

Monetary Policy Report

December 2017



Monetary Policy Report

The Riksbank's Monetary Policy Report is published six times a year. The report describes the deliberations made by the Riksbank when deciding what would be an appropriate monetary policy to conduct.¹ The report includes a description of the future prospects for inflation and economic activity based on the monetary policy that the Riksbank currently considers to be well-balanced.

The purpose of the Monetary Policy Report is to produce background material for monetary policy decisions, and to spread knowledge about the Riksbank's assessments. By publishing the reports, the Riksbank aims to make it easier for external parties to follow, understand and assess its monetary policy.

The Riksbank must submit a written report on monetary policy to the Riksdag (Swedish Parliament) Committee on Finance at least twice a year (see Chapter 6, Article 4 of the Sveriges Riksbank Act (1988:1385)). During the spring, special material is submitted as a basis for the evaluation of monetary policy. During the autumn, the current Monetary Policy Report is submitted as an account of monetary policy.

The Executive Board made a decision on the Monetary Policy Report on 19 December 2017. The report may be downloaded in PDF format from the Riksbank's website www.riksbank.se, where more information about the Riksbank can also be found.

¹ See "Monetary policy in Sweden" on the next page for a description of the monetary policy strategy and what can be regarded as an appropriate monetary policy.

Monetary policy in Sweden

MONETARY POLICY STRATEGY

- According to the Sveriges Riksbank Act, the objective for monetary policy is to maintain price stability. The Riksbank has defined this as a 2 per cent annual increase in the consumer price index with a fixed interest rate (the CPIF).
- At the same time as monetary policy is aimed at attaining the inflation target, it is also to support the objectives of general economic policy for the purpose of attaining sustainable growth and a high level of employment. This is achieved through the Riksbank, in addition to stabilising inflation around the inflation target, endeavouring to stabilise production and employment around paths that are sustainable in the long term. The Riksbank therefore conducts what is generally referred to as flexible inflation targeting. This does not mean that the Riksbank neglects the fact that the inflation target is the overriding objective.
- It takes time before monetary policy has a full impact on inflation and the real economy. Monetary policy is therefore guided by forecasts for economic developments. The Riksbank publishes its own assessment of the future path for the repo rate. This repo-rate path is a forecast, not a promise.
- In connection with every monetary policy decision, the Executive Board makes an assessment of the repo-rate path needed, and any potential supplementary measures necessary, for monetary policy to be well-balanced. It thus normally a question of finding an appropriate balance between stabilising inflation around the inflation target and stabilising the real economy.
- There is no general answer to the question of how quickly the Riksbank aims to bring the inflation rate back to 2 per cent if it deviates from the target. A rapid return may in some situations have undesirable effects on production and employment, while a slow return may have a negative effect on confidence in the inflation target. The Riksbank's ambition has generally been to adjust monetary policy so that inflation is expected to be fairly close to the target in two years' time.
- To illustrate the fact that inflation will not always be exactly 2 per cent each month, a variation band is used that stretches between 1 and 3 per cent, which captures around three quarters of the historical monthly outcomes of CPIF inflation. The Riksbank always strives for 2 per cent inflation, regardless of whether inflation is initially inside or outside the variation band.
- According to the Sveriges Riksbank Act, the Riksbank's tasks also include promoting a safe and efficient payment system. Risks linked to developments in the financial markets are taken into account in the monetary policy decisions. With regard to preventing an imbalance in asset prices and indebtedness, the most important factors, however, are effective regulation and supervision. Monetary policy only acts as a complement to these.
- In some situations, as in the financial crisis 2008–2009, the repo rate and the repo-rate path may need to be supplemented with other measures to promote financial stability and ensure that monetary policy is effective.
- The Riksbank endeavours to ensure that its communication is open, factual, comprehensible and up-to-date. This makes it easier for economic agents to make good economic decisions. It also makes it easier to evaluate monetary policy.

DECISION-MAKING PROCESS

The Executive Board of the Riksbank usually holds six monetary policy meetings per year at which it decides on monetary policy. A Monetary Policy Report is published in connection with these meetings. Approximately two weeks after each monetary policy meeting, the Riksbank publishes minutes from the meeting, in which it is possible to follow the discussion that led to the current decision and to see the arguments put forward by the different Executive Board members.

PRESENTATION OF THE MONETARY POLICY DECISION

The monetary policy decision is presented in a press release at 9.30 a.m. on the day following the monetary policy meeting. The press release also states how the individual Executive Board members voted and provides the main motivation for any reservations entered. A press conference is held on the day following the monetary policy meeting.

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CHAPTER 1 – Monetary policy considerations

In the countries that are most important for the Swedish economy, growth is expected to be slightly higher this year and next year compared to previous assessments. Global inflationary pressures continue to be low, however, and normalisation of monetary policy abroad is proceeding at a slow pace. The economic outlook for Sweden remains largely unchanged. Housing investment is expected to be more subdued in the coming years, as a result of the downswing in housing prices, but the effects on GDP growth will be partly counteracted by a stronger demand from abroad. Growth is expected to be somewhat lower than in the previous forecast, but economic activity is still strong and resource utilisation is expected to be higher than normal in the coming years.

With the support of a very expansionary monetary policy, inflation is close to the target of 2 per cent. Economic activity needs to be strong and the krona must not appreciate too quickly for inflation to remain close to 2 per cent. Monetary policy therefore needs to remain expansionary and the Executive Board has decided to hold the repo rate unchanged at –0.50 per cent. It is assumed that increases in the rate will begin at a slow pace in mid-2018. The Riksbank will reinvest redemptions and coupon payments in the government bond portfolio until further notice. There will be large-scale redemptions in 2019. To retain the Riksbank's presence on the market and attain a relatively even rate of purchase going forward, the reinvestments of these redemptions will begin in January 2018 and continue until the middle of 2019. The expansionary monetary policy underlines the Riksbank's aim to safeguard the role of the inflation target as nominal anchor for price-setting and wage formation.

Strong economic activity and inflation close to target

Economic activity abroad is increasingly strong. In the euro area, which is the most important trading partner for Sweden, confidence in economic developments among households and companies is at historically high levels. The recovery there also includes an increasing number of countries. The forecast for GDP growth abroad has been revised upwards compared with the assessment in October.

In the United States, what looks like being the lengthiest recovery period during the post-war period is under way. Confidence in economic developments is at high levels in the US economy, too, and the forecast for GDP growth this year and next year is expected to be slightly higher than in the forecast in October.

All in all, GDP growth in the countries included in the krona index, KIX, which play the most important role for the Swedish economy, will be on average almost 3.0 per cent in 2017 and 2018 and then gradually slow down. The forecast is somewhat higher than in October, primarily as a result of the improved prospects for the euro area.

Table 1:1.

Important factors for monetary policy
Increasingly strong economic activity abroad, but inflationary pressures still low. The normalisation of monetary policy abroad is progressing slowly.
Strong economic activity and a tight labour market in Sweden. Resource utilisation is higher than normal and is expected to remain so in the coming years.
Inflation has been close to the target of 2 per cent for a while and is expected to remain so during the forecast period. Both short and long-term inflation expectations are close to 2 per cent.
The krona has weakened, but will gradually strengthen going forward.
Conclusion: Continued expansionary monetary policy is needed for inflation to be close to 2 per cent. The repo rate will be held at –0.50 per cent and slow increases will begin in the middle of 2018. The Riksbank will reinvest redemptions and coupon payments in the government bond portfolio until further notice. There will be large-scale redemptions in 2019. These will be reinvested with effect from January 2018 and until the middle of 2019.

Table 1:2.

Forecast revisions
Stronger international economy, growth revised upwards primarily in the euro area.
Weaker krona in the coming year, small revisions in the long run.
Weaker housing price growth is softening the forecast for Swedish growth, as housing investment is now projected to be slower than in the previous forecast. This is partly counteracted by an upward revision in the forecast for exports.
Higher CPI inflation in the year ahead as a result of energy prices increasing more rapidly. The negative effects of somewhat lower growth are counteracted by a weaker krona.

Low inflationary pressures abroad despite good economic prospects

Despite the good economic prospects, inflationary pressures abroad are expected to be relatively low in the years ahead. In the United States, wage increases have so far been moderate. In the period ahead, however, inflation is expected to rise and CPI inflation will be between 2 and 2.5 per cent in the coming years. In the euro area, too, inflation is expected to rise in the coming months and reach 1.8 per cent at the end of 2020.

Overall, average inflation in the KIX countries is expected to rise somewhat from just under 2 per cent this year to just over 2 per cent at the end of the forecast period.

Normalisation of monetary policy in the United States, but continued asset purchases by the ECB

In the United States, monetary policy has gradually begun to normalise. The Federal Reserve raised its policy rate further in December and the gradual tapering of its asset portfolio, which was begun in October, will continue. The Federal Reserve is expected to continue to raise its policy rate over the coming years. In the euro area, the European Central Bank, the ECB, held its policy rate unchanged in December. In October they also notified that the net asset purchases would be extended to September 2018 or longer if necessary, but that the rate of the purchases would slow down after the new year.

Relatively subdued international inflationary pressures mean that monetary policy abroad will remain expansionary in the years ahead. The KIX-weighted policy rate is expected to rise at a slow pace.²

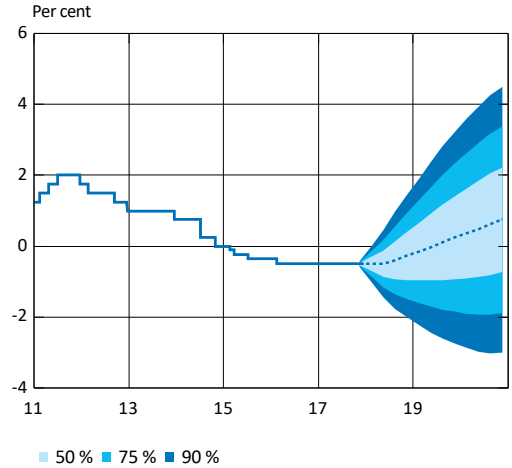
Good Swedish growth despite cooler housing market

Swedish GDP grew by 3.1 per cent in the third quarter, compared with the immediately preceding quarter and calculated as an annual rate. Even if this was slightly lower than forecast, growth is good and indicators in the form of, for instance, the Economic Tendency Survey, suggest that growth will persist in the near term. From next year, however, growth is expected to slow down gradually. One reason for this is the slowdown in housing investment.

After several years of rapidly rising housing prices, there has been a downswing in recent months. Prospects for housing investments will be affected by the subdued mood on the housing market. Housing construction has risen very rapidly in recent years. The level of the number of housing starts is assessed to remain high, but is now predicted to be somewhat lower in 2018. It takes on average just over a year for a housing start to be completed and housing investment is affected during the entire construction period. This means that the downturn in housing investment occurs with some time lag and will trough in 2019. However, other investment by the business sector is predicted to continue to increase at a good pace in the years

² The KIX-weighted policy rate is based on forecasts for the United States, the euro area, the United Kingdom and Norway.

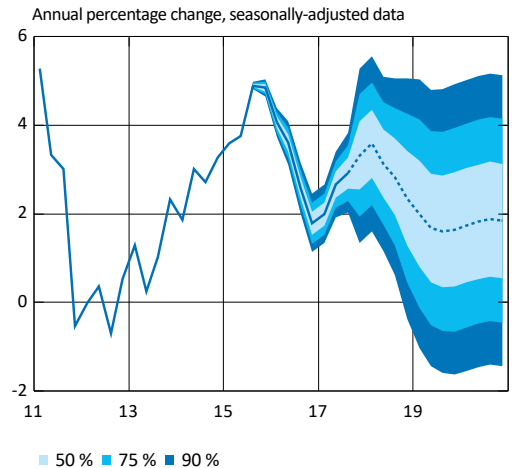
Figure 1:1. Repo rate with uncertainty bands



Note. The uncertainty bands for the repo rate are based on the Riksbank's historical forecasting errors and the ability of risk-premium adjusted forward rates to forecast the future repo rate for the period 1999 up to the point when the Riksbank started to publish forecasts for the repo rate during 2007. The uncertainty bands do not take into account the fact that there may be a lower bound for the repo rate. Outcomes are daily rates and forecasts refer to quarterly averages.

Source: The Riksbank

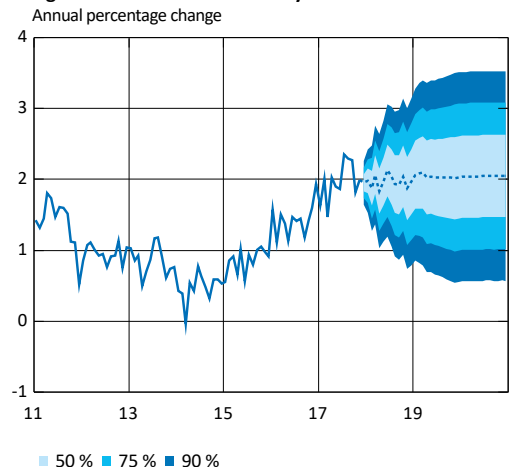
Figure 1:2. GDP with uncertainty bands



Note. The uncertainty bands are based on the Riksbank's historical forecasting errors. There is also uncertainty for the outcomes for GDP, as the figures in the National Accounts are revised several years after the preliminary publication.

Sources: Statistics Sweden and the Riksbank

Figure 1:3. CPI with uncertainty bands



Note. The uncertainty bands are based on the Riksbank's historical forecasting errors.

Sources: Statistics Sweden and the Riksbank

ahead. Growth in the Swedish economy will also be sustained by healthy development in the demand for Swedish exports. Growth is expected to be just over 2.5 per cent this year and then rise to just under 3 per cent next year. During 2019-2020, growth will slow down to around 2 per cent, partly due to the decline in housing investment (see Figure 1:2).

Strong labour market and high resource utilisation

Unemployment in Sweden has continued to fall, and both labour force participation and the employment rate are now at historically high levels. At the same time, there are considerable matching problems on the Swedish labour market. Shortages continue to increase, and recruitment times are becoming longer. This means that unemployment will only fall marginally during the forecast period.

The indicators point unanimously to resource utilisation being higher than normal in Sweden. Although the growth figures have been revised down somewhat, the Riksbank assesses that resource utilisation will remain higher than normal in all of the forecast years.

Despite the strong economic situation, wages are projected to rise relatively slowly in the years ahead, even though the rate of increase will gradually increase. Wages according to the short-term wage statistics are expected to rise by 2.7 per cent this year and by between 3 and 3.5 per cent over the rest of the forecast period.

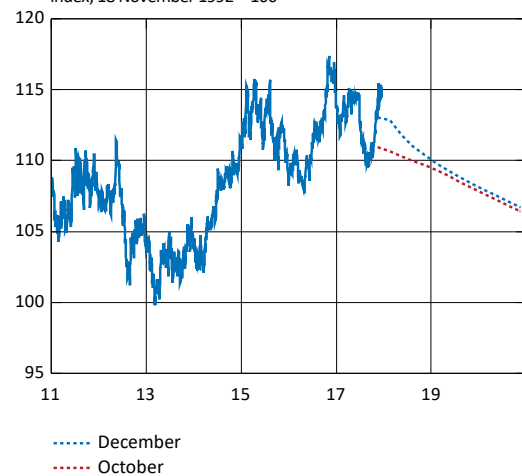
CPIF inflation close to the target

In November, CPIF inflation was 2.0 per cent (see Figure 1:3), which was higher than the forecast in the October Monetary Policy Report. Energy prices have shown an unexpectedly rapid increase recently. When adjusted for this, the rate of increase in the CPIF for the month of November was 1.8 per cent and largely in line with the forecast.

Part of the rise in inflation over the year can be explained by temporary factors, such as changed calculation methods for package holiday prices. But even disregarding this, service prices in particular are increasing rapidly (see Figure 3:2). Prices for services are affected to a large extent by domestic demand. The development can thereby be interpreted as the strong economic activity now having a clearer impact on the rate of price increase.

The krona has weakened since the October Monetary Policy Report (see Figure 1:4). This contributes to keeping up prices of imported goods in the coming period. The forecast for inflation, measured in terms of the CPIF excluding energy, is in principle unchanged for the coming year, compared with the assessment in October. The effects of a weaker exchange rate are counteracted by lower growth and marginally lower cost pressures. Energy prices have risen relatively strongly since October, and this means that the prospects for CPIF inflation have been revised up somewhat (see Figure 1:5). The expansionary monetary policy and strong economic activity form

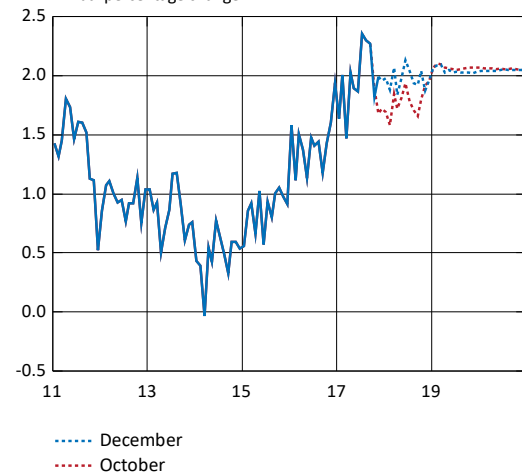
Figure 1:4. KIX-weighted nominal exchange rate
Index, 18 November 1992 = 100



Note. Outcomes are daily rates and forecasts refer to quarterly averages. KIX refers to an aggregate of countries that are important for Sweden's international transactions.

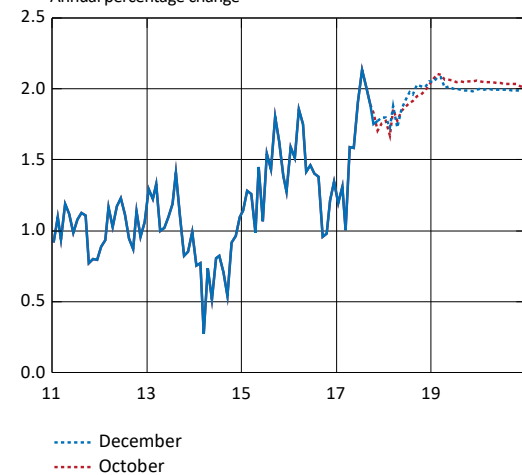
Sources: National sources and the Riksbank

Figure 1:5. CPIF
Annual percentage change



Sources: Statistics Sweden and the Riksbank

Figure 1:6. CPIF excluding energy
Annual percentage change



Sources: Statistics Sweden and the Riksbank

a precondition for CPIF inflation to stay close to 2 per cent for the whole of the forecast period.

Current monetary policy

Uncertain economic developments, weak inflationary pressures, low global interest rates and political uncertainty abroad are factors that have defined Swedish monetary policy for a long time. With a negative policy rate and extensive purchases of government bonds, the Riksbank’s monetary policy has been unusual in a historical perspective. The aim of the expansionary monetary policy is to stabilise inflation around the target of 2 per cent and to keep inflation expectations in line with the target. Monetary policy has had a significant impact on short and long-term interest rates and on the krona exchange rate.³ Since 2014, inflation has risen and over the past year, it has been close to the target. Both short- and long-term inflation expectations have also risen and are again close to 2 per cent, measured in terms of both the CPI and CPIF. Economic activity is strong and unemployment has declined. Monetary policy has played a significant role in this development.

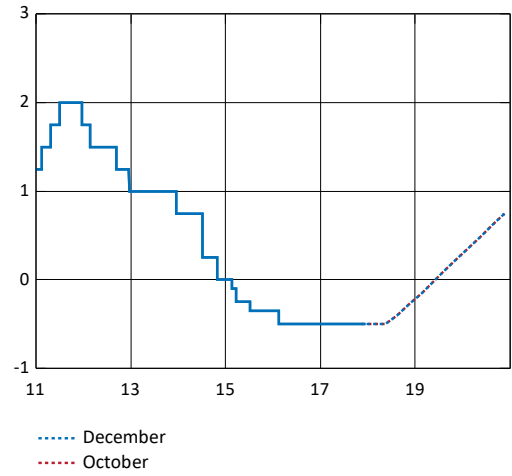
Continued expansionary monetary policy to support economic activity and inflation

In the countries that are most important for the Swedish economy, growth is expected to be slightly higher this year and next year compared to previous assessments. Global inflationary pressures continue to be low, however, and normalisation of monetary policy abroad is proceeding at a slow pace.

The economic outlook for Sweden remains largely unchanged since October. Although there has been a downswing in housing prices in recent months, which is expected to lead to housing investment being slowed down more in the coming years than was previously forecast, the negative effects on GDP will be partly counteracted by stronger demand from abroad. Growth is expected on the whole to be somewhat lower than in the previous forecast, but nevertheless the forecast is for economic activity to remain strong and resource utilisation to be higher than normal during the entire forecast period. The picture of a continuing strained labour market remains.

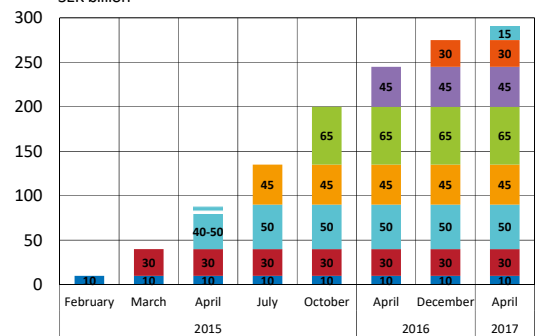
The strong economic activity has contributed to CPIF inflation being close to 2 per cent for a period of time. Since the Monetary Policy Report was published in October, inflation has on the whole been somewhat higher than expected. At the same time, the exchange rate has weakened and is also expected to be weaker in the coming year than was forecast in October. However, somewhat lower growth counteracts the positive contribution to inflation from the weaker krona. In the short term, CPIF inflation is nevertheless expected to be slightly higher than in the previous forecast (see Figure 1:5). This is partly due to the faster increase in energy prices. When adjusted for energy

Figure 1:7. Repo rate
Per cent



Note. Outcomes are daily data and the forecasts refer to quarterly averages.
Source: The Riksbank

Figure 1:8. Purchases of government bonds decided by the Riksbank
SEK billion



Note. Purchases of nominal and real government bonds, excluding reinvestments.
Source: The Riksbank

³ See the article “The effects of monetary policy on financial variables” in the April 2017 Monetary Policy Report.

prices, the inflation forecast is largely unchanged for the coming year (see Figure 1:6). Inflation measured in terms of the CPIF excluding energy is expected to stabilise close to 2 per cent at the end of 2018.

For inflation to remain close to the target, it is important that economic activity continues to be strong and has an impact on price development. Monetary policy therefore still needs to be expansionary. In light of this, the Executive Board has decided to hold the repo rate unchanged at -0.50 per cent. The repo rate is expected to stay at this level until mid-2018, after which slow increases will be initiated. This is the same assessment as in October (see Figure 1:7). The repo rate will thereby be significantly lower than the long-term normal interest-rate level in the coming years.⁴

The Riksbank's net purchases of government bonds will at the end of 2017/start of 2018 add up to SEK 290 billion, expressed as a nominal amount (see Figure 1:8). Redemptions and coupon payments in the government bond portfolio will be reinvested until further notice. Large redemptions, amounting to a good SEK 50 billion, will occur during the first half of 2019. To retain the Riksbank's presence on the market and attain a relatively even rate of purchase going forward, the reinvestments will begin in January 2018 and continue until the middle of 2019 (see Figure 1:10). This means that the Riksbank's holdings of government bonds will increase temporarily in 2018 and the beginning of 2019 (see Figure 1:9).

According to the Riksbank's forecast, slow increases of the policy rate, from the current historically low level, will begin in mid-2018. As described in the article "The Riksbank's strategy for a gradual normalisation of monetary policy", reinvestments of redemptions and coupon payments will continue until the repo rate has been raised to an appropriate level. The next large redemptions in the government bond portfolio will be in December 2020, when the repo rate is expected to be around 0.7 per cent (see Figure 1:7). If it is assessed as appropriate further ahead, these redemptions may also be reinvested. Monetary policy will, as usual, be adapted to developments in economic activity and inflation. If inflation is lower than expected, monetary policy can be made even more expansionary, for instance, by taking up net purchases of government bonds again or postponing increases in the repo rate.

Just as in many other countries in the world, Swedish monetary policy is very expansionary and will remain so in the coming years. For example, the real repo rate is expected to be negative throughout the forecast period (see Figure 1:11).

Monetary policy considerations

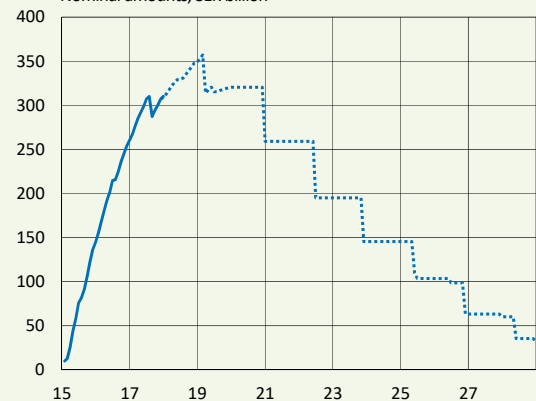
Stronger economic prospects abroad, resource utilisation that is higher than normal and an upward revision in the forecast for CPIF inflation could indicate less expansionary monetary policy. However, the higher inflation forecast is primarily associated with

The Riksbank's holdings of government bonds

Since the autumn of 2015, the Riksbank has decided on purchases of government bonds to a total nominal amount of SEK 290 billion. At the end of 2017, the Riksbank's total holdings will amount to about SEK 310 billion, expressed as a nominal amount (see Figure 1:9). In addition to purchases made since February 2015, the holdings also include the portfolio built up during 2012 and reinvestments of coupon payments.

Redemptions and coupon payments in the government bond portfolio have been continuously reinvested. The maturity structure of the Swedish government bond market means that the bonds purchased by the Riksbank mature in a small number of major steps, once every 18 months or so. In March 2019, the next large redemption of about SEK 45 billion in nominal government bonds will occur. Another redemption of around SEK 5 billion, in real government bonds, will take place in June 2019. In addition, there are coupon payments of a total of around SEK 15 billion from January 2018 to June 2019. The intention is to reinvest these redemptions and coupon payments evenly over the period (see Figure 1:10). The next large redemptions are due in December 2020. Whether or not these will be reinvested depends on how economic activity and inflation develop. Figure 1:9 illustrates how the Riksbank's government bond holdings would develop purely mechanically if no further reinvestments were to occur after 2019.

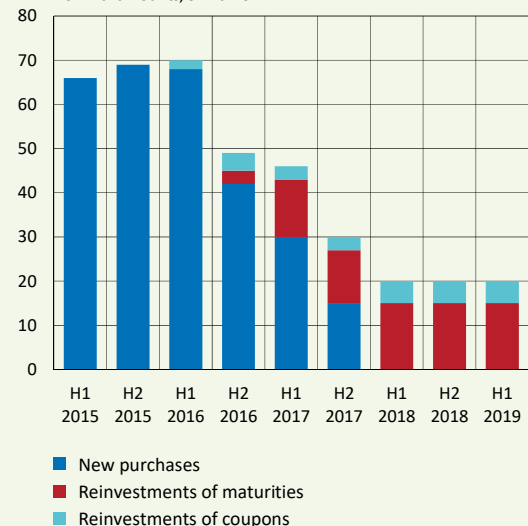
Figure 1:9. The Riksbank's holdings of government bonds
Nominal amounts, SEK billion



Note. The forecast is based on an assumption that reinvestments will continue to the end of 2019.

Source: The Riksbank

Figure 1:10. The Riksbank's purchases and reinvestments
Nominal amounts, SEK billion



Note. The development for holdings and reinvestments from 2018 is a forecast and refers to nominal amounts. The final amounts will depend on current market prices.

Source: The Riksbank

⁴ For a discussion, see the article "The long-term repo rate" in the Monetary Policy Report, February 2017.

an unexpectedly strong increase in energy prices. Adjusted for energy prices, the forecast for the CPIF is more or less unchanged. And even though inflation has been close to 2 per cent for a time, this comes after a long period of below-target inflation. It has required considerable support from monetary policy to bring up inflation and inflation expectations and the expansionary monetary policy is a necessary condition for inflation to be close to 2 per cent.

The development of the krona exchange rate is important for inflation. The krona exchange rate has varied substantially over the year and since October has been weaker than expected. However, the krona is expected to strengthen gradually going forward and it is important that the strengthening is gradual and not too rapid.

In an environment where large central banks around us are in different monetary policy phases, there is considerable uncertainty over how the krona exchange rate may react. The US central bank is in a phase of policy rate increases and has begun to taper its asset holdings. However, the European Central Bank is still conducting a more expansionary monetary policy, with continued asset purchases for most of 2018. If the Riksbank's monetary policy were to be made less expansionary now, it would then deviate more distinctly from that of the ECB. This could lead to the appreciation of the krona occurring too quickly or being too strong, which would, in turn, have negative effects on both inflation and growth in the Swedish economy.

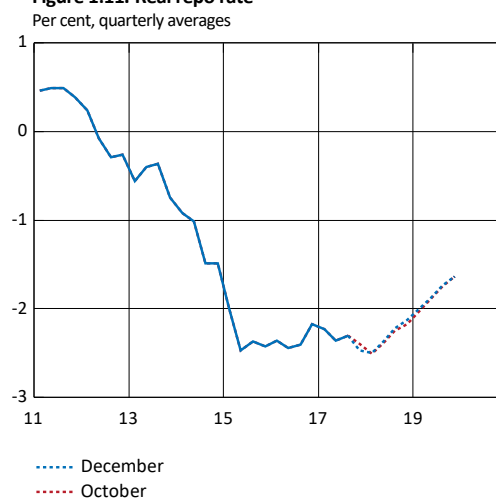
There is also uncertainty surrounding growth and inflation in the coming years. The housing market is slowing down and lower housing investment dampens GDP growth in the Riksbank's forecast. Were the negative growth effects to be greater or the sequence of events to be faster, the negative effects on inflation might also be greater. However, the Riksbank's assessment is that strong economic activity in Sweden and abroad indicates continued good demand for housing and the downturn in housing prices is therefore expected to be temporary and moderate. The decline in housing prices seen so far has not affected confidence indicators for the business sector and households, which are still at high levels. Developments in the housing market are not on the whole expected to have major consequences for inflation.

All in all, this indicates that monetary policy needs to remain expansionary and that a normalisation of monetary policy in Sweden, as in other countries, should occur slowly. A prerequisite for inflation to be close to 2 per cent is continued strong economic activity that has an impact on the rate of price increases.

Uncertainty and risks

Forecasts of future economic developments are always uncertain, as illustrated by the uncertainty bands in Figures 1:2–1:3. In the Riksbank's forecasts, the risks of both more and less favourable development shall in principle be balanced. It is

Figure 1:11. Real repo rate



Note. The real repo rate is a mean value of the Riksbank's repo rate forecast for the year ahead minus the inflation forecast (CPIF) for the corresponding period.

Sources: Statistics Sweden and the Riksbank

Side-effects of monetary policy

The Riksbank continuously analyses the effects of the negative policy rate and the extensive government bond purchases.

One possible side-effect of low interest rates is that assets become overvalued and risk being incorrectly priced, and that the indebtedness of various actors increases in an unsustainable manner. The increase in indebtedness of Swedish households has been a concern for a long time and it is essential to increase the resilience of the household sector in various ways and to ensure that housing prices and indebtedness develop in a long-term sustainable manner.

Another possible side effect is that the functioning of the financial markets could be impaired. So far, the financial markets are assessed to have been able to manage negative interest rates relatively smoothly and the overall assessment is that the Riksbank's bond purchases do not comprise a major problem on the market, although it is taking somewhat longer to execute transactions. The Riksbank is closely monitoring developments by, for example, having regular contacts with the various participants.

Neither do negative interest rates seem to have led to an increased demand for cash; on the contrary, demand for cash has continued to decline. Furthermore, only a small proportion of deposits incur negative rates.

Banks' profitability could decrease as a result of low and negative rates, which could ultimately counteract the intended effect of monetary policy if lending rates were to go higher and credit supply was to diminish. However, Swedish banks' business models have meant that low and negative interest rates have not prevented high and stable profitability in recent years.

The Riksbank's overall assessment is that the side-effects of a negative policy rate and government bond purchases have so far been manageable.

difficult, however, to assess the likelihood of future events and the consequences they might have should they occur.

Neither is it obvious how monetary policy should relate to uncertainty and risks. There are occasions on which, in our monetary policy deliberations, we may wish to pay particular attention to certain risks, the consequences of which may have a severe impact on economic development. But, on other occasions, we may need to await more information before monetary policy can be adjusted.

Uncertainty surrounding the economic outlook abroad has decreased but risks remain

Growth abroad has become stronger over the year than was assumed in the Riksbank's forecasts. This is not least true in the euro area, which is the region that is most important for Sweden's foreign trade. Confidence among households and companies is at record-high levels and there is a possibility that the power of the economic recovery in the euro area could prove to be stronger than is assumed in the forecast.

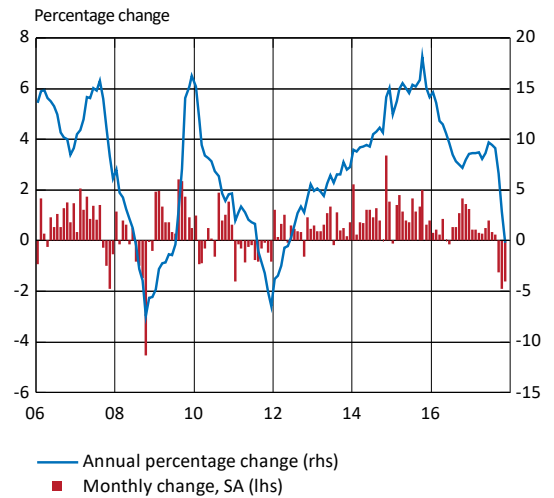
This is to be contrasted with, for instance, the continued uncertainty regarding the United Kingdom's withdrawal from the EU. Although some progress has been made in the negotiations recently, there are many elements of the continued process that remain unclear. At the same time, many of the structural problems in the euro area remain, for instance, those regarding the bank sector.

Considerable risks on the Swedish housing market

Household debt is high and the Riksbank has long pointed out that there are evident risks linked to developments in the housing market. Housing prices in Sweden have begun to fall recently (see Figure 1:12). In the Riksbank's forecast, housing prices fall somewhat further in the near term and then stabilise and increase at a moderate pace during the forecast period. The slowdown in housing prices contributes to debts being expected to increase more slowly than the assessment in October (see Figure 1:13). However, this assessment is associated with considerable uncertainty. If instead housing prices were to fall sharply, uncertainty surrounding economic developments in Sweden would increase via several channels.

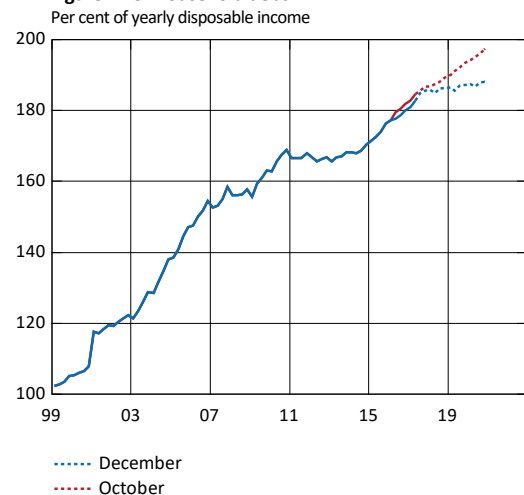
The recent high level of growth in Sweden has, to a significant degree, been driven by housing investment. A heavy fall in housing prices could probably slow down this investment much more than has been forecast by the Riksbank. And the high level of indebtedness has increased the sensitivity of household consumption to falling housing prices. Household debt largely comprise mortgages. Rising housing prices have meant that the value of the collateral for the loan has increased, which has made it possible for households to borrow more to increase their consumption. If housing prices fall heavily, the value of the collateral will be undermined, which can make it more difficult to borrow and contribute to dampening consumption.

Figure 1:12. House price developments according to HOX Sweden



Sources: Valueguard and the Riksbank

Figure 1:13. Household debt



Note. Households' total debts as a share of their disposable incomes totalled over the past four quarters.

Sources: Statistics Sweden and the Riksbank

Swedish banks fund a significant part of their mortgage lending with covered bonds, a significant proportion of which are also held by foreign investors. If their confidence in the Swedish housing market fails, the banks' funding opportunities will weaken and funding will become more expensive. This could mean that the difference between the repo rate and the interest rates paid by households on their mortgages will rise, which would mean increased interest expenditure for households that dampens their consumption (see also the article "How are households affected by rising interest rates?").

The increased uncertainty over economic developments that could be caused by a large fall in housing prices could also push up households' precautionary savings, which would also entail lower consumption.

Uncertainty surrounding the inflation forecast

A major price fall on the housing market could subdue demand in Sweden, which might contribute to lower inflation than in the Riksbank's forecast. This would indicate more expansionary monetary policy to counteract the lower inflation and the weaker economic activity. But if the outside world's confidence in the Swedish economy and the Swedish banks were to be shaken in this situation, a very severe weakening of the krona exchange rate cannot be ruled out, and this could lead to rising inflation. What is then assessed as a suitable monetary policy will depend mainly on how the prospects for economic activity and inflation are affected a few years ahead.

Fluctuations in the krona exchange rate over the past twelve months illustrate the very uncertain nature of exchange rate forecasts. A faster appreciation of the krona than in the Riksbank's forecast would hold back import prices, making it more difficult to stabilise inflation around the target. The problems could be particularly serious if confidence in the inflation target was to once again weaken. This risk is significant given that inflation has been low for a long period.

The Riksbank's assessment is that a continued high level of resource utilisation is needed to ensure that inflation remains stable around 2 per cent. Resource utilisation is expected to be higher than normal during the forecast period. One risk is that the high level of resource utilisation could lead to excessively high inflation in the period ahead.⁵ This may happen, for example, in the form of substantial increases in wages outside of the central agreements or unexpectedly rapid price rises by companies.

There are thus a number of factors that could lead to both lower or higher inflation than the Riksbank is counting on. The Riksbank is still prepared to make monetary policy more expansionary if inflation should again fall too low and confidence in the inflation target weakens. All of the tools that the Riksbank has described earlier can be used if necessary. Given that inflation has undershot the target over a long period of time, the risk of lower inflation outcomes has a greater weight in the

Risks of excessively low inflation

The expansionary monetary policy has a clear focus: Stabilising inflation around the target of 2 per cent. The inflation target has been an important condition for the, in many ways, favourable developments in the Swedish economy since the early 1990s. With a shared perception of how prices will develop in the future, it is easier for economic agents to plan for the long term and the coordination of expectations lays the foundation for efficient price-setting and wage formation.

Persistently below-target inflation increases the risk of economic agents adjusting their expectations and starting to assume that inflation will not return to the target even in the longer term. This would have an adverse effect on wage formation, for instance. With an inflation rate and inflation expectations that are below the target over a long period of time, the nominal interest rate will also be lower on average. A lower average nominal interest rate increases the risk that the repo rate will reach its lower bound, in the same way as if the target was lowered. This reduces the Riksbank's leeway for cutting the repo rate in the future if inflation becomes low or economic activity wavers. Too low an inflation rate can moreover make it more difficult to adapt real wages between individuals in the same company and between different industries, as nominal wages usually rise and are rarely lowered. This could entail poorer functioning of the labour market and higher unemployment.

⁵ See also the article, "Is activity in the Swedish economy too high?" in the Monetary Policy Report October 2017.

monetary policy deliberations than the risk of higher inflation outcomes.

Important to tighten the amortisation requirement

Several different measures need to be taken to strengthen households' resilience. Although the slower housing prices are expected to mean that household indebtedness increases somewhat slower than in the October forecast, households' debt-to-income ratios are still high and growing.

At the same time, the fundamental causes of the high household indebtedness still remain. One important reason is that the housing market functions poorly. That this is the case is partly due to the rent-setting system limiting supply and leading to lock-in effects that make it difficult to find housing, especially for young people and people who are not yet established on the housing market. More alternatives for renting would probably mean that the housing being constructed better corresponded to the housing that is needed. It is also important to have measures that lead to the existing housing stock being used more efficiently.

Tax reforms are also needed that contribute to a balanced increase in housing prices and that reduce households' incentives to take on debt.

With regard to macroprudential policy measures, the Riksbank welcomes Finansinspektionen's decision on tougher amortisation requirements, which comes into force in March 2018. This will contribute to increasing resilience in the household sector.

It is also important that Finansinspektionen's assignment and goals for macroprudential policy, and the process for allocating tools to Finansinspektionen, are clarified and set out in law. In October, the Swedish Government decided to put forward a bill that aims to give Finansinspektionen greater legislative support for further measures to counteract financial imbalances in the credit market, such as household indebtedness. The Riksdag (the Swedish parliament) has passed the bill, which will come into force in February 2018.

ARTICLE – The Riksbank's strategy for a gradual normalisation of monetary policy

Monetary policy in Sweden is at present very expansionary, as it is in many other countries. This has contributed to strong economic activity and an inflation rate close to the target. Monetary policy is expected to become less expansionary going forward, which is also reflected in the forecast for the repo rate. This gives rise to questions concerning how the Riksbank's holdings of government bonds will develop in the long run, and how increases in the repo rate will interact with changes in the holdings. The Riksbank's overall strategy for a gradual normalisation of monetary policy is similar to that chosen by other central banks. The strategy involves the Riksbank first concluding net purchases of government bonds, while the reinvestments of redemptions and coupon payments on the asset portfolio are continued. After that, when monetary policy gradually is to become less expansionary, the repo rate will be raised slowly, while the reinvestments will continue. When the repo rate has been raised to an appropriate level, the reinvestments of redemptions and coupon payments can be reduced or concluded, so that the Riksbank's holdings of government bonds decline when the bonds mature. In the long run, the holdings should be smaller than they are today, but their exact size will depend on several factors that it is currently difficult to assess.

Monetary policy expected to become less expansionary in future

Since February 2015, the Riksbank has cut the repo rate from zero to –0.50 per cent, carried out extensive purchases of government bonds and also communicated contingency plans to intervene on the foreign exchange market if necessary. Redemptions and coupon payments in the government bond portfolio will be reinvested until further notice so that monetary policy will remain highly expansionary.

From a historical perspective, this is an unusual monetary policy. However, the purpose is the same as with normal monetary policy measures: to stabilise inflation around the inflation target and to support the general economic policy aimed at maintaining sustainable growth and high employment. But attaining the monetary policy goals is particularly challenging when both global interest rates and inflation are low, as monetary policy is then limited by the fact that there is a lower bound for the policy rate.⁶ This is an important reason why the Riksbank and several other central banks, since the start of the financial crisis in 2008, have also taken additional monetary policy measures, such as purchasing various types of financial asset. However, the economic and monetary policy situation has gradually changed for the better. There have been further

signs during 2017 that economic activity abroad is continuing to improve. In Sweden, resource utilisation is high and inflation is close to the target. Like the Riksbank, the larger central banks abroad are still conducting an expansionary monetary policy, but they are in different phases with their monetary policy. The Federal Reserve in the United States concluded its net purchases of assets in autumn 2014 and began a series of interest rate raises in December 2015. In October 2017, the Federal Reserve began to gradually reduce its asset holdings. The European Central Bank (ECB), on the other hand, has announced that it will be continuing its asset purchases, at least until the end of September 2018.

This article describes in a general manner the various strategies and plans communicated by the Federal Reserve and the ECB. After that, there is a description of the Riksbank's overall strategy for a gradual normalisation of monetary policy in Sweden.

Several strategic issues to determine

When monetary policy is to be normalised and made less expansionary, central banks need to take a stance on a number of issues. One concerns the size of the holdings of financial assets that a central bank needs in the long run to be able to implement its monetary policy in an efficient and appropriate manner. If the holdings are to be reduced in relation to the current levels, central banks also need to

⁶ For an earlier description of what measures other central banks have taken, see the article "Monetary policy when the policy rate is close to zero" in Monetary Policy Report, October 2014. U. Söderström and A. Westermark, "Monetary policy with a

zero interest rate", Economic Review, 2009:2, Sveriges Riksbank, describes more generally various monetary policy measures when the policy rate has reached its lower bound.

consider how this should be done. As the financial assets that central banks have mainly bought (bonds) expire at the time of maturity, one way of reducing the asset holdings is to stop reinvesting redemptions and coupon payments. In this way, the holdings will automatically decline without any further decisions by the central bank.⁷ An alternative strategy is to actively sell off the assets.

Another question concerns in which order the various instruments should be used: shall the central bank first raise the policy rate and then reduce its asset holdings, or is it more appropriate to do it the other way round? Or should these two tools be used parallel to one another? A related question concerns whether it is changes in the policy rate or changes in the asset holdings that will be the main monetary policy instrument in the long run.

Of course, from a purely technical point of view, there are many different ways and sequences of decisions to make monetary policy less expansionary. However, for normalisation to continue smoothly, it may be desirable to make clear, in advance, how monetary policy is expected to develop over the next few years.

The Federal Reserve has long signalled how it plans to normalise monetary policy

When it comes to the larger central banks, the Federal Reserve, which has already taken concrete steps towards a less expansionary monetary policy, has been the most clear about which strategy it intends to use when monetary policy is normalised.⁸

To begin with, the Federal Reserve has communicated that in the long run it does not intend to hold more financial assets than are necessary to implement monetary policy in an efficient and effective manner. Consequently, its holdings will become appreciably smaller than in recent years, but larger than before the financial crisis. So as to minimise the effect on the allocation of credit across sectors, the holdings will primarily consist of government bonds.

With regard to the sequence for the various tools, the Federal Reserve has announced earlier that they would continue to reinvest all principal payments from the asset portfolio until the increases in their policy rate were “well under way”.⁹ They thus chose to begin raising the policy rate before starting to reduce the asset holdings. One reason for doing so is that the central bank would then be able to use its normal instrument (the policy rate) to adjust monetary policy if the reduction of holdings were to cause uncertainty and a

too-rapid tightening of financial conditions, or if other shocks to the economy were to occur.

Once the policy rate is assessed to be at an appropriate distance from the lower bound, there are basically two types of monetary policy strategies that can be considered.¹⁰ One strategy is to use the balance sheet as an independent second tool, which complements the policy rate adjustments, for instance, by selling the assets the central bank has purchased. An alternative strategy is to only use the policy rate as an active tool for monetary policy, while the balance sheet takes a passive role, for instance, by allowing the assets that were bought to expire at maturity. The Federal Reserve has earlier communicated, and now begun to apply, the latter strategy. They have also communicated that the aim is to allow the asset portfolio to be a passive monetary policy instrument even in the longer run.

The Federal Reserve also stresses that they are prepared to adjust the details of its approach in light of economic and financial developments.

The ECB has communicated fewer details

The ECB has been less detailed in its communication of how monetary policy can be normalised. They have emphasised that the development of inflation and the general economic situation determine when and how monetary policy will be normalised.¹¹

What the ECB has officially communicated mainly concerns how long monetary policy is expected to be expansionary. The net asset purchases are intended to continue until the end of September 2018, or beyond if necessary, and in any case until the ECB sees a sustained adjustment in the path of inflation consistent with its inflation aim. The ECB has also communicated that the key interest rates will remain at their present levels for an extended period of time, and well past the horizon of the net asset purchases.¹² The latter is in line with the Federal Reserve’s communication and measures.

Further, the ECB has indicated that the policy rate will in the longer run return to being the main monetary policy instrument. However, the ECB has not said whether they, like the Federal Reserve, intend to give the balance sheet a passive role, for instance, by allowing the assets that have been purchased to expire when they mature.

With regard to the ECB’s long-term plans for its balance sheet, they have communicated that the composition and size of the central bank’s balance sheet in the long term contain limited information about monetary policy, as, in

⁷ One variation on this strategy is to reinvest a certain percentage of redemptions and coupon payments to allow the holdings to decline more gradually.

⁸ See Board of Governors of the Federal Reserve System, “Policy Normalization Principles and Plans”, press release, 17 September 2014; and Board of Governors of the Federal Reserve System, “Addendum to the Policy Normalization Principles and Plans”, press release, 14 June 2017.

⁹ Board of Governors of the Federal Reserve System, “Federal Reserve Issues FOMC Statement”, press release, 16 December 2015.

¹⁰ L. Brainard, “Transitions in the Outlook and Monetary Policy”, speech at the John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts, 2 March 2017.

¹¹ See, for instance, M. Draghi, “Monetary policy and the economic recovery in the euro area”, and P. Praet, “Calibrating unconventional monetary policy”, speeches at The ECB and Its Watchers XVIII Conference, Frankfurt am Main, 6 April 2017.

¹² M. Draghi, Hearing of the Committee on Economic and Monetary Affairs of the European Parliament, 20 November 2017.

normal times, the policy rate is the main monetary policy instrument.¹³ The ECB has also emphasised that, in the long run, the balance sheet may need to be larger than it was prior to the financial crisis, for example if the central bank needs to broaden its operational framework to other rates or other counterparties.¹⁴

The Riksbank's strategy for a gradual normalisation of monetary policy

In connection with every monetary policy decision, the Executive Board of the Riksbank makes an assessment of the repo rate path and any other potential supplementary measures that may be necessary for monetary policy to be well-balanced. The appropriate sequence of monetary policy measures is thus determined, as for the ECB and the Federal Reserve, by normal deliberations of what is the best policy to stabilise inflation around the target and production and employment around long-term sustainable paths.

Compared with the large central banks, a central bank in a small, open economy like Sweden's must to a greater extent take into account other central banks' actions. If the Riksbank's monetary policy were to deviate clearly from that of other countries, this could have a substantial effect on the Swedish krona, which could in turn have negative effects on both inflation and growth in the Swedish economy. This indicates that the choice of long-term strategy for Sweden may be affected by the strategy chosen by other central banks.

It is difficult to plan in detail exactly how monetary policy will gradually be made less expansionary. But an oversight of the Riksbank's strategy for a gradual normalisation of monetary policy can be discerned in five different phases (see Figure A1). In Phase 1, monetary policy continues to be made more expansionary. In Phase 2, net purchases of assets are concluded. Phase 3 and, above all, Phase 4 are phases when monetary policy is gradually made less expansionary. Phase 5 is a normal situation in the longer run. However, the respective lengths of the phases are not predetermined, but are decided by how the economy develops. And, in practice, the boundaries between phases are not necessarily clearly defined, but monetary policy can gradually move from one phase to another. Moreover, as usual, monetary policy will be adjusted to the economy and it cannot be ruled out that it may need to be made more expansionary during this period of normalisation.

The Riksbank's strategy means that net purchases of government bonds will be concluded first, while reinvestments of redemptions and coupon payments in the asset portfolio will continue (Phase 2 of figure A1). In this way, monetary policy will remain highly expansionary. However, redemptions in the Riksbank's bond portfolio only

occur in large steps, approximately once every 18th month. To avoid purchases of very large volumes over a short period, reinvestments may therefore need to be smoothed out over a longer period, and may even be initiated before redemption.

After that, when monetary policy is to gradually become less expansionary, the repo rate will be raised slowly, while the reinvestments continue (Phase 3 in Figure A1).

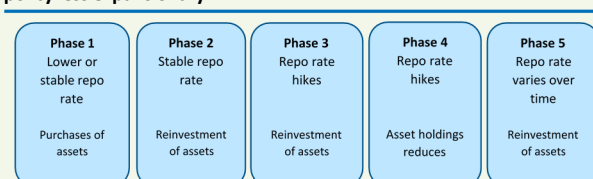
The Executive Board deems that the Riksbank's holdings of government bonds in the long-term should be smaller than the current level. The Riksbank currently owns a good 40 per cent of the outstanding stock of nominal government bonds, and it is reasonable that the holdings will be reduced to a lower level in the longer run. Exactly how large the holdings will be depends, however, on a number of factors that are difficult to assess at present, for example what size would be appropriate for the banks' liquidity surplus against the Riksbank to enable the Riksbank to implement monetary policy in an effective manner.

When the repo rate has been raised to an appropriate level, the reinvestments of redemptions and coupon payments can be reduced or concluded, so that the Riksbank's holdings of government bonds decline when the bonds mature (Phase 4 in Figure A1). In this way, the asset holdings and the size of the Riksbank's balance sheet decline in a predictable manner. While the holdings decline, monetary policy will be adjusted mainly through adjustments to the repo rate.

In the longer run, reinvestments may be taken up again so that the bond holdings are held at a desirable level (Phase 5 in Figure A1). The Riksbank assesses that also in the longer run the repo rate will be the main monetary policy tool for stabilising inflation around the inflation target and production and employment around long-term sustainable paths.

There is of course uncertainty regarding exactly how fast the repo rate can be raised and the holdings of government bonds reduced. The Riksbank will adapt the details of the normalisation of monetary policy as the economy develops. And if the economic conditions so require, monetary policy can once again be made more expansionary.

Figure A1. Stylised model for a strategy to gradually make monetary policy less expansionary



¹³ See ECB, "The role of the central bank balance sheet in monetary policy," Economic Bulletin Issue 4, June 2015.

¹⁴ See V. Constâncio, "The future of monetary policy frameworks", lecture at the Instituto Superior de Economia e Gestão, Lisbon, 25 May 2017.

ARTICLE – How are households affected by rising interest rates?

The fact that households' debt has increased and that their loans, to a greater extent, have short interest-rate fixation periods means that the effects of monetary policy on household consumption are greater than before. One reason for this is that households' borrowing costs are affected by interest rate adjustments to a greater extent. The direct effect on households' interest expenditure and interest income of the Riksbank increasing the repo rate over the next three years in line with the forecast, i.e. by 1.25 percentage points, will reduce disposable household income by just over 1 per cent. This is expected, in itself, to have relatively limited effects on total household consumption over the next three years. But highly indebted households can be affected significantly more than other households. In the event higher interest rates subdue housing prices, households' loan-to-value ratios can also rise, which may make it more difficult to consume with the help of extended mortgages. The higher interest rate sensitivity among households indicates in itself that the repo rate should be raised at a slow pace. However, the speed at which it is appropriate to increase the repo rate going forward is determined by economic prospects in general and the forecast for inflation and not just by households' interest rate sensitivity.

Households' rising indebtedness, combined with an increasing proportion of mortgages with short interest-rate fixation periods, has raised the question of how households will be affected by rising interest rates. One argument that is sometimes made is that indebted households' interest payments would rise sharply, with major repercussions on demand in the economy. This could impede the Riksbank's scope for raising the repo rate, even if this would be justifiable on the basis of inflation and economic prospects.

This article aims to investigate how disposable household income would be affected by rising interest rates and the effects this could have on their consumption.¹⁵ Interest rates are assumed to rise in line with the Riksbank's forecast, meaning that the repo rate will be raised from –0.5 per cent to 0.75 per cent by the end of 2020.

Why have households become more interest-rate sensitive?

According to economic theory, changes in the real interest rate affect consumption by changing the balance between household consumption today and household consumption in the future. Monetary policy determines the level of the short-term nominal interest rate and affects the real interest rate for a limited period, as prices are sluggish.

But the interest rate can affect household consumption via other channels as well. For example, more recent research has studied how indebtedness among households can influence the effects. One common feature of this

research is that borrowers and savers behave differently, for example because borrowers have limited access to credit. Household consumption is thus affected to a greater degree by housing prices and current disposable income.

The effect of monetary policy on consumption can be amplified when indebtedness is high

As the repo rate affects housing prices, it can also affect the scope of households for taking loans with housing as collateral. The borrowing constraints faced by households may become more binding if housing prices fall, impairing their possibilities for consumption. This effect is usually called the **housing collateral effect**.¹⁶ If households are highly indebted, this effect will be greater.¹⁷

One further reason why monetary policy affects household consumption is that adjustments to the policy rate have an impact on households' interest payments and disposable income. This is usually called monetary policy's **cashflow channel**. This channel is also amplified if households are highly indebted and have short interest-rate fixation periods on their mortgages.

One objection in principle to the cashflow channel is that lenders' interest income should increase just as much as borrowers' interest expenditure when the policy rate is raised. But if borrowers' propensity to consume differs from that of lenders, this transfer of income may have aggregate effects on consumption. More recent research has attempted

¹⁵For a more detailed description, see P. Gustafsson, M. Hesselman, and B. Lagerwall. "How are household cashflows and consumption affected by higher interest rates?", *Staff Memo*, Sveriges Riksbank, 2017. For a description of how various household groups' interest payments are affected by rising interest rates, see the article "Household indebtedness and interest-rate sensitivity" in the Financial Stability Report 2017:2, Sveriges Riksbank.

¹⁶ See Walentin, K. (2014), "Housing Collateral and the Monetary Transmission Mechanism," *Scandinavian Journal of Economics*, pp. 635-668, 2016.

¹⁷ See D. Finocchiaro, M. Jonsson, C. Nilsson and I. Strid, "Socioeconomic effects of reducing household indebtedness", *Economic Review* 2016:2, Sveriges Riksbank.

to map such differences between different households' consumption decisions when the interest rate is adjusted, to highlight the significance of the cashflow channel. One result is that, regarding their consumption, highly indebted households with variable-rate mortgages react relatively more to interest rate adjustments than other households do, which can be interpreted as support for the significance of the cashflow channel.¹⁸ There are two feasible explanations for why the cashflow effect can be greater for highly indebted households with variable-rate mortgages. Firstly, the effect on disposable income of a given interest rate adjustment will be greater. Secondly, highly indebted households react more to changes in income than less indebted households. An explanation for this might be that highly indebted households have, or run the risk of having, limited access to credit.¹⁹

Cashflow effects subdue household income

Disposable household income can be defined in simple terms as follows:

$$\text{Disposable income} \approx \text{wages} + \text{transfer payments} + \text{interest income} + \text{other capital income} - \text{interest expenditure} - \text{taxes}$$

The Riksbank's repo rate path indicates that the rate will rise by 1.25 percentage points over the next three years. This will entail increased interest expenditure and reduced disposable income for borrowers. In a corresponding manner, the rate rise will entail increased interest income and increased disposable income for lenders.

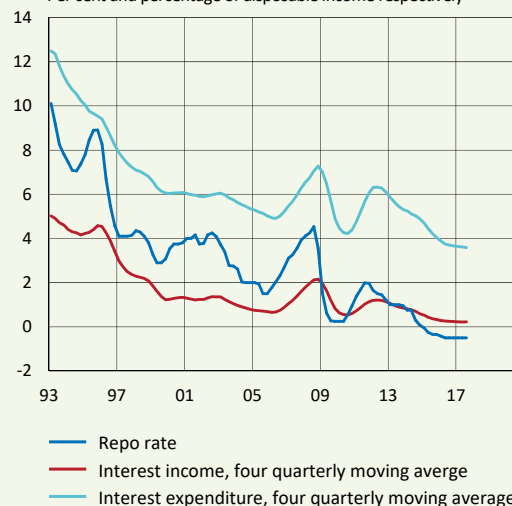
We discuss here the effects on disposable household income in terms of direct effects on interest income and interest expenditure. The effects of rising interest rates on other household income, for example wages and other capital income, are disregarded.

Historically, interest income and interest expenditure have covaried with changes in the repo rate, but households' interest expenditure is higher than their interest income (see Figure 1.14). This is partly because households' debts are greater than their bank deposits, and partly because lending rates are higher than deposit rates. If the rise in deposit and lending rates is the same, interest expenditure can be expected to rise more than interest income – and total disposable income can be expected to fall.²⁰ Over the next few years, this effect is expected to be amplified by deposit

rates rising more slowly than the repo rate.²¹ This is because household deposit rates have not followed the repo rate below zero (see Figure 2:8). Consequently, the deposit rate is not expected to rise as long as the repo rate is negative or just over zero.

Figure 1:14. The repo rate, household's interest expenditure and interest income

Per cent and percentage of disposable income respectively



Note. Interest income and expenditures are calculated before taxes and are not corrected for FISIM.

Sources: Statistics Sweden and the Riksbank

One way of calculating the direct effects on disposable household income is to use data from the Financial Accounts. The advantage is that it is possible to calculate both interest income and interest expenditure after tax. Such a calculation shows that the increase of households' interest expenditure, when the repo rate rises by 1.25 percentage points, will reduce disposable income by 1.6 per cent, while increased interest income will raise it by 0.3 per cent. All in all, the cashflow effect means that, all other factors being equal, disposable household income will be reduced by around 1.2 per cent.

A corresponding calculation using data from the mid-1990s, when household indebtedness was about half its current level, indicates that the effect at that time was much less. In this sense, households' interest-rate sensitivity via the cashflow effect has therefore increased over time.²²

An alternative approach is to use the Riksbank's data on individual households' debts.²³ This data material lacks

¹⁸ See, for instance, M. Flodén, M. Kilström, J. Sigurdsson and R. Vestman, "Household Debt and Monetary Policy: Revealing the Cash-Flow Channel", Working Paper no. 342, 2017, Sveriges Riksbank, 2017, J. Cloyne, C. Ferreira, and P. Surico, "Monetary Policy When Households Have Debt: New Evidence on the Transmission Mechanism", Bank of England Staff Working Paper No. 589, 2016, G. La Clava, H. Hughson, and G. Kaplan, "The Household cashflow Channel of Monetary Policy", Reserve Bank of Australia Research Discussion Paper 2016-12, 2016, and M. Di Maggio, A. Kermani, B.J. Keys, T. Piskorski, R. Ramcharan, A. Seru and V. Yao, "Interest Rate Pass-Through: Mortgage Rates, Household Consumption, and Voluntary Deleveraging", *American Economic Review* 107(11), pp. 3550–3588, 2017.
¹⁹ See, for instance, S. R. Baker, "Debt and the Response to Household Income Shocks: Validation and Application of Linked Financial Account Data", under publication in *Journal of Political Economy*, 2017.

²⁰ See article in Konjunkturläget, October 2017, pp. 27–28, National Institute of Economic Research.

²¹ However, the difference between the lending rates and the repo rate is assumed to be constant, regardless of interest fixation period.

²² See P. Gustafsson, M. Hesselman, and B. Lagerwall, "How household cashflows and consumption are affected by higher interest rates?", *Staff Memo*, Sveriges Riksbank, 2017.

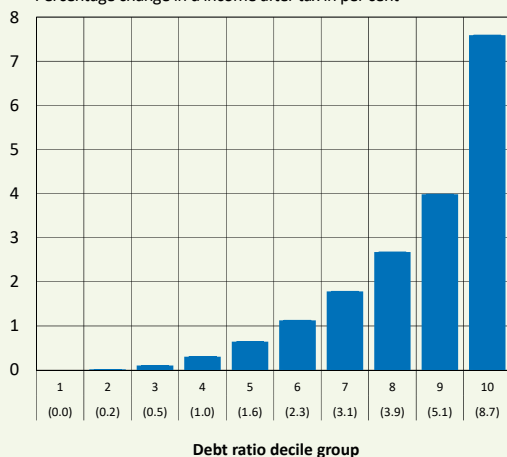
²³ This data comes from the eight largest banks in Sweden and covers about 75 per cent of total household debt according to the Financial Accounts. See van K. Blom and P. van Santen (2017), "Household indebtedness in Sweden – update for 2017", *Economic Commentaries* No. 6. Sveriges Riksbank.

information on households' assets, and hence their interest income, but does provide information on how households with varying levels of indebtedness are affected by rising interest rates.

There are major differences in cashflows between households. Figure 1:15 shows that, for households with debt-to-income ratios over 300 per cent, i.e. deciles 8-10, this may be a question of effects of between just below 3 and just over 7 per cent of disposable income.

Figure 1:15. Cashflow effect for groups of households with different debt-to-income ratios when the rate rises by 1.25 percentage points

Percentage change in disposable income after tax in per cent



Note: The cashflow effect refers to the average for the respective decile group. The average debt-to-income ratio is stated in brackets.

Source: The Riksbank

Differences among households in propensity to consume

The effect a change in disposable income has on consumption depends on what assumptions are made about propensity to consume, i.e. how much consumption changes in the event of a given change in income. The effect also depends on the varying effect on household consumption of increased interest income and interest expenditure. The maximum effect arises if increased interest income is completely saved, while increased interest expenditure results in an equally large decrease in consumption. In this case, household consumption will be subdued by 1.7 per cent.²⁴ Variations in propensity to consume among indebted households can also affect the aggregate effects, as the most heavily indebted households are responsible for a large part of the variation in cashflow.²⁵

Rising wages and high savings will promote consumption

The effect of rising interest rates on household cashflows must also be placed in a wider context. In the Riksbank's forecast, disposable household income is expected to grow at a relatively good rate, even when the interest rate starts to rise. This is partly due to rising wages. In addition, households' consumption possibilities are benefiting from households saving a historically high proportion of their incomes (see Figure 4:8). If households strive to even out consumption, they can reduce their saving to counteract the decline in income growth when interest rates rise. Consumption could therefore continue to grow over the next few years.

The repo rate can be expected to continue rising even beyond the forecast horizon. The midpoint of the interval the Riksbank has stated for the repo rate in the long term, of 2.5-4 per cent, entails an interest rate increase of 3.75 percentage points from the current level. The cashflow effect of such an increase would, all else being equal, dampen disposal household income by almost 3 per cent.²⁶

But there are several uncertainty factors

The assessment of how rising interest rates affect consumption is uncertain, however. One factor concerns the extent to which households have taken into account the fact that interest rates will in future be higher than they are now. Studies indicate that on average, Swedish households do not have unreasonable expectations of the variable mortgage rate.²⁷ However, this does not rule out heavily indebted mortgage holders having much lower expectations than the average. If the expectations prove to have been too low when interest rates rise, these households could need to adjust their consumption more substantially.

A further uncertainty factor is the lack of current data on how saving and assets are divided among households. Many Swedish households currently have a high debt in relation to the value of the housing, which can reinforce the so-called housing collateral effect of monetary policy.²⁸ If housing prices are dampened by rising interest rates, then households' loan-to-value ratios will increase, which can

²⁴ The cashflow effect subdues disposable income by 1.6 per cent. The slightly larger effect on consumption is due to the aggregated consumption level being about 90 per cent of the level of disposable income.

²⁵ For example calculations that illustrate these effects, see Gustafsson, P., Hesselman, M. and B. Lagerwall, "How are household cashflows and consumption affected by higher interest rates?", *Staff Memo*, 2017, Sveriges Riksbank.

²⁶ The reason why this effect is not even greater is that deposit and lending rates are expected to rise by an equal amount beyond the forecast horizon.

²⁷ See E. Hjalmarsson and P. Österholm, "Households' mortgage rate expectations – more realistic than at first glance?", *Economic Review* 2017:2, Sveriges Riksbank, and P. Österholm, "Är hushållens förväntningar rörande bolåneräntan realistiska?" (Are households' expectations regarding mortgage rates realistic?), *Ekonomisk Debatt* no. 5, 2017.

²⁸ The average loan-to-value ratio for new mortgages increased between 2002 and 2010 from below 60 per cent to over 70 per cent, and is now just below 70 per cent. 21 per cent of new mortgage holders had a loan-to-value ratio of 85 per cent in 2016. See "The Swedish Mortgage Market 2017", Finansinspektionen.

make it difficult for them to get money for consumption by increasing their mortgages.²⁹

Monetary policy is focused on the inflation target

Higher indebtedness has led to an increase in households' interest-rate sensitivity. The effect of interest rate adjustments on their consumption is thus greater. This indicates that the repo rate should be raised at a slow pace. However, the Riksbank's monetary policy is not determined solely by households' interest-rate sensitivity, but aims to attain the inflation target and contribute to a stable macroeconomic development in general.

²⁹ A general equilibrium model estimated on Swedish data, which captures the effects of monetary policy via the cashflow and housing collateral channel, indicates that the effect of an unexpected interest raise on household consumption would be twice as large with the current level of household indebtedness as it would have been in the mid-1990s. See D. Finocchiaro, M. Jonsson, C. Nilsson and I. Strid, "Socioeconomic effects of reducing household indebtedness", *Economic Review* 2016:2, Sveriges Riksbank.

CHAPTER 2 – Financial conditions

Since the October Monetary Policy Report, both the Federal Reserve and the Bank of England have raised their policy rates. The ECB has announced the extension of its asset purchase programme. All in all, the normalisation of monetary policy abroad is expected to continue at a slow pace. This is reflected in the international government bond yields for longer maturities, which remain at low levels. In Sweden, the krona has weakened. Among other things, this depreciation occurred in conjunction with the inflation outcome for October and the GDP outcome for the third quarter, which were both slightly weaker than expected. Slightly weaker macro statistics have also affected expectations of the Riksbank's repo-rate path, with market agents now expecting the first increase during the second six months of 2018. In Sweden, households and companies are continuing to pay low interest rates at the same time as credit growth remains high.

International developments

Continued expansionary monetary policy abroad

In October, the European Central Bank (ECB) announced that its net asset purchases will be extended until September 2018, or further if necessary, but that the volume for the monthly purchases will be halved from EUR 60 billion to 30 billion from the start of next year. At the monetary policy meeting in December, the ECB revised its forecasts for growth in the coming years upwards, but emphasised that a continued expansionary monetary policy is necessary for inflation to reach the target.³⁰ Expectations of the ECB's policy rate remain unchanged, according to market pricing, and indicate that the first increase will not be until 2019.

The Federal Reserve is continuing to make its monetary policy gradually less expansionary. In December, and in line with market expectations, it raised the interval for the policy rate at its monetary policy meeting to 1.25-1.50 per cent. At the same time, the gradual tapering of its balance sheet that began in October is continuing. According to the median forecast by members of the monetary policy committee, the policy rate will be raised three times in 2018, while pricing on the financial markets implies expectations of two increases during that period.

Table 2:1.

Developments on financial markets since the Monetary Policy Report in October
Government bond yields with longer maturities have fallen somewhat both in Sweden and abroad.
The krona has weakened in competitiveness-weighted terms.
The share index has fallen somewhat in Sweden and in Europe, but has risen in the United States and in emerging markets.
Lending rates for households and companies are still low.
Growth in credit to households and non-financial corporations remains high.

The transmission mechanism – from the repo rate to interest rates for households and companies

The repo rate has a direct effect on short-term interbank rates and government bond yields via the overnight rate. Expectations regarding the future repo rate and government bond purchases affect the development of long-term government bond yields, which are also influenced by foreign yields. Government bond yields act as an anchor for other types of bond yields, which in turn affect the banks' funding costs. This ultimately affects the lending rates for households and companies.



³⁰ The forecast is a joint work by employees at the ECB and employees at the different national central banks. It is not a forecast by the Governing Council of the ECB.

The Bank of England raised its policy rate at its monetary policy meeting in November, and has signalled that continued policy rate increases will occur gradually and to a limited extent, mainly due to uncertainty over how the withdrawal from the European Union will affect the British economy. This communication has caused market expectations of future policy rate increases by the Bank of England to fall somewhat. Financial prices indicate expectations of two further increases over the coming three years (see Figure 2:1).

Some central banks have thus decided on less expansionary monetary policies but normalisation is proceeding slowly and, from a global perspective, monetary policy will continue to remain expansionary.

Slow normalisation of monetary policy reflected in yields

The fluctuations in government bond yields in recent months are largely driven by monetary policy. The yields for longer maturities remain at low levels, which reflects expectations of a slow normalisation of monetary policy in various countries (see Figure 2:2). Yields for short maturities rose in the United States during the autumn as market participants' expectations of future policy rate increases rose. In countries such as Germany, where the ECB's policy rate and expectations of the future policy rate are unchanged, yields with short maturities have remained relatively unchanged (see Figure 2:3).

On the foreign exchange markets too, movements over the autumn have largely been driven by monetary policy expectations. The US dollar appreciated over the autumn as market participants priced increasingly high expectations of approaching policy rate increases.

Global stock exchanges still at high levels

Global share indices have continued to develop strongly during the autumn, in the light of better global economic prospects and by the low interest rates. The US stock exchange is at historically high levels and company reports during the third quarter showed good profits. In Europe, too, share indices are at high levels. The overall share index for emerging market economies has continued to rise during the autumn as the result of expectations that the good growth will persist (see Figure 2:4).

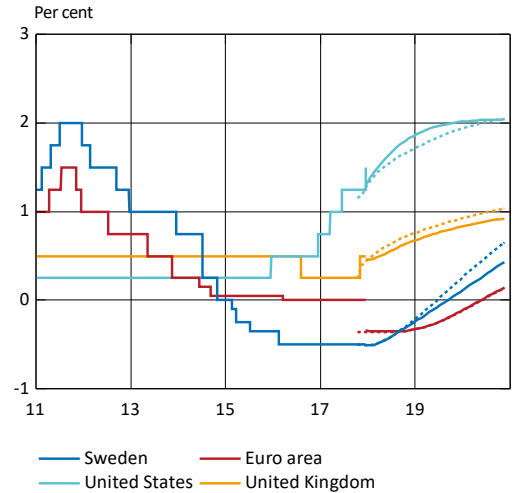
At the same time, measures of uncertainty, such as the expected volatility on the stock market, are still at low levels in both the United States and Europe.

Financial conditions in Sweden

Somewhat lower repo rate expectations

According to pricing on the financial markets, expectations of the future repo rate have fallen slightly and are now somewhat below the Riksbank's repo rate path in the longer run (see Figures 2:1 and 2:5). Several forecasters state at the same time that they have postponed in their forecasts the timing for the first interest

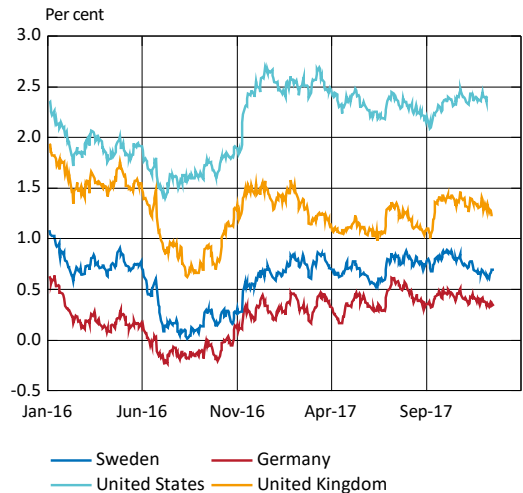
Figure 2:1. Policy rates and rate expectations according to forward rates



Note. Forward rates describe the expected overnight rate, which does not always correspond to the policy rate (the main refinancing rate for the euro area). There is no published overnight rate in Sweden, but it normally follows the repo rate closely. Unbroken lines are estimated on 18 December 2017, broken lines are estimated on 26 October 2017.

Sources: The national central banks, Thomson Reuters and the Riksbank

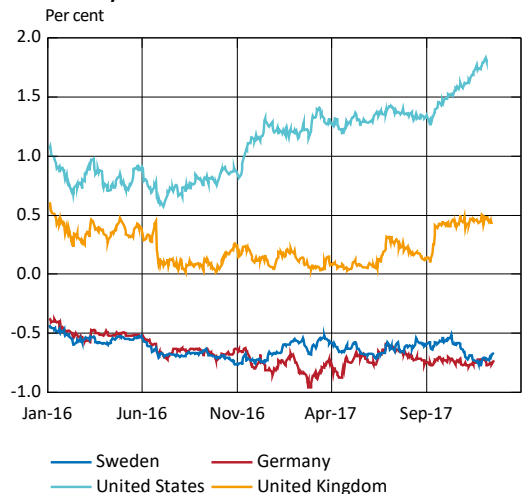
Figure 2:2. Government bond yields with 10 years left to maturity



Note. Implied zero-coupon yields from government bonds.

Sources: The national central banks and the Riksbank

Figure 2:3. Government bond yields with 2 years left to maturity



Note. Implied zero-coupon yields from government bonds.

Sources: The national central banks and the Riksbank

rate increase until the second half of 2018. Inflation outcome for October, which were somewhat lower than expected, and the slowdown in housing prices are said to be contributory factors. Market participants' expectations as shown in surveys are largely in line with the repo rate path for the next two years (see Figure 2:5).

Since the monetary policy meeting in October, Swedish government bond yields have fallen somewhat (see Figure 2:3). This is because the market now expects increases of the repo rate to be slower than previously, although other factors have also had an effect. For instance, the Swedish National Debt Office has announced a lower borrowing requirement for the coming years.

Interest rates with shorter maturities have also fallen somewhat since October. Among others, this applies to the 1-month Stibor interbank rate, which has fallen by around 20 basis points. This is the same pattern that could be seen at the end of the last two years and is deemed to be a temporary effect, as the banks want to hold their balance sheet totals down before the end of the year, as it is the size of these that is used as a base for the banks' fees to the resolution reserve.³¹

The Riksbank's bond purchases have contributed to the lower yields. Not least, the bond purchases have been an effective instrument for contributing to falling government bond yields. However, when the Riksbank purchases government bonds, the volume that is available for trade on the market decreases, which may affect the way the market functions. For example, primary dealers may choose only to offer prices for smaller quantities and it can therefore take a longer time for an investor to purchase or sell a larger post of bonds. However, investors are deemed to be able to conduct the transactions they need within a satisfactory time frame. Furthermore, there is great interest in participating in the Swedish National Debt Office's various auctions. Investor interest in entering bids to purchase or sell bonds on these occasions remains high in relation to the volumes offered in these auctions. The Riksbank's bond purchases are therefore deemed to be working satisfactorily.

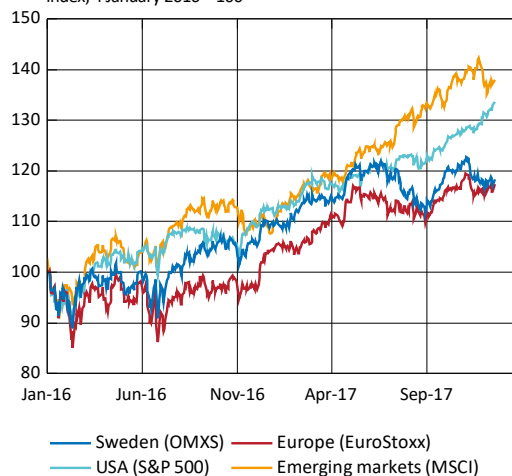
On the credit markets, yields on covered bonds and corporate bonds have developed approximately the same as government bond yields. The statistics of recent months, with falling housing prices do not appear to have led to any increase in the risk premium for covered bonds (see Figure 2:6). One possible reason for this is that the market does not assess the fall in housing prices to entail any increased credit risk for the banks.

Krona weaker since October

In competition-weighted terms, according to the KIX krona index, the Swedish krona has been weaker than the Riksbank's forecast

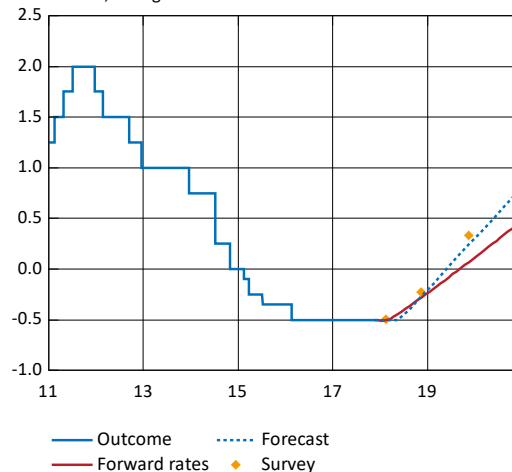
³¹ The resolution fund exists so that the government will be able to stabilise banks in Sweden in the event of a crisis. The banks pay a fee that is based on the size of their balance sheets on the last day of each year. This means that the banks wish to avoid deposits at the end of the year and therefore reduce short-term interest rates. As a result, one can note that interbank rates fall prior to the end of the year. More information on the resolution fee can be found on the Swedish National Debt Office's website.

Figure 2:4. Stock market movements in local currency
Index, 4 January 2016 = 100



Sources: Macrobond and Thomson Reuters

Figure 2:5. Repo rate and market expectations
Per cent, average



Note. The forward rates are estimated as of 18 December 2017 and measure the expected repo rate. The survey responses show the average for money market participants on 13 December 2017.

Sources: Macrobond, TNS Sifo Prospera and the Riksbank

Figure 2:6. Yield differential between mortgage bonds and government bonds.



Note. Implied zero-coupon yields from government bonds.

Sources: Macrobond and the Riksbank

in October. There has been a weakening against most currencies (see Figure 2:7). One contributory factor has been that Swedish macro statistics have been somewhat weaker than market participants were expecting, which has contributed to expectations of a slower normalisation of the Riksbank's monetary policy than before. For instance, the krona weakened in connection with the low inflation outcome for October and the GDP outcome for the third quarter. However, the krona has weakened more than can be justified by interest rate differences with trading partners. Many market participants say that increased concern over the housing market has contributed to weakening the krona.

The Swedish stock exchange has fallen somewhat in recent weeks and is now at a somewhat lower level than at the time of the monetary policy decision in October. Somewhat weaker macro statistics than expected and unease on the housing market have probably contributed to this. Nevertheless, the development of profits for Swedish companies continues to be strong in general and the stock exchange remains on historically high levels.

Continued high credit growth for households and companies.

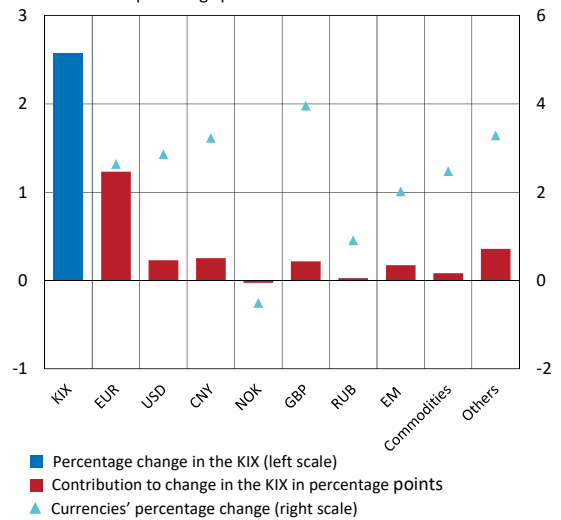
The expansionary monetary policy has contributed towards the banks' funding terms continuing to be favourable and towards lending rates for households and companies remaining on historically low levels. The average mortgage rate for new agreements remained at 1.6 per cent in October, while the average interest rate for new bank loans to non-financial corporations fell somewhat to 1.3 per cent (see Figure 2:8).

Since the repo rate entered negative territory for the first time in February 2015, lending rates to households have fallen slightly less than the repo rate, while lending rates to companies have fallen slightly more than those to household. Average deposit rates for households and companies have remained largely unchanged since the middle of 2015 and are close to zero.³² Overall, the impact of the repo rate on deposit and lending rates has been in line with the Riksbank's expectations.

Credit growth among households remains high, although it has slowed down somewhat since the middle of 2016. In October, the annual growth rate in bank loans to households was 7.1 per cent. The rate of increase in lending to non-financial companies has decreased somewhat in recent months and amounted to 3.7 per cent in October (see Figure 2:9). At the same time, the growth rate in corporate borrowing in the form of issues of securities has risen significantly and now constitutes about a third of total corporate borrowing. It is mainly property companies that have increased their issues of securities in recent years.

³² Most financial undertaking corporations and some non-financial corporations and municipalities are experiencing negative deposit rates. For technical reasons, however, the negative deposit rate is usually reported as a charge and is therefore not always visible in the figures from Statistics Sweden. Despite this, deposits at negative rates form a small portion of total deposits from non-financial corporations.

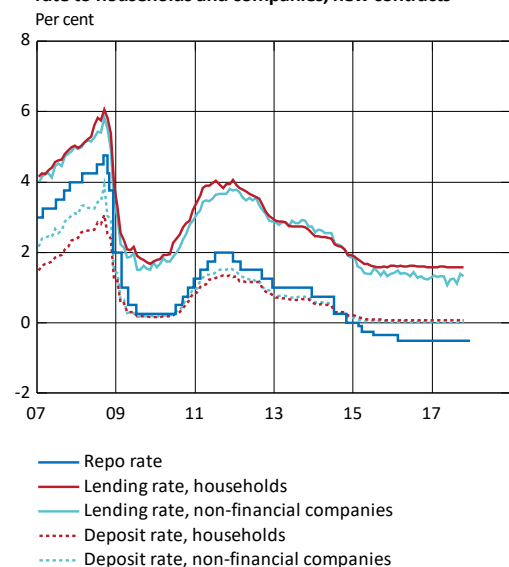
Figure 2:7. Changes to KIX exchange rates
Per cent and percentage points



Note. The figure shows change in KIX and contributions from different currencies between 8 a.m. 26/10/2017 and 4.30 p.m.14/12/2017. EM refers to Brazil, Hungary, India, Mexico, Poland and Turkey. Commodities refer to Australia, Canada and New Zealand. Other refers to Czech Republic, Denmark, Iceland, Japan, South Korea and Switzerland.

Source: Thomson Reuters and the Riksbank

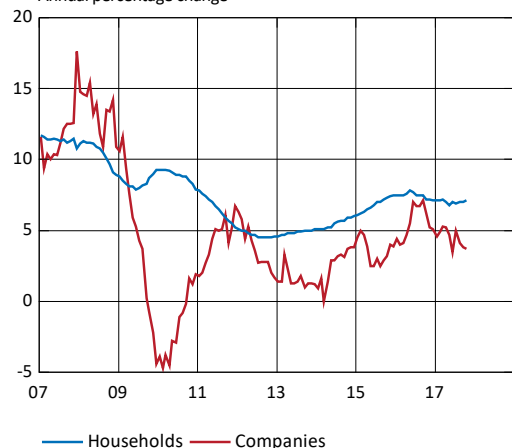
Figure 2:8. Repo rate together with the deposit and lending rate to households and companies, new contracts
Per cent



Note. MFIs' average deposit and lending rates for households and companies.

Sources: Statistics Sweden and the Riksbank

Figure 2:9. Bank lending to households and companies
Annual percentage change



Note. MFIs' lending to households and non-financial companies according to financial market statistics adjusted for reclassifications and traded loans since 2006.

Source: Statistics Sweden

CHAPTER 3 – The current economic situation

Economic activity is strong in Sweden and inflation is close to the inflation target. In November, inflation was 2.0 per cent in CPIF terms, and 1.8 per cent in terms of the CPIF excluding energy prices. Sweden's GDP increased rapidly in the third quarter and indicators show that the strong development will persist until the end of the year. There are no signs that the recent downturn in housing prices has affected confidence in the development of the economy among households and companies. Energy prices are now increasing faster than previously and this is contributing to inflation being expected to be slightly higher in the period ahead compared with the assessment in October.

Inflation

Inflation close to target

In November, inflation was 2.0 per cent in CPIF terms (see Figure 3:1), which is higher than the forecast in the Monetary Policy Report from October. The forecasts were exceeded due to unexpectedly rapid energy price increases. When energy prices are excluded, the rate of increase in the CPIF was 1.8 per cent in May, which was in line with the forecast.

It is primarily prices for services that are continuing to increase rapidly. However, the recorded development of prices for overseas travel obscures the picture slightly as these have a new seasonal pattern this year due to a new method of measurement, but the rate of increase remains high even after prices for foreign travel are excluded (see Figure 3:2). Prices in the service sector are affected by domestic conditions to a great degree and the rapid increase of these prices should be seen in light of the strong development of the real economy in Sweden. At the same time, prices of goods are developing at a historically normal rate (see Figure 3:2) Increased competition within the retail trade has contributed towards prices being lower than otherwise in recent years, a view that is supported by responses to the Riksbank's business survey.³³

The unexpectedly rapid increase in energy prices is primarily due to the price of oil having risen, which, together with the weaker krona, has led to higher fuel prices. Electricity prices have also increased slightly faster than was expected in October.

Both CPIF inflation and different measures of underlying inflation have shown rising trends since 2014 and the rate of increase of the CPIF has been close to 2 per cent over the last year (see Figure 3:3). After many years in which price increases have been low in relation to cost increases, the recent strong economic activity seems to have made it easier than before for companies to raise their prices. That inflation has risen is also a consequence of earlier weakening of the krona, which with a

Table 3:1.

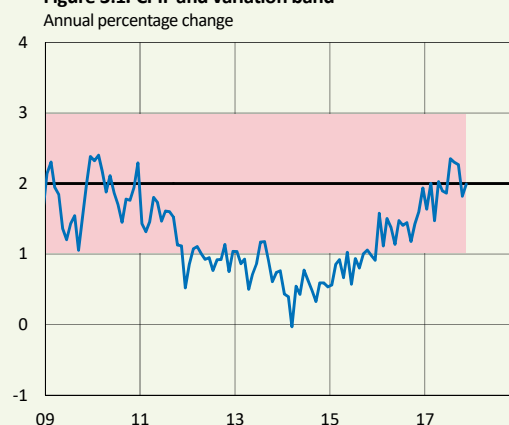
Expected development in MPR October	Actual development
CPIF inflation 1.7 per cent in November.	Higher than expected. CPIF inflation was 2.0 per cent.
GDP growth 3.9 per cent, third quarter.	Lower than expected. GDP growth was 3.1 per cent.
Unemployment 6.7 per cent in the fourth quarter.	Monthly outcomes indicate unemployment will be 6.6 per cent.
GDP growth in the euro area 2.1 per cent, third quarter.	Higher than expected. GDP growth was 2.4 per cent.
GDP growth in the United States 2.0 per cent, third quarter.	Higher than expected. GDP growth was 3.0 per cent.

Note. MPR refers to the Monetary Policy Report. Inflation refers to the annual percentage change. GDP growth refers to the seasonally-adjusted quarterly change in per cent, calculated at an annual rate. Unemployment refers to percentage.

Inflation 2.0 per cent in November

In November, CPIF inflation amounted to 2.0 per cent. This outcome thus coincides with the inflation target of 2.0 per cent. However, it is not possible to steer inflation with any great precision and the CPIF will not be exactly 2 per cent in each individual month. Historically, around three quarters of the outcomes have been between 1 and 3 per cent, that is within the so-called variation band. The variation band is a means of showing whether the deviation from the inflation target is unusually large or more normal. (see Figure 3:1)

Figure 3:1. CPIF and variation band



Note. The pink area shows the Riksbank's variation band and covers about three-quarters of outcomes since January 1995.

Sources: Statistics Sweden and the Riksbank

³³ See the Riksbank's Business Survey, November 2017.

time lag for instance affects prices of food and goods. The recent depreciation of the krona has not yet fully impacted on prices.

Inflation unchanged in the immediate future

Inflation is expected to vary around the current level in the period ahead. At the same time, the rate of producer price increases will continue to be on historically high levels. The rate of increase in prices for consumer goods produced in Sweden has risen over the last year, according to the home market price index.

The Riksbank’s short-term models, which summarise the information in a large number of indicators, imply that CPIF inflation excluding energy will be just below 2 per cent at the start of 2018 (see Figure 3:4). The Riksbank’s forecast for this period is in line with both model forecasts and the assessment in the Monetary Policy Report from October. On the other hand, the forecast for CPIF inflation has been revised slightly upwards, as energy prices are expected to rise slightly faster than was assumed in October. There has been an unexpectedly strong increase in oil prices on the world market, at the same time as the krona has weakened.

Inflation expectations close to 2 per cent

After having been very low at the start of 2015, inflation expectations have risen in recent years (see Figure 3:5). Expectations over the longer term have been close to 2 per cent over the last year and, as inflation has risen, inflation expectations over the shorter term have also risen to close to 2 per cent. According to TNS Sifo Prospera’s survey, expectations fell somewhat in December, but amount to 2.1 per cent five years ahead.³⁴ According to the same survey, inflation expectations one and two years ahead are 1.8 and 2.0 per cent, respectively. The pricing of financial instruments also indicates that long-term inflation expectations have risen in recent years.

Global and Swedish economic activity

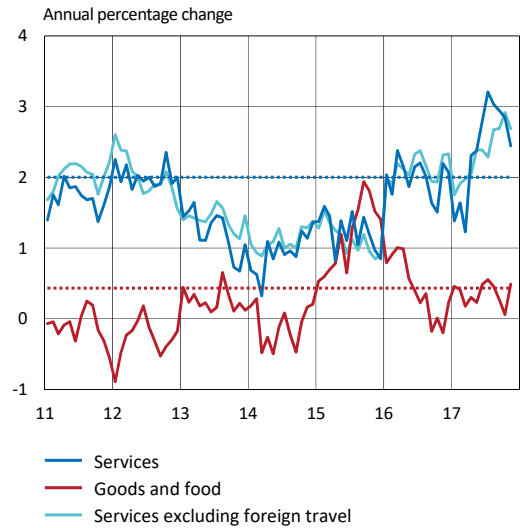
Increasingly strong global economic activity

Economic activity abroad is continuing to strengthen. The rate of increase has been unexpectedly rapid and the recovery is broad in terms of both countries and sectors. The global trade in goods has continued to increase at a good rate and GDP growth was high overall in the third quarter. Significant optimism among households and companies suggests that this positive development will also persist over the fourth quarter.

Despite several hurricanes, GDP growth in the United States in the third quarter amounted to 3.0 per cent, calculated as an annual rate. Employment is also rising rapidly and the low unemployment indicates that there is little spare capacity on the labour market. In the euro area, resource utilisation is lower, but

³⁴ In December, TNS Sifo Prospera published its first quarterly survey of inflation expectations for CPIF inflation. The differences between expectations measured in terms of the CPIF and the CPI are small.

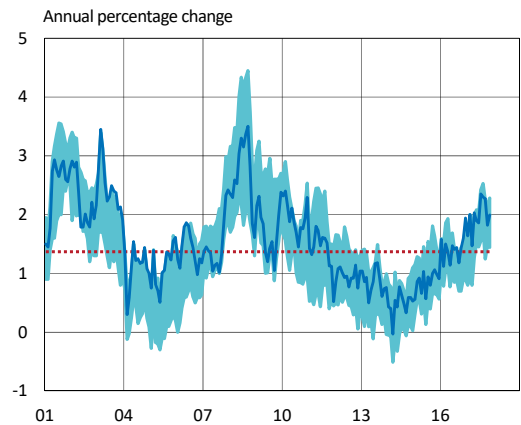
Figure 3:2. Prices of goods and services in the CPI



Note. Goods and foodstuffs is a combination of the aggregate goods and foodstuffs in the CPI. Together, these account for 45 per cent of the CPI. Service prices account for 45 per cent of the CPI. The broken lines represents the mean value since January 1995.

Sources: Statistics Sweden and the Riksbank

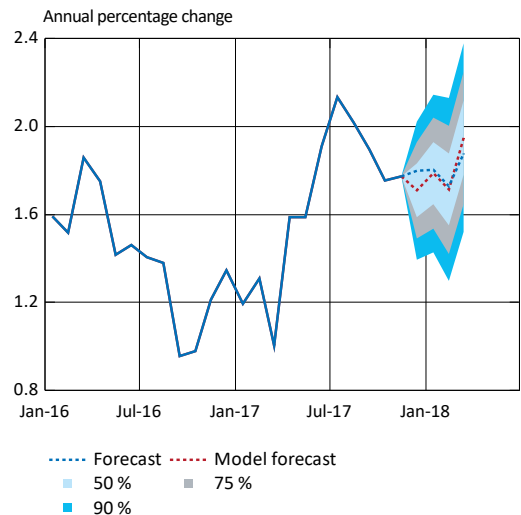
Figure 3:3. The CPIF and different measures of underlying inflation



Note. The field shows the highest and lowest outcomes among different measures of underlying inflation. The measures included are the CPIF excluding energy, the CPIF with constant tax, UND24, Trim85, HICP excluding energy and non-refined foods, persistence-weighted inflation, factors from principal component analysis and weighted mean inflation. The broken line represents the mean value since January 2000 for all measures of underlying inflation.

Sources: Statistics Sweden and the Riksbank

Figure 3:4. CPIF excluding energy, model forecast with uncertainty bands



Note. The uncertainty bands are based on the models’ historical forecast errors.

Sources: Statistics Sweden and the Riksbank

it is increasing at a good rate. GDP growth in the third quarter was 2.4 per cent on an annual rate. Employment is rising rapidly and unemployment is continuing to fall. Both households and companies are optimistic.

Inflationary pressures abroad continue to be low

Even if real development is strong, international inflationary pressures continue to be low. However, the recent upswing in the price of oil will contribute to slightly higher inflation in the short term.

Inflation in the euro area was 1.5 per cent in November, measured with the HICP. Underlying inflation, measured as the rate of increase in the HICP excluding energy and non-refined foods, has risen over the year but still amounted to only 0.9 per cent in November. In the United States at the same time, CPI inflation was 2.2 per cent, while underlying inflation, measured as the rate of increase in the CPI excluding energy and food, fell from 1.8 in October to 1.7 per cent in November.

High Swedish GDP growth

According to the National Accounts, Swedish GDP grew by 3.1 per cent in the third quarter, compared with the immediately preceding quarter and calculated as an annual rate. Household consumption grew at a moderate rate, but investment growth was rapid and reflected the strong development of investments in both machinery and housing.

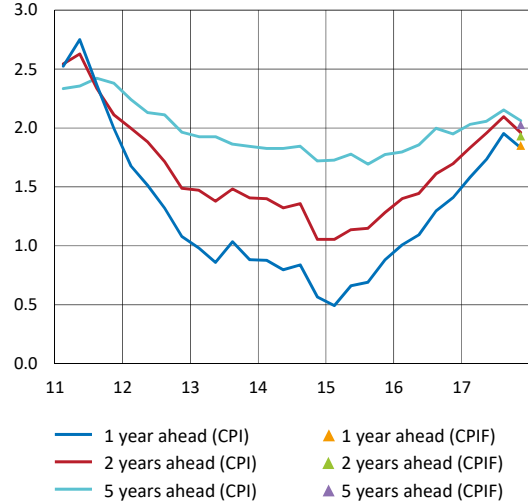
Indicators for the fourth quarter suggest continued strong growth (see Figure 3:6). The Economic Tendency Survey and Purchasing Managers' Index rose in November and show continuing strong optimism among companies. According to the Riksbank's business survey from November, companies are very satisfied with the economic situation, and demand on Swedish export markets, particularly in Europe, is deemed to have increased. However, household consumption developed relatively weakly in October.

The Riksbank's short-term model forecasts, which summarise information from a large number of indicators, suggest continued high growth in the fourth quarter (see Figure 3:7). As few indicator outcomes for demand and production have been published so far for the fourth quarter, the Riksbank's forecast places greater emphasis on confidence indicators, which remain strong. GDP is thereby expected to grow by just over 3.5 per cent in the fourth quarter of 2017 and just under 3 per cent in the first quarter of 2018, compared with the immediately preceding quarter and calculated as an annual rate.

Price fall on the housing market

According to the HOX price index, housing prices have fallen in September, October and November by a total of just under 5 per cent in seasonally adjusted terms (see Figure 1:12). The decline has been clearest for tenant-owned apartments, particularly in Stockholm. According to Mäklarstatistik, turnover of dwellings has not decreased to any great extent. However, according to

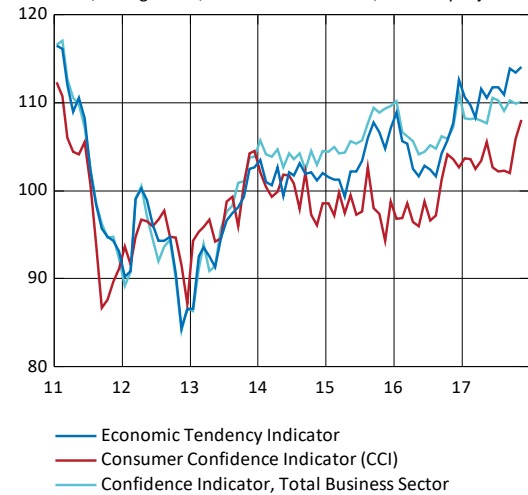
Figure 3:5. Inflation expectations among all participants
Per cent, average



Source: TNS Sifo Prospera

Figure 3:6. Confidence indicators

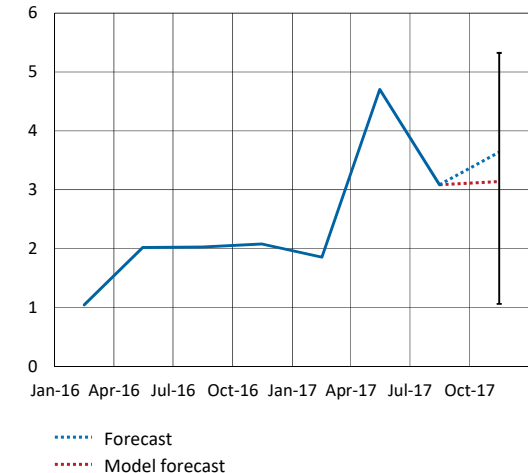
Index, average = 100, standard deviation = 10, seasonally-adjusted data



Source: National Institute of Economic Research

Figure 3:7. Model forecast GDP with uncertainty bands

Quarterly change in per cent calculated as an annual rate, seasonally-adjusted data.



Note. The model forecast is a mean value of forecasts conducted using different statistical models. The vertical line refers to a 50-per cent uncertainty band. The uncertainty bands are based on the models' historical forecasting errors. One explanation for the breadth of the uncertainty band is the large variation in outcomes between various quarters.

Sources: Statistics Sweden and the Riksbank.

statistics from Hemnet, the supply of newly produced flats, largely in Stockholm, has simultaneously continued to increase rapidly. According to the Riksbank's business survey, the major construction companies do not see any major fall in prices ahead, as the falling prices are primarily deemed to concern newly produced flats in attractive and expensive areas. Historically, price falls have often coincided with economic slowdowns and have had an impact on confidence among households and companies. However, economic activity is strong and confidence indicators are on high levels. This is expected to contribute towards the decline in prices having a limited impact on GDP growth in the fourth quarter of 2017 and first quarter of 2018.

Continued high demand for labour

For October and November as a whole, the labour force, and particularly the number of people in employment, has continued to increase compared with the third quarter. Even if the increase seen earlier this year now slows down, the labour force participation rate and employment rate are still on historically high levels. Indicators for the development of the labour market suggest continued strong demand for labour. According to the Economic Tendency Survey, companies' recruitment plans are on a very high level, the number of vacant jobs has continued to rise (see Figure 3:8) and the number of redundancy notices is low. Both the number of people in employment and the number of people in the labour force are thereby expected to continue to increase in the next few months, while unemployment will fall slightly further.

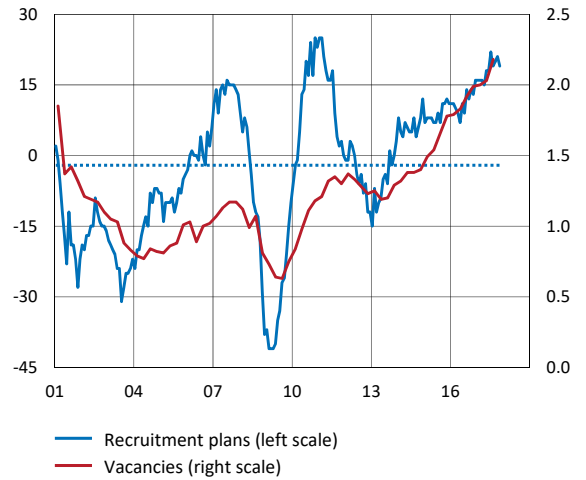
Resource utilisation in the economy higher than normal

A number of different indicators suggest that resource utilisation is higher than normal. For example, companies are finding it more difficult than normal to find the labour they are seeking. The number of companies reporting labour shortages is on a high level, as is the vacancy rate in the business sector, at the same time as the average recruitment time is long (see Figure 3:9). According to Statistics Sweden, capacity utilisation in the manufacturing sector has also risen and is close to the level that prevailed prior to the financial crisis.

The Riksbank's RU indicator, which is an overall measure of the amount of spare capacity in the economy, is on a historically high level (see Figure 3:10). Despite the high level of domestic resource utilisation and the increasingly tight labour market, wage increases have not increased substantially. This is probably due to several different factors, including relatively low productivity and restrained wage growth abroad.³⁵ However, the amount of spare capacity in the Swedish economy can be expected to influence the development of GDP growth, wages and prices subject to a certain time lag and the Riksbank expects wage rises to increase slightly faster in the next few quarters.

Figure 3:8. Vacant jobs and recruitment plans

Percentage of labour force and net figure respectively, seasonally-adjusted data.

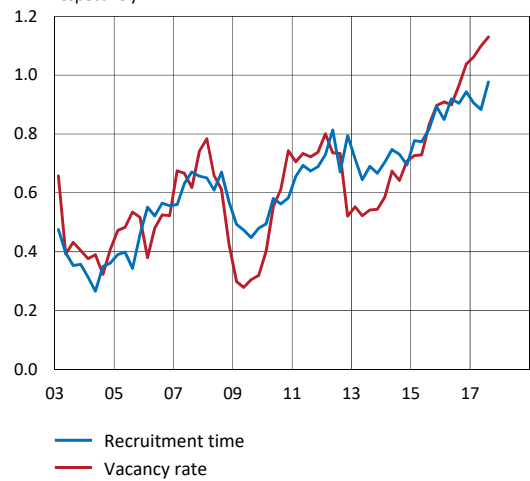


Note. Recruitment plans refer to expectations of the number of employed in the business sector three months ahead. The broken line represents the mean value since 2003.

Sources: National Institute of Economic Research, Statistics Sweden and the Riksbank

Figure 3:9. Recruitment time and vacancy rate in the business sector

Months and percentage of employed persons in the business sector respectively

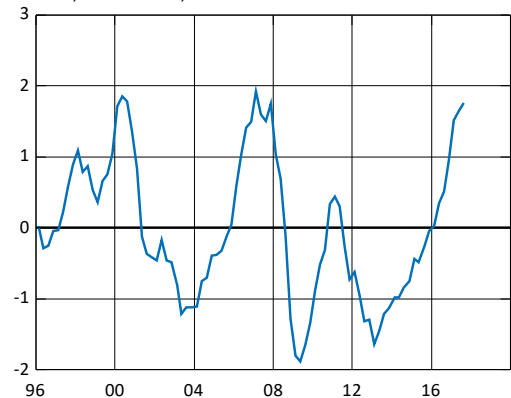


Note. The vacancy rate measures the percentage of unstaffed vacant positions that need to be filled immediately, in relation to the number of employees.

Sources: Statistics Sweden and the Riksbank

Figure 3:10. Resource utilisation indicator

Index, mean value=0, standard deviation=1



Source: The Riksbank

³⁵ See the article "Strong economic activity but subdued wage increases" in the Monetary Policy Report, July 2017.

CHAPTER 4 – The economic outlook and inflation prospects

Economic activity abroad is continuing to strengthen. Growth in the developed economies will remain high over the next year and, compared with October, the forecast has been adjusted up-wards slightly. After this, growth is expected to dampen, but it will remain high enough for unemployment to continue to fall and inflation to gradually rise. The Swedish economy is continuing to develop strongly. The recent decline in housing prices is expected to lead to some slowdown in housing construction and thereby in housing investment. Even if the effects on GDP growth will be partly counteracted by stronger international demand, growth will be slightly lower and the increase in employment will slow down slightly. The development on the labour market is strong enough so that resource utilisation rises slightly further and remains high over the next few years. The increasing labour shortages are expected to contribute to wage growth successively rising. Inflation is expected to be close to 2 per cent over the entire forecast period.

International developments

International economic activity will continue to strengthen

International economic activity continues to improve. Both global trade and industrial production are growing and confidence in economic developments is high.

The international economic upswing is expected to continue over the coming years. In the KIX countries, which is to say the countries playing the greatest role for the Swedish economy, GDP growth is expected to amount to an average of almost 3 per cent in 2017 before gradually slowing down (see Figure 4:1). The forecast has been revised slightly upwards compared to the assessment made in October, which is primarily due to unexpectedly strong outcomes and indicators in the euro area economy recently. While growth in the developed economies is expected to slow down in the period ahead, it is expected to continue to rise in emerging market economies. These countries have a greater weight in global GDP than in KIX-weighted GDP. Global GDP will therefore increase at an even rate of just over 3.5 per cent per year over the entire forecast period, which is close to the average for the last 30 years.

Economic activity remains good in the United States

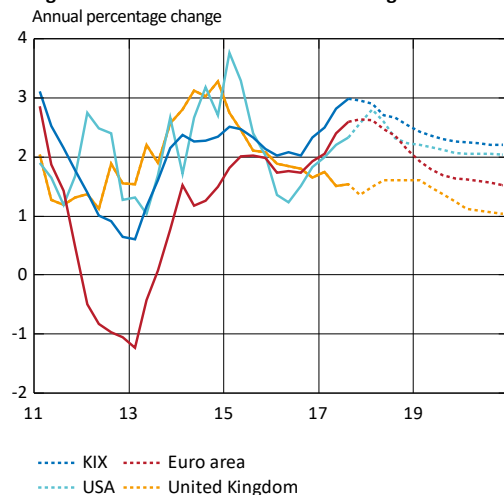
Growth in the US economy is expected to be 2.3 per cent this year, after which it will rise to 2.5 per cent in 2018. In subsequent years, GDP is expected to increase by about 2 per cent per year.

Household and corporate confidence in the development of the economy is very strong. Consumption is being supported by rising housing prices and a continued increase in employment. The situation on the labour market is strong and broader measures of unemployment are now also at levels similar to before the crisis. However, the labour force participation rate is judged to be able to increase slightly further which, together with

Table 4.1.

The forecast in brief
International economic activity will strengthen further and the global economy is expected to grow in line with its historical average.
International inflationary pressures are rising slowly as resource utilisation increases.
Economic activity in Sweden will strengthen further but growth will slow down when the new construction of housing decreases and growth on export markets slows.
The strength of the labour market will persist but matching problems and slower population growth will contribute towards employment growth slowing down.
Inflation stabilises around 2 per cent. Higher resource utilisation is expected to increase inflation, while an appreciation of the krona contributes towards restraining it.

Figure 4:1. GDP in various countries and regions



Note. KIX is an aggregate of the countries that are important to Sweden's international transactions.

Sources: Bureau of Economic Analysis, Eurostat, national sources, Office for National Statistics and the Riksbank

a certain recovery of productivity growth, will make continued good GDP growth possible in the next few years. The proposed tax reform being negotiated in the two chambers of the United States Congress could provide a temporary stimulus to growth. Financial conditions continue to be favourable for growth, even if they are expected to become gradually less expansionary as the Federal Reserve continues to raise its interest rate and shrink its balance sheet.

Strong recovery in the euro area

In the euro area, the economic recovery has strengthened and broadened to more countries. Confidence among households and companies has continued to rise and is now at historically high levels. Exports are increasing and domestic demand is also growing rapidly. Employment is rising and unemployment is falling.

In the years ahead, GDP is expected to continue to grow more rapidly than normal. Unemployment, which remains relatively high in a number of areas, is therefore expected to fall further. Investment growth is expected to increase due to the high level of capacity utilisation, strong global demand and decreased uncertainty. GDP growth is expected to amount to just under 2.5 per cent this year and next year, which involves an upward revision compared with the assessment in October. As an increasing amount of spare capacity is utilised and the suppressed need for consumption and investment is satisfied, GDP growth will then gradually slow down to just under 2 per cent in 2019 and just over 1.5 per cent in 2020.

Difficult to assess development in the United Kingdom, lower housing prices in Norway

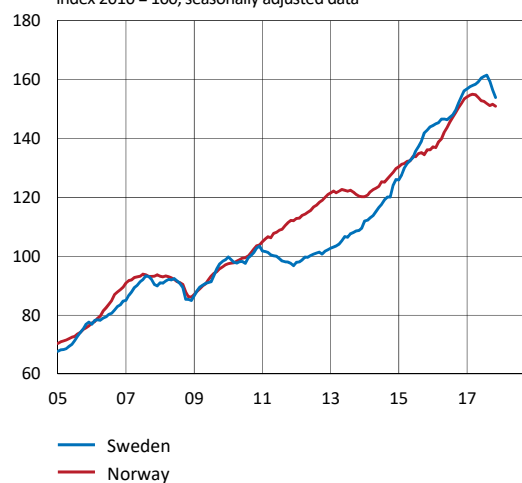
It is presently very difficult to assess development in the United Kingdom, as this is greatly dependent on negotiations on the future terms for trade between the European Union (EU) and the United Kingdom when the country leaves the EU. The exit from the EU is expected to impede GDP growth, which will gradually slow down over the forecast period from about 1.5 per cent this year to just over 1 per cent in 2020.

In Norway, prices for housing have fallen since the spring, above all in the Oslo area (see Figure 4:2). The decline is expected to lead to the subdued development of housing investments in the period ahead. However, there are no signs yet that household confidence or consumption has been affected. GDP growth in Norway is expected to amount to around 2 per cent a year over the entire forecast period.

Slowly rising inflationary pressures abroad

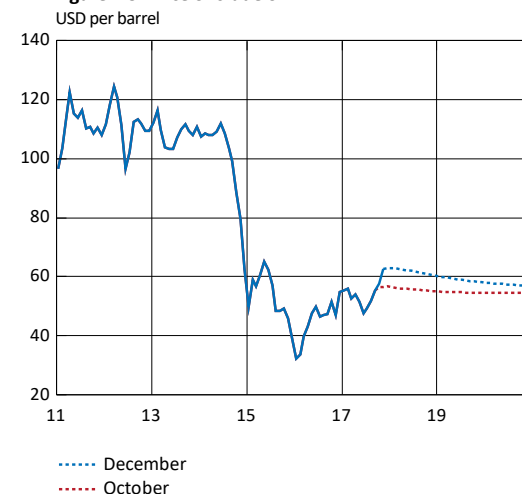
Underlying inflation remains low abroad and CPI inflation fell back in the first six months of 2017 as the positive contributions made by energy prices decreased. Since the summer, the oil price has risen (see Figure 4:3). This has caused a certain rise in inflation in recent months and has led to an upward revision of the forecast for the next year.

Figure 4:2. Housing prices in Sweden and Norway
Index 2010 = 100, seasonally adjusted data



Sources: Eiendom Norge, Valueguard and Riksbank.

Figure 4:3. Price of crude oil



Note. Brent oil, forward rates are calculated as a 15-day average. The outcome refers to monthly averages of spot prices.

Sources: Macrobond and the Riksbank

In the United States, wage growth is still modest in relation to the low level of unemployment. The rate of wage increase has shown a rising trend, however, and this development is expected to continue, at the same time as resource utilisation will become even more strained. As well as the weakening effects of temporary factors that are dampening inflation, this will contribute towards inflation being expected to rise in the period ahead.

Inflation in the euro area is still low. One factor is the earlier appreciation of the euro, which continues to restrain inflation in the period ahead. After this, inflation is expected to gradually increase as resource utilisation increases and wages growth rises. Something that can contribute towards this is higher wage increases in Germany next year when many wage agreements expire. Economic activity is much stronger now and inflation expectations are higher than when the current agreements were signed. In the United Kingdom, inflation is just over 3 per cent. This is primarily deemed to be due to the weakening of sterling that occurred up until one year ago, and inflation is expected to fall in the period ahead as this exchange rate effect subsides.

All in all, inflation abroad is expected to rise, albeit modestly, in the next few years (see Figure 4:4).

Some appreciation of the krona in the period ahead

The krona has weakened since October, following a period of macroeconomic statistics that were somewhat worse than expected and in relation to the forecast in October, it is expected to be weaker during the whole of 2018 (see Figure 4:5). During the forecast period a gradual strengthening of the krona is expected, given the good economic activity in Sweden and abroad.

Sweden

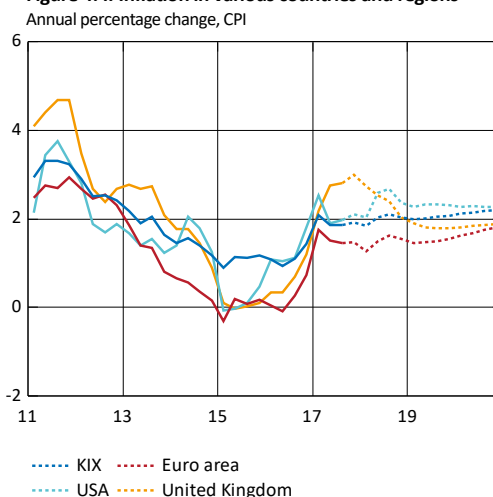
Strong Swedish economy but lower growth in 2019 and 2020

A rapid upturn in housing construction and a recovery on Swedish export markets have contributed to several years of high GDP growth in Sweden (see Figure 4:6). Resource utilisation is expected to be higher than normal and to continue to increase slightly in the coming quarters. The strong economic situation will subsequently slow down slightly as growth on Swedish export markets dampens and housing investments decrease.

The strong level of global industrial activity has led to rising growth on Swedish export markets. This has led to the stronger development of exports of Swedish goods and services, but growth is still modest from a historical perspective. The growing foreign demand and ever higher capacity utilisation in the manufacturing sector will contribute to relatively strong growth in business sector investments, excluding housing, in the next few years.

Prospects for housing investments is affected by the subdued mood on the Swedish housing market. This change follows recent

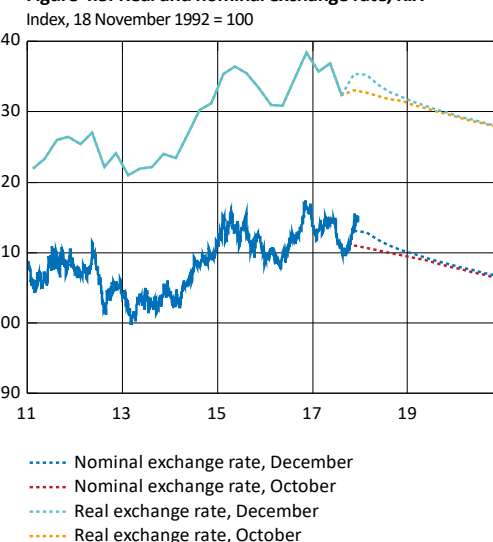
Figure 4:4. Inflation in various countries and regions



Note. KIX is an aggregate of the countries that are important to Sweden's international transactions.

Sources: The Bureau of Labor Statistics, Eurostat, national sources, Office for National Statistics and the Riksbank

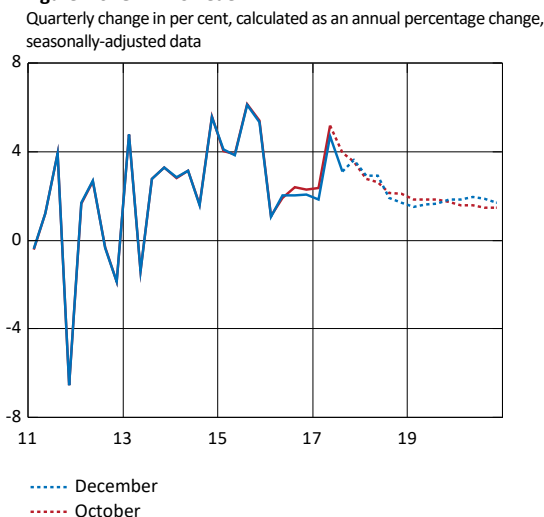
Figure 4:5. Real and nominal exchange rate, KIX



Note. The real exchange rate has been deflated with the CPI for Sweden and the CPI for the rest of the world. Outcomes are daily data for the nominal exchange rate, outcomes for the real exchange rate and forecasts refer to quarterly averages. The KIX is an aggregate of countries that are important for Sweden's international transactions.

Sources: National sources, Statistics Sweden and the Riksbank

Figure 4:6. GDP in Sweden



Sources: Statistics Sweden and the Riksbank

years' very rapid increase of housing construction. Even if the Riksbank considers that there is a great need for more housing, the recent decline in housing prices (see Figure 4:2) indicates that the supply in certain segments of the market is too large at the prevailing price level. The Riksbank's forecast is that housing prices will fall slightly further in the period ahead, but that the good economic development in Sweden and abroad will contribute towards prices then stabilising and being expected to increase at a moderate pace over the forecast period. A certain slowdown of housing construction will also contribute towards this development. The level of the number of housing starts is assessed to remain high, but is now predicted to be somewhat lower in 2018 compared to previous assessment. It takes on average just over a year for a housing start to be completed and housing investment is affected during the entire construction period. This means that the downturn in housing investment occurs with some time lag and will trough in 2019. Even if housing construction will continue to be high from a historical perspective, housing investment's share of GDP will decrease slightly (see Figure 4:7). This will contribute towards total investments, all in all, growing more slowly over the coming years.

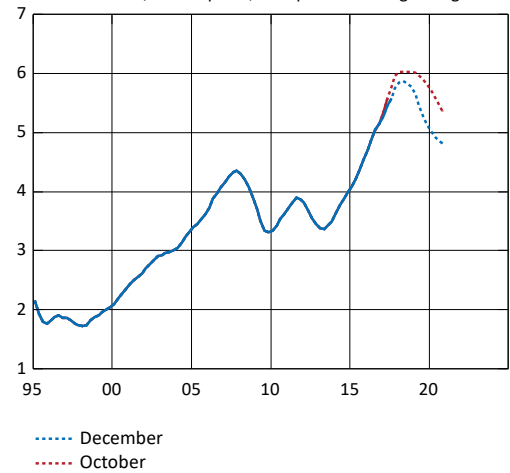
Household wealth and incomes have increased due to the ever-stronger economic situation of recent years. In addition, households have saved an increasing proportion of their incomes. Increased transfer payments and lower taxes mean that the rate of increase in household incomes will rise in 2018 and contribute to high growth in consumption. After this, a weaker employment development and gradually rising mortgage rates will contribute towards dampening incomes and consumption growth slightly in 2019 and 2020. At the same time, households can smooth their consumption over time by cutting back on their saving, which is high at present. Saving as a proportion of income, the so-called saving ratio, will therefore decrease in 2019 and 2020 (see Figure 4:8).

All in all, GDP growth in Sweden is expected to be 2.5 per cent and just under 3 per cent this year and in 2018, respectively, before then decreasing to an average of 2 per cent in 2019 and 2020 (see Figure 4:6).

Cooler housing market will restrain the rate of debt increase

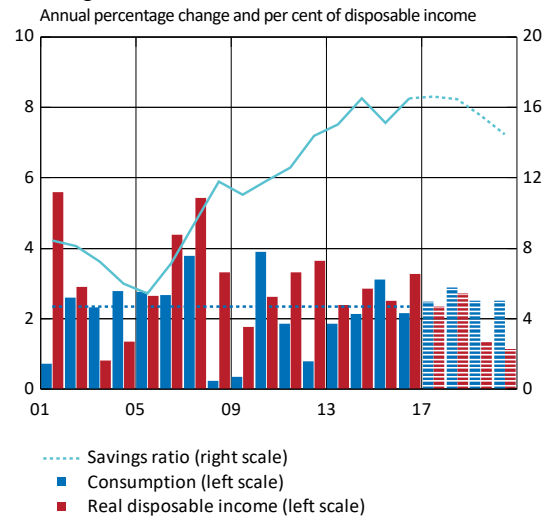
The slowdown on the housing market is contributing to reducing the rate of increase in household indebtedness, partly because first-time buyers on the housing market are now paying lower prices than the Riksbank had forecast in October. The tougher amortisation requirement applies from March 2018, and the Riksbank's assessment is still that this will have little effect on housing prices and household indebtedness. According to the forecast, household debts rise more slowly than in the previous assessment, but still somewhat faster than their incomes. In addition, Statistics Sweden has adjusted outcomes for household incomes in 2016 upwards. All in all, the so-called debt-to-income

Figure 4:7. Housing investment
Per cent of GDP, current prices, four quarters moving average



Sources: Statistics Sweden and the Riksbank

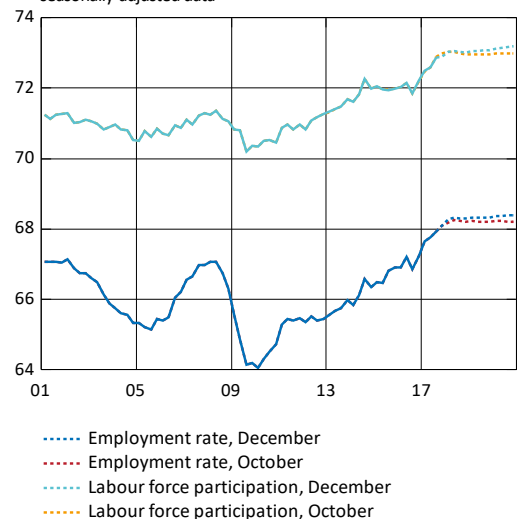
Figure 4:8. Households' real disposable income, consumption and savings ratio
Annual percentage change and per cent of disposable income



Note. Disposable income has been deflated using the household consumption deflator. Broken line is the average of growth in consumption 1994-2016.

Sources: Statistics Sweden and the Riksbank

Figure 4:9. Employment rate and labour force participation
Employment and labour force as percentage of the population, aged 15-74, seasonally-adjusted data



Sources: Statistics Sweden and the Riksbank

ratio is expected to rise to almost 190 per cent during 2020 (see Figure 1:13).

The labour market will strengthen slightly more

The development of the labour market has been strong for some time and both the labour force participation rate and the employment rate are now at historically high levels (see Figure 4:9).

In the next few years, the working-age population is expected to increase at an ever-slower rate (see Figure 4:10). In addition, this population increase will consist above all of asylum and family member immigrants, a group that has found it difficult to obtain work historically. This means that growth in the number of people in the labour force and the number of employed persons slows down.

Demand for labour in the construction industry is expected to decrease slightly in the years ahead due to the decrease in housing investments. However, this decline in demand for personnel is primarily expected to be seen in the reduction of foreign labour, which is not included in the labour force surveys. At the same time, the economic situation will also continue to be strong in the rest of the economy, which will also facilitate the entry of new immigrants into the labour market. Together with the stronger development among older people (see the article “Older people will contribute more to the number of hours worked”), this will contribute towards the employment rate and labour force participation rate rising slightly further in the coming years (see Figure 4:9).

However, it seems to have become more difficult for companies to find the right personnel. The percentage of companies reporting labour shortages in the Economic Tendency Survey rose further in the third quarter and the average recruitment time in the business sector is long (see Figure 3:9). The unemployed category has changed and, at present, largely consists of persons who are having difficulty in finding work.³⁶ The Riksbank therefore assesses that unemployment will not fall more substantially from the current level (see Figure 4:11). All in all, the development of the labour market will still be strong enough for resource utilisation to rise slightly further and remain high over the next few years (see Figure 4:12).

Rising but still modest wage growth

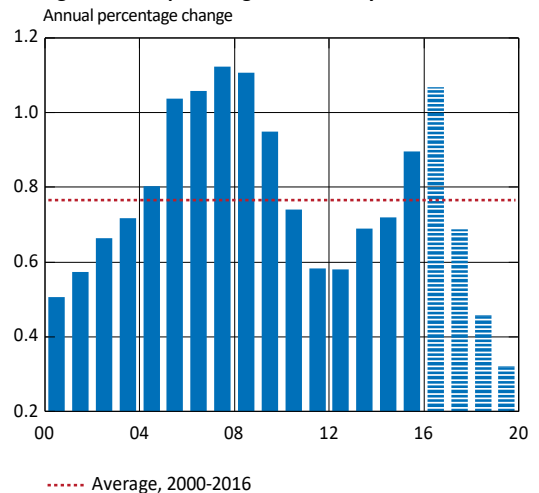
According to short-term wage statistics, wages throughout the economy are this year expected to increase by 2.7 per cent. The strong labour market situation will contribute towards an increasingly high rate of wage increase in the entire economy over the forecast period. But even if wage growth will gradually rise, it is expected to remain moderate, seen from a historical perspective.

³⁶ According to Arbetsförmedlingen, “vulnerable groups” now form about three-quarters of the registered unemployed. These are unemployed persons without upper-secondary education, those born outside Europe, those aged over 55 years and/or persons with functional impairments leading to reduced work capacity.

Older people contributes more to hours worked

The development of both the labour force participation rate and the employment rate among persons over the age of 60 has been strong for a long time. Last year, the employment rate among persons over the age of 65 declined slightly, but, this year, it has increased again and the development among older people has been stronger than the Riksbank had previously expected (see C. Flodberg and M. Löf, “The supply of labour has increased surprisingly rapidly”, Staff memo, Sveriges Riksbank, 2017). The good economic situation is probably contributing to older people who are willing and able remaining on the labour market. However, the Riksbank assesses that some of this development is due to structural reasons, which are expected to persist. For instance, labour force participation is expected to continue to increase as the average life expectancy increases. Compared with the Monetary Policy Report from October, the Riksbank has therefore made a slight upward adjustment of the trend development of the number of hours worked for the years ahead.

Figure 4:10. Population growth, 15–74 years



Sources: Statistics Sweden and the Riksbank

Figure 4:11. Unemployment



Sources: Statistics Sweden and the Riksbank

The National Accounts' hourly wages and labour costs, that is, wages plus social security contributions, are expected to rise approximately in line with short-term wages over the forecast period. Productivity is expected to grow by just over one per cent this year and then at a somewhat faster rate for the remainder of the forecast years. Unit labour costs increased by just over 2 per cent in 2016 and 2017 and are expected to continue to increase at about the same rate in the period ahead (see Figure 4:13).

Inflation close to 2 per cent in years ahead

Inflation has shown a rising trend since 2014. Over the spring and summer, a number of temporary factors contributed to the upswing. These have subsided in recent months, however, and the rate of inflation has therefore fallen back somewhat and, in November, CPIF inflation amounted to 2.0 per cent. Over the last year, rising energy prices have contributed to the upturn. CPIF inflation excluding energy has therefore been lower and amounted to 1.8 per cent in November.

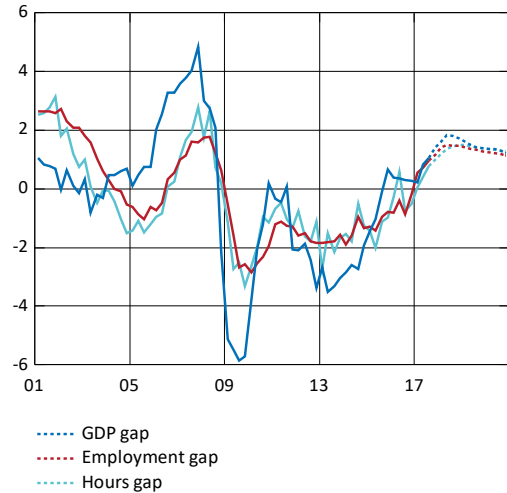
Over the coming years, inflation is expected to remain close to 2 per cent. Even though the krona has depreciated since October, it is expected to appreciate in the next few years, which will have a restraining effect on inflation later in the forecast period. Energy prices have risen since the assessment in the Monetary Policy Report published in October and are now expected to contribute more to inflation in 2018.

The most important factor behind the upturn in inflation, which has been under way since 2014, is a relatively broad rise in prices for services. The Riksbank deems that conditions are good for inflation to remain close to 2 per cent in the period ahead. Above all, this view is justifiable because resource utilisation, supported by an expansionary monetary policy, has risen and is expected to be higher than normal in the years ahead. This will lead to the rate of wage increases gradually rising and that it becomes easier for companies to raise their prices. Moreover, prices abroad are also expected to rise at a faster pace when global economic activity strengthens.

Small revision in the forecast for inflation

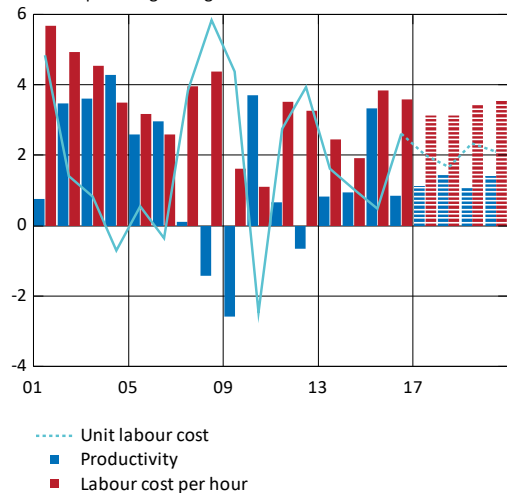
The Riksbank's assessment of the conditions for developments in inflation in the coming years remains largely unchanged compared to October. The negative effects of somewhat lower growth are counteracted by a weaker krona. However, CPIF inflation is expected to be somewhat higher in the coming year. This is mainly explained by energy prices being expected to rise faster in 2018 than was assumed in the previous assessment. The slower rate of increase in the value of housing capital stock in the CPIF due to the lower housing prices is contributing towards the inflation forecast being revised marginally downwards towards the end of the forecast period (see also the article "Minor direct effects of housing prices on the CPIF"). CPIF inflation is expected to be close to 2 per cent over the forecast period (see Figure 4:14). The CPI will increase more rapidly than the CPIF over the forecast period. When the repo rate, and thereby also mortgage

Figure 4:12. GDP gap, employment gap and hours gap
Per cent



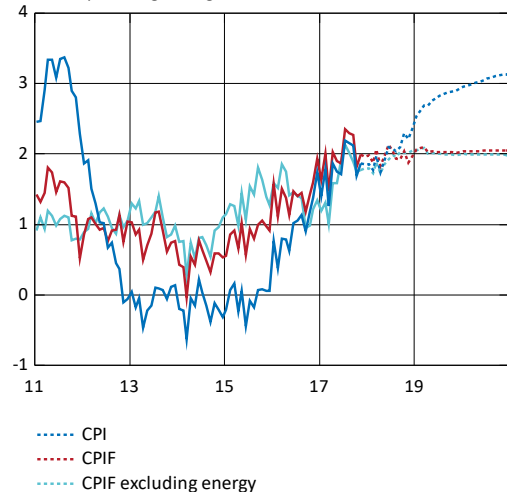
Note. The gaps refer to the deviation in GDP, the number of hours worked and the number of those employed from the Riksbank's assessed trends.
Sources: Statistics Sweden and the Riksbank

Figure 4:13. Cost pressures in the economy as a whole
Annual percentage change



Sources: Statistics Sweden and the Riksbank

Figure 4:14. CPI, CPIF and CPIF excluding energy
Annual percentage change



Sources: Statistics Sweden and the Riksbank

rates, starts to rise in 2018, household mortgage costs will also rise more rapidly, which will contribute to raising CPI inflation but not inflation according to the CPIF.

Minor direct effects of housing prices on the CPIF

Housing prices are not directly included in measurements of the CPIF. But the CPIF is still affected by the development of housing prices via the sub-index of the CPIF that measures owner-occupied housing expenses, in which the so-called capital stock index is included. This index measures the overall purchase cost of housing. As only a smaller portion of housing is bought and sold every year, the direct impact of changes in housing prices on the capital stock index is limited. This applied, in particular, until the end of 2016, when the capital stock index only included single-family dwellings. As these are sold relatively infrequently, the direct impact from housing prices was limited. However, as of 2017, tenant-owned apartments are also included in the calculation of the capital stock. This has two implications. Firstly, prices for tenant-owned apartments, over a longer period, have risen more rapidly than prices for single-family dwellings, meaning that the capital stock index is now growing at a slightly faster rate than previously. Secondly, tenant-owned apartments are sold more frequently, meaning that price adjustments now have a greater and faster impact on the CPIF. At present, the development of the capital stock index contributes around 0.3 percentage points to the rate of inflation. When the development of housing prices slows down, the contribution to the CPIF of the capital stock index will be smaller. For example, the Riksbank's calculations indicate that, if housing prices fall and remain 20 per cent lower, the contribution from the capital stock index to CPIF inflation would be just under 0.1 percentage points lower for several years.

Tables

The forecast in the previous Monetary Policy Report is shown in brackets unless otherwise stated.

Table 1. Repo rate forecast

Per cent, quarterly averages

	Q3 2017	Q4 2017	Q1 2018	Q4 2018	Q4 2019	Q4 2020
Repo rate	-0.5	-0.5 (-0.5)	-0.5 (-0.5)	-0.3 (-0.3)	0.2 (0.2)	0.8 (0.8)

Source: The Riksbank

Table 2. Inflation

Annual percentage change, annual average

	2016	2017	2018	2019	2020
CPIF	1.4	2.0 (1.9)	2.0 (1.8)	2.0 (2.1)	2.0 (2.1)
CPIF excl. energy	1.4	1.7 (1.7)	1.9 (1.9)	2.0 (2.1)	2.0 (2.0)
CPI	1.0	1.8 (1.8)	2.0 (1.9)	2.8 (2.8)	3.1 (3.1)
HICP	1.1	1.9 (1.8)	1.9 (1.7)	2.0 (1.9)	1.9 (1.9)

Note. HICP is an EU harmonised index of consumer prices.

Sources: Statistics Sweden and the Riksbank

Table 3. Summary of financial forecasts

Per cent, unless otherwise stated, annual average

	2016	2017	2018	2019	2020
Repo rate	-0.5	-0.5 (-0.5)	-0.4 (-0.4)	0.0 (0.0)	0.6 (0.6)
10-year rate	0.5	0.7 (0.8)	1.1 (1.3)	1.9 (2.0)	2.5 (2.6)
Exchange rate, KIX, 18 November 1992 = 100	111.7	112.9 (112.3)	111.5 (110.2)	109.1 (108.7)	107.3 (107.0)
General government net lending*	1.2	1.2 (1.2)	0.8 (0.9)	0.9 (1.0)	0.8 (0.9)

* Per cent of GDP

Sources: Statistics Sweden and the Riksbank

Table 4. International conditions

Annual percentage change, unless otherwise stated

GDP	PPP-weights	KIX-weights	2016	2017	2018	2019	2020
Euro area	0.12	0.47	1.8	2.4 (2.2)	2.4 (2.1)	1.8 (1.7)	1.6 (1.5)
USA	0.15	0.08	1.5	2.3 (2.1)	2.5 (2.4)	2.1 (2.1)	2.0 (2.0)
Japan	0.04	0.02	0.9	1.8 (1.6)	1.3 (1.1)	0.8 (0.8)	0.3 (0.4)
China	0.18	0.08	6.7	6.8 (6.8)	6.2 (6.2)	6.1 (6.1)	6.1 (6.1)
KIX-weighted	0.75	1.00	2.1	2.8 (2.7)	2.7 (2.5)	2.3 (2.3)	2.2 (2.2)
World (PPP-weighted)	1.00	—	3.2	3.7 (3.6)	3.7 (3.7)	3.7 (3.7)	3.7 (3.7)

Note. Calendar-adjusted growth rates. The PPP weights refer to the global purchasing-power adjusted GDP weights for 2017, according to the IMF. KIX weights refer to weights in the Riksbank's krona index (KIX) for 2017. The forecast for GDP in the world is based on the IMF's forecasts for PPP weights. The forecast for KIX-weighted GDP is based on an assumption that the KIX weights will develop in line with the trend during the previous five years.

CPI	2016	2017	2018	2019	2020
Euro area (HICP)	0.2	1.5 (1.5)	1.5 (1.3)	1.5 (1.6)	1.7 (1.8)
USA	1.3	2.1 (2.2)	2.4 (2.4)	2.3 (2.4)	2.3 (2.3)
Japan	-0.1	0.4 (0.5)	0.9 (1.0)	1.5 (1.5)	2.0 (1.9)
KIX-weighted	1.1	1.9 (1.9)	2.0 (1.9)	2.0 (2.1)	2.2 (2.2)
	2016	2017	2018	2019	2020
Policy rates in the rest of the world, per cent	-0.1	-0.1 (-0.1)	0.1 (0.0)	0.2 (0.3)	0.6 (0.6)
Crude oil price, USD/barrel Brent	45.1	54.7 (53.6)	61.8 (55.7)	59.1 (54.8)	57.4 (54.6)
Swedish export market	3.5	5.2 (5.4)	4.3 (3.9)	3.9 (3.9)	3.8 (3.8)

Note. Policy rates in the rest of the world refer to a weighted average of USA, the euro area, Norway and the United Kingdom.

Sources: Eurostat, IMF, Intercontinental Exchange, national sources, OECD and the Riksbank

Table 5. GDP by expenditure

Annual percentage change, unless otherwise stated

	2016	2017	2018	2019	2020
Private consumption	2.2	2.5 (2.5)	2.9 (3.0)	2.5 (2.6)	2.5 (2.2)
Public consumption	3.1	0.4 (0.4)	1.4 (1.5)	1.0 (0.9)	1.2 (1.1)
Gross fixed capital formation	5.6	7.3 (7.8)	4.7 (4.1)	0.7 (2.2)	2.0 (1.6)
Inventory investment*	0.0	-0.1 (0.0)	-0.1 (0.0)	0.0 (0.0)	0.0 (0.0)
Exports	3.3	3.5 (3.4)	4.8 (4.6)	3.8 (3.6)	4.0 (4.1)
Imports	3.4	5.1 (4.4)	5.0 (4.5)	3.8 (4.0)	4.1 (4.1)
GDP	3.2	2.5 (2.9)	2.9 (2.9)	1.7 (2.0)	2.1 (1.9)
GDP, calendar-adjusted	3.0	2.7 (3.1)	3.0 (3.1)	1.7 (2.0)	1.8 (1.6)
Final figure for domestic demand*	3.1	3.0 (3.1)	2.8 (2.7)	1.5 (1.9)	1.9 (1.7)
Net exports*	0.1	-0.4 (-0.2)	0.1 (0.2)	0.2 (0.0)	0.1 (0.2)
Current account (NA), per cent of GDP	5.1	4.6 (4.8)	4.3 (4.8)	4.3 (4.7)	4.2 (4.6)

*Change in per cent of GDP previous year.

Note. The figures show actual growth rates that have not been calendar-adjusted, unless otherwise stated. NA is the National Accounts.

Sources: Statistics Sweden and the Riksbank

Table 6. Production and employment

Annual percentage change, unless otherwise stated

	2016	2017	2018	2019	2020
Population, aged 15–74	0.9	1.1 (1.1)	0.7 (0.7)	0.5 (0.5)	0.3 (0.3)
Potential hours worked	0.9	0.8 (0.7)	0.7 (0.6)	0.6 (0.5)	0.5 (0.4)
GDP, calendar-adjusted	3.0	2.7 (3.1)	3.0 (3.1)	1.7 (2.0)	1.8 (1.6)
Number of hours worked, calendar-adjusted	2.1	1.6 (1.5)	1.5 (1.6)	0.7 (0.6)	0.4 (0.3)
Employed, aged 15–74	1.5	2.3 (2.3)	1.3 (1.2)	0.5 (0.5)	0.4 (0.3)
Labour force, aged 15–74	1.0	2.0 (2.0)	1.1 (1.0)	0.5 (0.4)	0.5 (0.4)
Unemployment, aged 15–74 *	6.9	6.7 (6.7)	6.5 (6.5)	6.5 (6.5)	6.5 (6.5)

* Per cent of the labour force

Note. Potential hours refer to the long-term sustainable level for the number of hours worked according to the Riksbank's assessment.

Sources: Statistics Sweden and the Riksbank

Table 7. Wages and labour costs for the economy as a whole

Annual percentage change, calendar-adjusted data unless otherwise stated

	2016	2017	2018	2019	2020
Hourly wage, NMO	2.4	2.7 (2.7)	3.0 (3.1)	3.3 (3.3)	3.4 (3.4)
Hourly wage, NA	2.2	3.1 (3.2)	3.1 (3.2)	3.3 (3.4)	3.4 (3.5)
Employers' contribution*	0.7	0.0 (0.2)	0.0 (0.0)	0.1 (0.1)	0.1 (0.1)
Hourly labour cost, NA	3.0	3.1 (3.4)	3.1 (3.3)	3.4 (3.5)	3.6 (3.6)
Productivity	0.9	1.1 (1.6)	1.4 (1.5)	1.1 (1.4)	1.4 (1.3)
Unit labour cost	2.6	2.0 (1.9)	1.7 (1.8)	2.3 (2.1)	2.1 (2.3)

* Contribution to the increase in labour costs, percentage points

Note. NMO is the National Mediation Office's short-term wage statistics and NA is the National Accounts. Labour cost per hour is defined as the sum of actual wages, social-security charges and wage taxes (labour cost sum) divided by the number of hours worked by employees. Unit labour cost is defined as labour cost sum divided by GDP in fixed prices.

Sources: National Mediation Office, Statistics Sweden and the Riksbank



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

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