entered the financial crisis of 2008-2009 with a stable fiscal policy framework and a relatively long tradition of inflation targeting with a floating exchange rate. And although both GDP growth and the krona exchange rate were highly impacted during the crisis, we decided to stick to our robust policy frameworks. In retrospect I think that has served us well.[1]

There is an ongoing debate around the world concerning the mandate and objectives for central banks.[2] The experience of the latest financial crisis has made it clear that we need to develop our frameworks further, and a lot of work is being done in this respect. However, as we contemplate changes to the current regime, it is important that we do not "throw out the baby with the bathwater"., It can therefore be useful to have a look back at history prior to the current inflation targeting regime, and I think Sweden is a good example in this respect.

Inflation targeting has been successful

In the 1970s and 1980s inflation in Sweden was high -often in the double digits- and quite volatile. Like many other countries at that time, Sweden had a fixed exchange rate, which was supposed to keep inflation in line with that of

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[1] Sweden has had a floating exchange rate since 1992. The Riksbank made krona interventions during 1993, once in 1998, and once in 2001.
[2] See for instance Blanchard et al. (2013).

our trading partners. However, the fixed exchange rate regime lacked credibility and failed to become a nominal anchor in the formation of prices and wages. High nominal wage growth thus led to high inflation that eroded Swedish international competitiveness. This, in turn, led to a series of devaluations, which contributed to a generally unsustainable macroeconomic situation that finally culminated in a financial crisis in the early 1990's.

As going back to the old regime was unfeasible, Sweden ended up being one of the first countries in the world to implement inflation targeting. It was far from certain at that time that it would work. However, after a few years, inflation had dropped, inflation expectations had gradually adapted towards the new target and nominal interest rates could be lowered. Looking over the entire period, I would characterize the inflation targeting regime as a great success (see Figure 1). Since then, the Riksbank has managed to keep inflation low and relatively stable, while inflation expectations have remained firmly anchored around two percent (see Figure 2). This has not come at the expense of growth; GDP growth has on average been higher than before the implementation of the inflation target. It is important to keep this in mind, that the nominal anchor provided by the inflation target has been one of the great macroeconomic achievements of the last few decades. We should therefore aim at improving, not replacing, the current regime as we try to learn the lessons from the most recent crisis.

Lessons from the financial crisis

The relatively stable macroeconomic environment during the decade that preceded the financial crisis, often referred to as "the Great Moderation", perhaps induced some overconfidence in the ability of central banking to steer the macro economy. One obvious mistake was that we started taking financial stability for granted. This was illustrated for example by the absence of financial sector imperfections in the standard macroeconomic models used at the time. As we all know now, financial stability cannot be taken for granted, the lack of it can be very costly, and it can take a very long time to restore financial stability once it has been lost.

As a consequence, a new policy area is beginning to be implemented in different forms around the world -macroprudential policy. In time, as the macroprudential toolkit is tested and evaluated, this will take some of the weight off of monetary policy as regards financial stability concerns. However, we are not at that point yet, and I do not think that the existence of a well-functioning macroprudential framework will ever mean that financial stability concerns can be excluded from the monetary policy analysis. As became obvious during the crisis, a stable financial system works as a precondition for the functioning of monetary policy, so in fact the two are not separate but rather intertwined.

Therefore, perhaps in the future central banks will focus more on robust policies and less on fine-tuning. This, in turn, means that risks will have to be included in the standard analysis. Since financial stability concerns will have to be taken into consideration in the monetary policy framework, and since the credit cycle is more long lasting than the business cycle[3], this also implies that central banks will have to start paying more attention to the period beyond the normal forecast horizon. This also means that from time to time the central bank might

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[3] See for instance, Drehmann et. al. (2012), and Rey (2013).

choose a more gradual approach in reaching the inflation target. The challenge then becomes how to communicate this to the public without any loss of transparency or confidence in the ambition of the central bank to reach the target.

The Swedish experience with forward guidance

The tool we have chosen is to publish a policy-rate path with a confidence interval. We have been doing this since 2007, and we have found that it has been a useful tool in taking some of the focus off of the current interest-rate decision and turning the focus to more long term issues and "the story" we are trying to tell. All along we have been very clear in our communication that this published repo-rate path is a forecast, not a promise. One would expect that if the market's forecasts for GDP and inflation were more or less in line with the Riksbank's forecasts, then market policy expectations would also be well aligned with the repo rate path. This was actually the case in the more stable macroeconomic environment prior to the crisis, when we first started publishing a path.

Until the crisis in 2008 the relationship between the official path and policy expectations, as measured by forward rates, were exactly as can be expected. In the case forward rates were not aligned previous to the announcement of the new policy-rate path, they would jump closely into line right after the announcement (see Figure 3). After the crisis, and maybe not surprisingly, steering market rates has proved much more difficult. In 2009, for instance, forward rates one year ahead were consistently above the published policy-rate path (see Figure 4). Forecasting policy rates has been difficult after the financial crisis, something which is illustrated by the width of the uncertainty bands around the forecast, which are based on previous forecast errors (see Figures 4 and 5). From that perspective, the probability that the policy rate will be as indicated by the path three years from now is actually very low. However, this does not seem to have had a negative impact on standard measures of credibility. Inflation expectations remain well anchored at our target of two percent. Furthermore, the initial intention with the repo-rate forecast was not only to guide market expectations, but also to be able to make consistent forecasts and to increase transparency. And for these objectives the policy-rate path has served us well.

Limits to the amount of "fine-tuning" that can be done

Given the amount of uncertainty that we know surrounds any forecast, I have come to accept that there are limits to the amount of fine-tuning that can be done through monetary policy. If inflation is reasonably close to the target, monetary policy has done reasonably well. In a sense, as long as inflation expectations are well anchored, monetary policy can be considered to be achieving its main objective. Getting to that point, however, will not be possible unless considerations of the whole macroeconomic and financial situation of the economy are included in the analysis. However, even though the whole complexity of the economy is of importance to monetary policy, that does not mean that monetary policy can steer all the complex parts of economic reality. This is particularly true for small open economies, where international developments are often more important than domestic ones.

In this context it can be interesting to look at the difference between inflation in goods- and service prices. Goods prices generally have a high imported content with prices set mainly on international goods markets. Service prices, on the other hand, are more affected by domestic factors such as wages. In Sweden, service-price inflation has been more stable and close to the target of two percent over the last decade and a half (see Figure 7). Meanwhile, goods-price inflation has been more volatile, and has on average been negative. Presumably, it is easier for domestic monetary policy to influence the trend in service prices than that of goods prices, which have a high imported content. Even though domestic monetary policy can affect imported inflation through the exchange rate channel, in practice the interest rate parity condition does not always hold, since exchange rates are influenced by risk premiums and other factors outside of the control of the central bank. A further complication is that attempts to correct for trending imported deflation might give rise to domestic risks of overheating or other imbalances such as inflated asset- or house prices.

In Sweden we have decided not to target the exchange rate, but have rather tried to communicate to markets how we view possible inflationary impulses that might arise as the value of the krona fluctuates. The nominal trade-weighted krona exchange rate depreciated by about 20 percent during the financial crisis and has appreciated by more than that since then (see Figure 8). Clearly, large movements in the exchange rate will feed through to inflation, but if inflation expectations are well anchored, second round effects can be contained. Exchange rates are likely to fluctuate; in particular as different countries start to wind down monetary policy stimulus at different speeds, which is something we will have to deal with in the coming years. Furthermore, estimates of equilibrium values of exchange rates are inherently uncertain. All in all, I think our experience shows that it is difficult to know with any degree of certainty that the exchange rate has moved permanently to an extent that matters enough to warrant intervention.

Monetary policy should be robust

To sum up, I believe that central banks have to learn to live with the fact that inflation and resource utilization are going to be influenced by a number of factors that are simply out of their realm of control. Research has shown that in the presence of uncertainty the optimal policy is for the central bank to act more gradually in moving inflation towards the target.[4] It is important that we do not repeat the mistakes made during the Great Moderation and become overly confident again. As Milton Friedman mentioned already in the 1960s "[T]he central problem is not to construct a highly sensitive instrument that can continuously offset instability introduced by other factors, but rather to prevent monetary arrangements from themselves becoming a primary source of instability".[5] We should therefore recognize our limitations, and conduct policies that are robust; that generate a reasonably good outcome over a large span of possible future events.

In a world characterized by uncertainty, inflation will not always be on target, and monetary policy will not be able to perfectly smooth all the swings of the

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[4] This result is given in Williams (2013) for instance. There is a large literature on the effects of uncertainty for optimal monetary policy and the result depends on the type of uncertainty, the welfare function, if learning is present, etc. See for instance Gaspar et. al. (2010), Söderström (2002), and Bernanke (2004).
[5] Friedman, Milton (1960), *A Program for Monetary Stability*, Fordham University Press.

business cycle, but policy can be conducted in a manner so that major mistakes are avoided, while the outcome in terms of inflation and resource utilization is "good enough".

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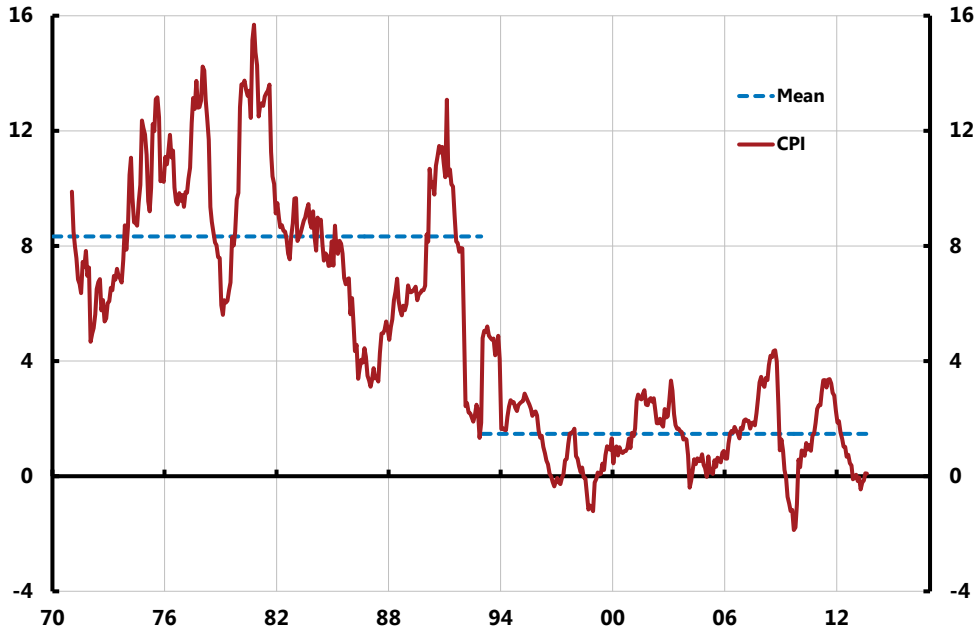
Söderström, Ulf (2002). "Monetary Policy with Uncertain Parameters," Scandinavian Journal of Economics 104, pp. 125-45.

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Figures

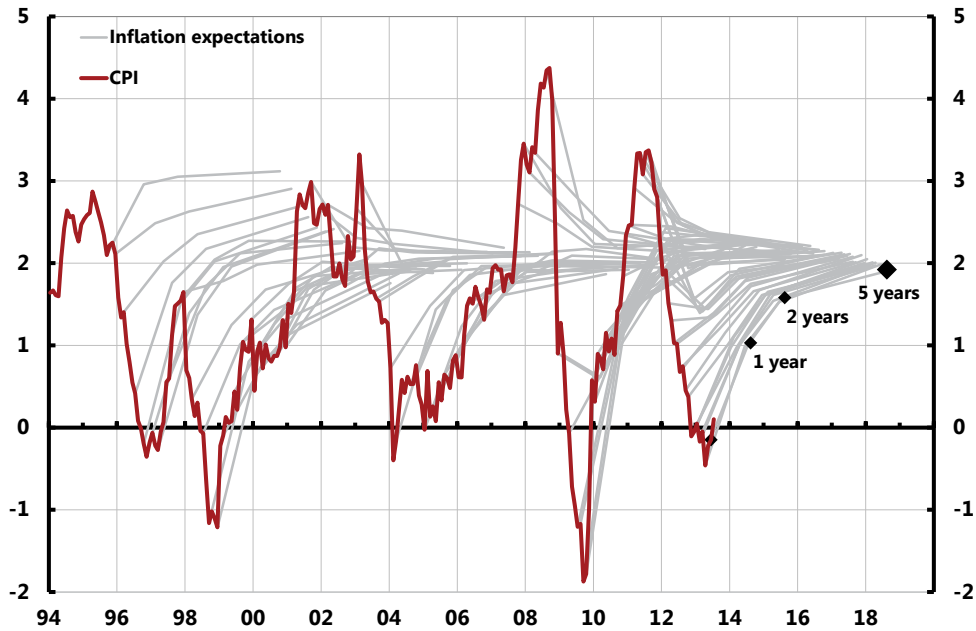### Figure 1. Inflation in Sweden
CPI, annual percentage change

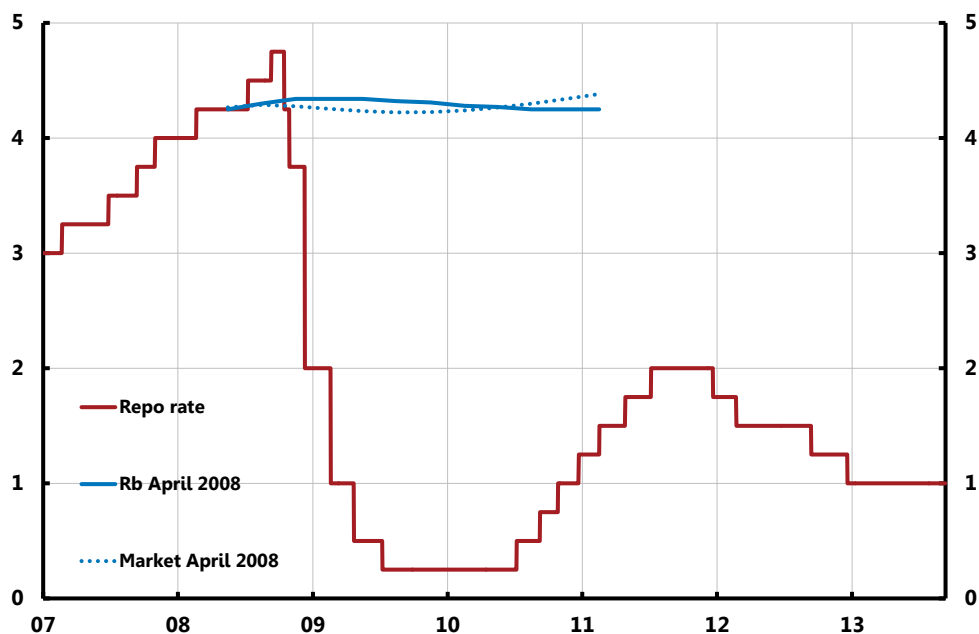Source: Statistics Sweden

### Figure 2. Inflation expectations
annual percentage change

Note. Inflation expectations among money market participants 1, 2 and 5 years ahead.
Sources: Statistics Sweden and TNS SIFO Prospera

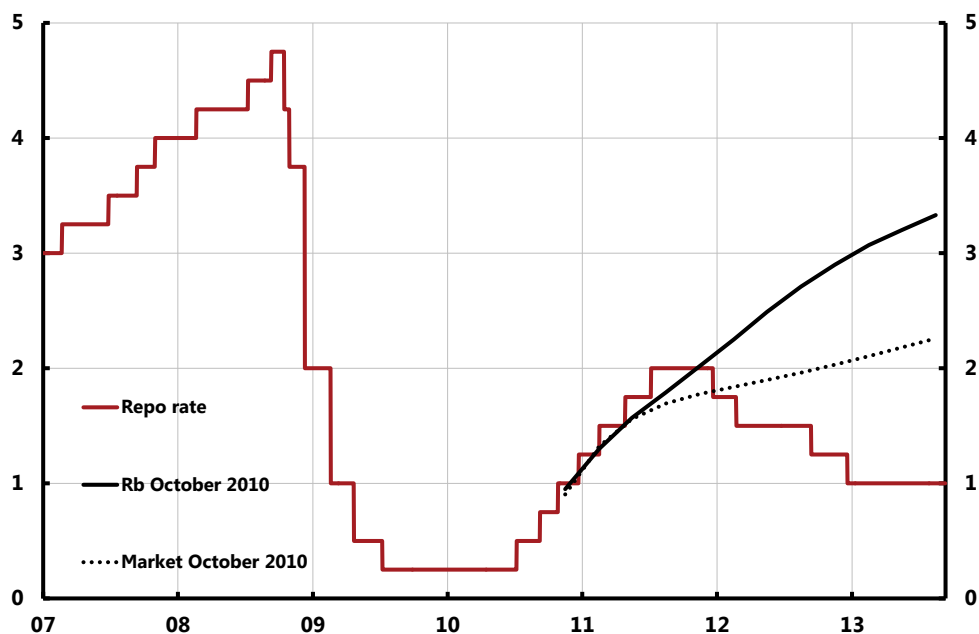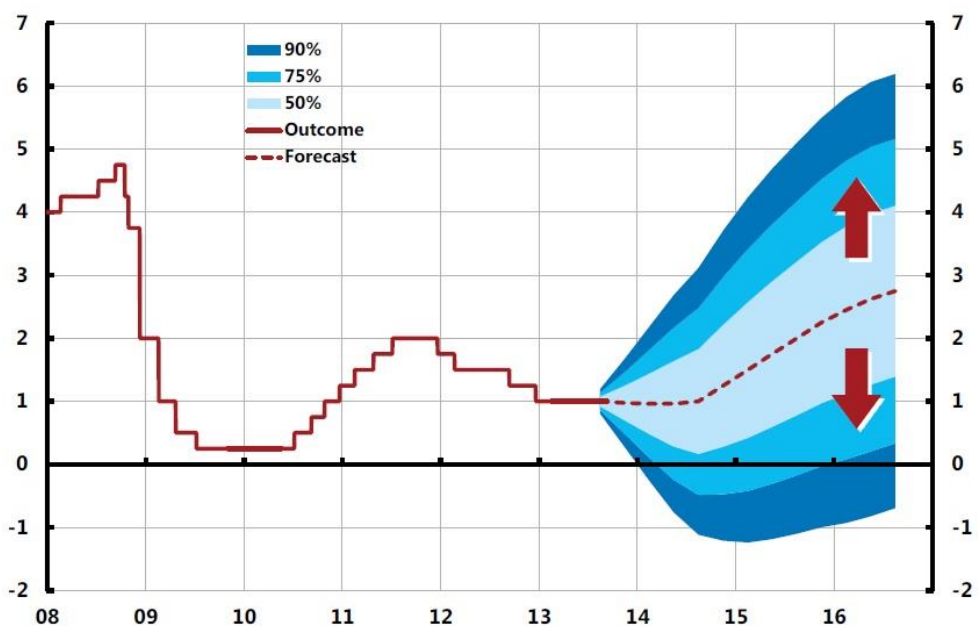**Figure 3. Policy rate forecast, outcome, and market expectations 2008**

Note. Repo rate, percent. Forecast refers to quarterly mean values, outcome refers to daily data. Source: Reuters EcoWin and the Riksbank

Figure 4. Policy rate forecast, outcome, and market expectations 2009
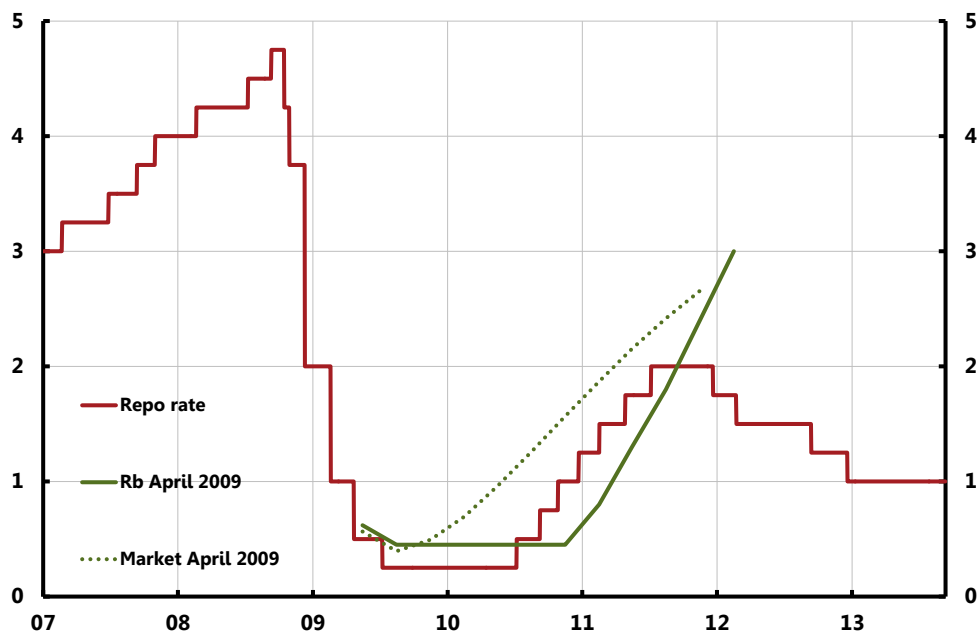
Note. Repo rate, percent. Forecast refers to quarterly mean values, outcome refers to daily data. Source: Reuters EcoWin and the Riksbank

Figure 4. Policy rate forecast, outcome, and market expectations 2010

Legend:
- Repo rate
- Rb October 2010
- Market October 2010

Note. Repo rate, percent. Forecast refers to quarterly mean values, outcome refers to daily data. Source: Reuters EcoWin and the Riksbank

Figure 5. Policy rate forecast with uncertainty bands 2013

Legend:
- 90%
- 75%
- 50%
- Outcome
- Forecast

Note. Repo rate, percent. Forecast refers to quarterly mean values, outcome refers to daily data. Uncertainty bands do not take into account a lower bound for the repo rate. Source: Reuters EcoWin and the Riksbank

## Figure 6. Prices of goods and services in the CPI
Annual percentage change
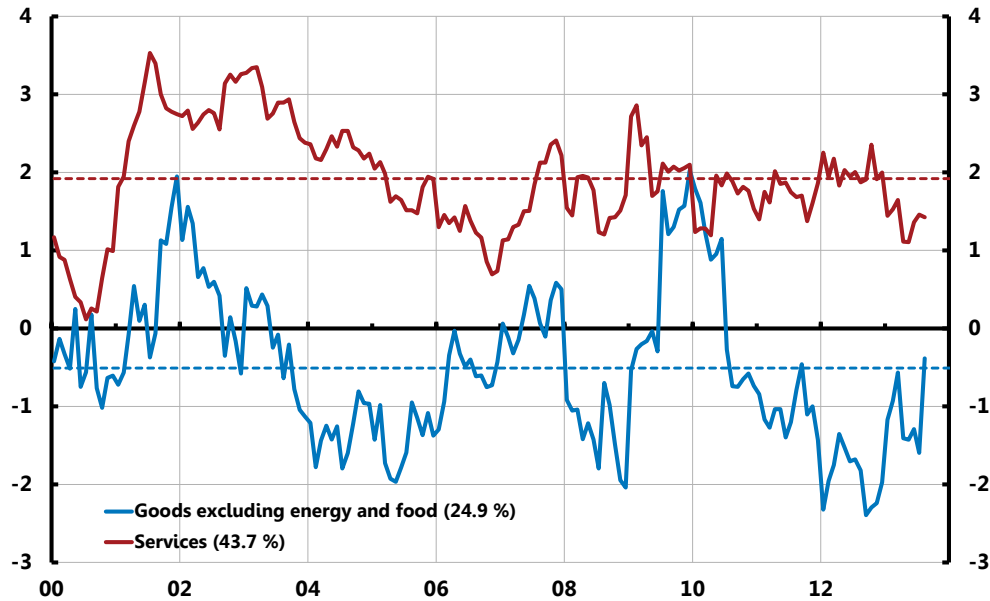
Note. The weight of the CPI in the respective components is given in brackets. The red and blue dashed lines refer to the average price for services and goods, respectively, for the period 2000-2013. Source: Statistics Sweden and the Riksbank

Figure 7. Nominal and real trade-weighted krona exchange rate
Index, 18 November 1992 = 100
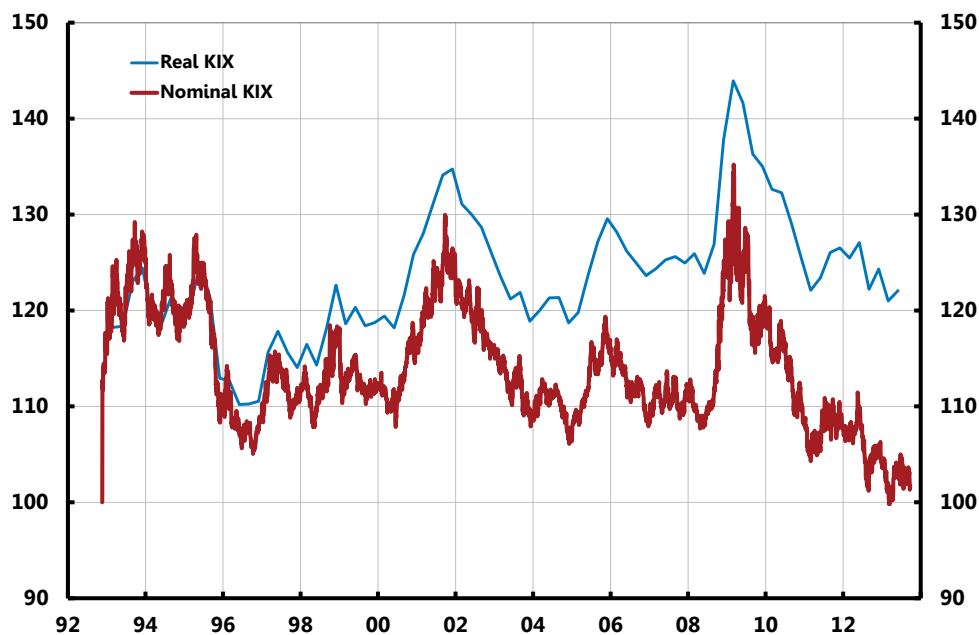
Note. KIX is an aggregate of countries that are important for Sweden's international transactions. The real exchange rate is deflated by the CPIF for Sweden and the CPI for abroad. The CPIF is the CPI with a fixed mortgage rate. Source: Statistics Sweden and the Riksbank