



SPEECH

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SPEAKER: Deputy Governor Martin Flodén
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SVERIGES RIKSBANK
SE-103 37 Stockholm
(Brunkebergstorg 11)

Tel +46 8 787 00 00
Fax +46 8 21 05 31
registratorn@riksbank.se
www.riksbank.se

■ **The low inflation – should we be worried and can we do anything about it?***

Those of you who follow the debate on monetary policy will probably not be surprised that the theme of my speech today is the low rate of inflation. This is the most important question for monetary policy right now. Over the past year, I have emphasised the importance of ensuring that inflation does not get stuck far below the target of two per cent and said that monetary policy therefore needs to focus on avoiding such a situation. Consequently, I entered a reservation against holding the Riksbank's policy rate unchanged at the most recent monetary policy meeting in early April. Instead, I was in favour of a repo rate cut of 0.25 percentage points.

Today I intend to focus on two issues. First, I wish to explain why I am worried by the low inflation rate. The reasons I will take up concern wage formation, the credibility of monetary policy, a too high real interest rate, and arbitrary reallocation from borrowers to lenders. I consider these to be serious problems. But at the same time I find some of the recent discussion on the problems with deflation – falling prices – to be exaggerated and focused on the wrong risks.

Second, I wish to discuss the ability of monetary policy to prevent inflation from falling too low. Sweden is a small open economy and is affected to a great extent by international developments. This fact sometimes causes commentators to question rather resignedly whether the Riksbank can actually influence inflation. I consider this attitude to be wrong. Monetary policy determines how high average inflation will be. Having said this, I am not claiming that we can control inflation with precision. Monetary policy can prevent inflation from falling way below the target over a long period of time. It is, however, neither desirable nor possible for monetary policy to continuously hold inflation stable very close to the inflation target of 2 per cent.

But let me start by commenting on where we are coming from and the current situation. Inflation has been on average 1 per cent in Sweden for the past three

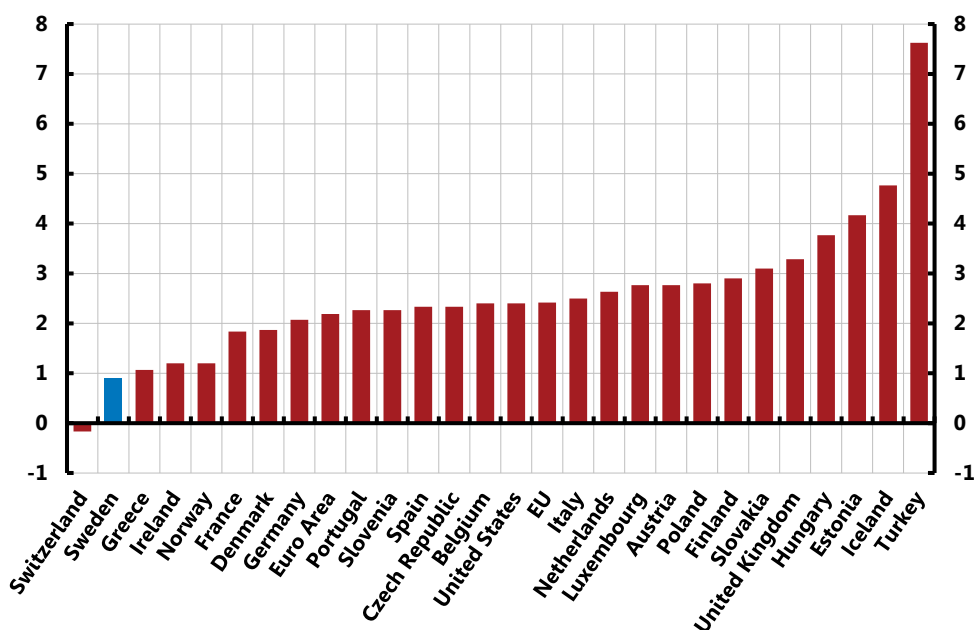
* Thank you to Björn Andersson, Charlotta Edler, Gabriela Guibourg, Kerstin Hallsten, Marianne Sterner, Christina Nyman, Stefan Palmqvist, Ulf Söderström and other employees at the Riksbank for valuable discussions and views on earlier versions of the text, and to André Reslow for help with data production. The views expressed in this speech are my own and are not necessarily shared by the other members of the Executive Board of the Riksbank.

years, when measured in terms of the CPIF.¹ The Riksbank and other analysts have had forecasts that have shown that inflation would be low over a relatively long period of time, but that it would gradually rise. However, the timing of the rise has been repeatedly postponed in our forecasts and inflation has instead fallen. I will provide some perspective on why this has happened and discuss various factors that might explain this development.

Low inflation in Sweden early on, but now also a global phenomenon

Sweden is not the only country where inflation is currently low. Around half of all the OECD countries have had an inflation rate that has on average been below 2 per cent during the past two years. The trend also appears to be strengthening. During last year, inflation was below 2 per cent for around two out of three OECD countries. Of course, not all of these countries have an inflation target that is 2 per cent and in the countries which have an inflation target, this may be formulated in different ways. It is nevertheless clear that many central banks, in addition to the Riksbank, are currently undershooting their targets.

Figure 1. HICP 2011-2013



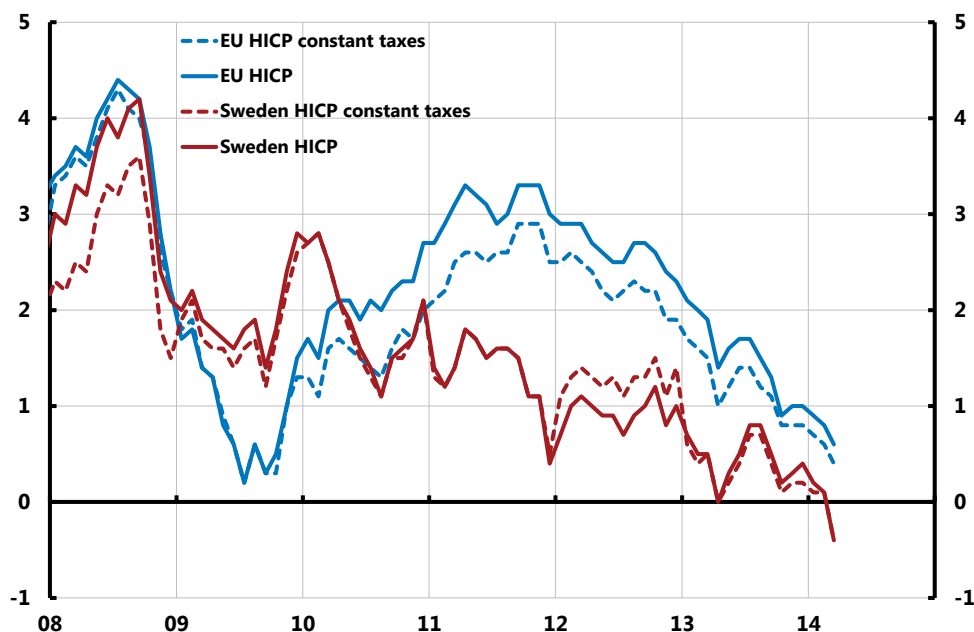
Note. Annual percentage change.
Source: OECD

However, inflation fell several years earlier in Sweden than in other countries, and Sweden is one of the OECD countries that has had the lowest inflation in recent years (see Figure 1). This is despite the fact that growth has been higher and the employment rate has not fallen as much as in many other countries. This applies regardless of whether one measures Swedish inflation in terms of

¹ The CPIF is the consumer price index (CPI) with a fixed interest rate and aims to eliminate the direct effect of changes in the repo rate from the CPI.

the CPI, the CPIF or the internationally harmonised HICP.² Inflation in several of the crisis-torn countries in Europe has been pushed up by the increases in indirect taxes implemented to improve public finances. And this explains some of the difference with regard to inflation in Sweden. But even taking this into account, it is clear that inflation has been more subdued in Sweden than in Europe in general since 2011 (see Figure 2).

Figure 2. HICP excluding changes in indirect taxes



Note. Annual percentage change.
Sources: Eurostat, Statistics Sweden and the Riksbank

The fall in inflation is broad

A closer examination of developments in Sweden shows that the fall in inflation is broad and not caused by any individual component. We have already noted that inflation measured in terms of the CPI, the CPIF and the HICP is low, compared with both the inflation target and other countries. This also applies to measures of underlying inflation, that is, measures where one tries by various means to take into account that some prices vary a lot and may temporarily influence the CPI.³ Regardless of which measure one looks at, it is clear that underlying inflation has shown a falling trend since 2012 or earlier.

Price developments for sub-groups behind the CPI measures show a similar picture (see Figure 3).^{4,5} Over the past two years, goods prices have fallen

² The HICP is calculated in detail for the countries within the EU and at aggregate level also for a couple of countries outside of the EU.

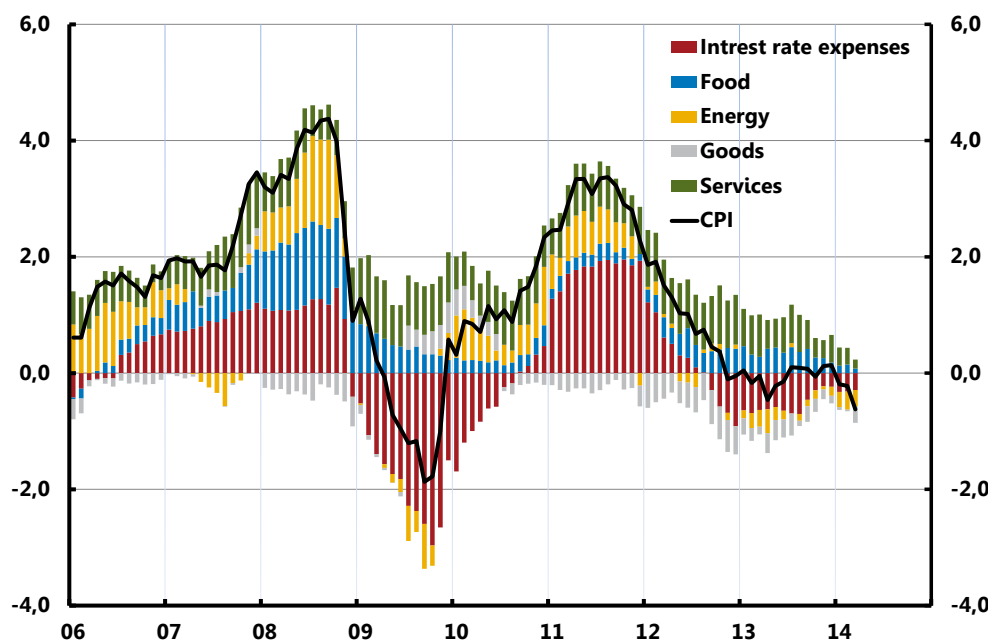
³ See Figure A1 in the appendix. Trim85 is a measure that excludes the prices that have varied most and least. UND24 is a measure that weighs together the prices included in the CPI in a different way – the prices that have varied the most in historical terms are given the lowest weighting, and vice versa.

⁴ Please note that there has not been time to update the figures I show here with the inflation outcome for April published by Statistics Sweden yesterday. CPI inflation then rose to 0 per cent, that is, prices in April were unchanged in relation to April 2013.

⁵ Normally, one divides the CPI into prices of energy, foods, goods (excluding energy and foods), services and interest expenditure. One reason for this particular division is that energy and food prices met by consumers are to a large degree influenced by developments in commodity prices on the global market. It may thus be interesting to study the sub-groups separately. The component in the CPI that

■ somewhat faster than normal. Prices of services have increased more slowly since the beginning of last year. This development has generated some attention, as the rate of increase in service prices was relatively stable during the years prior to this. Energy prices are volatile but usually increase faster than the inflation rate, but they have been unusually stable during the past two years. Finally, we have interest expenditure, which has pushed down CPI inflation via lower mortgage rates.

Figure 3. Contribution to the CPI change



Note. CPI in annual percentage change. The bars show percentage points.
Sources: Statistics Sweden and the Riksbank

Why is inflation low?

Our examination of developments in prices for the sub-groups behind the CPI measures shows that the fall in inflation is broad and not due to any individual component.

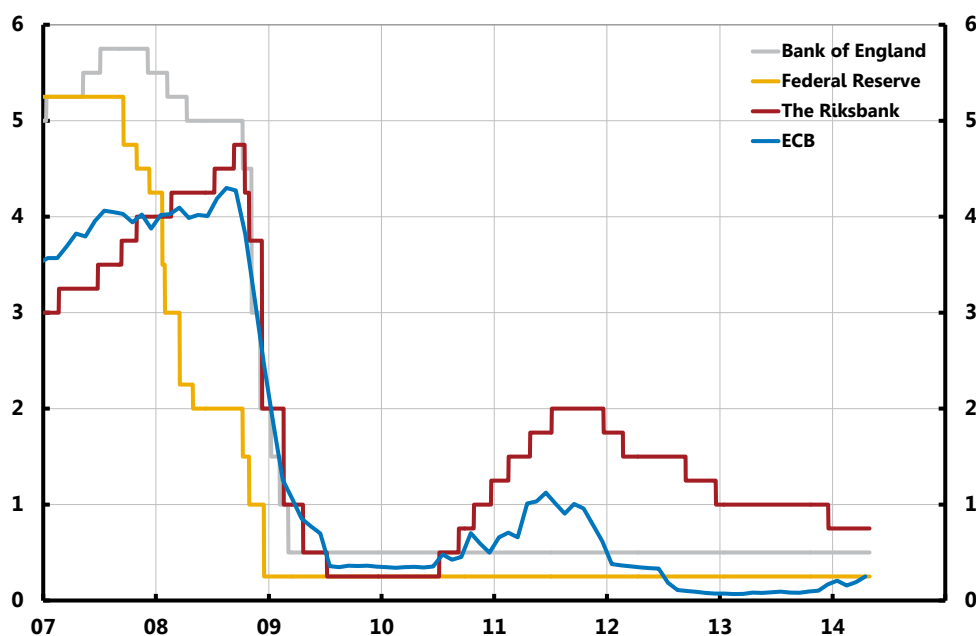
It is also difficult to point to any individual factor that has led to inflation in Sweden being low. It has rather been a combination of factors. One important factor that can hardly be disregarded is monetary policy. The repo rate has been held higher due to consideration of risks linked to household indebtedness than it would have been if the aim was solely to stabilise inflation around the target. It was after the Riksbank began to raise the repo rate in summer 2010 that inflation in Sweden – unlike inflation in other countries – began to fall (see Figures 2 and 4). The monetary policy strategy has most likely contributed to inflation being lower than it would otherwise have been.

Another important explanation for the low inflation is the weak international economic development. Sweden is a small open economy that is affected by

measures interest expenditures is also special, as it is affected by the Riksbank's changes in the repo rate. It is for this reason that, in addition to the CPI, the Riksbank also looks at the CPIX measure, in which interest rates are fixed and not allowed to vary. Figures A2 and A3 in the appendix show the developments in prices in recent years for goods, services, energy and foods.

- international developments. The prices of the goods Swedish companies import are affected partly by global market prices of traded goods and services and partly by the exchange rate.⁶

Figure 4. Policy rates



Note. ECB policy rate refers to EONIA o/n monthly averages. Others relate to daily data.
Sources: The respective central bank

Global market prices appear to follow international economic developments relatively well. Like global GDP, prices of traded goods and services fell in connection with the financial crisis in 2008. When the international recovery began in 2010, these prices also began to rise. However, in recent years, global economic activity has slowed down again and at the same time the rate of increase in global market prices of traded goods and services has fallen. Over the past year, these prices have remained in principle unchanged.

The prices Swedish companies pay in SEK for imports are also affected by the krona exchange rate. The krona weakened substantially against other currencies in connection with the financial crisis, which meant that import prices for consumer goods in the producer channel actually increased quite substantially when measured in Swedish krona, despite the fall in international prices. Import prices have been falling since the middle of 2012. One contributory factor was the rapid strengthening of the krona in the summer of 2012. During 2013, the krona fluctuated somewhat, but on average it was stronger than in 2012. This, together with the fact that global export prices have in principle remained unchanged, has continued to dampen import prices although these are no longer falling to any great extent.⁷

⁶ The Riksbank's method of measuring global market prices of traded goods and services involves weighing together developments in prices of exports in countries that are important for Swedish imports.

⁷ Figure A4 in the appendix shows developments for global market prices (global export prices), the nominal exchange rate and import prices.

■ Sometimes the impact of developments in international economic activity and prices on domestic inflation is regarded as unrelated to monetary policy in Sweden. I consider this to be a mistaken point of view. But before I return to this question, I would like to explain why I am worried about inflation being so low.

Why should we worry about low inflation?

We have thus noted that inflation has been below the two per cent target in recent years, and also lower than the Riksbank and other analysts had expected. But is the low inflation really something we need to worry about? My answer is yes. I shall explain why.

Surprisingly low inflation leads to arbitrary reallocation

Some of the problems with low inflation arise if inflation is *surprisingly* low. For example, this leads to arbitrary reallocations from borrowers to lenders. The real cost of a loan, that is, the interest cost adjusted for inflation, becomes higher if inflation is surprisingly low. Another way of describing this so-called *debt deflation* is that surprisingly low inflation means that the real value of debts rises. It then becomes more difficult for borrowers to pay off their debts, at least unless their real incomes also rise.⁸

One can expect that the problems will be particularly extensive if inflation is surprisingly low during an economic downturn that coincides with high private or public debt. This is because those who try to reduce their debt do so by reducing their expenditure, which means that demand in the economy declines.⁹ And this reinforces the economic downturn.

We are not seeing such a scenario in Sweden right now. Although household debt is high, economic activity is beginning to pick up and household consumption has developed relatively well in recent years.¹⁰ The risk that many see with the high household indebtedness is rather that a *future* economic downturn would be reinforced by households rapidly reducing their consumption. A relevant question – without an obvious answer – is whether such concern should be countered with a tight monetary policy that dampens households' propensity to increase their nominal debts or with an expansionary monetary policy that ensures inflation does not become surprisingly low. The idea behind the latter strategy is to limit growth in households' real debts.¹¹

The low inflation could thus worsen the situation for households with a high level of indebtedness. But even if we disregard the problems of *debt deflation*, it is a problem if inflation fluctuates in an unexpected manner. A stable and predictable development in prices gives a better functioning economy, where it is simpler to make well-founded long-term economic decisions.

⁸ The reasoning on *debt deflation* goes back to Fisher (1933).

⁹ Of course, every debt is someone else's asset, so one might perhaps think that the fall in demand should be compensated by increased demand from the lenders who benefit from the increase in real debt values. But assets can be held abroad or be concentrated to a few individuals whose demand is not particularly sensitive to changes in wealth. See Eggertsson and Krugman (2012) for an analysis of these mechanisms.

¹⁰ In the crisis countries in the euro area, on the other hand, high debt is a central element in the economic downturn. As Moghadam et al. (2014) note, there is a significant risk that low inflation in these countries may lead to an increase in the debt burden and to a deeper economic downturn.

¹¹ Lars E.O. Svensson has argued in favour of this point of view in several papers and commentaries (for example Svensson 2013a).

■ *Wage formation deteriorates when inflation is too low*

Another area where problems may arise if inflation is too low is wage formation. Surprisingly low inflation means that real wages eventually prove to have become higher than was planned when the nominal wage agreements were signed. This sort of wage development would make companies less willing to employ and would ultimately contribute to higher unemployment.¹²

But wage formation will probably deteriorate even if the low inflation is entirely anticipated. This is because it is difficult to reduce nominal wages. If inflation is low, it will be more difficult to adjust real wages between different sectors and between the individuals in a company. This could also mean that average real wages increase faster than is justified by the growth in productivity, particularly if the rate of inflation is very low or negative. Both problems in adjusting relative wages and unjustifiably high real wages would lead to a rise in unemployment.

Repo rate has a lower bound

A low inflation rate can also make it difficult for monetary policy to be sufficiently expansionary. The economy's real interest rate is comprised of the nominal interest rate minus the (expected) inflation rate. As the nominal interest rate has a natural floor somewhere around zero per cent, a lower (expected) inflation rate will raise the lowest level that can be attained for the real interest rate. After the financial crisis, many central banks have long been limited by the lower bound for their policy rates.¹³ The problem has, however, not been as acute in Sweden. Although the repo rate was cut to 0.25 per cent in 2009, it has been higher than this since summer 2010. The problem is rather that it may be desirable in the future to stimulate the economy further, for instance, if the economic recovery comes to a halt. The scope for further cuts in the repo rate may then be limited.

The credibility of the inflation target could be impaired

Finally, it is a problem if monetary policy and the Riksbank start to lose credibility. The value of money in modern economies is entirely based on expectations. Firmly-anchored inflation expectations and confidence in the central bank's actions therefore comprise the basis for monetary policy. The inflation-targeting policy has successfully built up this credibility by communicating a

¹² It is difficult to quantify how much higher unemployment becomes when inflation is low. According to Svensson (2013b), unemployment was on average 0.8 percentage points higher during 1997-2011 than it would have been if inflation had averaged two per cent during this period. And according to Svensson (2013c), 60,000 more people are now unemployed than if the repo rate had not been raised since 2010.

It hardly needs to be pointed out that such calculations are very uncertain. I have previously criticised Svensson (2013b) for focusing on a specific measure of inflation expectations. If one instead uses a different, more accurate, measure of expectations, almost all of the unemployment effect Svensson has calculated disappears (Flodén, 2012). And Söderström and Vredin (2013) point to problems with interpreting causal relationships behind Svensson's estimated Phillips curve.

The claim that unemployment would have been lower if a more expansionary monetary policy had been conducted since 2010 appears more plausible, however. But one can find objections to this conclusion. First, the reasoning presumes that a more expansionary monetary policy would not have caused the crisis scenario that a majority of Executive Board members have expressed as a risk that justifies a higher repo rate (see the article in Monetary Policy Report February 2014). Second, higher unemployment now can be counterbalanced by lower unemployment in the future, as monetary policy can become more expansionary in the future when inflation and inflation expectations today are low. The question is thus whether the low inflation affects the average level of unemployment or merely the volatility of unemployment over the business cycle.

¹³ Examples are the US Federal Reserve, the Bank of England and the European Central Bank (ECB). The two first-named banks have supplemented low policy rates with quantitative easing to try to make monetary policy more expansionary.

■ clear overall target – a particular inflation rate. It has also become possible to gradually give greater consideration to the stability of economic activity as credibility has accumulated, although the primary target has become somewhat less clear as a result of this flexible inflation-targeting policy.

However, monetary policy can hardly maintain its credibility if the inflation rate deviates from the target for too long. One question that has been discussed frequently in the wake of the recent financial crisis is whether central banks should use their policy rates to try to mitigate the credit cycle.¹⁴ Monetary policy could possibly contribute to this type of stabilisation for a short time before other macroprudential policy measures are in place. But studies show that typical credit cycles are much more protracted than normal business cycles.¹⁵ The status of the inflation target would probably be questioned if monetary policy "leans against the wind" – that is, results in an inflation rate below the target – for many years to dampen an expanding credit cycle.

This reasoning becomes increasingly important the lower the inflation and policy rates are. If inflation expectations fall, increasingly expansionary monetary policy will be required to bring inflation back up to the target.¹⁶ And as the policy rate has a lower bound, it may be difficult to make monetary policy sufficiently expansionary once this bound has been reached. One conclusion from these insights may be that monetary policy should react asymmetrically when inflation is low. Monetary policy should then counteract falling inflation particularly strongly if there is a risk that the policy rate will otherwise reach its lower bound.¹⁷

But the danger of deflation should not be exaggerated

The low inflation in Sweden and the euro area has recently led to much discussion on the risks of *deflation*, that is, a general fall in price levels.¹⁸ Although I am worried that Swedish inflation has been too low for several years, I believe that the debate on deflation is sometimes too foreboding and that it often focuses on the wrong risks.

To begin with, I do not see a lengthy period with falling prices as a likely scenario for Sweden. Growth is relatively strong, which should contribute to a rise in prices. Moreover, we have the scope to counteract falling prices with more expansionary monetary policy. The repo rate can be cut by at least 50 basis points before the lower bound is reached. If this were not enough, we could draw up other monetary policy measures that would contribute to a rise in inflation.

Moreover, nothing dramatic will happen merely because inflation falls below zero and is weakly negative rather than weakly positive. The problems of low inflation that I have listed above gradually increase when inflation is lower and this will of course continue to apply when inflation is negative. But the problem with prices falling is often said to be that demand will then collapse as households are postponing consumption while waiting for prices to fall so they can

¹⁴ See Smets (2013) for a review of various points of view on this question.

¹⁵ According to Drehmann et al. (2012), an average financial cycle, in which the credit cycle is a central element, is 16 years long. The length of an average business cycle is much shorter, perhaps five years.

¹⁶ Inflation expectations have fallen in recent years in the surveys conducted by the National Institute of Economic Research and Prospera. Short-term expectations are now just below one per cent, but long-term expectations are still close to the two per cent inflation target.

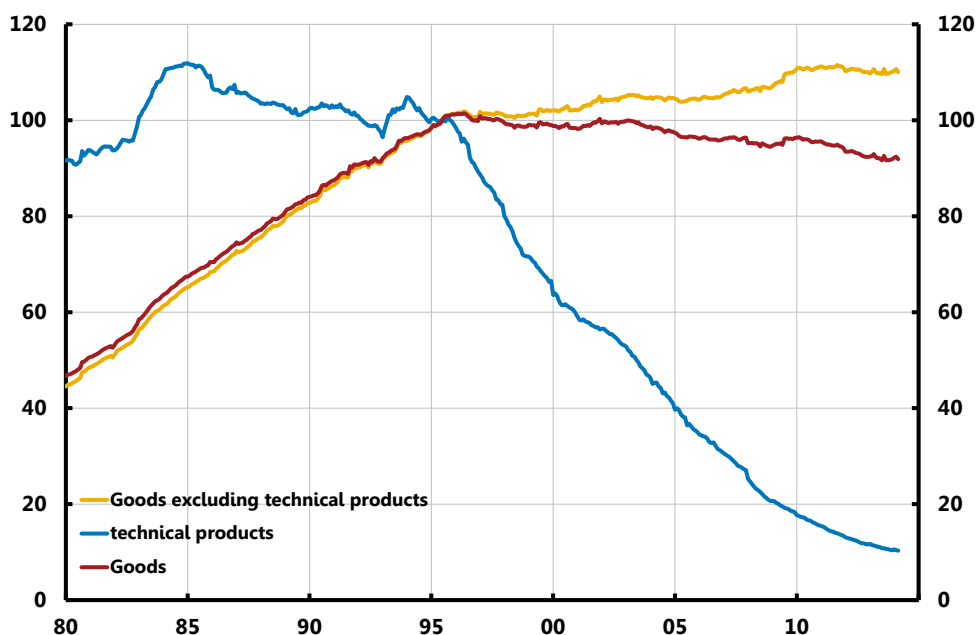
¹⁷ See the reasoning on this in Williams (2009) and Bayoumi et al. (2014).

¹⁸ See for example Krugman (2014) and Pettersson (2014).

■ buy more cheaply.¹⁹ This reasoning is not necessarily wrong, but is really only a reformulation of the problem I mentioned above; that low inflation limits the scope for making monetary policy more expansionary. There is a risk that households will postpone their consumption – that is, that they will increase their saving – if the real interest rate becomes unjustifiably high. Here it is necessary to put price developments in relation to developments in wages and the return on saving. There is therefore scarcely reason to believe that anything dramatic will begin to happen just as the general rate of inflation becomes negative.

One should also remember that substantial differences are hidden in the price trends for different product groups that lie behind the general rate of inflation. One example is developments in prices for technology-intensive goods such as TVs, computers and mobile phones. The price level for these goods has fallen fairly quickly, as a result of the rapid productivity growth, even during periods when the general inflation rate has been clearly positive (see Figure 5). But despite the falling prices, demand for these goods has not collapsed, but rather increased over time.

Figure 5. Large differences in price trends for different product groups



Note. Index 1995=100. Technology products refer to an aggregate of the groups radio, TV, video, cameras including colour film and instruments, CD, DVD in the CPI.
Sources: Statistics Sweden and the Riksbank

To summarise, I am thus worried about the low inflation in Sweden in recent years. I see it as particularly problematic that the low rate of inflation risks impairing wage formation and contributing to unnecessarily high unemployment. There is also a risk that the credibility and efficiency of monetary policy will de-

¹⁹ Bordo and Filardo (2005) note that episodes of deflation have been common throughout history and often been unproblematic. But they also note that these unproblematic episodes often occurred under the gold standard regime and that long-term inflation expectations were then firmly anchored. Mechanisms that are based on expectations of lower prices in the future then do not arise so easily.

■ teriorate and that there will be arbitrary reallocations between lenders and borrowers.

But, at the same time, I believe that some concerns and problems have been exaggerated in the debate. I see it as a small risk that Sweden would suffer a prolonged period with falling prices. And if this were nevertheless to happen, the consequences would probably only be a gradual strengthening of the problems I already see with the current low inflation.

The risk that we would face a prolonged period of deflation is partly linked to the view of what monetary policy can achieve. I sometimes see an overly pessimistic attitude to the Riksbank's ability to influence Swedish inflation rate. Let me discuss this question in conclusion.

Monetary policy determines the inflation rate

Central banks often talk about the so-called *transmission mechanism*, that is, how a change in the policy rate affects different aspects of the economy and ultimately the rate of inflation. But how well does this transmission actually work? Does a small open economy like Sweden need to adapt to monetary policy and price trends abroad? Has the transmission mechanism been damaged or weakened by the financial crisis?

My perspective on these questions is perhaps rather split. It is clear – and has been so for a long time – that we do not completely understand how the transmission mechanism works. The description we give is simplified and partly based on theories and hypotheses that have not been completely verified by data. But at the same time, empirical studies and practical experience show that the policy rate is a useful tool for influencing economic activity and the inflation rate.

It is of course true that a small open economy like Sweden is dependent on developments abroad. Low demand abroad contributes to low demand in Sweden, too. And low price increases abroad contribute to low import prices at a given exchange rate. However, this does not mean that monetary policy lacks the ability to counteract these developments. I usually think of this as a rowing boat in a strong current. If we do not row, the current (global developments) will determine what direction the boat moves in. But if we row, we have a better ability to get where we want to go, particularly if we try to keep away from the parts of the water where the current is strongest.

The monetary transmission mechanism is usually divided up into different channels (see Figure 6).²⁰ The channel most often mentioned is probably the *interest rate channel*. A lower interest rate makes it more attractive to consume and invest. This increases demand in the economy. And in the long run, the higher demand means that prices and wages rise, that is, inflation increases.

In an economy like Sweden's, which is so dependent on international developments, the *exchange rate channel* probably has greater importance, at least for the development of inflation. An (unexpected) repo rate cut means that the krona weakens. The weaker krona leads to an increase in demand for Swedish goods at the cost of foreign goods. In addition, there is a direct inflation effect

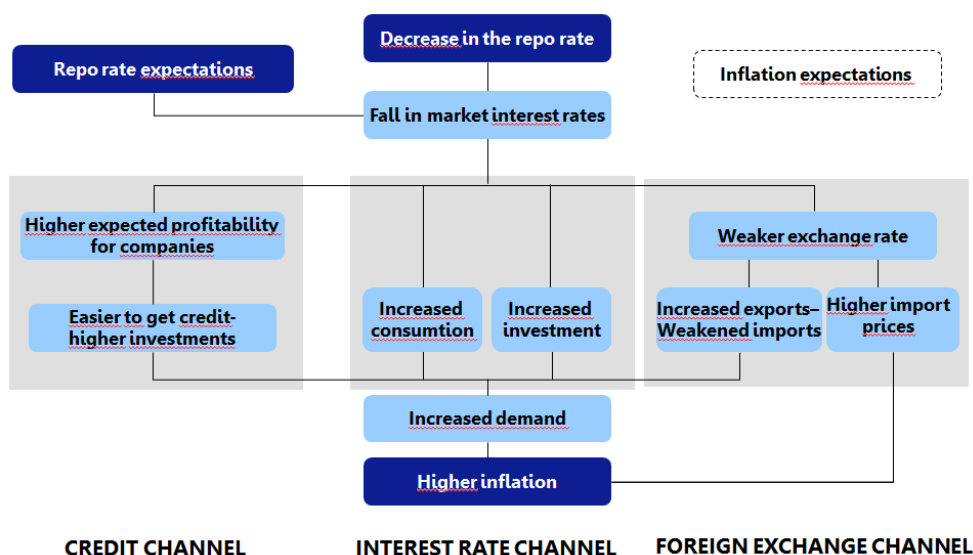
²⁰ See Hopkins et al (2009) for a description of the transmission mechanism and empirical studies of how it works in Sweden.

- that arises when imports become more expensive as a result of the weaker exchange rate.

The importance of the direct inflation effect is confirmed by empirical studies using Swedish data (Hopkins et al., 2009); inflation in Sweden is affected almost immediately when the repo rate is changed, and most of the inflation effect arises through the exchange rate channel.²¹

I note that in line with this reasoning, the krona strengthened after the Riksbank began raising the repo rate in summer 2010. And, as I pointed out earlier, it was after these repo-rate increases that inflation in Sweden – unlike other parts of the world – began to fall.

Figure 6. Transmission mechanism. How do monetary policy affect inflation?



Short-term *inflation expectations* are a component of the transmission mechanism that I feel are paid too little attention as a possible explanation for the low inflation. When firms set their prices, important factors are how they believe other companies will set their prices, and how they believe their customers will react to price changes. The same applies when employers and employees negotiate wages. If one believes that other companies will keep their prices and wages unchanged, it is more difficult to raise one's own prices and wages. As inflation expectations appear closely linked to the most recent inflation outcomes, there is thus a risk that the low inflation becomes a self-fulfilling prophecy.

One consequence of this type of reasoning is that it is important that monetary policy reacts early on when inflation begins to fall. The later one tries to deal with the problems, the more expansionary monetary policy will need to be to bring inflation up to the target. Or to return to the rowing boat metaphor;

²¹ The greatest effects on inflation between two quarters arise during the first quarter after a change in the repo rate, but it takes a year until the greatest effects are attained for the twelve-monthly inflation figures.

■ when one finds oneself in a very strong current, one needs to row very hard to get back.

Note that the two transmission channels I have focused on, the exchange rate channel and the expectations channel, do not necessarily have an effect through the real side of the economy. It is therefore fully possible that monetary policy has a substantial ability to influence the inflation rate even if real variables like unemployment and GDP growth are not so tangibly affected.

Based on this reasoning, my view is that monetary policy in Sweden has good potential to bring inflation back to the target of two per cent. But I often come across arguments disputing this conclusion. Let me conclude by giving my interpretation of these arguments and explaining why I am not convinced by them.

Misinterpreted: The impact of the repo rate on other interest rates has been weakened

After the financial crisis the repo rate was cut by nearly five percentage points. But the interest rates households and companies could borrow at did not fall as much, as risk and liquidity premiums increased at the same time. However, these observations do not mean that the effects of changes in the repo rate have altered. A more reasonable interpretation is that the cuts in the repo rate have been counteracted by, and perhaps sometimes drowned in, other effects.²² If the repo rate had not been cut as aggressively, households and companies would most probably have had to pay higher interest rates.

Misinterpreted: Monetary policy in small economies is determined internationally

A traditional textbook account would say that a country that has a floating exchange rate and allows the free mobility of capital across national borders can formulate its monetary policy to attain a domestic inflation target. But Rey (2013) claimed recently in a widely-read paper that this conclusion is no longer valid. She argued that globalisation and the increasing international flows of capital meant that monetary policy around the world must adapt to monetary policy in the dominant economies, primarily the United States.

Rey's theory is that large amounts of capital will flow into a country that tries to conduct a tighter monetary policy. The capital inflow will either lead to an undesired appreciation of the country's currency or to asset prices in the country rising too quickly. This theory, which Rey formulated with emerging markets in mind, could very well also be correct and relevant for more developed economies, like Sweden. My interpretation of such arguments is that monetary policy in Sweden then cannot deviate too far from monetary policy in the United States and the euro area without giving rise to an unjustified appreciation of the krona.²³

²² In line with this interpretation, Karlsson and Fredriksson (2013) find that the repo rate has had the same short-term impact on mortgage rates before and after the financial crisis.

²³ The conclusion that Rey emphasises is that monetary policy needs to be supplemented with other tools; either macroprudential policy measures that can counteract undesired fluctuations in asset prices, or restrictions to the international mobility of capital to quite simply throttle the mechanism causing concern.

■ *Misinterpreted: Inflation is also low in countries with more expansionary monetary policy*

Inflation is also falling now in countries and currency areas where the central banks have conducted a more, sometimes much more, expansionary monetary policy than the Riksbank. I have sometimes heard these observations put forward as arguments proving that a more expansionary monetary policy would not have much impact. This is not a very convincing conclusion.

To begin with, it is only a year or so ago that there was much international discussion as to why inflation was so surprisingly *high*.²⁴ The background to this discussion was that the weak economic developments in many parts of the world did not appear to have any great effect on inflation. Despite the low demand in the economy and high unemployment, inflation remained at levels that did not appear compatible with historical patterns.²⁵

To some extent, one can probably say that monetary policy abroad was more successful in stabilising inflation than economic activity, at least for a period of time. Without the powerful monetary policy stimulus, inflation would probably have been much lower. And in the countries which have perhaps conducted the most expansionary monetary policy, the United States and the United Kingdom, inflation does not appear to fall to levels as low as in, for instance, Sweden and the euro area.

Misinterpreted: Rapid technological development leads to falling prices

The most common misunderstanding I hear concerns falling international goods prices. For instance, one usually notes that Swedish goods prices have fallen in recent years and perhaps also that the price of technology-intensive goods is falling rapidly.²⁶

But here one confuses relative prices with the general level of inflation. It is no new phenomenon that goods prices are increasing at a slower pace than services prices.²⁷ Nor is it a surprise. While wage increases are roughly the same in both the goods and services industries, productivity increases are higher in the goods industries. This means that unit labour costs are increasing more slowly there, which in turn means that price increases for goods always tend to be lower than those for services. And for the goods industries with the most rapid growth in productivity, the price increases will be even lower.

However, these insights do not say anything about average price changes – inflation – only something about how price developments in different goods and services relate to one another. As an example, it can be mentioned that

²⁴ See, for instance, Ball and Mazumder (2011), Coibon and Gorodnichenko (2013) and the IMF (2013).

²⁵ One of the explanations most often given for inflation initially being held up is that inflation expectations had become anchored around the level of the inflation target and that this contributed to temporarily keeping inflation up in a different way than in earlier economic downturns. This explanation is also, at least partly, consistent with the conclusions I have drawn on the ability of monetary policy to influence inflation even if the effects on economic developments are less tangible. Another, closely-related, explanation given is that the link between aggregate demand and inflation is weaker when inflation is low to start with. Over the past decade or two, inflation has been low in relation to the levels common in the 1970s and 1980s. When the financial crisis began, inflation was thus already low. And when inflation is low, there are factors that counteract a further fall. Wage rigidity may be one such factor. During periods of high unemployment it is not unusual that wages are not increased. On the other hand, it is more unusual that wages are actually reduced, and this in turn has significance for how low price increases will be.

²⁶ The fact that goods prices have fallen can be seen in Figure A2, while the rapid fall in prices of technology-intensive goods can be seen in Figure 5.

²⁷ Figure A5 in the appendix shows that services prices have increased faster than goods prices since the beginning of the 1980s.

prices for technology-intensive goods rose much more slowly than prices for services, even when inflation was high in Sweden during the 1980s. And inflation is currently much higher in many countries around the world, although they face the same development in international prices for technology-intensive goods as Sweden.

In connection with this discussion, I would like to make it clear that an inflation target of two per cent does not mean that prices in each of the sub-groups behind the CPI will increase by an average of two per cent. As goods prices are expected to increase more slowly than services prices, service prices must probably increase faster than two per cent on average if the inflation target is to be attained.²⁸ Figure A2 shows that this has not been the case.

Closing comments

Today I have tried to explain why I am worried about inflation having been below the inflation target for the past three years. This is mainly because a low rate of inflation can have a negative effect on wage formation and thereby the functioning of the labour market, and that the credibility of monetary policy can be damaged, which can mean that future monetary policy is less efficient and that economic planning is made more difficult by unnecessary uncertainty over future prices.

I have also tried to communicate that monetary policy has considerable potential to influence the development of inflation, but that this influence does not necessarily presume that monetary policy also has substantial effects on economic activity. Expectations of the Riksbank's ability to meet the inflation target are sometimes too low, while expectations of our ability to reduce average unemployment are too high. It is monetary policy that determines how high average inflation will be. The average level of unemployment, on the other hand, is mainly determined by factors beyond the Riksbank's control.

Finally, I would like to repeat what I said at the beginning of my speech. I am not trying to say that the Riksbank can control inflation with any precision. It is neither desirable nor possible for monetary policy to continuously hold inflation stable and close to the inflation target of 2 per cent. But monetary policy can prevent inflation from falling way below the target over a long period of time.

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²⁸ This conclusion assumes that the average rates of increase for energy and food prices are not far above two per cent.

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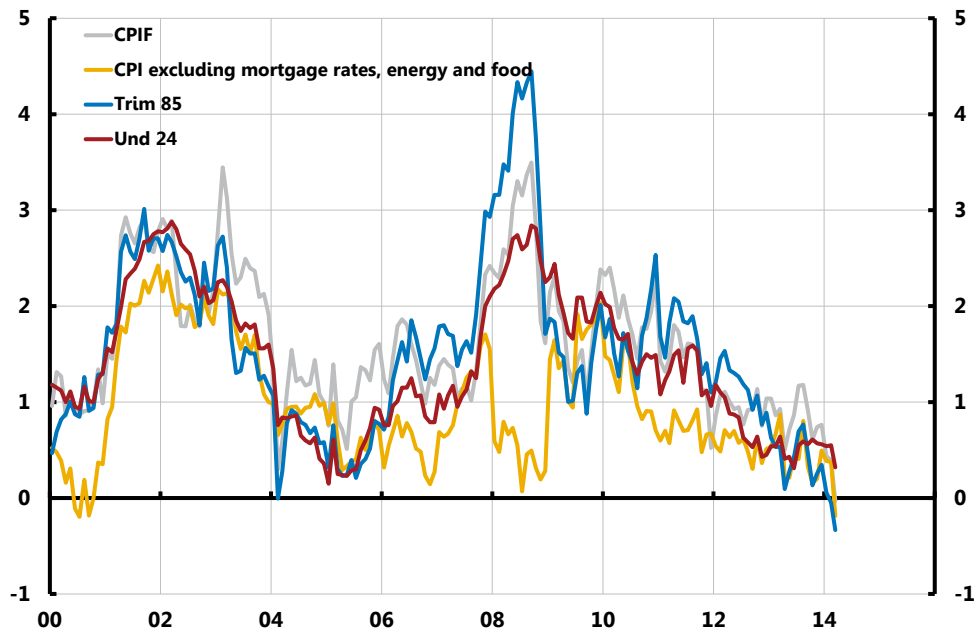
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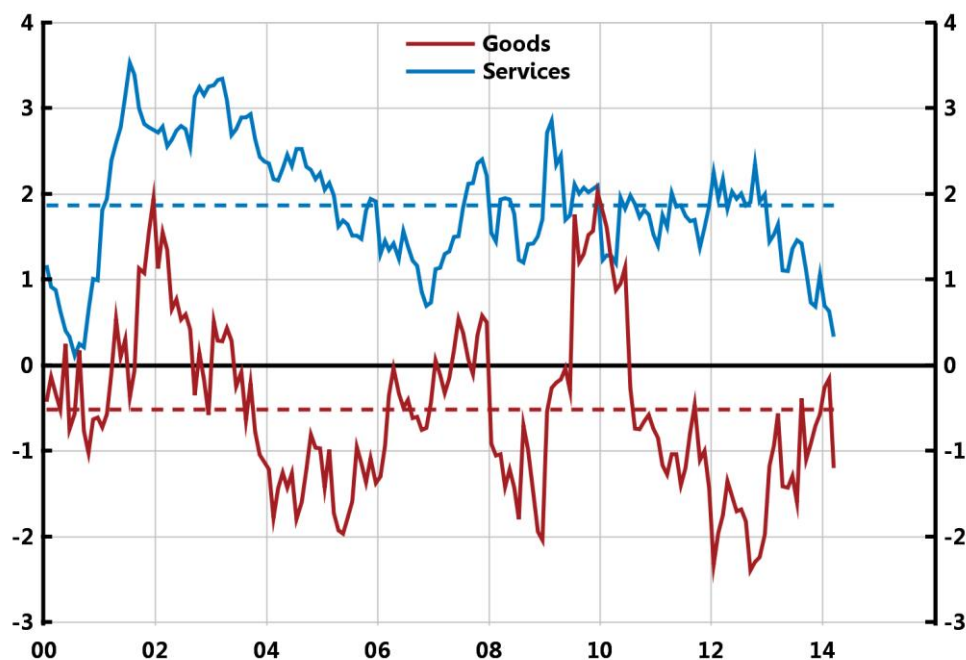
Appendix

Figure A1. Measures of underlying inflation



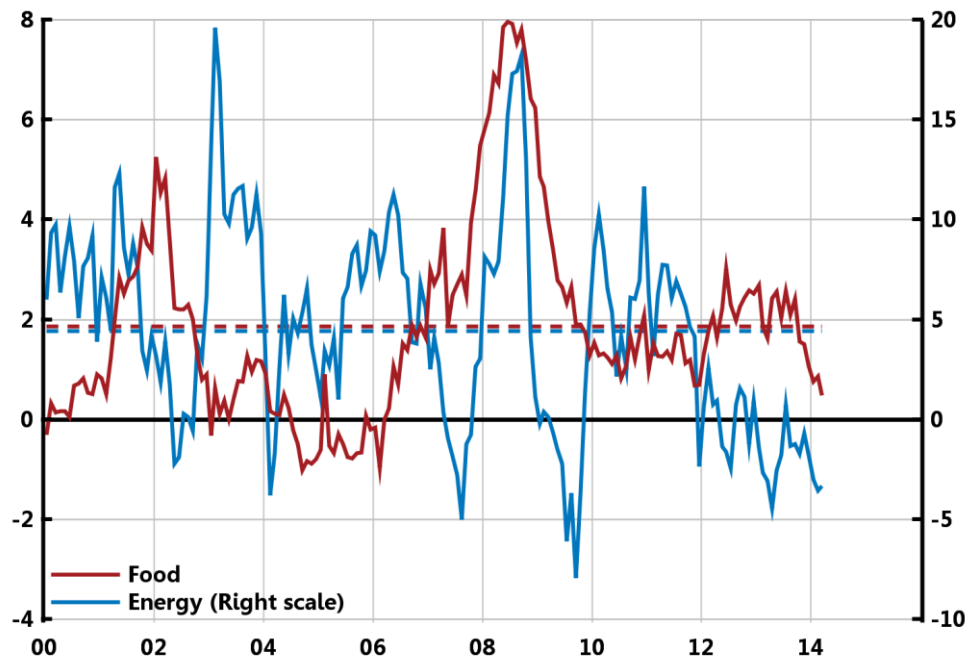
Note. Und 24 and Trim 85 are statistical measures calculated on the basis of the CPI divided into approximately 70 subgroups. Und 24 is weighted and adjusted for the historical standard deviation. In Trim 85, the 7.5 per cent highest and the 7.5 lowest yearly price changes have been excluded. The CPIF is the CPI with a fixed mortgage rate.
Sources: Statistics Sweden and the Riksbank

Figure A2. Goods and services prices



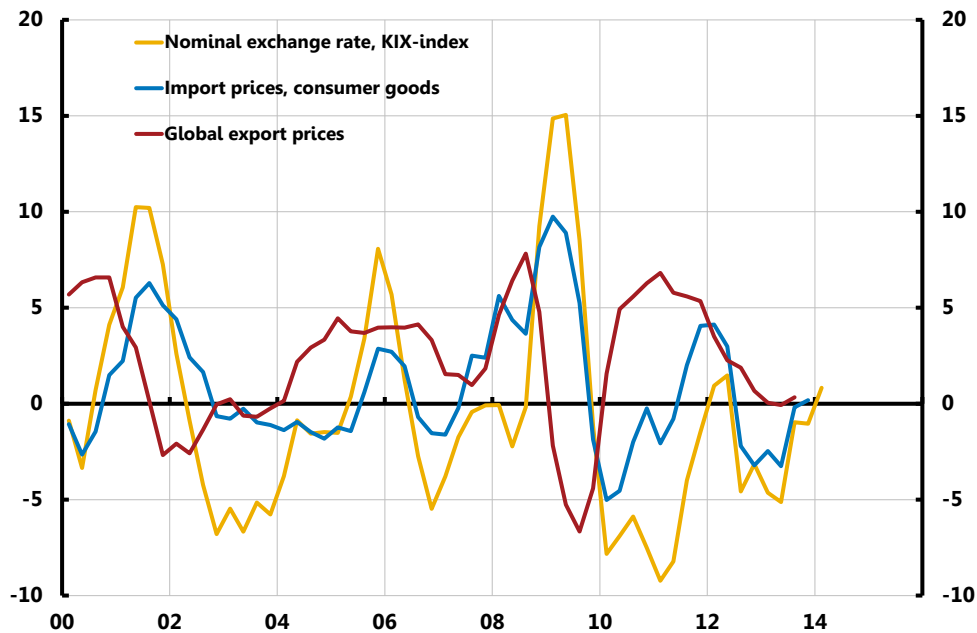
Note. Prices on goods and services according to CPI, annual percentage change. The broken lines represent the average since 2000.
Source: Statistics Sweden

■ **Figure A3. Food and energy prices**



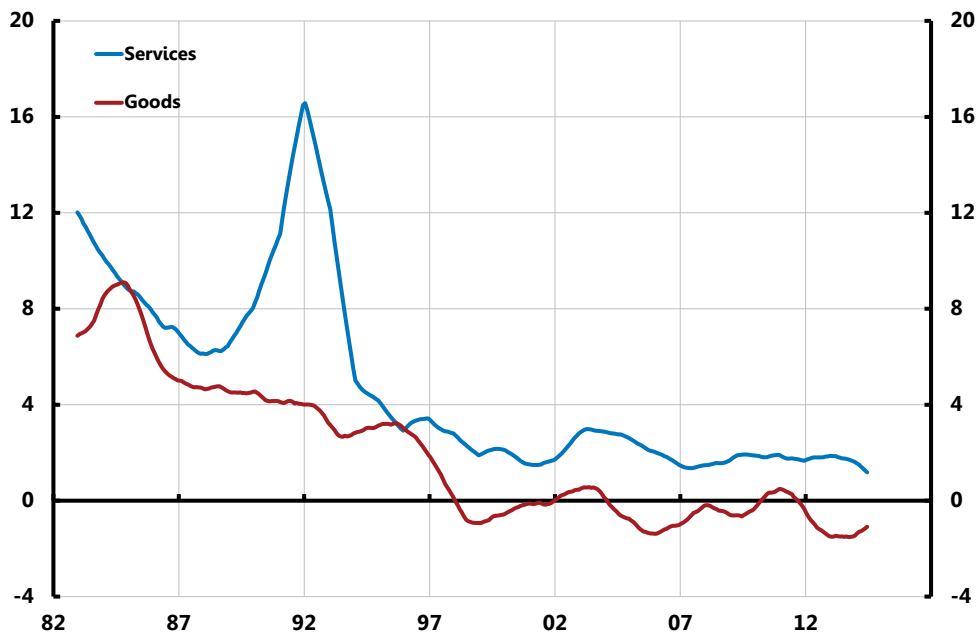
Note. Prices on food and energy according to CPI, annual percentage change. The broken lines represent the average since 2000.
Source: Statistics Sweden

Figure A4. Nominal exchange rate, Import and export prices



Note. ECB policy rate refers to EONIA o/n monthly averages. Others relate to daily data.
Sources: The respective central bank

■ **Figure A5. Goods and services prices, moving averages**



Note. 24-month moving averages.
Source: Statistics Sweden and the Riksbank