

■ The Riksbank's complementary monetary policy measures

The Executive Board of the Riksbank has decided to conduct a more expansionary monetary policy. If this proves insufficient to get inflation to rise towards the target, the Riksbank can quickly make monetary policy even more expansionary. This article describes in greater depth the various measures that are most likely to be used. These consist of an even more negative repo rate, additional purchases of nominal government bonds and lending to companies via banks.

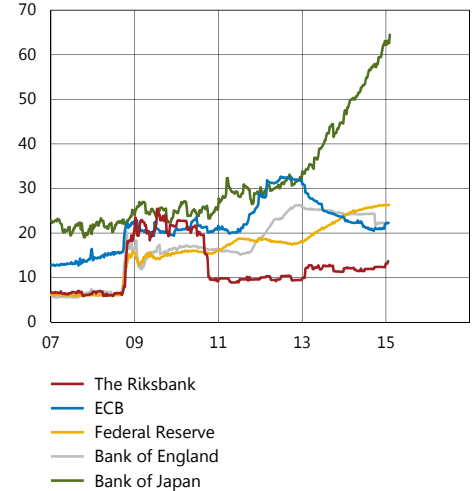
Many other central banks have used different types of measure to make their monetary policy more expansionary, after cutting their policy rate to levels that have usually been regarded as a lower bound. At the end of January, for instance, the ECB decided to extend its asset purchase programme to include purchases of government bonds corresponding to an amount of approximately 10 per cent of the euro area's GDP. In Denmark and Switzerland, the lower bound for the policy rate has been assessed to be a negative rate and these central banks have cut their rates below zero. Other central banks have thus tried various measures to make their monetary policy more expansionary.¹⁵

Exactly which measures have been taken depends on the specific problems the country concerned has tried to remedy. The measures that a central bank has at its disposal to conduct monetary policy when the policy rate is close to its lower bound essentially concern increasing the monetary base, increase liquidity, and in various ways exchanging risky assets for safe central bank assets. Measures of this type therefore always entail an increase in the central bank's balance sheet total (see Figure A1).

As Sweden is a small, open economy, it will benefit in some respects from a more expansionary monetary policy being conducted in other countries. For instance, stronger growth abroad benefits Swedish exports. On the other hand, a more expansionary monetary policy abroad can lead to the krona strengthening in a way that dampens the economic recovery and increase the risk that the already low inflation in Sweden will become even lower for some time.

The Riksbank has cut the repo rate to -0.10 per cent and decided to restore the interest rates for fine-tuning transactions to the repo rate ± 0.1 percentage points, so that the low inflation will rise towards the target. The Executive Board of the Riksbank has also decided to adjust the repo-rate path down somewhat and to purchase nominal government bonds to an amount of SEK 10 billion and with a maturity of up to five years. If monetary policy needs to become even more expansionary, the repo rate and the repo-rate path can be cut further. In addition, the Riksbank can extend its purchases of government bonds and also introduce a programme of loans to companies via the banks. All

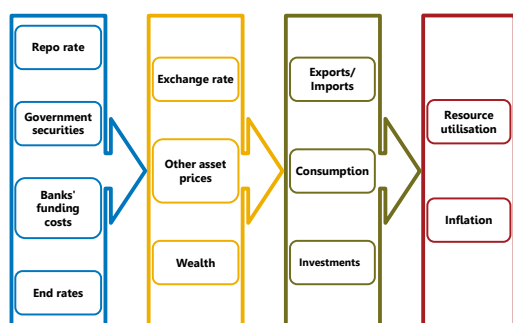
Figure A1. Central banks' balance sheet totals
Per cent of GDP



Sources: National central banks, Reuters EcoWin and the Riksbank

¹⁵ For a description of what other banks have done, see the article "Monetary policy when the policy rate is close to zero" in the Monetary Policy Report published in October 2014. Söderström, U. and Westermark, A. ("Monetary policy with a zero interest rate" *Economic Review*, 2009 Sveriges Riksbank) describes in more general terms the different monetary policy measures that can be implemented when the policy rate is at its lower bound.

Figure A2. The monetary policy transmission mechanism



Source: The Riksbank

of these measures can be implemented quickly, even between the ordinary monetary policy meetings. However, when these measures should be implemented, and how forceful they should be, will depend on how inflation, in particular, develops. This article describes the measures the Riksbank is beginning to implement and which can be extended if monetary policy needs to become more expansionary.

How do complementary monetary policy measures differ from normal monetary policy?

The monetary policy transmission mechanism describes how a change in monetary policy affects inflation and the economy as a whole. Somewhat simplified, one can divide the transmission mechanism up as shown in Figure A2.¹⁶

The Riksbank steers the shortest market rate, the overnight rate, with the aid of the operational framework for implementing monetary policy. Longer-term market interest rates depend to a large extent on expectations of future short-term rates, that is, expectations of future monetary policy. If cutting the repo rate is supplemented with a downward revision of the repo-rate path, the longer market rates usually fall, too, which is illustrated by the blue field in Figure A2. Lower market rates also mean that the exchange rate weakens for a period of time and that wealth increases (the yellow field), as equity prices and bond prices rise. This affects demand in the economy and leads to an increase in exports, as well as consumption and investment (the green field). All in all, resource utilisation in the economy thus increases and wages and other costs gradually rise. To compensate for the higher costs, companies need to raise their prices at a faster pace, which gives higher inflation. The weaker exchange rate also leads directly to higher inflation, as prices of imported consumer goods rise faster.

When the repo rate is cut to its lower bound, further complementary monetary policy measures will be needed if monetary policy is to become more expansionary. These measures work through the transmission mechanism in Figure A2, but have their respective starting points in different places.

The size of the impact of the various measures will depend on which parts of the usual transmission mechanism are active when the measure is implemented. Another common purpose of complementary measures is to clearly signal that the central bank is taking sufficient measures to ensure that inflation expectations are compatible with the inflation target in the long run. This also contributes to inflation rising towards the inflation target.

Cutting the repo-rate further

The Riksbank has now decided to cut the repo rate to –0.10 per cent. Few central banks have previously had negative policy rates and it is therefore difficult to know how the transmission mechanism functions with negative interest rates. Cutting the repo rate below zero, at least if the cuts are in total not very large, is expected to have similar effects to

¹⁶ See also Hopkins et al. ("The Monetary Policy Transmission Mechanism", *Economic Review* 2009, Sveriges Riksbank) for a more detailed description of the monetary policy transmission mechanism.

repo-rate cuts when the repo rate is positive, as all channels in the transmission mechanism can be expected to be active. On the other hand, there is uncertainty as to how negative the repo rate can be before the transmission mechanism weakens. But ***the Riksbank assesses that the repo rate can be cut further from the current level of -0.10 per cent. The effects of the current repo-rate cut will influence the Riksbank's assessment of how far the repo rate can be cut.***

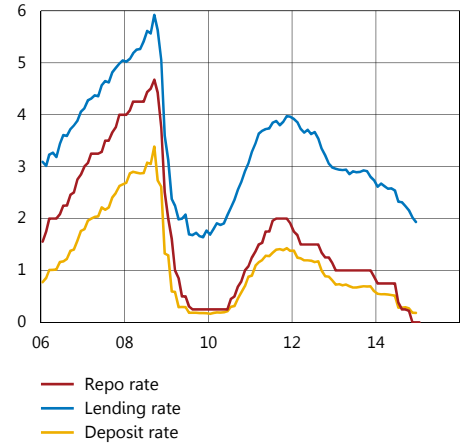
In simple theoretical models the interest rate cannot be negative, as if it were, households and companies would then invest their savings in cash, which does not give a negative return.¹⁷ In practice, however, holding cash entails a cost. For instance, cash must be stored in a safe place and its physical handling also entails costs. It is therefore very likely that zero is not a lower bound in practice.

In theory, there is nothing to prevent market rates from following the repo rate and becoming negative. The Swedish payment system is a closed one, where banks either deposit a liquidity surplus in the Riksbank or borrow liquidity from the Riksbank. However, most of the liquidity management between the banks involves banks with a deficit borrowing from banks with a surplus. If interest rates on these transactions deviate too far from the Riksbank's repo rate, it will become more profitable for a bank to instead borrow from or deposit with the Riksbank. The very short market rates therefore tend to be close to the repo rate. Normally, the banks' deposit and lending rates therefore follow changes in the repo rate, although this can be with some time lag (see Figure A3). Now that the repo rate is being cut to -0.10 per cent, the banks can of course choose not to introduce negative deposit rates. The banks can then instead retain their earnings by not cutting lending rates to the same extent as usual when the repo rate is cut. This could mean that the monetary policy transmission mechanism may become somewhat weaker than normal, when the repo rate is cut below zero.

The transmission mechanism can also to some extent be affected by the fact that there has been a liquidity surplus for some years now which the banks have deposited with the Riksbank at the end of the day. When the repo rate is negative, the banks have to pay the Riksbank to make these deposits. However, one should remember that at the beginning of the 2000s, there was a liquidity deficit in the Swedish payment system, so in practice it is not unusual for the banks to pay the Riksbank for liquidity (see Figure A4). With the surpluses and with interest rate levels we have today, the amounts involved are small, particularly when one takes into account the profit situation in the banking sector. However, the larger the liquidity surplus, or the more negative the repo rate, the greater the cost for the banks.

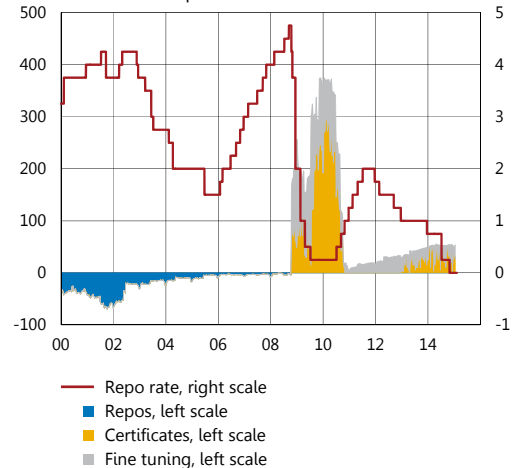
All in all, the reasoning above indicates that the repo rate can be cut further below zero before the costs to the banking system become too great and comprise any major problem for the monetary policy transmission mechanism. Although the impact on households' deposit

Figure A3. The repo rate and bank rates
Per cent



Note. Lending and deposit rates refer to new loan agreements. The deposit rate is calculated as the banks' average deposit rate, while the lending rate refers to MFIs' average lending rate. Sources: Statistics Sweden and the Riksbank

Figure A4. The banks' deposits and lending requirements at the Riksbank, and the repo rate
SEK billion and per cent



Note: Negative figures mean that the banks borrow liquidity from the Riksbank, positive figures that the banks make deposits. Source: The Riksbank

¹⁷ See Söderström, U. and Westermark, A. "Monetary Policy with a Zero Interest Rate", *Economic Review*, 2009, Sveriges Riksbank.

rates could be somewhat less than normal, the repo-rate cuts below zero are expected to have a sufficiently large effect via the other channels in the transmission mechanism, for instance, as the krona exchange rate is expected to weaken.

Purchases of nominal government bonds

The Executive Board of the Riksbank has decided to buy nominal government bonds on the secondary market to the amount of SEK 10 billion for monetary policy purposes, and is prepared to continue buying government bonds if monetary policy needs to become more expansionary. The Riksbank will pay for the bonds by increasing the amount of liquid funds in the economy. The purpose of these purchases is to reduce general interest rates in the economy, partly through the so-called portfolio channel.¹⁸ When the yield on safe assets falls as a result of the central bank's purchases of government bonds, it becomes more attractive for investors to seek other, more risky assets such as equity and corporate bonds. The purchases will increase liquidity in the economy and in this way the lower yields on government bonds will spread to other parts of the financial markets. The lower interest rates will in turn contribute to allowing the banks to cut their lending and deposit rates, which increases companies' propensity to invest, at the same time as households have greater incentive to consume. Both households' and companies' wealth increase as a result of the higher asset prices that arise through the portfolio channel.

All in all, aggregate demand and the credit supply in the economy will increase. When the economy is stimulated through an increase in aggregate demand, inflation gradually rises, as companies can charge higher prices and the lower unemployment pushes up wages. There are many studies of international experiences from purchasing government bonds. These studies indicate that the measure may have relatively large effects on both the real economy and inflation, but that there is at the same time considerable uncertainty over the effects.¹⁹

The Riksbank may, if necessary, purchase further nominal Swedish government bonds for monetary policy purposes. These purchases would primarily be over maturities of up to 10 years. The Swedish National Debt Office's issues of nominal bonds are expected to amount to SEK 77 billion a year in 2015 and 2016. Net borrowing, that is, the difference between issues and maturities of bonds, is expected to be SEK 5 billion in 2015. The aim is that the Riksbank's purchases will be significant in relation to the size of the market.

The Riksbank's purchases will take place by means of auctions in which the Riksbank's monetary policy counterparties and the Swedish National Debt Office's primary dealers have the opportunity to participate. In this way, the pricing and allocation of the Riksbank's

¹⁸ See, for instance, the discussion in Bowdler, C. and Radia, A. "Unconventional monetary policy: the assessment", *Oxford Review of Economic Policy*, 2012 or Chen, H, Cúrdia, V. och Ferrero, A. "The Macroeconomic Effects of Large-Scale Asset Purchase Programs", *Federal Reserve Bank of New York Staff Reports*, 2011.

¹⁹ See, for instance, Weale, M. and Wieladek, T. "What are the macroeconomic effects of asset Purchases", *External MPC Unit Discussion Paper* No. 42, Bank of England, Gertler, M. and Karadi, P. "QE 1 vs. 2 vs. 3...: A Framework for Analyzing Large-Scale Asset Purchases as a Monetary Policy Tool", *International Journal of Central Banking*, 2012 and Christensen, J. H. E. and Krogstrup, S. "Swiss Unconventional Monetary Policy: Lessons for the Transmission of Quantitative Easing", *Federal Reserve Bank of San Francisco WP* 2014-18.

transactions are transparent to the market. These purchases are expected, in line with the experiences of other countries, to affect prices of mortgage bonds and corporate bonds, as well as other assets.²⁰ The measures will be evaluated along the way.

Lending to companies via banks

Other central banks around the world have also worked with complementary monetary policy measures where the central bank lends to banks or in other ways provides support to ensure liquidity comes into the financial system. Sometimes, this type of lending has been targeted at certain sectors of the economy, which have needed special stimulus.²¹ Direct loans outside the banking sector are often difficult for a central bank to manage, from a legal point of view. A number of central banks have therefore introduced programmes aimed at lending to, for instance, companies indirectly, via the banks. When measures are targeted in this way, only the parts of the transmission mechanism that go via the companies in Figure A2 are active. This means that the measures can be expected to have less effect on inflation than via the usual transmission mechanism. While purchases of government securities, via the portfolio channel, primarily benefit larger companies that have access to market funding, targeted loans to companies via the banks may be more beneficial to small and medium-sized companies, which are more dependent on the banks for their funding. Strengthening the incentives for the banks to increase their lending to companies can therefore be said to supplement the purchases of government bonds and the repo rate cut.

The Riksbank considers that a programme for lending to companies via the banks can be used as an additional measure. This measure could entail the Riksbank initially lending, for instance, SEK 100 billion to the banks with a loan maturity of four years. In this way, the Riksbank could contribute to more favourable long-term lending to companies. Like other central banks that have implemented similar measures, the Riksbank will, if such a loan programme is adopted, follow up to ensure that loans to companies actually increase.²² Exactly how the Riksbank designs such a programme will be notified if and when it becomes appropriate.

Costs and risks linked to complementary monetary policy measures

The Riksbank normally makes a profit that is paid into the Swedish Treasury every year. Over the past 25 years, the Riksbank has paid in more than SEK 210 billion to the Treasury.

The Riksbank and the banking system comprise a closed system, which means that the money the Riksbank creates to buy government bonds must automatically return to the Riksbank as deposits. These deposits will be at interest rates the same as, or very close to, the repo rate. When the Riksbank buys government bonds and increases its

²⁰ For instance, equity prices or even housing prices can rise.

²¹ The ECB, for instance, has introduced lending that excludes mortgage loans to households and the Bank of England is now targeting its "Funding for Lending Scheme" at small and medium-sized companies.

²² The Bank of England has this kind of follow-up in its "Funding for Lending Scheme" and the ECB has something similar in its TLTRP programme.

balance sheet, however, losses will arise if interest rates begin to rise more than was expected when the purchases were made.²³ The larger the purchases made, the greater the losses will be.

However, the Riksbank making a loss need not entail any problem to society, even if it means that the payments to the Treasury decline. This is because the improved economic situation, which follows from a more stimulating monetary policy, will at the same time lead to increased tax revenue and reduced expenditure for unemployment benefit, for instance. The total benefit of the purchases, including meeting the inflation target, will thus in total be greater than the cost.

Although one purpose of the measures discussed here is to attain an increased risk taking, it is important to remember that they can at the same time lead to excessive risk taking by financial agents, non-financial companies and households.²⁴ There is thus a risk that the financial system's resilience to shocks will decline, which has also been taken into account when formulating the measures. This emphasises the importance of evaluating the various measures along the way.

The Riksbank is prepared to increase stimulus if necessary

In addition to the measures described in this article, there are a number of further measures the Riksbank can use to bring inflation back to the target of 2 per cent.²⁵ This could entail, for instance, purchases of different types of securities and interventions on the foreign exchange market. Exactly which further measures may be used will depend on the situation, however. The measures discussed in this article can be implemented quickly, or increased in scope, if necessary. Experiences from other countries show that circumstances can change rapidly. Ultimately, it is the conditions for inflation that will determine if these measures are implemented and how forceful they will be.

²³ For a more detailed discussion of the Riksbank's profits and balance sheet, see af Jochnick, K. "Does the Riksbank have to make a profit? Challenges for the funding of the Riksbank", speech January 2015, Sveriges Riksbank.

²⁴ For a more detailed discussion of these effects of expansionary measures by central banks, see the Financial Stability Report 2014:2.

²⁵ See the discussion in the article "Monetary policy when the policy rate is close to zero", Monetary Policy Report, October 2014.