

Monetary Policy Report

October 2016



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 26 October 2016. 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 specified this as a target for inflation, according to which the annual change in the consumer price index (CPI) is to be 2 per cent.
- 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.
- 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

The international recovery is expected to continue at a relatively moderate pace and global inflation is expected to rise gradually from a low level. Economic activity in Sweden has strengthened in recent years, and resource utilisation is expected to continue rising and become higher than normal. This creates the conditions for inflation to continue rising. The expansionary monetary policy, with a negative repo rate and purchases of government bonds, has contributed to the positive development in the Swedish economy, with high growth and falling unemployment. Inflation has been rising since the start of 2014 and long-run inflation expectations are back around 2 per cent. At the same time, inflation has slowed down in recent months, which illustrates the uncertainty over how quickly inflation will rise towards the target.

The overall picture of growth prospects has not changed tangibly since the September Monetary Policy Report, but it is now expected to take longer time before inflation reaches 2 per cent. The upturn in inflation therefore needs continued strong support. The Executive Board therefore assesses that the repo rate needs to be held at the current low level, –0.50 per cent, for six months longer than was assumed in September. This means that slow increases will not begin until early 2018. The repo-rate path now also reflects a greater probability that the rate could be cut further. Prior to the monetary policy meeting in December, the Executive Board is also prepared to extend the purchases of government bonds. In addition, there is still a high level of preparedness to make monetary policy even more expansionary if the upward trend in inflation were threatened. 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.

Modest global recovery and good Swedish economic activity

The global economic recovery is expected to continue at a relatively moderate rate in the years ahead. This year, global growth is expected to be just over 3 per cent, underpinned by expansionary monetary policy and in some cases by fiscal policy stimulus. This historically moderate growth has partly been caused by cyclical factors linked to the financial crisis, such as high private and public indebtedness. But it is also a result of weak productivity growth over a long period of time and a slower increase in the working-age population in several countries. This has deteriorated the economies' long-term growth potential.

In the United States, growth is expected to rise again after a weak first half of the year. This is because temporary factors that have held back growth will wane. In the euro area, growth is expected to continue to be relatively weak in the coming quarters, before rising slightly next year.

The forecast for GDP growth for the countries included in the krona index (KIX), i.e. the most important countries for the Swedish economy, is largely unchanged compared with the assessment in September. Growth is expected to rise slowly during the forecast period from 2.0 per cent this year to

Table 1:1.

Important factors for monetary policy
The global economic recovery is continuing at a moderate pace, at the same time as inflation is low and monetary policy is expansionary in many countries.
The upturn in the Swedish economy is continuing and resource utilisation will be higher than normal in the next few years. However, it will take longer for inflation to reach 2 per cent.
The upturn in inflation requires continued strong support, there is greater probability of a lower interest rate, the Executive Board is prepared to extend the government bond purchases, repo-rate increases are postponed.

Table 1:2.

Revisions in the forecast compared with September
The forecast for international GDP growth and inflation is largely unchanged.
Minor changes in the forecast for Swedish GDP.
The surprisingly weak inflation outcomes in recent months indicate weaker inflationary pressure and the forecast has been revised down.
The forecast for the competitiveness-weighted exchange rate, KIX, is slightly weaker during the entire forecast period.

2.3 per cent in 2019. Inflation abroad has been low for a longer time. In the near term, rising energy prices are expected to contribute towards a certain increase in inflation. Resource utilisation is also expected to rise, which will also contribute to increased price pressure. All in all, inflation abroad is expected to be 2 per cent in 2017 and then to increase slightly, to just over 2 per cent in 2019.

There have been relatively minor fluctuations on the financial markets since the monetary policy decision in September. Government bond yields have risen slightly, however, particularly in the United States and United Kingdom. In the euro area, the policy rate was left unchanged. The deposit rate is thus still at -0.40 per cent and the asset purchases of EUR 80 billion a month will continue until March 2017 according to the ECB, or longer if this is necessary to bring inflation in line with the target. Most market participants expect an extension of the asset purchase programme towards the end of the year. Neither did the US central bank, the Federal Reserve, adjust its policy rate at its meeting in September. However, it signalled that the arguments in favour of a rate rise this year have strengthened. Monetary policy abroad will thus continue to be expansionary to support the recovery of economic activity and to bring the low level of inflation up.

The forms for a British withdrawal from the EU are still unclear. Prime Minister Theresa May has stated that the UK will initiate the formal exit process no later than the end of March 2017, by triggering Article 50 of the EU Treaty. After that the Treaty specifies a two-year withdrawal process with several different, complicated negotiations. The British government has made several different gambits regarding its views on the country's future links to the EU single market, which has resulted in major fluctuations in sterling. There will be considerable uncertainty here for a long period to come.

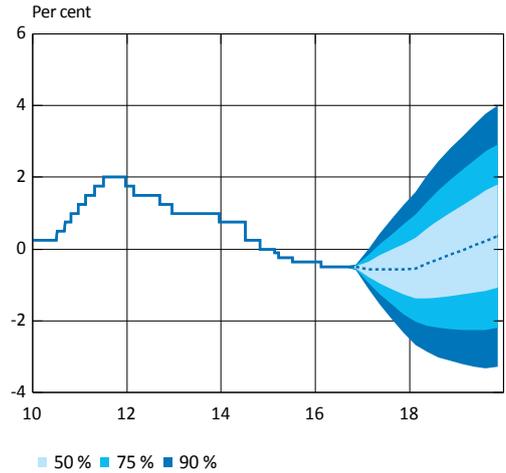
Continued good growth despite slowdown

Swedish GDP growth has been relatively strong for some time, supported by an expansionary monetary policy (see Figures 1:1 and 1:2). According to the National Accounts for the second quarter, GDP grew by 2.0 per cent compared with the first quarter and calculated as an annual rate.

Despite a slowdown in relation to the strong upturn last year, growth is expected to remain good. This year, developments are mainly being driven by public sector consumption and investment in housing, at the same time as private sector consumption is in line with its historical average. Exports have fallen so far this year and the latest monthly indicators for both exports and industrial output have been weak. However, this weakness in the industrial sector is deemed to be temporary and, as international demand picks up, growth in exports is expected to successively increase.

The expansionary monetary policy, together with rising growth abroad next year, is expected to provide support to economic activity in Sweden. All in all, GDP is expected to

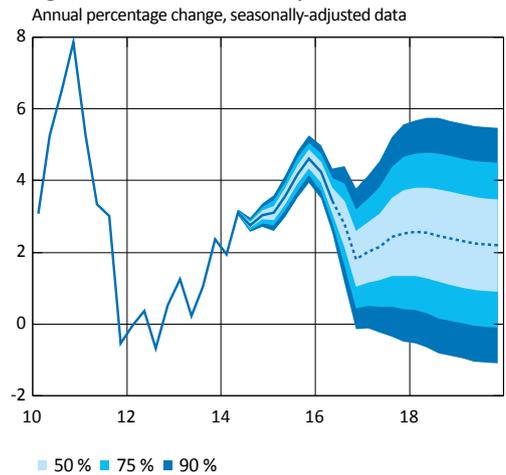
Figure 1:1. Repo rate with uncertainty bands



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

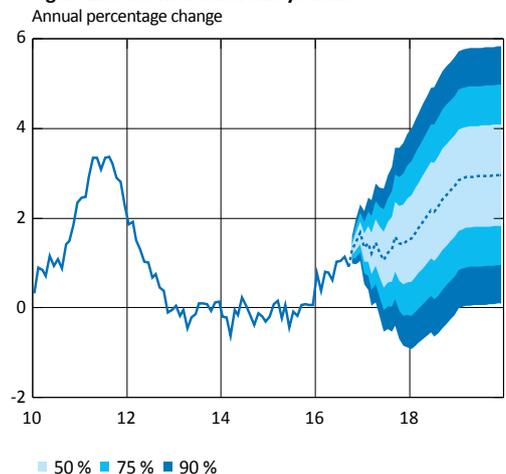
Figure 1:2. GDP with uncertainty bands



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

increase by just over 3 per cent this year and just over 2 per cent on average in 2017–2019, which is largely the same as the assessment in September.

Several indicators of resource utilisation are close to or somewhat over their historical averages and the overall assessment is that resource utilisation is currently almost normal. In the years ahead, resource utilisation is expected to increase further and be higher than normal.

Strong economic activity leads to higher inflation

CPI inflation has long been low and is being held back by falling interest costs. However, over the last six months, it has risen and is around 0.9 per cent (see Figure 1:3). CPIF inflation has shown a rising trend since 2014 (see Figure 1:4). However, in recent months the outcomes have been unexpectedly low. In September, CPIF inflation was 1.2 per cent.

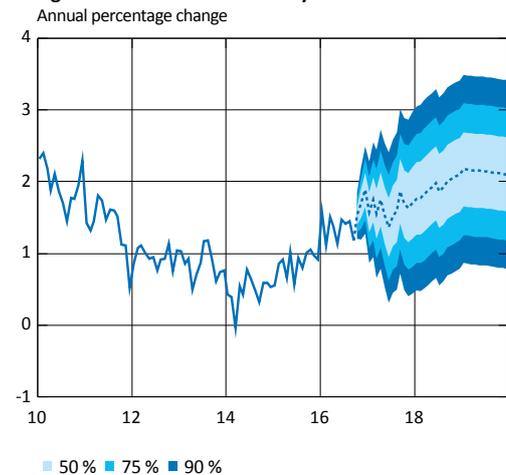
The assessment is that the conditions for the trend rise in inflation to continue are good, despite recent setbacks. The rising resource utilisation means, after some time lag, that domestic price pressures will increase and that price pressures from abroad will also increase. In addition, the generally stronger economic situation should make it easier for companies to raise their prices and increase their profit margins. Over the coming year, rising energy prices are also expected to provide a clear contribution to higher inflation, after several years of subduing effects.

The weak inflation outcomes in recent months illustrate the uncertainty over how quickly inflation will rise. The fact that service prices in particular have increased more slowly than expected indicates that underlying inflationary pressures are weaker than the Riksbank had previously assessed. The inflation forecast has therefore been revised down in relation to the forecast in September. Inflation is now expected to reach 2 per cent in the middle of 2018, measured in terms of both the CPI and the CPIF (see Figures 1:5–1:7).

The krona measured in terms of the krona index has weakened since the spring and has also become weaker than was forecast in September. The depreciation in the autumn was against all of the important currencies, with the exception of sterling. The fact that the krona has weakened further during the autumn and that monetary policy is now becoming more expansionary entails a somewhat weaker krona rate over the whole forecast period compared with September (see Figure 1:8).

At the end of the forecast period, the krona is expected to be back at approximately the same level as in the spring. This suggests that the overall effects of the exchange rate movements on inflation in 2016–2019 will be limited, even if they affect inflation from year to year. The gradual strengthening of the krona over the coming years will contribute to slowing down inflation somewhat. However, this effect will be counteracted by both faster international price increases and rising resource utilisation in the Swedish economy.

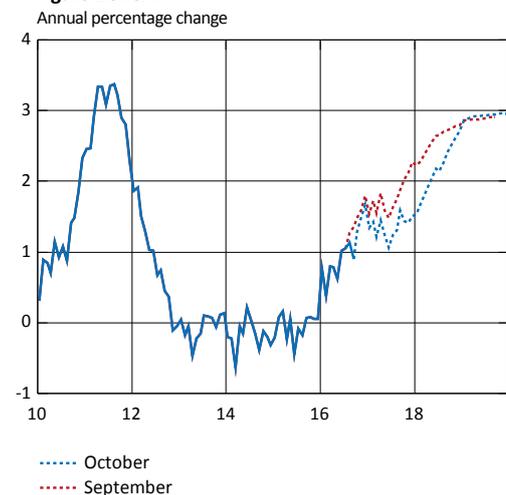
Figure 1:4. CPIF with uncertainty bands



Note. The uncertainty bands are based on the Riksbank's historical forecasting errors. The CPIF is the CPI with a fixed mortgage rate.

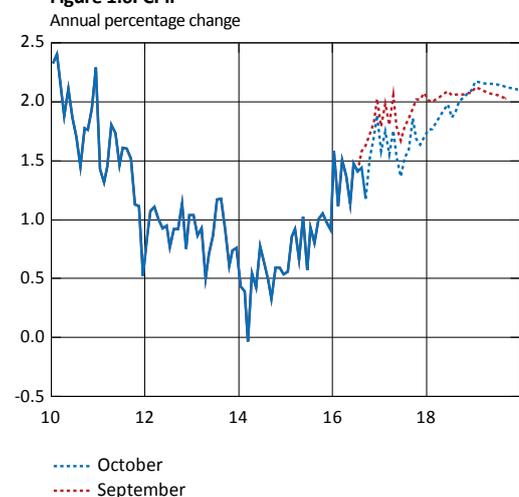
Sources: Statistics Sweden and the Riksbank

Figure 1:5. CPI



Sources: Statistics Sweden and the Riksbank

Figure 1:6. CPIF



Note. The CPIF is the CPI with a fixed mortgage rate.

Sources: Statistics Sweden and the Riksbank

Current monetary policy

For a long time, monetary policy in Sweden has been characterised by low domestic inflation, considerable uncertainty over international economic developments and low global interest rates. Given this, monetary policy has become increasingly expansionary to safeguard the role of the inflation target as nominal anchor for price-setting and wage formation. The Riksbank has cut the repo rate to -0.50 per cent and carried out extensive purchases of government bonds. At year-end 2016, these purchases will amount to SEK 245 billion (see Figure 1:9). Until further notice, the Riksbank will reinvest maturities and coupon payments on the government bond portfolio to maintain the expansionary monetary policy.

The aim of the expansionary monetary policy is to push up inflation and stabilise it around the target of 2 per cent and help keep inflation expectations in line with the inflation target. High confidence in the inflation target is creating the conditions for efficient price-setting and wage formation, as well as good economic growth in Sweden.

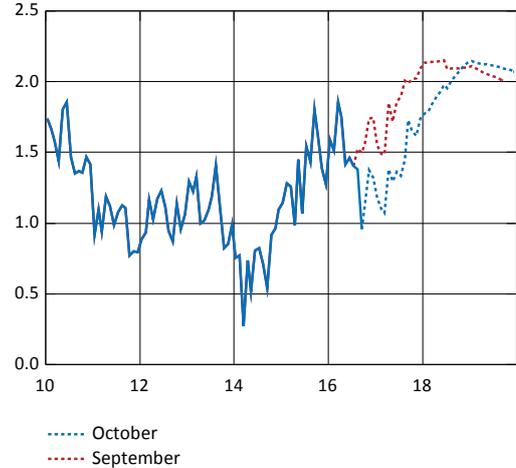
The upturn in inflation needs continued strong support

The reduction of the repo rate to below zero and the purchases of government bonds carried out by the Riksbank have had a broad impact and have pushed many rates down. The expansionary monetary policy has thus contributed towards the positive development of the Swedish economy seen in recent years. GDP growth has been high and the labour market has successively strengthened with rising employment and falling unemployment. Inflation has been rising since the beginning of 2014, and long-term inflation expectations are close to 2 per cent again (see Figure 1:10). If the general public expects inflation to be around the target within a few years' time, this affects price-setting and wage formation, making the inflation target easier to attain.

Since the Monetary Policy Report was published in September, real economic developments in Sweden and abroad have been in line with the Riksbank's forecasts and the overall picture of growth prospects remains largely unchanged.

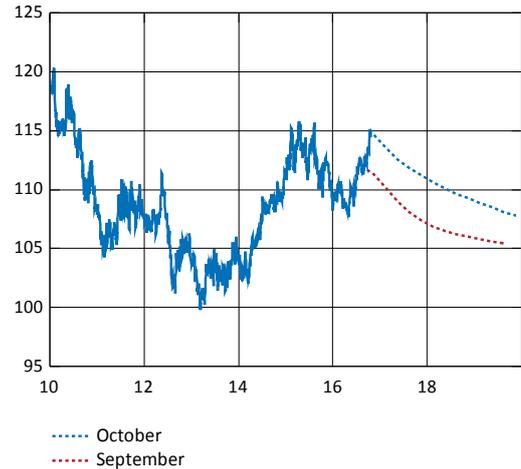
At the same time, inflation has slowed down this year, and the outcomes for both August and September were lower than the Riksbank's forecast. This illustrates the uncertainty regarding how quickly inflation will rise to 2 per cent. There are many factors that affect inflation, such as international developments, the exchange rate, inflation expectations and resource utilisation. When resource utilisation in the economy rises, it normally affects the rate of price increase with a certain time lag. The high level of growth and improving labour market seen for a number of years mean that the conditions for inflation to rise are in place. However, it is uncertain how quickly resource utilisation will affect inflation and how large the effect will be. And the subdued inflation in Sweden reflects developments abroad, which are also marked by low inflation. Given the weak inflation outcomes in

Figure 1:7. CPIF excluding energy
Annual percentage change



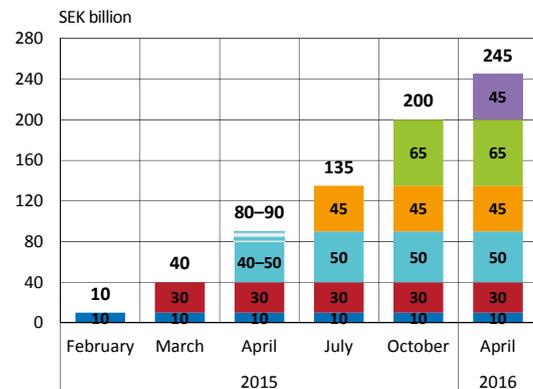
Note. The CPIF is the CPI with a fixed mortgage rate.
Sources: Statistics Sweden and the Riksbank

Figure 1:8. KIX-weighted nominal exchange rate
Index, 1992-11-18 = 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 1:9. Purchases of government bonds decided by the Riksbank



Note. Government bond purchases will continue until the end of 2016. As the Riksbank intends to reinvest coupon payments on holdings of nominal government bonds, the nominal amount will not total exactly SEK 245 billion.
Source: The Riksbank

recent months, the Riksbank has revised down its forecast for underlying inflationary pressures and now assesses that it will take longer for inflation to reach 2 per cent.

International interest rates are very low and Swedish monetary policy needs to relate to this. Economic developments abroad and the way the other central banks act also affect conditions for the upturn in inflation in Sweden. The krona exchange rate is an important channel for how monetary policy abroad affects Sweden. So far this year, the exchange rate has been weaker than expected, but the Riksbank assesses that it will slowly strengthen going forward (see Figure 1:8). However, an overly rapid krona appreciation could lead to prices of imported goods and services increasing more slowly and demand for Swedish exports declining. Such a development would make it more difficult for the Riksbank to bring up inflation. As inflation has been low for a long time, it is very important that the future krona appreciation occurs slowly.

It is worrying that inflation has been low for a long time, and it is important that inflation rises towards the target so that confidence in the inflation target does not weaken. Given this, the upturn in inflation needs continued strong support. The Executive Board therefore assesses that the repo rate needs to be held at the current low level, -0.50 per cent, for six months longer than was assumed in September (see Figure 1:11). This means that slow increases will not begin until early 2018. The repo-rate path now also reflects a greater probability that the rate could be cut further. In accordance with earlier decisions, the purchases of nominal and real government bonds will continue so that these amount to SEK 245 billion at the end of 2016 (see Figure 1:9). Until further notice, maturities and coupon payments will also be reinvested in the government bond portfolio. During 2017, these will amount to around SEK 30 billion.

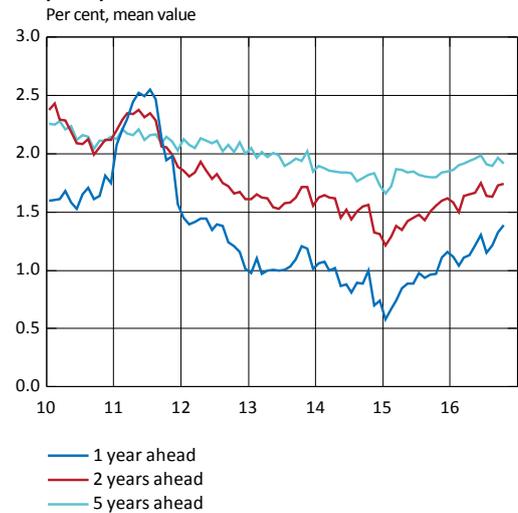
Prior to the monetary policy meeting in December, the Executive Board is ready to extend the purchases of government bonds further, but assesses that a decision does not need to be taken now at the October meeting. The current asset purchase programme will run for the remainder of the year and thus provide opportunity to await further information that can affect the decision to extend the purchases. Examples of such information include the outcomes for inflation in the near term and actions of other central banks.

Just as in many other countries in the world, Swedish monetary policy is thus very expansionary and will remain so in the coming years. For example, the real repo rate is expected to be negative over the entire forecast period (see Figure 1:12).

Standing ready to make monetary policy even more expansionary

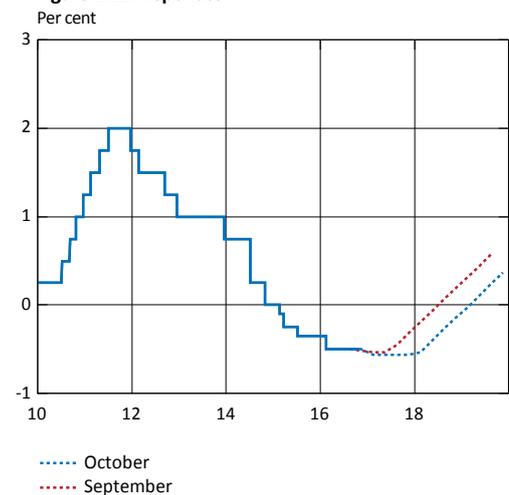
The Swedish economy has developed positively in recent years and the outlook is bright for the near future. But although the Swedish economy is currently well-equipped, negative surprises can occur in the future that make it necessary to adapt monetary

Figure 1:10. Inflation expectations among money market participants



Source: TNS Sifo Prospera

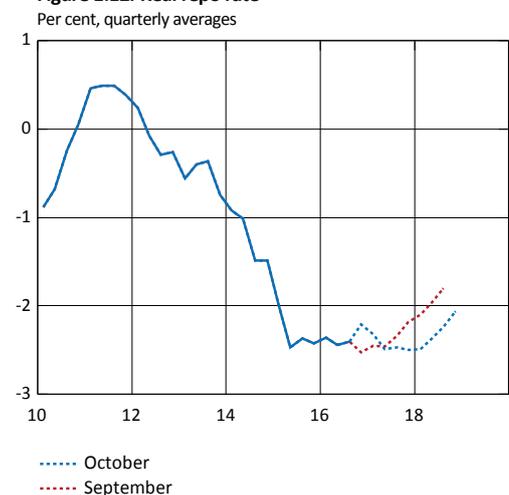
Figure 1:11. Repo rate



Note. Outcomes are daily data and the forecasts refer to quarterly averages.

Source: The Riksbank

Figure 1:12. 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

policy. The important thing for monetary policy is for the trend in inflation to come closer to the target and for confidence in the inflation target not to be weakened.

The Riksbank therefore still has a high level of preparedness to make monetary policy even more expansionary if the upward trend in inflation were to be threatened. This also applies between the ordinary monetary policy meetings. All of the tools that the Riksbank has described in earlier Monetary Policy Reports can still be used.

Uncertainty and risks

Forecasts of future economic developments are always uncertain, as illustrated by the uncertainty bands in Figures 1:1–1:4. In the Riksbank's forecasts the probability of a poorer outcome should in principle be as great as the probability of a better outcome. However, it is difficult to quantify these probabilities.

Neither is it obvious how monetary policy should relate to the 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 regarding inflation forecast

There are many sources of uncertainty with regard to the inflation forecast. One such source is developments abroad, and these are marked by a number of risks.

The situation in the European banking sector remains uncertain. The development of share prices for several European banks has been significantly weaker than that of stock exchanges in general in 2016. Several banks are experiencing profitability problems and there are concerns that many European banks lack capital. The uncertain situation is hampering the economic recovery in the euro area. A worsening of the banks' problems could lead to a credit crunch, which could mean an even weaker recovery in the euro area and consequently lower inflation.

The economic effects of a British withdrawal from the EU on both the United Kingdom and other countries are still uncertain. Discussions have recently centred on the United Kingdom's future links to the EU single market, for instance. This has led to a severe depreciation of sterling. The uncertainty regarding the effects of the British withdrawal from the EU will remain for some time to come.

The risk outlook abroad also includes developments in the Chinese economy, where high indebtedness in the corporate sector could lead to problems.

The krona is expected to appreciate gradually in the coming years, but it is difficult to assess how quickly this will happen. An overly rapid appreciation would restrain demand and make it more difficult to reach the inflation target at the rate that has

been forecast. It could also affect confidence in the inflation target via lower inflation expectations. This risk is particularly high when inflation has been low for a longer period.

The rising inflation experienced since the beginning of 2014 is partly due to the weaker krona having contributed to a rise in prices for goods and services with a higher degree of imported content. This means that, now that the krona is gradually strengthening, the upturn in inflation needs to be fuelled more by price increases of goods and services with less import content. The fact that resource utilisation is rising and is forecast to be higher than normal should, according to historical correlations, signify an increase in inflation in the period ahead (see also the article “The relationship between resource utilisation and inflation” in this report). But it is difficult to know exactly how rapidly this will occur, which is also creating uncertainty in the inflation forecast.

If the inflation prospects were to deteriorate and confidence in the inflation target were to weaken, monetary policy may need to be even more expansionary. Preparedness to act is high should such a scenario materialise.

Inflation may also rise faster than in the forecast. If economic growth prove to be better than expected, resource utilisation and thus inflation may be pushed up rapidly. If the krona should depreciate or energy prices rise, this could also lead to inflation becoming higher than expected. However, inflation has been below target for a long time and, if inflation were temporarily to exceed the forecast, this would not necessarily mean that monetary policy would have to be made less expansionary in the near future.

Risks of low inflation

When inflation expectations are well-anchored around the Riksbank’s inflation target of 2 per cent, it is easier for monetary policy to reach the target. If inflation is below the inflation target for a longer time, inflation expectations risk becoming entrenched on excessively low levels. This may create uncertainty for households and companies who have to take various economic decisions. For example, it may become more difficult for individual companies to assess how their own costs and revenues will develop, which may have a negative effect on investment and new recruitment. Firmly-anchored inflation expectations are particularly important for wage formation to function smoothly. A smoothly-functioning wage formation lays the foundation for a positive development of the labour market and also, ultimately, for stable price development.

A low inflation rate can moreover make it more difficult to adapt real wages as nominal wages usually rise and are rarely lowered. This can entail higher unemployment and further downward pressure on inflation.

The expansionary monetary policy with, for instance, a negative repo rate, aims to bring inflation up to the target to 2 per cent. A less expansionary monetary policy would increase the risk of inflation being low for a long time. If inflation is low

CPI, CPIF and HICP

The most common measure of inflation in Sweden is the Consumer Price Index, CPI. The CPI is the target variable for monetary policy, but the aim of the measure is also to calculate the impact of price fluctuations on households’ living costs and it is used, among other things, to calculate the price base amount. The CPI includes households’ mortgage costs, which are directly affected by the Riksbank’s repo rate. Instead, it is therefore sometimes appropriate to use the CPIF, in which mortgage rates are held constant. A repo rate cut does not have any direct impact on inflation through lower mortgage rates in the CPIF, which it does in the CPI. The EU-harmonised inflation measure HICP is not directly affected by changes in mortgage rates either, as households’ housing costs are largely excluded. In contrast to the CPI, the HICP is not intended to be a cost of living index but is instead intended to be a measure that is good for monetary policy purposes. The HICP is therefore often called an inflation index and is target variable for monetary policy in the euro area and the United Kingdom. The fact that the CPI, CPIF and HICP have different purposes means that they are calculated in somewhat different ways. Despite the differences in construction, there are similarities between inflation according to the HICP and according to the CPIF, while CPI inflation varies more. Further information on various measures of inflation and related issues can be found in the Riksbank Study “The Riksbank’s inflation target – target variable and interval”. The study may be downloaded in PDF format from the Riksbank’s website www.riksbank.se.

over a long period of time, the repo rate will also need to be low for a longer period, and various negative side effects may thus be greater. It would then also be more difficult for monetary policy to counteract the effects of an economic recession. The current very expansionary monetary policy will thus contribute to interest rates being able to rise faster in the coming period than would otherwise have been the case. The risks of various negative side effects from low and negative interest rates can thus be expected to wane, and the scope for monetary policy to counteract new economic dips will be greater.

Risks inherent in low and negative interest rates

The central banks’ policy rates have been low and, in certain cases, negative for some time. This is above all due to a downward global trend in real interest rates (see Figure 1:13). However it is also partly due to expansionary monetary policy. The expansionary monetary policy in Sweden and other countries is necessary in order to stimulate economic growth and counteract the risks of excessively low inflation.

Negative policy rates have been very rare from a historical perspective. There has, therefore, been a certain degree of uncertainty about whether the monetary policy transmission mechanism works as normal when policy rates are negative. Our experiences this far indicate that the impact on short-term market rates has been more or less normal. Most of the short-term market rates have fallen at approximately the same rate as the policy rate and have become negative. The Riksbank’s assessment is therefore that monetary policy has had a clear impact on the economy and that, so far, no major problems directly linked to the Riksbank’s negative repo rate have arisen (see also the article “Perspectives on the negative repo rate” in the Monetary Policy Report from July).

At the same time, the low interest rate environment may lead to assets becoming overvalued and to risks not being priced in full, which may increase the vulnerability of the financial system. Swedish housing prices have increased over a longer period. The Riksbank assesses that the valuation of the Swedish housing market is high from a historical perspective. This, in combination with increasingly high indebtedness in the household sector and the fact that an ever-greater proportion of loans are at variable interest rates, has made both households and banks more vulnerable.

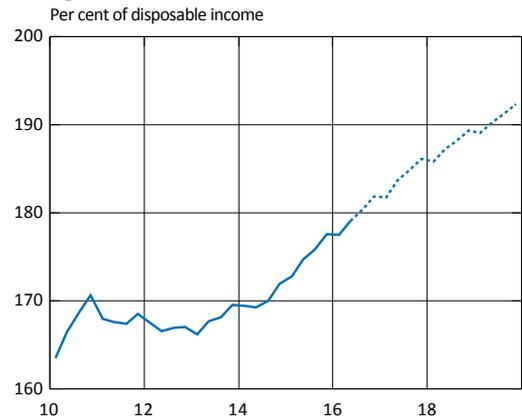
The low interest rate environment is one of the causes of the heavy accumulation of debt and the rising housing prices. Household debt as a percentage of disposable income will continue to increase over the forecast period (see Figure 1:14). At the end of the forecast period, the percentage is expected to be just over 190 per cent. A trend in which debts rise at a faster rate than incomes is not sustainable in the long term. Housing prices are also continuing to rise even if the rate of increase has slowed down (see Figure 1:15), probably because an amortisation requirement has been introduced and mortgage rates have stopped falling.

Figure 1:13. Real interest rates



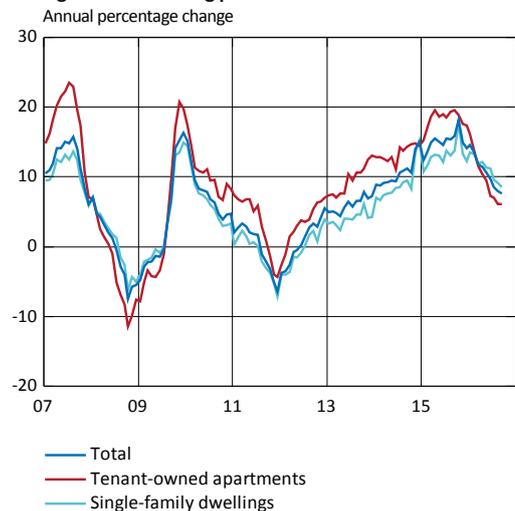
Note. 10-year yield on real government bonds in Sweden, the United Kingdom and the United States. Swedish real interest rate is zero coupon yields interpolated from bond prices using the Nelson-Siegel method.
Sources: Bank of England, Federal Reserve, Thomson Reuters and the Riksbank

Figure 1:14. Household debt ratio



Note. Households’ total debts as a share of their disposable incomes totalled over the past four quarters.
Sources: Statistics Sweden and the Riksbank

Figure 1:15. Housing prices



Source: Valueguard

High debts may be particularly problematic if economic growth should become significantly less positive than expected. Highly-indebted households may then be forced to reduce their consumption. This could further exacerbate the economic slowdown, particularly if housing prices also start to fall.

The risks linked to household indebtedness remain – further measures are urgently needed in various policy areas

The high and increasing indebtedness poses risks to financial and macroeconomic stability. Finansinspektionen (the Swedish financial supervisory authority) has so far introduced an amortisation requirement, a loan-to-value limit and a risk-weight floor to restrain this development and reduce the risks. But further measures are needed, particularly in a situation characterised by low interest rates.² The housing market needs to be reformed to achieve a better balance between supply and demand. Reforms that make households less willing or able to take on debt are also important. A review of capital gains taxation as well as property tax and tax relief on interest expenditure would therefore be welcome.

It is also important that Finansinspektionen receives the decision-making powers needed to conduct an effective macroprudential policy. How great this need for further macroprudential policy measures is depends on the extent to which the underlying causes of the increased risks are tackled and how quickly this is done. A potential further measure could be to introduce a debt-to-income limit that restricts how much a household may borrow in relation to its income.

If no further measures are taken, the low interest rates will further increase the risks, which may potentially lead to increased imbalances and ultimately be very costly for the national economy.

A combination of measures in different policy areas is needed to attain a long-run sustainable development for the Swedish economy with stable economic activity and inflation. Monetary policy needs to be expansionary to provide continued support to the Swedish economy and the upturn in inflation. A large increase in the repo rate would certainly slow down the build-up of debts, but at the cost of a rapid deterioration in demand, lower inflation and higher unemployment. It is therefore essential to implement targeted measures within macroprudential policy, housing policy and fiscal policy to limit the accumulation of debt by households. Compared with the interest rate increases, these measures could be largely designed specifically to manage the risks linked to household debt, and the negative effects on the economy in general could thus be reduced.

² For a more detailed discussion of the measures, see Financial Stability Report 2016:1.

CHAPTER 2 – Financial conditions

Since the September Monetary Policy Report, there have been relatively minor fluctuations on the financial markets. Government bond yields have risen slightly, however, particularly in the United States and United Kingdom. Equity prices are mostly at unchanged levels. In competitiveness-weighted terms, the krona has been weaker than the Riksbank had forecast in September, and has depreciated against many currencies. Households and companies are continuing to pay low interest rates and credit growth is high. All in all, the financial conditions are still deemed to be favourable for economic growth.

International developments

There have been relatively minor movements on the financial markets since the monetary policy decision in September. Measures of market uncertainty remain at low levels. Government bond yields have risen somewhat, while the global stock market index is largely unchanged. Concern remains regarding the state of the European banking sector. The oil price has risen following OPEC's decision to limit production. Greater uncertainty over the forms for the British withdrawal from the EU have led to sterling depreciating substantially.

Small changes in international monetary policy

Since the monetary policy meeting in September, expectations of policy rates, which can be read in various financial instruments, have shifted upwards somewhat (see Figure 2:1). Government bond yields have also risen, particularly in the United States and United Kingdom (see Figure 2:2). This is partly a result of increasing inflation expectations, which have coincided with the rising oil price and the sterling depreciation, and expectations of a policy rate rise in the United States later this year.

In the euro area, the ECB kept its monetary policy unchanged in October. The deposit rate remains at -0.40 per cent. The ECB Governing Council confirmed that the monthly asset purchases of €80 billion are intended to run until the end of March 2017, or beyond, if necessary, and in any case until it sees a sustained adjustment in the path of inflation consistent with its inflation aim. Most market participants are expecting an extension of the asset purchase programme in December and that the ECB will also then announce a change in the bank's rules as to which assets can be purchased. At present, a relatively large

Table 2:1.

Developments on financial markets since the September Monetary Policy Report	
Government bond yields	Government bond yields are at a relatively unchanged level in Sweden, somewhat higher abroad.
The foreign exchange market	The krona has been somewhat weaker than the Riksbank had forecast in September.
The stock market	Equity prices remain largely unchanged.
Interest rates for households and companies	Continued low interest rates for households and companies.
Credit growth	Continued high growth in lending to households and non-financial corporations.

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 affected 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 interest rates offered to households and companies.



proportion of the outstanding stock of German bonds are being traded below the ECB's deposit rate and are therefore not available for purchase under the bank's currently applicable rules.

As expected, the US central bank, the Federal Reserve (Fed), held its policy rate unchanged in September. The committee members' median forecasts for the policy rate were adjusted down somewhat in relation to the forecast in July and involve an increase this year and two increases in 2017. However, the Fed signalled that the arguments in favour of a rate rise this year have strengthened. The market is pricing a relatively large probability of an interest rate raise in December. However, market expectations of the policy rate in the longer run are much lower than the median forecasts by FOMC members.

In Japan, the central bank announced a change to its monetary policy framework. As before, the central bank will govern interests on shorter maturities, but will also now hold the ten-year government bond yield at around zero. Moreover, the Bank of Japan will expand the monetary base until inflation exceeds the target of 2 per cent. At present, inflation is -0.5 per cent.

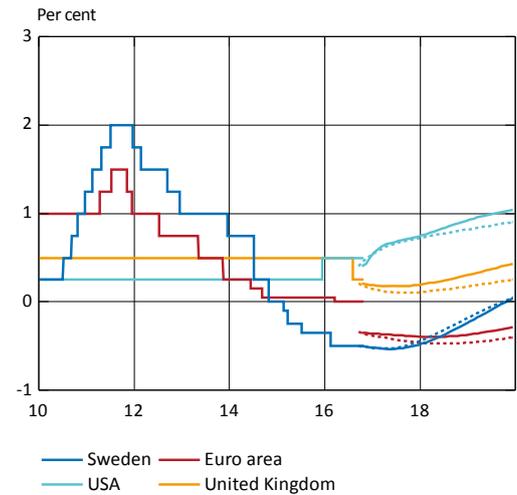
Norges Bank held its policy rate unchanged at its meeting in September, but communicated a lower probability of further rate cuts by raising the path for its policy rate. This was because strong macro statistics and higher inflation than expected over the summer indicated improved economic prospects. The Norwegian krona appreciated after this announcement.

Continued uncertainty over the state of the European banking sector

Global stock markets are at relatively unchanged levels in relation to the monetary policy decision in September (see Figure 2:3). At the same time, different measures of uncertainty on the financial markets are still at low levels. On the other hand, there is still concern over the state of the European banking sector, which is reflected in developments in share prices for the banking sector, which have been much weaker than the rest of the stock market in 2016 (see Figure 2:3). Several banks are experiencing profitability problems and there are concerns that many European banks are poorly capitalised. The European bank share index fell somewhat further in September in connection with Germany's largest bank, Deutsche Bank, receiving an unexpectedly large claim for damages from the US government. This was related to the bank's sales of housing bonds prior to the financial crisis in 2008. After that, the bank share index has recovered and is now back on a relatively unchanged level.

OPEC has agreed to limit daily oil production around the current levels. This was the first coordinated limit in oil production from OPEC in eight years, which has caused the oil price to rise. It is still unclear how much the various members will reduce their production and OPEC is expected to return with further details at its meeting in November.

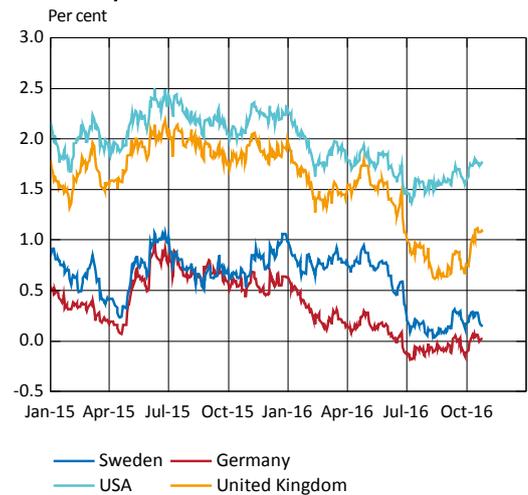
Figure 2:1. Policy rates and rate expectations according to forward rates



Note. Forward rates describe the expected overnight rate, which does not always correspond to the policy rate. There is no published overnight rate in Sweden, but it normally follows the repo rate closely. Unbroken lines are estimated on 26 October 2016, broken lines are estimated on 5 September 2016.

Sources: Macrobond and the Riksbank

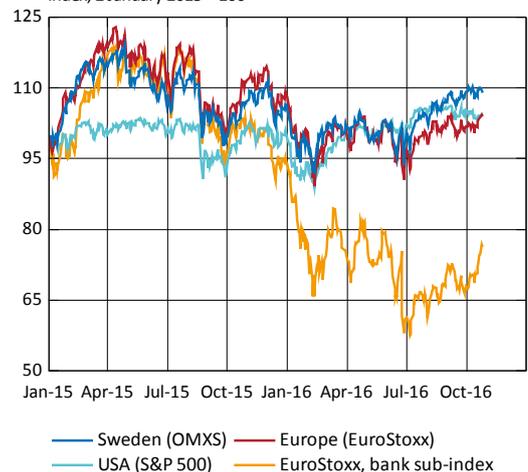
Figure 2:2. Government bond rates with 10 years left to maturity



Note. Zero-coupon rates interpolated from bond prices using the Nelson-Siegel method.

Sources: Macrobond and the Riksbank

Figure 2:3. Stock market movements
Index, 2 January 2015 = 100



Sources: Macrobond and Thomson Reuters

On the foreign exchange markets, the US dollar has strengthened against many other currencies after macro statistics and higher inflation expectations increased the expectations of an interest rate raise later this year. Sterling has depreciated substantially since the beginning of September as a result of new unease on the markets regarding the forms for the British withdrawal from the EU. The uncertainty is mainly based on what consequences the loss of access to the single market will have for the British economy.

Financial conditions in Sweden

Financial conditions remain expansionary

In Sweden, market rates are still at low levels and the Stockholm Stock Exchange has in principle been unchanged since the monetary policy meeting in September. However, the krona has weakened and is weaker than was forecast in September. Interest rates for households and companies remain largely unchanged at low levels. Credit growth is still high, although the annual rate of growth in housing prices has slowed down somewhat. To summarise, the financial conditions are still deemed to be favourable for economic growth.

Small fluctuations in government bond yields

The Riksbank held its monetary policy unchanged in September, with the repo rate remaining at -0.50 per cent. Purchases of government bonds will run until the end of the year, according to the previous decision. This decision was expected by the financial markets and the reactions were therefore muted.

Since the monetary policy meeting in September, financial prices linked to the repo rate have been largely unchanged. Expectations of the repo rate going forward are somewhat higher than the Riksbank's repo rate path over the coming year, but then rise at a somewhat slower pace. Expectations according to surveys are in line with the repo-rate path at the end of the year, but then rise at a faster pace (see Figure 2:4). Most market participants expect an extension of the asset purchase programme towards the end of the year.

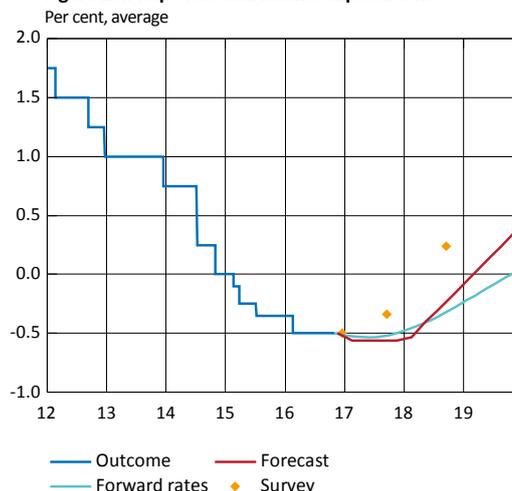
Real and nominal government bond yields with longer maturities have risen somewhat since the monetary policy meeting in September. This is in line with international developments. Swedish government bond yields fell back again in October, however, in connection with the latest inflation outcome and are now basically at the same levels as at the time of the September meeting.

The krona has weakened

The krona measured in terms of the krona index has weakened since the spring and has also developed more weakly than was forecast by the Riksbank in September. The krona depreciation

³ See De Rezende, R. B., Kjellberg, D. and Tysklind, O., "Effects of the Riksbank's government bond purchases on financial prices", Economic Commentary no. 13, 2015, Sveriges Riksbank.

Figure 2:4. Repo rate and market expectations



Note. The forward rates are estimated as of 26 October 2016 and measure the expected repo rate. The survey responses show the average for money market participants on 31 August 2016.

Sources: Macrobond, TNS Sifo Prospera and the Riksbank

Government bond purchases push down long and short-term rates

From February 2015, the Riksbank has been making purchases of government bonds to make monetary policy more expansionary. By the end of 2016, the Riksbank will have purchased government bonds for a nominal value of SEK 245 billion, most of them with maturities of up to 10 years. The Riksbank's purchases contribute to the available volume of the outstanding stock of government bonds shrinking. As many market participants want assets with the maturity and risk profile offered by government bonds, competition increases for the remaining bonds and yields on government bonds have therefore been pushed down.³ The Riksbank's government bond purchases also contribute to pushing down shorter market rates in Sweden. Some participants who want to borrow at shorter maturities use government bonds as collateral, while other participants are willing to invest money at short-term interest rates to be able to hold a government bond for a short period. The shrinking remaining stock of government bonds increases the value of government bonds as collateral in these transactions. This contributes to interest rates falling on short-term loans with government bonds as collateral, what is known as the repo market for government bonds. This is also visible in other interest rates with short maturities, such as treasury bills. One example of this is that treasury bills with a maturity of 3 months are trading at a rate of around -0.80 per cent, which is way below the repo rate, that is at -0.50 per cent.

Figure 2:5. Short market rates and the repo rate



Note. The broken line refer to the start of the bond purchases. Sources: Macrobond and the Riksbank

has been broad and it has weakened against both the euro and the US dollar (see Figure 2:6). Possible causes highlighted by market participants are that Swedish interest rates have come down in relation to interest rates abroad in recent months and that some macro statistics from Sweden have been weaker than expected. Other factors that have been raised are that the Riksbank's monetary policy has had an effect on the currency and that some investors have reduced their holdings of Swedish krona because it has not appreciated as expected.

High-risk assets continue to be relatively attractive to investors and the Stockholm Stock Exchange remains in principle at unchanged levels. Prices of other high-risk assets, such as corporate bonds, have also remained largely unchanged since the monetary policy decision in September.

Continued good funding conditions for Swedish banks

The yield differential between mortgage and government bonds, which increased by a relatively large amount in 2015, has successively decreased over the spring and summer of 2016. Since September, however, the movements have been slight and the spreads between mortgage and government bonds are unchanged. Given the low interest rate environment, Swedish banks are assessed as still having good access to cheap funding, which creates good conditions for lending to households and companies.

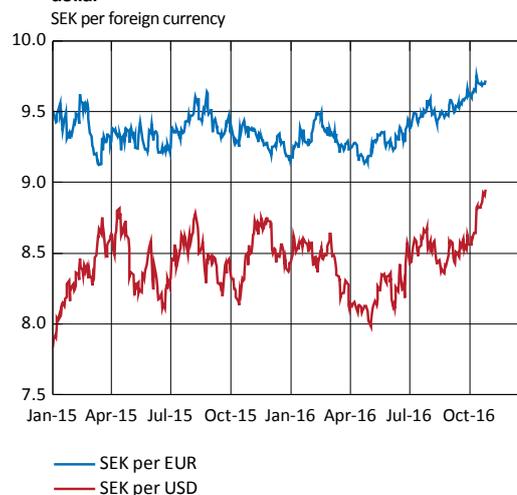
Growth rate in housing prices still slowing down

Lending rates to households and companies for new loans remain at historically low levels of 1.6 and 1.3 per cent. Deposit rates have remained unchanged close to zero since the middle of 2015 (see Figure 2:7). So far, the banks have refrained from introducing negative deposit rates for households and most companies. However, only a few actors, such as certain larger companies and municipalities, are required to pay a certain fee for making deposits. Some of these actors also frequently have the possibility of obtaining funding at a negative interest rate.⁴

Credit growth in the household sector and among non-financial corporations remains high (see Figure 2:8). With regard to households, the increase largely consists of loans with tenant-owned apartments and single-family houses as collateral. With regard to non-financial corporations, the increase can largely be explained by loans with different types of property as collateral. Growth in company borrowing in securities fell somewhat in August, but remains positive. Surveys show that companies continue to have good access to credit.

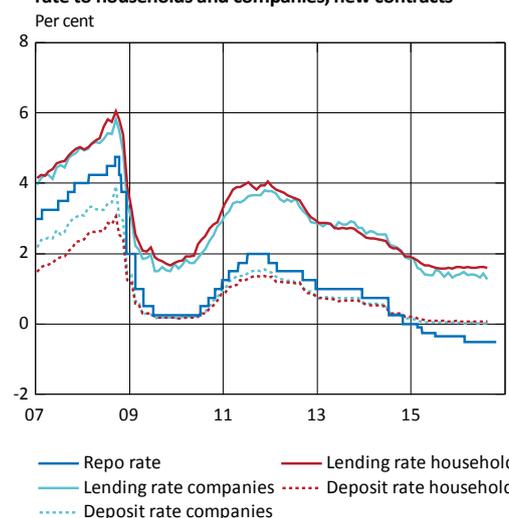
The annual growth rate in housing prices has continued to slow down and amounted to 7.6 per cent in September. This can be compared with annual growth rates around 15–20 per cent last year. Mortgage rates are no longer falling after having declined over a longer period of time, which has probably contributed to subduing prices. At the same time, SEB's housing

Figure 2:6. Development of the krona against the euro and the dollar



Source: Macrobond

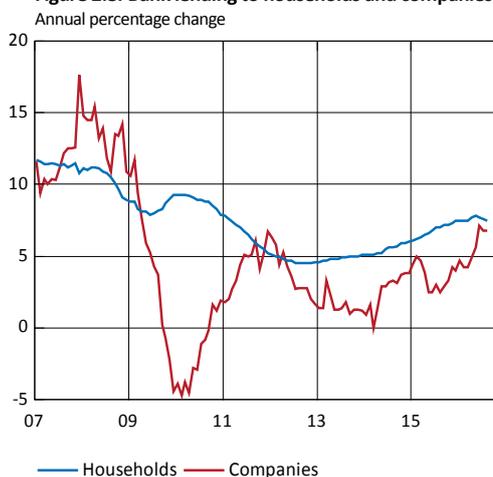
Figure 2:7. Repo rate together with the deposit and lending rate to households and companies, new contracts



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

Sources: Statistics Sweden and the Riksbank

Figure 2:8. Bank lending to households and companies



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

⁴ See the article "Perspectives on the negative repo rate" in Monetary Policy Report July 2016.

price indicator and Valueguard's estate agent survey indicate continued optimism among the general public and estate agents, who believe that housing prices will rise going forward.

CHAPTER 3 – The current economic situation

Both demand and inflation are subdued internationally. Following high growth rates last year, the Swedish economy is now also growing at a calmer rate and the rapid decline in unemployment has slowed down. Resource utilisation is deemed to be about normal and is expected to stay relatively unchanged over the rest of 2016. Inflation has risen since the start of 2014 but its development has been subdued this year and the outcome was unexpectedly weak in September. Inflation is expected to rise slightly in the months ahead.

Inflation

Inflation lower than expected

The upturn in inflation has been subdued this year. This is primarily due to a gradual fall in the rate of price increase for goods and foodstuffs. Since the last Monetary Policy Report, the outcome for inflation has been lower than expected for both August and September. In comparison with the forecast from September, it is primarily prices for services that have increased more slowly than expected. The lower rate of price increase for services is not due to price rises for a few individual services being unexpectedly slow, but is due to the weak development of many different types of service. Historically, price changes for services have been relatively persistent, so the decline also suggests slightly lower price rises in the months ahead. Prices for foodstuffs and goods have developed more in line with the Riksbank's latest forecast.

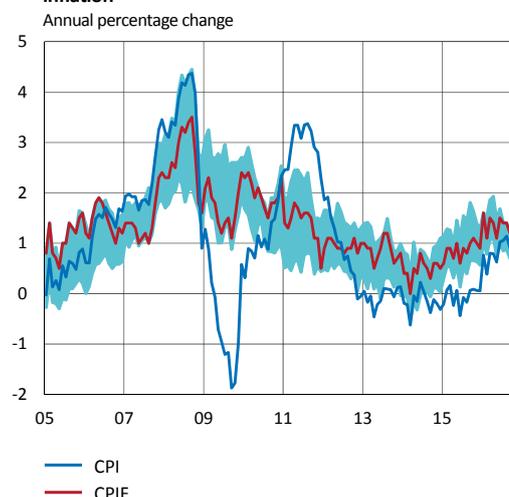
CPIF inflation started to rise at the start of 2014 (see Figure 3:1). This is due to faster price increases in several different areas. Two factors have been particularly important to the development of inflation since 2014. Firstly, rising resource utilisation in the economy usually means that the rate of price increase rises, albeit after some delay (see article "The relationship between resource utilisation and inflation"). Resource utilisation has risen successively since 2013 and this has led to price rises for services, in particular, picking up (see Figures 3:2 and 4:17). Secondly, inflation is affected by the exchange rate. This effect also occurs after a certain delay and, even though the effect of the krona depreciation in 2014 and 2015 has subsided, it continued to contribute to rising inflation through higher prices for certain goods, at least over the first six months of the year. The renewed depreciation of the krona that has taken place since the spring is expected to gradually lead to greater positive contributions to inflation in the period ahead. In addition, households' costs for energy products have also risen for some time, which is also contributing towards the increase in the CPIF (see Figure 3:2). The rate of increase in the CPI is still being held back slightly by low mortgage rates.

Table 3:1.

Expected development in MPR September	Actual development
CPIF inflation 1.6 per cent in both August and September	Lower than forecast. Inflation was 1.4 and 1.2 per cent respectively.
GDP growth 1.2 per cent in second quarter.	GDP growth was revised up to 2.0 per cent.
Unemployment was 6.8 per cent in the third quarter	Unemployment is 7.0 per cent.
GDP growth in the euro area was 1.1 per cent in the second quarter.	GDP growth was revised up to 1.2 per cent.
GDP growth in the United States 1.2 per cent, second quarter.	GDP growth was revised up to 1.4 per cent.

Note. MPR = Monetary Policy Report. The CPIF is the CPI with a fixed mortgage rate. CPIF inflation is measured as annual percentage change. GDP growth refers to the quarterly change in per cent, calculated as an annual rate.

Figure 3:1. The CPI 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 unprocessed food, persistence-weighted inflation, factors from principal component analysis and weighted mean inflation. Sources: Statistics Sweden and the Riksbank

Inflation will rise slightly in the months ahead

According to the import price index, prices of consumer goods in the producer channel have increased overall in recent months. This is mainly due to the krona having depreciated again. According to the domestic market price index, producer prices of consumer goods produced in Sweden continue to increase more quickly than they did at the end of last year/beginning of this year.

According to the Economic Tendency Survey, companies in the retail trade are simultaneously indicating that above-average price increases can be expected in the quarter ahead. However, the consumer-related companies in the Riksbank's business survey are more cautious and only expect moderate price increases in the year ahead.

One way of aggregating information from outcomes and indicators is to use a model. Such an analysis indicates that the growth rate in CPIF excluding energy will rise slightly over the next six months (see Figure 3:3). CPIF inflation excluding energy is expected to amount to an average of 1.2 per cent in the fourth quarter of 2016. This is marginally lower than the model forecast. The forecast is slightly lower because the model is not deemed to adequately consider that it is the sluggish prices for services that have been unexpectedly weak.

All in all, CPIF inflation excluding energy is expected to increase marginally in the near term (see Figure 3:4). At the same time, rising energy prices mean that CPIF inflation will rise slightly. Compared with the September Monetary Policy Report, the inflation forecast has been revised downwards.

Rising inflation expectations

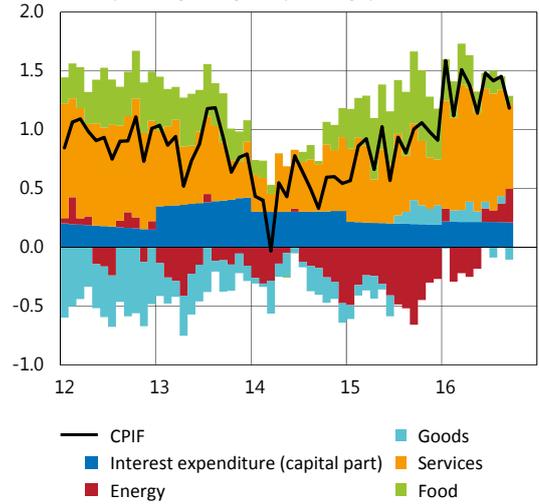
As with the actual level of inflation, short-term inflation expectations have been low in recent years, but started to increase significantly last year. According to Prospera's monthly survey for October, inflation expectations rose slightly one year ahead (see Figure 1:10). Two and five years ahead, expectations continued to move sideways. However, the long-term inflation expectations have risen since last year and have returned to close to 2 per cent.

Global and Swedish economic activity

Indicators point to moderate growth abroad

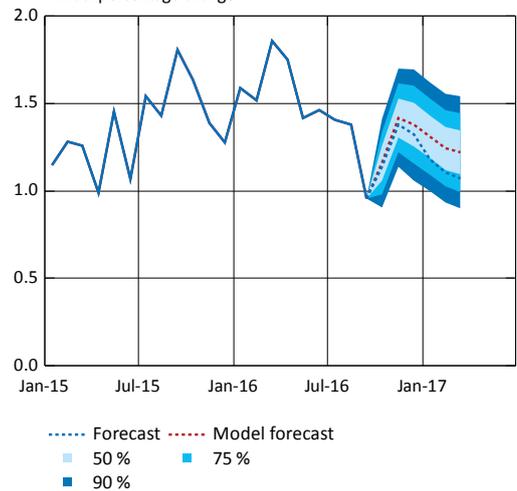
In the euro area, GDP statistics have confirmed that the slowdown in the second quarter was due to the weakening of consumption growth and the stagnation of investment. The latter despite favourable financial conditions and improved credit growth. For the euro area as a whole, no clear impact has yet been seen of the result of the British referendum on the various indicators and outcomes for the third quarter. Although the overall Purchasing Managers' Index fell in September, above all because the service sector was weak, it remains above 50, which marks the boundary between growth and recession (see Figure

Figure 3:2. The CPIF and contributions to CPIF inflation
Annual percentage change and percentage points



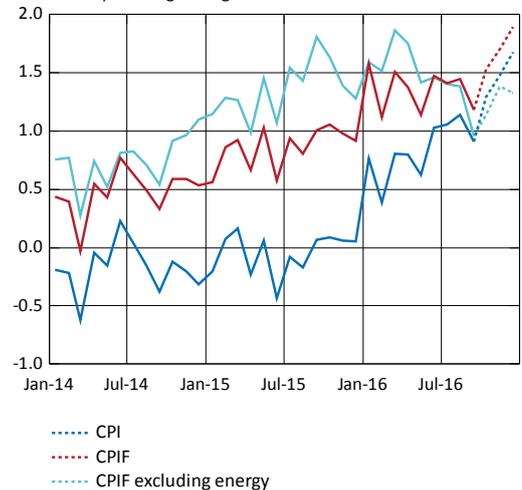
Note. The CPIF is the CPI with a fixed mortgage rate.
Sources: Statistics Sweden and the Riksbank

Figure 3:3. Model forecast CPIF excluding energy with uncertainty bands
Annual percentage change



Note. The uncertainty bands are based on the historical forecast errors of the model. The CPIF is the CPI with a fixed mortgage rate.
Sources: Statistics Sweden and the Riksbank

Figure 3:4. CPI, CPIF and CPIF excluding energy
Annual percentage change



Note. The CPIF is the CPI with a fixed mortgage rate.
Sources: Statistics Sweden and the Riksbank

3:5). At the same time, retail sales and industrial output have increased slightly faster. All in all, indicators and statistics suggest that growth in the euro area will be about the same in the third quarter as in the second (see Figure 3:6). Uncertainty over the future political direction of several countries will also continue to contribute towards uncertainty in the euro area in the period ahead, which is expected to restrain growth towards the end of the year.

In the United Kingdom, short-term indicators, such as consumer and business confidence, have recovered after having fallen in connection with the referendum on EU membership. However, output continued to fall in the manufacturing industry, which does not yet seem to have been able to take advantage of the depreciation of sterling. All in all, GDP growth in the United Kingdom is expected to slow down slightly in the second six months of the year. It remains difficult to assess the long-term effects of the referendum.

In the United States, growth is on the way towards picking up again after a very weak first six months in which consumption developed strongly and net exports increased but investments decreased. The development of inventories also made a negative contribution. The development of the labour market remains favourable and consumer confidence is high in a historical perspective. Consumption is also expected to increase at a good rate in the third quarter, albeit slightly more slowly than in the second quarter. The continuing improved development of the mining industry, which has been weighed down by the previous low oil prices, is contributing towards the weak positive development of industrial output. All in all, the US economy is expected to strengthen in the second six months when investments have recovered and the contribution to demand from inventories has become positive.

Brazil and Russia continue to be in recession but their economies are not shrinking at the same rate as previously. At the same time, growth is stabilising in China. In Norway, the weak growth seen last year in the wake of the fall in oil prices has changed into slowly rising growth that is expected to continue this year.

All in all, the indicators and statistics point to continued moderate GDP growth in the short term in the economies important for Sweden's foreign trade.

Inflation remains low abroad

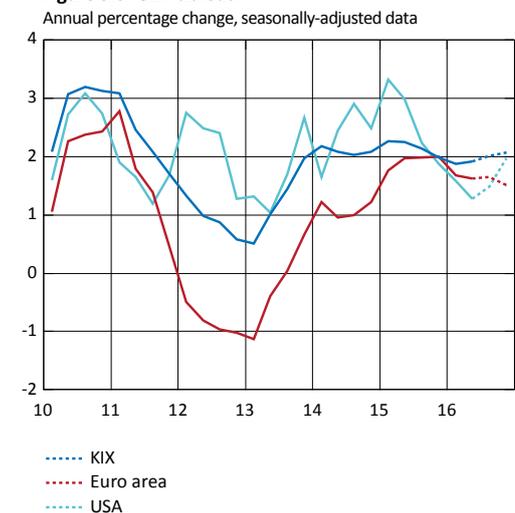
At the end of September, OPEC announced it would introduce supply limits, which has contributed towards the price of oil rising since the last Monetary Policy Report. The development of energy prices is no longer restraining inflation to the same extent as previously. At the same time, however, prices of goods and services have developed weakly in the euro area and underlying inflation continues to be low (see Figure 3:7). In the euro area, resource utilisation is still deemed to be lower than normal, with very high unemployment in certain countries. This is affecting the wage rate, which fell to the lowest level in six years during the

Figure 3:5. Purchasing managers' index and GDP for the euro area



Sources: Markit and Eurostat

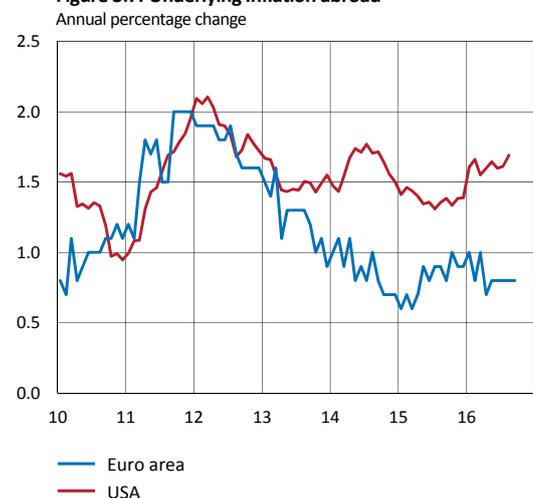
Figure 3:6. GDP abroad



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

Sources: Bureau of Economic Analysis, Eurostat, national sources and the Riksbank

Figure 3:7. Underlying inflation abroad



Note. HICP excluding energy and unprocessed food is shown for the euro area and PCE excluding energy and food is shown for the United States.

Sources: Bureau of Economic Analysis and Eurostat

second quarter. In the United States, resource utilisation is deemed to be approximately normal. However, broader measures of unemployment, which include people outside the labour force, indicate that the labour force participation rate may increase further and wage development remains weak. Nevertheless, underlying inflation in the United States has risen against last year (see Figure 3:7). Even including energy and food prices, inflation remains lower than the Federal Reserve's target of 2 per cent.

Signs of weaker industrial activity in Sweden

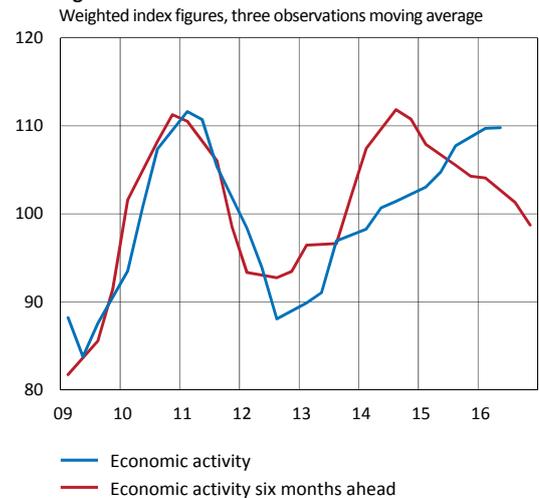
The ordinary calculation of Sweden's GDP in the second quarter involves a small upward revision to 2.0 per cent, compared with the first quarter and calculated at an annual rate. Gross fixed capital formation and public consumption increased rapidly, but exports decreased slightly compared with the first quarter. Compared with the high level of growth last year, GDP growth has slowed down clearly this year.

The indicators for development in the coming quarters are somewhat contradictory. According to the Riksbank's business survey, the level of economic activity remains above the historical average, although companies expect weaker growth in the period ahead (see Figure 3:8). Corporate confidence according to the Economic Tendency Survey is above historical average but, like GDP growth, has fallen this year (see Figure 3:9). However, confidence varies from sector to sector. It is above all in the manufacturing sector and the retail sector that confidence is falling, while the building sector and the private services sector remain optimistic. The gap between domestic demand and international demand can also be seen in production statistics where industrial output in particular has developed less strongly than services and construction this year. Monthly statistics also show that exports of goods have developed weakly. Different sources for new export orders give mixed signals for developments in the period ahead. According to the Economic Tendency Survey, new export orders in September were at the lowest level since 2012, while, according to the PMI, they were clearly increasing. All in all, industrial output and exports are expected to develop weakly over the rest of the year.

Investments and public consumption are continuing to develop strongly

Despite the strong economic developments, consumer confidence has been below the historical average for some time (see Figure 3:9). However, in September, a strong recovery took place, although the development of the retail sector has simultaneously been subdued. This is in spite of the rapid increase of household incomes. Even if the financial conditions are favourable, household consumption is only expected to increase approximately in line with the historical average over the rest of the year. Public consumption, which has increased substantially due to the large number of asylum-seekers arriving last year, is expected to continue to increase this year.

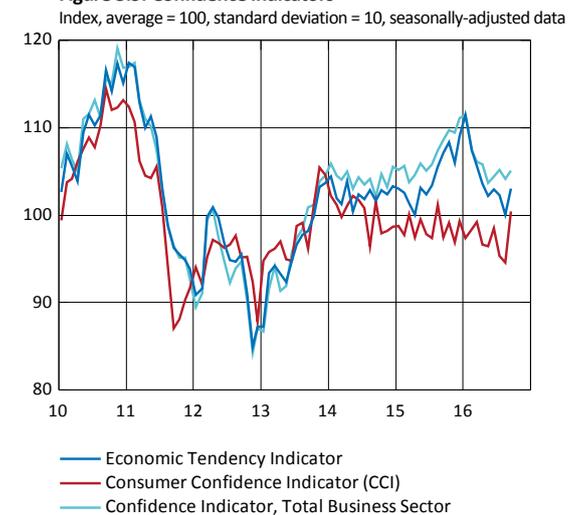
Figure 3:8. Economic situation



Note. The weighted index figures show a standardised value with a mean value = 100 and standard deviation = 10.

Source: Riksbank's business survey

Figure 3:9. Confidence indicators



Source: National Institute of Economic Research

Housing investments have increased strongly in recent years, and other investments in the business sector have also developed strongly. Housing construction is now at its highest level for about 20 years. Construction began on 34 000 homes during the first half of this year, which is a dramatic rise compared to the same period last year. As it will take time to build these flats, housing investments will continue to increase at a good rate this year.

GDP to grow at a moderate rate in the second six months

The implications of the indicators for GDP growth in the coming quarters can be described using statistical models. The model forecast for the third quarter indicates GDP growth of 1.5 per cent compared with the previous quarter and calculated at an annual rate (see Figure 3:10). The Riksbank’s forecast for the third quarter is in line with the model forecast. Growth will pick up slightly in the fourth quarter, but will still be moderate from a historical perspective.

Continued strong demand for labour

The development of the labour market was very weak in July and August. However, this was partly due to development being temporarily weak among young people.⁵ In September, employment growth recovered and unemployment fell. All in all, however, this means that unemployment rose to 7 per cent in the third quarter and that the rapid decline in unemployment seen last year has now slowed down (see Figure 3:11).

Nevertheless, the indicators for development in the short term continue to be positive. The number of vacant jobs lies on a high level, both within the business sector and in the public sector (see Figure 3:12). Recently, it is above all the number of vacant jobs within the public sector that has increased. According to the Economic Tendency Survey, corporate recruitment plans fell marginally in September but remain on a level significantly above the historical average. Unlike output statistics, recruitment plans lie on a high level in all sectors.

All in all, the indicators suggest that the weak development seen in the summer was temporary and that both the number of people in employment and the number of people in the labour force will increase at a good rate in the fourth quarter and unemployment is expected to again decrease slightly.

Resource utilisation is judged to be roughly normal

The amount of spare capacity in the economy affects the assessment of GDP growth in the period ahead, as well as forecasts of wages and prices (see the article “The relationship between resource utilisation and inflation”). In the assessment of resource utilisation, the Riksbank uses a number of indicators such as the proportion of companies in the industrial sector reporting shortages of labour and capacity utilisation according

Figure 3:10. Model forecast GDP with uncertainty bands
Quarterly change in per cent, calculated as an annual percentage change, seasonally-adjusted data



Note. The model forecast is an average forecasts from different statistical models. The uncertainty bands are based on the models’ historical forecasting errors.

Sources: Statistics Sweden and the Riksbank

Figure 3:11. Unemployment and labour shortage



Note. Red broken lines refer to average labour shortage between 1996 and the latest outcome.

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

Figure 3:12. Vacancies and recruitment plans



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.

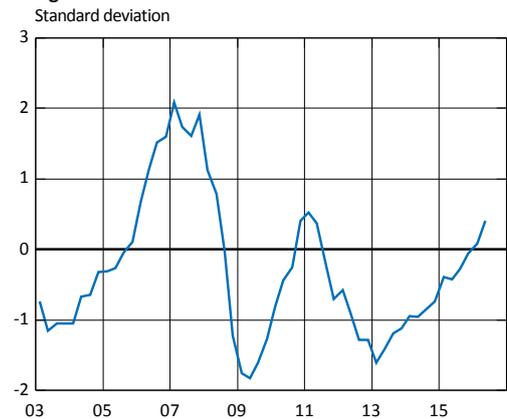
Sources: The National Institute of Economic Research, Statistics Sweden and the Riksbank

⁵ The Labour Force Survey (LFS) is a sample survey. The LFS is more uncertain over the summer months because young people (15–24 years) enter and leave the labour force in conjunction with summer jobs and because there are higher average non-response figures in the summer.

to the Economic Tendency Survey. Both of these are now at levels above the historical average. During the second quarter, the number of shortages rose to the highest level since 2007 (see Figure 3:11). This indicates that it is starting to become more difficult for companies in the business sector to find the competence they seek. According to Arbetsförmedlingen (Swedish Public Employment Service), the proportion of public employers with recruitment problems has increased for several years to a very high level. Rising shortages indicate that prices and wages will increase at a faster pace going forward. The Riksbank's business survey gives the view that this is not a matter of a general labour force shortage but, rather, that it is difficult to locate specific skills.

The Riksbank's RU indicator, which is a summarising measure of resource utilisation, has risen and is just above zero (see Figure 3:13). At present, resource utilisation is deemed to be approximately normal and is expected to stay relatively unchanged over the rest of 2016.

Figure 3:13. RU indicator



Note. The RU indicator is a measure of resource utilisation. It is normalised so that the mean value is 0 and the standard deviation is 1.

Source: The Riksbank

CHAPTER 4 – The economic outlook and inflation prospects

The global economic recovery is continuing at a modest pace. International uncertainty continues to be high and is mainly linked to political developments. The Swedish economy will be strong in the years ahead. Domestic demand continues to be an important driver and growth will later receive impetus from a stronger international economy. Increasing recruitment problems and an already-high employment rate mean that employment growth is expected to slow down slightly next year. Inflation is expected to continue to rise as higher resource utilisation makes it easier for companies to raise their prices. CPI inflation is expected to reach 2 per cent by mid-2018.

International developments

Global growth held back by structural problems

As last year, the global economy is expected to grow by just over 3 per cent this year, underpinned by expansionary monetary policy and, in certain cases, more expansionary fiscal policy. In a historical perspective, global growth has been slow in recent years. This has partly been caused by cyclical factors linked to the aftermath of the financial crisis, such as high private and public indebtedness in many developed countries. Neither have falling commodity prices in recent years had much of an overall positive effect on the global economy, as the downturn has hit certain commodity-producing countries unusually hard. But the weak growth is also a result of structural trends, above all weaker productivity and population growth, that have been going on for a long time and have dampened investment. This has deteriorated the economies' long-term growth potential. These factors will, to a certain extent, continue to hold back growth in the years ahead. Global GDP growth is expected to rise gradually and reach 3.5 per cent in 2019.

Continued subdued global trade expected

The global trade in goods has seen weak development in recent years, in relation to both the historical average and global GDP growth, and trade in goods decreased in the first half of this year (see Figure 4:1). Certain cyclical factors that have burdened growth, such as recession in some commodity-producing countries and weak investment, can be expected to ease somewhat in the period ahead. At present, there are no signs of a strong recovery in the global trade in goods. The relationship between growth in the global goods trade and in global GDP will probably continue to be weaker than it has been in recent decades. Service exports have increased in significance over time and could compensate for some of the slowdown in the trade in goods. But global trade in services has also developed weakly in 2015.⁶

Table 4:1.

The forecast in brief
International economic activity is improving at a modest pace.
Rising resource utilisation is causing inflation abroad to rise. In the euro area, the upturn has been slow.
Swedish activity will continue to be strong in the years ahead. Growth in domestic demand will receive impetus from higher demand internationally.
A high employment rate in certain groups and difficulties finding sought-after skills will subdue employment growth. The composition of the labour force is changing and unemployment will be relatively unchanged in the years ahead.
Resource utilisation will gradually increase up until 2019. This will contribute to a higher rate of wage increase and help inflation reach 2 per cent in mid-2018.

Figure 4:1. World trade volume

Index, 2011 = 100



Note. World trade in goods.

Source: CPB Netherlands Bureau for Economic Policy Analysis

⁶ IMF, "World Economic Outlook", October 2016.

US economy strengthening, Japan stuck in low growth

Growth in the United States is expected to pick up again after a weak first half of the year, as several temporary factors that have burdened growth start to wane (see Figure 4:2).

Consumption continues to grow at a good pace, supported by good development on the labour market, while business investment is contributing increasingly to strong domestic demand. A pick-up in investment is crucial for future growth. Productivity has been very weak and has also fallen in the last three quarters, something that has not happened since the end of the 1970s. The results of the forthcoming presidential and congressional elections in November are an uncertainty factor that may change the conditions for growth.

The Japanese economy has had problems with an aging population, high national debt and low inflation for a long time. A decreasing population has, however, led to GDP per capita developing relatively well despite low actual GDP growth. The effects of the major reform package launched just over three years ago, “Abenomics”, have been limited. The yen has appreciated in 2016, which, along with weak trade in Asia, is weighing heavily on exports. A fiscal policy stimulation package, along with postponement of a planned VAT increase, means that consumption will continue to recover next year, however. The Japanese central bank is also trying to stimulate the economy via new monetary policy tools (see Chapter 2). But growth, expressed in actual GDP terms, is expected to remain weak in the years.

Continued relatively weak growth in the euro area

GDP growth in the euro area slowed in the fourth quarter of this year. Consumption stalled despite rising incomes as a result of low inflation and good employment growth. The upturn in investment at the start of the year was also short-lived and instead stagnated during the second quarter. Exports were surprisingly positive, however, despite weaker industrial activity abroad.

Consumption is deemed to be an important driver in the period ahead, underpinned by a continued rise in employment. Favourable funding conditions and improvements in demand and companies’ profitability will promote a recovery in investment.

Fiscal policy is expected to be mildly expansionary this year and then be basically neutral in 2017–2019. There is variation in how expansionary various countries will be able to make their fiscal policies, as some have large primary budget deficits or high public debts. Next year, growth in the euro area is expected to be slightly weaker than in 2016, around 1.4 per cent, but then to rise to around 1.7 per cent in 2018 and 2019.

Growth to slow in the UK next year

Growth in the United Kingdom is expected to slow in the year to come, even though the most recent statistics and indicators have been relatively positive. The country seems to be avoiding

The US presidential election

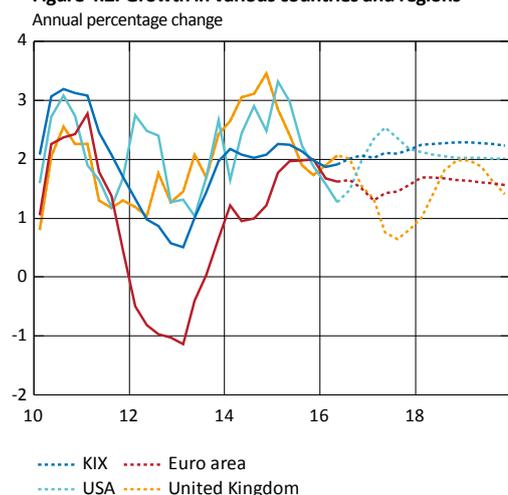
On 8 November, the United States goes to the polls to elect a new president and vice president for the 2017–2020 mandate period. The two presidential candidates, Hillary Clinton (Democratic Party) and Donald Trump (Republican Party) both propose some form of increased public expenditure but differ on many other issues, including taxation, immigration and trade.

Among Mrs Clinton’s proposals are more progressive tax legislation, increased infrastructure investment and more investment in education, a higher federal minimum wage and more generous immigration policy than at present. Mr Trump’s proposals include reform of the tax system with lower taxes for both employees and companies, increased infrastructure investment and more investment in medical care for war veterans. Mr Trump also advocates a more restrictive immigration policy and renegotiation of existing free-trade agreements. Both Mrs Clinton and Mr Trump have been critical of the TTIP – the Transatlantic Trade and Investment Partnership with the EU – which has been under negotiation for several years.

Congressional election also important

At the same time as the presidential election, elections will also be held to the House of Representatives and the Senate, which together make up Congress, the legislative body in the US political system. It decides on taxes and expenditure. Which party gains control of the House of Representatives and the Senate is crucial to the President’s chances of implementing his or her proposals. Both the House of Representatives and the Senate are currently under Republican control.

Figure 4.2. Growth 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

recession but most of the negative economic effects of Brexit probably lie further ahead in time. At the same time, the country still has its earlier problem of significantly weaker productivity growth than many of its trading partners, especially in the manufacturing industry.

Investments are already expected to increase more slowly as a result of the uncertainty surrounding the country's future relationship with the EU and access to the single market. Consumption will be subdued in the period ahead due to slower employment growth and rising inflation which is undermining real disposable incomes. Next year, GDP is expected to rise by less than 1 per cent and then increase by 1.7 per cent during 2019. The forecast is very uncertain, however, as it is difficult to know how companies will react to a prolonged period of uncertainty. There is also uncertainty over the direction of fiscal policy. What will happen after the UK actually leaves the EU, which would be in March 2019 at the latest, is even more uncertain and depends on the country's future relationship with the EU and other countries.

Gradual but uncertain recovery abroad

The developed, larger economies will grow slightly more quickly overall in the years to come, while recession will cease in emerging market economies such as Brazil and Russia, which will instead have positive growth figures. A slowdown of the previously high growth will continue in China.

Overall, growth in KIX-weighted GDP, which illustrates developments in the countries important for the Swedish economy, is expected to rise from 2.0 per cent this year to 2.3 per cent in 2019 (see Figure 4:2). Compared with the assessment in September, the forecast remains largely unchanged.

This economic recovery is slower than expected and developments are also fraught with uncertainty. A key assumption in the assessment is that investment and productivity growth will pick up in places like the United States and the euro area. The recently weak trend in investment is therefore worrying. There are also political uncertainty factors linked to a future Brexit. Approaching national elections and referendums in several countries are also creating uncertainty about the future political direction. Structural problems in the banking sector, with poor profitability and a large share of non-performing loans in certain countries, also constitute an uncertainty factor. Rising corporate debt levels in China are worrying as similar rapid upturns have historically often been followed by either a banking crisis or low growth for a long period.

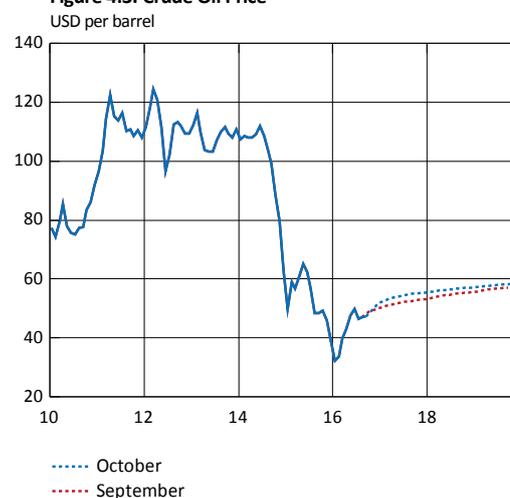
Inflation rising from low level

Inflation abroad is generally still low with some regional variation. In the US, inflation has risen in the past year towards the Federal Reserve's target and will probably continue to increase as the economy approaches full employment. Even in the UK, inflation is expected to rise next year as a result of the severe depreciation

Exit from the EU – a long and uncertain process

Prime Minister Theresa May has stated that the UK will initiate the formal EU exit process no later than the end of March 2017, by triggering Article 50 of the EU Treaty. After that, the Treaty specifies a two-year withdrawal process with negotiations. Negotiations on how the exit will actually happen will concern aspects such as how to solve issues related to pension liabilities and commitments to investment in, for example, infrastructure. Another negotiation concerns the future relationship between the United Kingdom and the EU, and access to the single market is an important issue here. According to the Treaty, The UK's membership of the EU will cease automatically two years after the country has submitted its application to leave, which would mean no later than March 2019. This applies regardless of whether or not there is an agreement. The deadline can, however, be extended if negotiations are not complete after two years, although unanimity is required for this. As no country has previously left the EU, there is uncertainty regarding how an exit should happen. Neither have any negotiations been initiated. This is expected to occur when the country has submitted its exit application. However, the UK government has recently made several different gambits regarding its views on the country's future links to the EU single market, which has resulted in major movements in sterling. The uncertainty is expected to remain for a long time to come.

Figure 4:3. Crude Oil Price



Note. Brent oil, futures are calculated as a 15-day average. Outcomes represent monthly averages of spot prices.

Sources: Macrobond and the Riksbank

of sterling. In the euro area and Japan, however, inflation is expected to remain quite low. A stabilisation of the oil price and a certain increase in the years ahead will contribute to an upturn in inflation (see Figure 4:3 and 4:4). But weak demand, along with a great deal of spare capacity in the euro area, means that the upturn in inflation will be moderate.

Wage growth abroad is subdued. In the euro area, the rate of wage increases is around 1.5 per cent at present. In addition to the relatively high level of unemployment having held back wage increases, employment growth has largely occurred in low-productivity and low-wage sectors, which has also subdued the rate of wage increases. Furthermore, the rate of wage increases is relatively weak in countries with low unemployment such as the United States and Germany. In these countries as well, composition effects have further dampened the rate of wage increases. In the United States, however, the increasingly strained resource utilisation on the labour market is expected to gradually result in a clear upturn in the rate of wage increases while wages in Europe will recover much more slowly.

Aggregate inflation for the KIX countries will rise markedly until the first quarter of 2017, mainly due to a positive contribution from energy prices. As resource utilisation rises, underlying price pressure will also increase and inflation is expected to rise slowly to just over 2 per cent in 2019 (see Figure 4:4).

Sweden

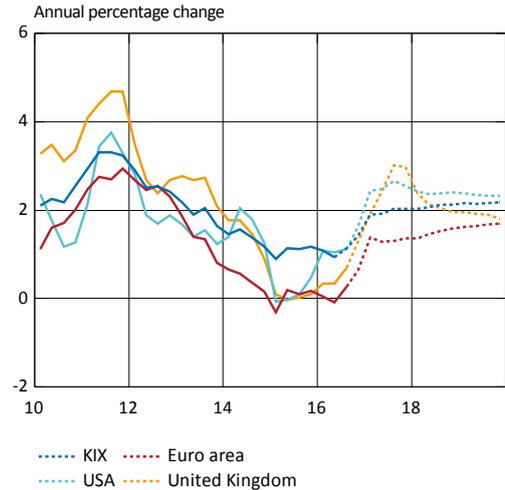
Continued strong activity in the years ahead

The Swedish economy will remain strong even if growth this year has slowed to more normal levels after the high growth seen last year. Capacity pressures are expected to rise further in future. Expansionary monetary policy has contributed to rapid growth in domestic demand. The recovery abroad is also providing support to the Swedish economy. Overall, Swedish GDP will increase by just over 3 per cent this year and by just over 2 per cent a year 2017–2019 (see Figure 4:5). At the same time, the population is increasing rapidly and growth in GDP per inhabitant is about one percentage point lower, which is weaker than the historical average.

In 2017, the recovery abroad is expected to contribute to a higher demand for Swedish goods and services. This will also heighten the need of Swedish companies to invest. At the same time, growth in housing investment is waning after having increased sharply in recent years, and is contributing less and less to investment growth. Housing investment continues nevertheless to be on a historically high level (see Figure 4:6).

Employment is increasing relatively strongly this year and is contributing to fast growth in households' real incomes. In the years ahead, real incomes will increase slightly more slowly as a result of higher inflation and gradually rising interest rates (see Figure 4:7). Rising asset prices and a high saving rate in recent

Figure 4:4. Inflation in various countries and regions

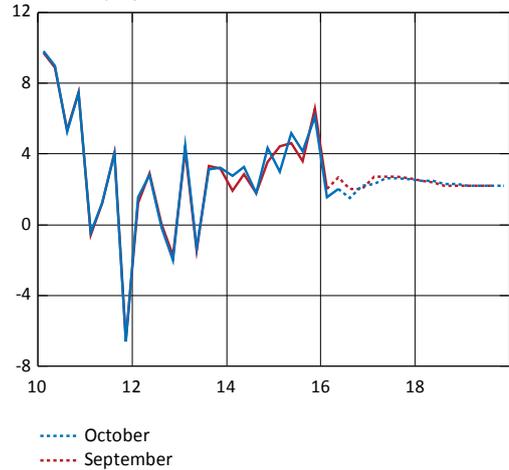


Note. KIX is an aggregate of the countries that are important to Sweden's international transactions. When calculating KIX-weighted inflation, the HICP is used for the euro area and the CPI for other countries. Inflation for the euro area is shown measured using the HICP and for the United States and the United Kingdom measured using the CPI.

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

Figure 4:5. GDP in Sweden

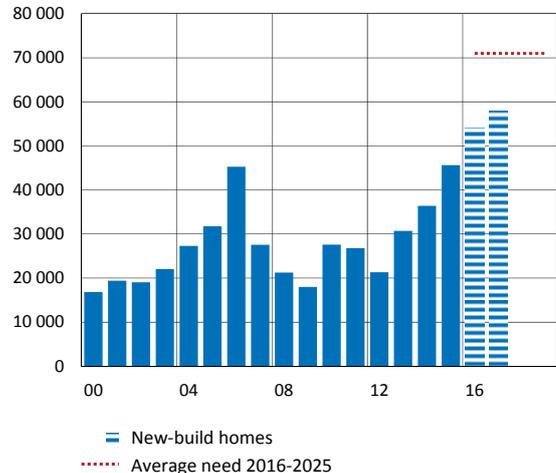
Quarterly change in per cent, calculated as an annual percentage change, seasonally-adjusted data



Sources: Statistics Sweden and the Riksbank

Figure 4:6. Housing construction

Number of homes



Note. Outcome from Statistics Sweden, forecast for 2016 and 2017 is from the publication "Boverkets indikatorer [National Board of Housing, Building and Planning's indicators], May 2016. The broken line refers to the National Board of Housing, Building and Planning's forecast in July 2016 for the average construction need in 2016-2025.

Sources: National Board of Housing and Statistics Sweden

years mean, however, that households continue to have scope to increase their consumption. Overall, growth in consumption is expected to be in line with the historically average growth rate over the coming years.

Last year, a large number of people applied for asylum in Sweden. They require housing and health care and need to be processed by the Swedish Migration Agency. Initiatives are also needed from municipalities and Arbetsförmedlingen (Swedish Public Employment Service). At the same time, the demographic dependency ratio is rising, in particular because the proportion of older people is increasing (see Figure 4:8). Both these factors contribute to a rise in public consumption which is relatively fast in a historical perspective, particularly this and next year.

In the Budget Bill, the Government announced reforms for SEK 24 billion. Budget strengthening measures for 2017 amount to just over SEK 7 billion, meaning that the Government plans to carry out unfinanced reforms for about SEK 17 billion (0.4 per cent of GDP). At the same time, however, the development of the Swedish economy means that tax revenues will increase. Public sector saving will thereby rise and become positive in 2019. Most of the reforms were known previously and were taken into account in the Riksbank's September forecast.

Housing prices increasing more slowly

In 2016, the rate of increase in housing prices has dampened (see Figure 1:15). The facts that household mortgage rates have fallen further and that the amortisation requirement was introduced in June has probably dampened house-buyers' willingness to pay and has contributed to the downturn in the rate of increase in housing prices. A slower increase in households' real incomes and gradually rising mortgage rates in the years ahead are expected to help further sub-due the rate of increase in housing prices.

As housing purchases are more often than not funded via bank loans, the rate of increase in household debt is also expected to slow slightly. Debts are, however, still rising more quickly than household incomes and household indebtedness as a share of disposable income, known as the debt-to-income ratio, is rising and is expected to be just over 190 per cent at the end of 2019 (see Figure 1:14).

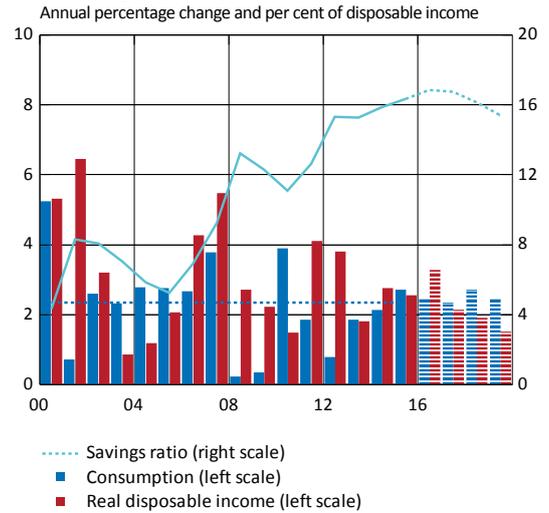
Unemployment relatively unchanged in the years ahead

GDP growth was much higher last year and unemployment decreased at a fast rate during the summer and autumn of 2015. The growth rate has slowed during 2016, however, as has the downturn in unemployment. Unemployment is expected to be relatively unchanged in the years ahead. This is partly due to the fact that GDP growth is not expected to be as strong in the period ahead but also to changes in the composition of the labour force.

Composition of the labour force is changing

The working-age population will increase in the years ahead as a result of immigration, above all of asylum-seekers born outside Europe. The Swedish-born population, where the employment

Figure 4:7. Households' real disposable income, consumption and savings ratio

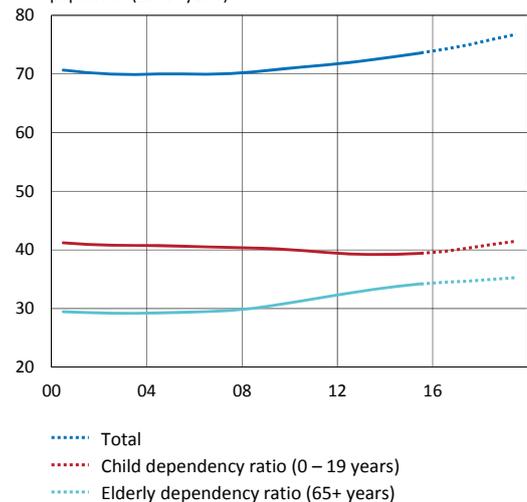


Note. The savings ratio includes collective insurance schemes. Disposable income has been deflated using the household consumption deflator. Broken line is the average of consumption between 1994 and 2015.

Sources: Statistics Sweden and the Riksbank

Figure 4:8. Demographic dependency ratio

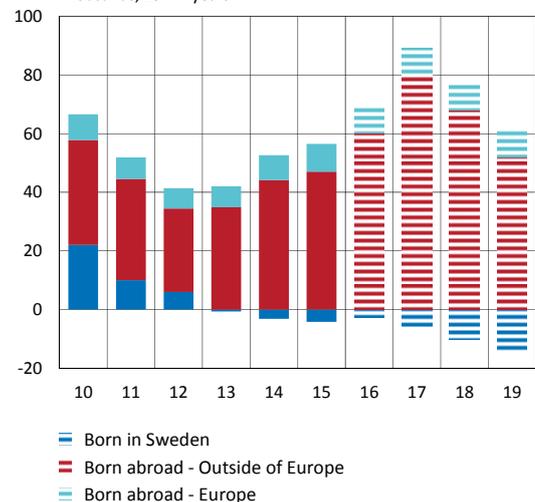
Population outside working age as a percentage of the working-age population (20–64 years)



Source: Statistics Sweden

Figure 4:9. Population change in different groups

Thousands, 15–74 years



Source: Statistics Sweden

rate is already high and unemployment low, is decreasing on the other hand (see Figure 4:9). Unemployment is significantly higher among foreign-born individuals than among Swedish-born persons, in particular among those born outside Europe and those who have no upper-secondary education (see Figure 4:10). Statistics from Arbetsförmedlingen (Swedish Public Employment Service) show that about half of the new arrivals who are registered in the work introduction scheme, the aim of which is to quickly phase new arrivals into the labour market or into educational programmes, lack an upper-secondary education at present. All in all, this means that the number of people with lower average chances of finding a job, from a historical perspective, will increase as a share of the labour force in the years ahead.⁷

Slower employment growth

The percentage of companies who, according to the Economic Tendency Survey, report a labour shortage has increased to a relatively high level (see Figure 3:12). Given that unemployment is still close to 7 per cent, the high number of shortages is a sign that there are imbalances in the labour market and that companies, despite the large group of unemployed persons, are not finding the staff they are looking for. The changed composition of the labour force in the period ahead will also contribute to a slowdown in employment growth in the next few years and the employment rate will level out (see Figure 4:11). In its Budget Bill, the Government presented a number of measures that are expected to affect the labour market in the long term. Unemployment in 2019 will therefore be slightly lower than in the forecast from September. Developments on the labour market in the years ahead are very uncertain and depend on how well new arrivals manage to establish themselves on it.

Resource utilisation to increase in the years ahead

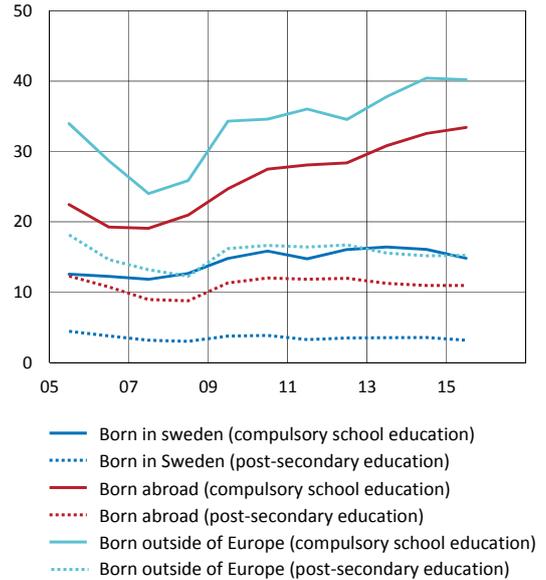
The Riksbank considers resource utilisation in the economy to be about normal at present. In the years ahead, monetary policy will continue to be expansionary, which means that both GDP and the number of hours worked will increase so rapidly that resource utilisation will rise and be higher than normal (see Figure 4:12). As a result of the shortage of labour, it will be increasingly difficult to increase the number of employed persons and the number of hours worked will therefore rise more quickly than the number of employed persons.

Wages increase more rapidly when resource utilisation rises

This autumn, the collective bargaining rounds for next year's salaries have begun, in which almost all the agreements concluded in the spring are to be renegotiated. In 2016's negotiations, only Kommunal (Swedish Municipal Workers'

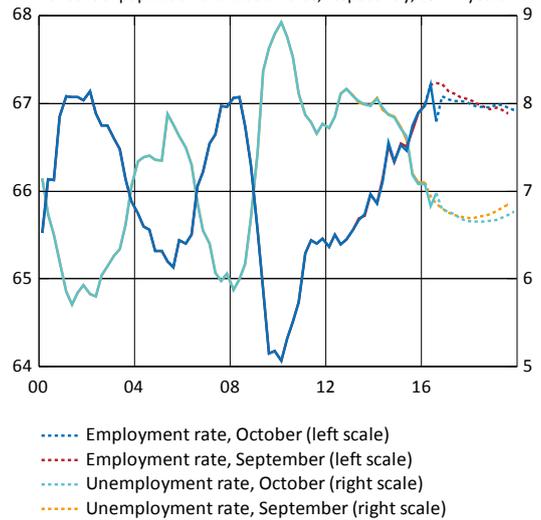
⁷ A contributory factor to unemployment being higher among foreign-born persons is also that the labour force among foreign-born persons has increased relatively substantially in recent years. In the near term, this will lead to higher unemployment, regardless of education level, as it takes time to find work. Unemployment for foreign-born persons generally decreases the longer they are in the country.

Figure 4:10. Unemployment by education level and origin
Per cent of labour force, 15–74 years



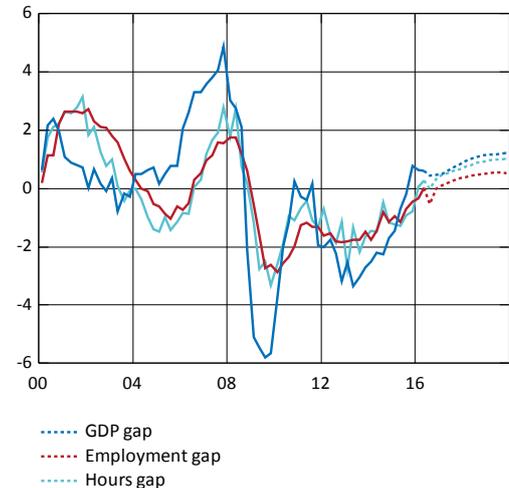
Source: Statistics Sweden

Figure 4:11. Employment and unemployment rate
Per cent of population and labour force, respectively, 15–74 years.



Sources: Statistics Sweden and the Riksbank

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

Union) and SKL (Swedish Association of Local Authorities and Regions) agreed a three-year deal. The Riksbank’s forecasts refer to total wage increases, that is to say collectively agreed wages and wages over and above centrally agreed ones. As the agreements cover a large proportion of total wages, the Riksbank takes into account the level of the agreements in its assessment of wage development and is therefore closely following the wage negotiation discussions.

Wage developments are influenced by several factors. For example, the supply of labour in relation to demand plays a large part. According to the National Institute of Economic Research’s Economic Tendency Survey, the percentage of companies reporting a shortage of labour has risen across all branches of the business sector and is higher than normal (see Figure 4:13). The Riksbank deems that resource utilisation on the labour market is approximately normal this year but will rise further in the period ahead. This will create increased competition for labour and will lead to the rate of wage increases gradually becoming higher in the years ahead. International competitiveness is also a factor that influences wage formation in a small, open economy like Sweden. Here, weaker industrial activity in Sweden and improvements in more domestic market-oriented sectors create tensions prior to the 2017 wage bargaining rounds as regards the industrial sector’s normative role.⁸

In June this year, the second phase of social security contribution increases for people under the age of 26 was implemented. Moreover, a special wage tax was introduced for people over the age of 65. This means that labour costs, that is, the total of wages and social security contributions, will increase more than hourly wages in 2016. Thereafter, labour costs are expected to develop in line with hourly wages.

Following last year’s strong development, productivity growth has again slowed down this year. In the years ahead, productivity growth will rise, above all in 2018–2019, when demand for Swedish exports will increase. But, as labour costs are rising even faster, unit labour costs will increase over the next few years (see Figure 4:14).

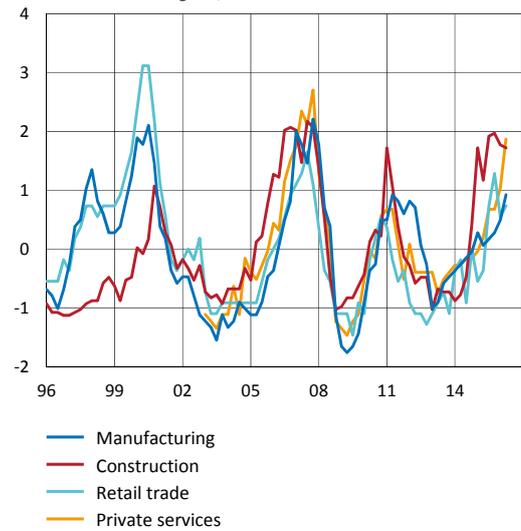
The Swedish krona to appreciate slowly in the period ahead

The krona exchange rate measured using the krona index (KIX) appreciated in 2015 but has since depreciated this year (see Figure 4:15). The fact that the krona has depreciated since the spring and monetary policy is now being made more expansionary suggests a slightly weaker exchange rate than in the forecast in September (see Figure 4:15).

The krona’s development is uncertain and depends on factors such as how competitive the Swedish economy is and how monetary policy is formulated in Sweden and abroad. Sweden has long had a substantial surplus in its trade and current account balance (see Figure 4:16). But the surplus has decreased since 2007 without the krona having appreciated to any great extent.

⁸ See the article “Ahead of 2017’s wage bargaining rounds” in the September 2016 Monetary Policy Report.

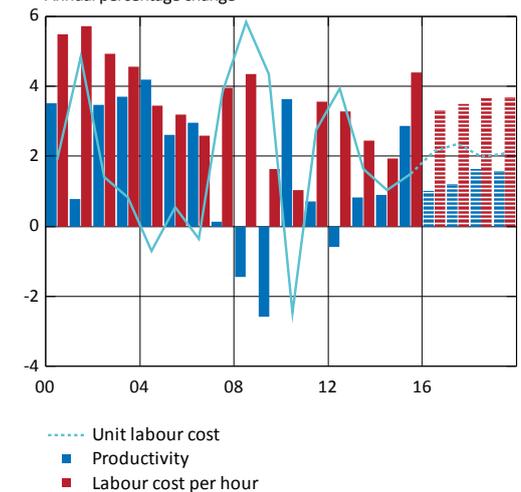
Figure 4:13. Shortage of labour in the business sector
Standardised net figures, standard deviation



Note. Proportion of companies reporting a labour shortage in the Economic Tendency Survey. Normalised values, mean value 0 and standard deviation 1.

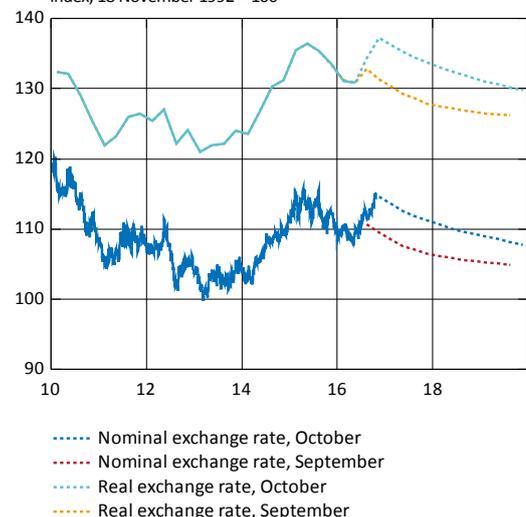
Source: National Institute of Economic Research

Figure 4:14. Cost pressures in the economy as a whole
Annual percentage change



Sources: Statistics Sweden and the Riksbank

Figure 4:15. Real and nominal exchange rate, KIX
Index, 18 November 1992 = 100



Sources: National sources, Statistics Sweden and the Riksbank

In the years to come, a gradual and slow appreciation of the krona is expected while the surplus continues to decrease.

Conditions for continued upswing in inflation

Underlying inflation measured in terms of the CPIF has shown a rising trend since 2014. Two important explanations for this are that resource utilisation in the economy has risen and that the krona has weakened. For some time, the Riksbank has emphasised that there are risks involved in the upturn in inflation and that inflation is developing unevenly. The unexpectedly large retreat of inflation in September illustrates this. However, CPIF inflation is still higher than one year ago and indicators, such as prices in the producer and import channels, suggest that it will once again rise slightly in the months ahead. Not only increasing energy prices but also the marginal rise in CPIF inflation excluding energy over the next six months will contribute to the upturn in the short term.

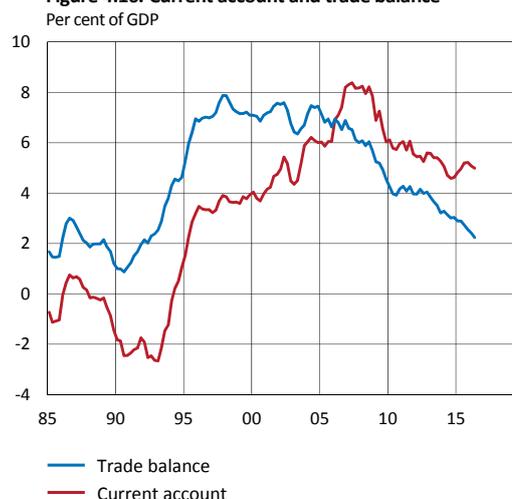
The Riksbank deems that the conditions for the rising trend in inflation will continue to be present, even if its development has been restrained so far this year. One factor that suggests gradually higher inflation is the continued high level of resource utilisation in the economy (see the article “The relationship between inflation and resource utilisation”). One effect of the stronger economic activity will be to make it easier for companies to raise the prices of their products, after a certain time lag. The relationship applies to the majority of the products in the consumption basket, not least services (see Figure 4:17). The lag means that today’s healthy economic situation has not yet impacted fully on inflation. Furthermore, economic activity is also expected to be even stronger in the period ahead.

There are many other factors that also affect price increases, however. One such factor is the krona exchange rate, which is expected to strengthen slowly going forward. At the end of the forecast period, the krona is expected to be back at approximately the same level as in the spring. This suggests that the overall effects of the exchange rate movements on inflation in 2016–2019 will be limited, even if they affect inflation from year to year. The gradual strengthening of the krona over the coming will contribute to slowing down inflation somewhat. At the same time, international price pressures are expected to increase in the years ahead. The faster international increases in prices are expected to counteract the effect of the stronger exchange rate on import prices and inflation.

Inflation to reach 2 per cent in mid-2018

The weak outcome for inflation in August and September reflect the uncertainty over how quickly inflation may rise. The fact that service prices in particular have increased more slowly than expected indicates that underlying inflationary pressures are somewhat weaker than in the Riksbank’s previous assessments. The forecast for inflation has hence been revised down and inflation measured in terms of both the CPIF and CPIF excluding energy is not expected to reach 2 per cent until mid-2018 (see

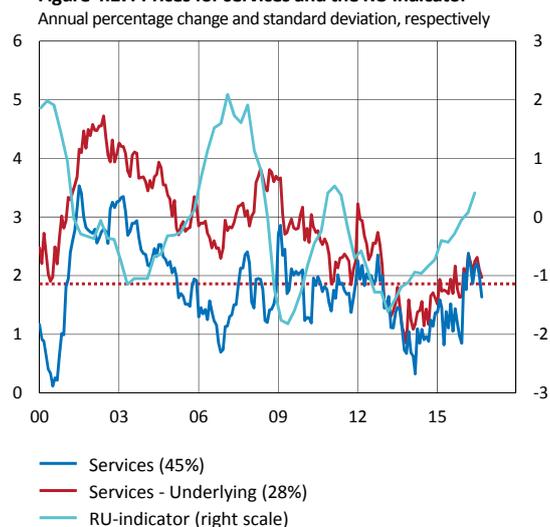
Figure 4:16. Current account and trade balance



Note. Four-quarter moving average. The trade balance refers to the balance in trade in goods. Merchenting is part of the trade in goods and refers to the sales margin that arises when Swedish companies sell goods produced by foreign subsidiaries without the goods being imported into Sweden. Merchenting contributes a significant surplus.

Source: Statistics Sweden

Figure 4:17. Prices for services and the RU indicator



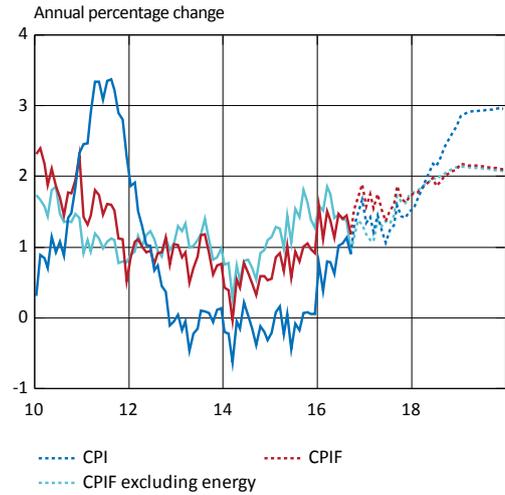
Note. Broken lines refer to the mean value of underlying services from 2000 until the end of 2015. Percentages refer to the weights of the sub-aggregates in the CPI, rounded up or down to whole numbers. The measure of underlying services refers to an aggregate excluding rents, foreign travel, property tax and telecommunications. It is also adjusted for the effects of changes in indirect taxes. See also the article “A broader picture of price development in Sweden”, Monetary Policy Report, April 2016. The RU indicator is a measure of resource utilisation. It is normalised so that the mean value is 0 and the standard deviation is 1.

Sources: Statistics Sweden and the Riksbank

Figure 4:18). CPI inflation will reach 2 per cent slightly earlier. At present, inflation measured in terms of the CPI is slightly lower because household mortgage rates are still falling as a number of households are renegotiating their previous fixed-rate loans with higher interest rates for new ones with lower interest rates. When the repo rate starts to be raised gradually in 2018, household interest expenditure will increase and the CPI will then start to increase faster than the CPIF. In recent months, energy prices have increased after having fallen for over three years. Fuel and electricity prices are expected to continue to rise and the CPIF will therefore increase faster than the CPIF excluding energy in 2017. Measured in terms of the EU-harmonised measure HICP, inflation in 2017 will be lower than CPIF inflation, but the difference will be small in the following years (see Figure 4:19).

Inflation will be affected by several changes in taxation and subsidies next year. However, all in all, inflation will be held back slightly next year due to taxes being increased more in 2016 than they will be in 2017. Compared with the previous forecast, the timing of the increase of energy tax on electricity has been postponed from January to July 2017.

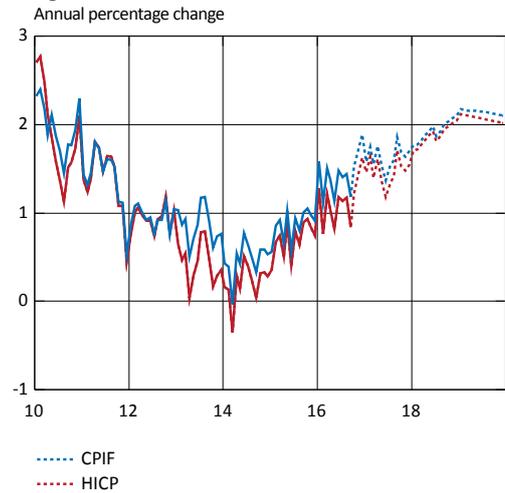
Figure 4:18. CPI, CPIF and CPIF excluding energy



Note. The CPIF is the CPI with a fixed mortgage rate.

Sources: Statistics Sweden and the Riksbank

Figure 4:19. CPIF and HICP



Note. The CPIF is the CPI with a fixed mortgage rate.

Sources: Statistics Sweden and the Riksbank

ARTICLE – The relationship between resource utilisation and inflation

Sweden and other countries have had low inflation for a number of years. One important explanation for this is that the recession period has been prolonged. At the same time, the fact that demand and thus resource utilisation in Sweden have risen in recent years has been a factor behind the upturn in inflation since early 2014. A statistical analysis shows that a high level of resource utilisation in the economy tends to be followed by higher inflation, albeit with some time lag. The Riksbank's very expansionary monetary policy provides support to the upturn in resource utilisation and inflation. Although it is uncertain how quickly the rising resource utilisation will have an impact on inflation and how large the effect will ultimately be, historical correlations indicate that inflation will continue to rise.

In what way does resource utilisation affect inflation?

Both companies' costs and mark-ups - and thereby inflation - vary according to demand in the economy. In a strong economic situation with high employment and low unemployment, the economy's resources are used to a greater degree. Then companies' costs normally rise and they also find it easier to pass on their cost increases to consumer prices. In the reverse situation, with low resource utilisation in the economy, inflation instead tends to be low.

The development of inflation is also influenced by the exchange rate. The stronger the krona is, the less Swedish companies and consumers need to pay in Swedish krona for imported goods. Companies' price-setting is also influenced by inflation expectations in the corporate and household sectors.

The relationship between inflation and resource utilisation is often described in terms of a variation of the so-called Phillips curve.⁹ Put simply, this states that inflation tends to be high when economic activity is strong and low when economic activity is weak. There is extensive literature in this field and a long line of studies of the relationship have been made over the years, but with varying results. In later studies, however, the conclusion has generally been that a higher resource utilisation covaries with higher inflation.¹⁰ The studies also show that the relationship has been relatively stable over time in developed countries.

Although the Phillips curve offers a conceptual framework, its practical use is not uncomplicated, but rather governed by a number of considerations. For example, resource utilisation cannot be observed directly and there is no general agreement with regard to the best way of measuring it. The fact that there is a link between two variables does not necessarily mean that there is a causal relationship between the variables. Inflation can fluctuate as a result of other factors than those captured by changes in resource utilisation and these factors can influence both inflation and resource utilisation.

How have inflation and resource utilisation covaried in Sweden?

One simple method of illustrating the relationship empirically is to look at correlations between resource utilisation and inflation.¹¹ Resource utilisation can be summarised in a number of different measures, for instance, GDP and various types of labour market gaps. Regardless of which measures are chosen, there appears to be some positive co-variation with inflation. Correlations also show that the effect on inflation is delayed. A high level of resource utilisation in the economy thus tends to be followed by higher inflation after some time lag.

Figure 4:20 shows how different measures of resource utilisation in Sweden covary with inflation.¹² The starting point on the left of each line in the figure shows the

⁹ The Phillips curve has taken its name from economist William Phillips, who observed in 1958 a negative relationship between unemployment and the rate of change in nominal wages in the United Kingdom. Today, the so-called New-Keynesian Phillips Curve is the most commonly used model of the relationship, see Mavroidis, Plagborg-Möller and Stock (2014), "Empirical Evidence on Inflation Expectations in the New Keynesian Phillips Curve", *Journal of Economic Literature* 52(1), pp.124-188. In this article, however, we focus on simpler variations of the relationship.

¹⁰ See for instance Blanchard, Cerruti and Summers (2015), "Inflation and activity – two explorations and their monetary policy implications" and "IMF Working paper 15/230".

¹¹ The correlation measures the relationship between the respective measure of resource utilisation and inflation. A correlation of, for instance, 0.6 says that a change with a standard deviation in resource utilisation tends to coincide with a change in inflation of 0.6 standard deviations.

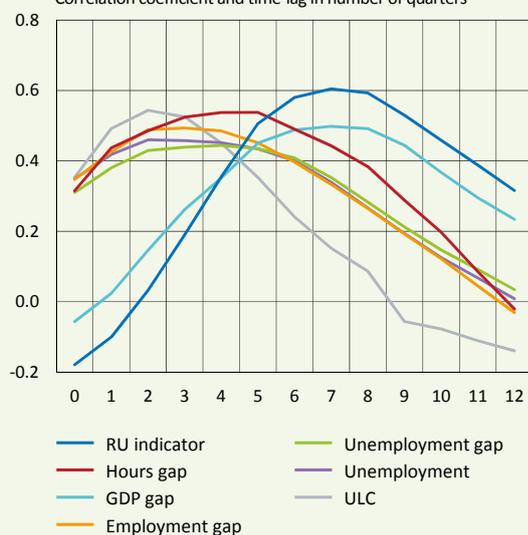
¹² GDP gap refers to the GDP deviation from trend, calculated using a production function. The hours worked gap and the employment gap refer to the deviation of the number of hours worked and the number of employed from the Riksbank's assessed trends. The same applies to the unemployment gap. The RU indicator summarises the information in survey data and labour market data with the aid of so-called principal component analysis. Unit labour costs (ULC) are also used for comparison. The different measures of resource utilisation are normalised with the mean value zero and the standard deviation one. The ULC gap is calculated as the

correlation during the period 1998–2016 between a given measure of resource utilisation and inflation in the same quarter. The rest of the line shows the correlation between resource utilisation in one quarter and inflation in coming quarters, up to 12 quarters ahead.¹³

The time lag varies considerably between the different measures of resource utilisation. The correlation between the Riksbank's summarising indicator for resource utilisation (the RU indicator) and inflation is at its highest after approximately seven quarters, and around the same time lag applies between the GDP gap and inflation. The maximal correlation between the different labour-market related measures of resource utilisation and inflation is somewhat more contemporary and at its highest after three to five quarters.

Figure 4:20. Correlations between CPIF inflation and various measures of resource utilisation

Correlation coefficient and time-lag in number of quarters



Note. Annual percentage change. The correlation between unemployment and inflation is drawn with the inverse sign. See footnote 12 for a description of the various measures of resource utilisation.

Sources: Statistics Sweden and the Riksbank

Has the relationship changed over time?

Some economists have argued that the relationship between domestic resource utilisation and inflation has become less clear in recent years.¹⁴ The basis for this is often that

percentage change in unit labour costs, minus a mean value of the percentage change for the whole period.

¹³ Unlike, for instance, the measures of NAIRU (“non-accelerating-inflation rate of unemployment”) the measure of resource utilisation in this article is not explicitly derived from inflation, but reflects how the level of production and employment relates to a more long-term development (or trend).

¹⁴ With regard to the United States, many studies find that the relationship has weakened, see for instance Ball and Mazumder (2011), “Inflation dynamics and the Great recession”, and Blanchard, Cerruti and Summers (2015). With regard to the euro area, on the other hand, studies indicate that the relationship has become stronger, see for instance, Oinonen and Paloviita (2014), “Updating the Euro area Phillips curve: the slope has increased” and Riggi and Venditti (2015), “Failing to forecast low inflation and Phillips curve instability: a Euro area perspective”, *International Finance*, 18(1), p. 47-68.

¹⁵ See Chapter 3, “Global disinflation in an era of constrained monetary policy”, *World Economic Outlook*, IMF, October, 2016.

inflation did not fall so much in conjunction with the international financial crisis and that, since then, it has not risen as expected during the recovery phase either. One explanation that has been put forth is that increased globalisation and competition from emerging market economies have led to companies’ pricing becoming more steered by international factors and that domestic demand and the development of costs have thereby become less significant for inflation. Another explanation is the high level of confidence in inflation targeting in many countries, which has inhibited the effects of cyclical fluctuations on inflation expectations.

A study by the International Monetary Fund (IMF) examines the driving forces behind the low inflation in a number of developed countries in recent years.¹⁵ The IMF estimates Phillips Curves for a number of countries and finds that the relationship between resource utilisation and inflation has been relatively stable over the past 20 years. To examine whether the relationships have been stable over time in Sweden, too, we estimate here a simplified version of the Phillips Curve used by the IMF, where earlier inflation, resource utilisation and import prices are all included as explanatory variables.¹⁶ The following specification is used:

$$\pi_t = \alpha - \beta_1(u_t - u_t^*) + \beta_2\tilde{\pi}_{t-1} + \beta_3IMPI_t$$

where π_t is inflation measured as a quarterly change in the CPIF, $u_t - u_t^*$ is the deviation in unemployment in percentage points from an estimated long-run sustainable level, $\tilde{\pi}_{t-1}$ is a moving average of inflation over the past four quarters and $IMPI_t$ is a quarterly change in the import price deflator.¹⁷ The equation is estimated from 1990 Q1 to at the longest 2016 Q2:

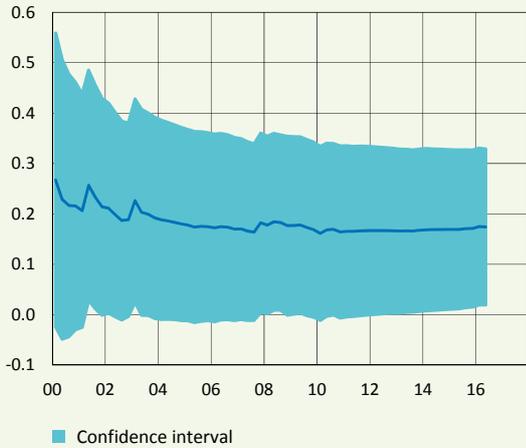
Figure 4:21 shows estimates of the exchange between the unemployment gap and inflation (the coefficient β_1) over time. Although there appears to have been some decline, the exchange seems to have been relatively stable over the past 15 years. The effect of a change on the unemployment gap has had largely the same effect on inflation over the whole of this period. This is also the result attained by the IMF in its study.¹⁸

¹⁶ Inflation expectations often play a central role in various specifications of the Phillips Curve. In Sweden, these expectations often concern future CPI inflation and their time series are relatively short. Here we model CPIF inflation and therefore choose to approximate inflation expectations by means of a moving average for earlier inflation outcomes. This version of the Phillips Curve is a somewhat simplified version of the one used in Chapter 3 of *World Economic Outlook*, IMF, October 2016.

¹⁷ The unemployment gap is measured as a moving average over the past two quarters. The import price deflator and inflation are seasonally-adjusted and calculated as an annual rate.

¹⁸ The relationship has also been estimated using other specifications. If other types of gap are included, the results will remain roughly the same. However, the estimates are sensitive to the length of the time series used in them. The relationship has also been estimated with rolling windows of 10 or 15 years over the period estimated. There is no support in these estimates, either, for the theory that the relationship has weakened in recent years.

Figure 4:21. Estimated trade-off between unemployment gap and CPIF inflation over time



Note. The line shows the recursively estimated parameter in front of the labour market gap in the equation described in the text (β_1). The confidence interval refers to two standard deviations.

Sources: Statistics Sweden and the Riksbank

Another way of investigating whether the relationship has been stable over time is to look at correlations over different time periods. Table 4:2 shows the maximal correlation between resource utilisation and CPIF inflation divided into two different periods (the time lag for the correlation is shown in brackets). The left column shows the correlation during the period 1998 to 2007 and the right column shows the period from 2008 to the second quarter of 2016. The differences between the two periods are minor. During the earlier period, the maximal correlation with inflation was somewhat more contemporary for the labour market gap. During the latter period, the correlations are on the whole somewhat higher, but with a longer time lag between inflation and the various measures of resource utilisation on the labour market.

Table 4:2. Maximal correlation between CPIF inflation and resource utilisation during different periods

	1998–2007	2008–2016
GDP gap	0.52 (8)	0.58 (9)
RU indicator:	0.53 (8)	0.58 (6)
Employment gap	0.59 (3)	0.63 (6)
Hours worked gap	0.60 (4)	0.55 (3)
Unemployment	0.54 (3)	0.60 (7)
Unemployment gap	0.56 (3)	0.63 (7)
ULC	0.29 (2)	0.29 (4)

The figure outside the brackets shows the maximal correlation and the figure inside the brackets shows when the correlation applies (after how many quarters).

Source: The Riksbank

Continued rise in resource utilisation indicates higher inflation during the forecast period

Sweden and many neighbouring countries have had low inflation for a number of years. One important explanation for this is that the recession period has been prolonged.¹⁹ At the same time, the fact that resource utilisation in Sweden has risen in recent years has been a factor behind the upturn in inflation since early 2014. Inflation is also affected by other factors, such as the exchange rate and inflation expectations, and the fact that inflation has been relatively subdued so far this year reflects the uncertainty of how quickly inflation may rise. However, resource utilisation is assessed as roughly normal at present, and the Riksbank’s very expansionary monetary policy provides support for a continuing rise in both resource utilisation and inflation during the forecast period (see Figure 4:22). Although it is uncertain how quickly a change in resource utilisation will have an impact on inflation and how large the effect will ultimately be, historical correlations indicate that the rising trend in inflation will continue during the forecast period.

Figure 4:22. CPIF excluding energy and the RU indicator
Standard deviation and annual percentage change respectively



— RU indicator (left scale)
..... CPIF excluding energy (right scale)

Note. The RU indicator is a measure of resource utilisation. It is normalised so that the mean value is 0 and the standard deviation is 1. The RU indicator is moved forward 8 quarters. The CPIF is the CPI with a fixed mortgage rate.

Sources: Statistics Sweden and the Riksbank

¹⁹ See Andersson, Corbo and LÖf “Why has inflation been so low?”, Economic Review 2015:3.

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 2016	Q4 2016	Q1 2017	Q4 2017	Q4 2018	Q4 2019
Repo rate	-0.5	-0.5 (-0.5)	-0.6 (-0.5)	-0.6 (-0.3)	-0.1 (0.2)	0.4

Source: The Riksbank

Table 2. Inflation

Annual percentage change, annual average

	2015	2016	2017	2018	2019
CPI	0.0	1.0 (1.1)	1.4 (1.8)	2.2 (2.6)	2.9
CPIF	0.9	1.4 (1.5)	1.6 (1.9)	1.9 (2.1)	2.1
CPIF excl. energy	1.4	1.4 (1.6)	1.4 (1.8)	2.0 (2.1)	2.1
HICP	0.7	1.1 (1.2)	1.5 (1.9)	1.9 (2.0)	2.1

Note. The CPIF is the CPI with a fixed mortgage rate. 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

	2015	2016	2017	2018	2019
Repo rate	-0.3	-0.5 (-0.5)	-0.6 (-0.5)	-0.3 (0.0)	0.2
10-year rate	0.8	0.5 (0.4)	0.7 (1.0)	1.7 (2.1)	2.5
Exchange rate, KIX, 18 November 1992 = 100	112.6	111.4 (110.5)	112.3 (108.7)	109.9 (106.4)	108.3
General government net lending*	0.2	0.1 (0.1)	0.0 (0.0)	0.2 (0.2)	0.6

* 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	2015	2016	2017	2018	2019
Euro area	0.14	0.46	1.9	1.6 (1.5)	1.4 (1.4)	1.7 (1.7)	1.6
USA	0.16	0.09	2.6	1.6 (1.5)	2.4 (2.4)	2.1 (2.1)	2.0
Japan	0.05	0.03	0.6	0.6 (0.5)	0.9 (0.9)	0.9 (0.9)	0.8
China	0.15	0.08	6.9	6.7 (6.6)	6.2 (6.1)	5.9 (5.9)	5.7
KIX-weighted	0.75	1.00	2.2	2.0 (1.9)	2.1 (2.1)	2.3 (2.3)	2.3
World (PPP-weighted)	1.00	—	3.2	3.1 (3.1)	3.5 (3.5)	3.6 (3.6)	3.7

Note. Calendar-adjusted growth rates. The PPP-weights refer to the global purchasing-power adjusted GDP-weights, according to the IMF. The Riksbank updates the weights for the KIX krona index at the start of every year with a time lag of three years. The figures in the table are based on the new KIX weights for 2013 that are used for 2016, and on an assumption that the weights will develop according to the trend of the past five years in the coming forecast years.

CPI	2015	2016	2017	2018	2019
Euro area (HICP)	0.0	0.2 (0.2)	1.3 (1.2)	1.5 (1.5)	1.7
USA	0.1	1.2 (1.1)	2.5 (2.2)	2.4 (2.4)	2.3
Japan	0.8	-0.1 (-0.1)	0.8 (0.9)	1.6 (1.6)	1.9
KIX-weighted	1.1	1.1 (1.1)	2.0 (1.9)	2.1 (2.1)	2.2

	2015	2016	2017	2018	2019
Policy rates in the rest of the world, per cent	0.1	-0.1 (-0.1)	-0.2 (-0.2)	-0.2 (-0.1)	0.1
Crude oil price, USD/barrel Brent	53.5	44.9 (44.8)	54.3 (52.0)	56.5 (54.7)	57.9
Swedish export market	3.2	1.9 (1.4)	3.1 (3.0)	4.0 (4.0)	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

	2015	2016	2017	2018	2019
Private consumption	2.7	2.4 (2.9)	2.3 (2.3)	2.7 (2.7)	2.4
Public consumption	2.5	3.8 (3.2)	2.3 (2.6)	1.4 (1.5)	1.2
Gross fixed capital formation	7.2	7.4 (5.9)	3.2 (3.1)	4.1 (4.1)	4.2
Inventory investment*	0.3	0.2 (0.4)	-0.1 (-0.1)	0.0 (0.0)	0.0
Exports	5.6	2.3 (2.0)	2.2 (2.9)	3.6 (3.9)	3.6
Imports	5.5	4.4 (3.9)	3.3 (3.7)	4.4 (4.7)	4.5
GDP	4.1	3.3 (3.2)	2.0 (2.2)	2.4 (2.4)	2.2
GDP, calendar-adjusted	3.9	3.0 (3.0)	2.3 (2.4)	2.5 (2.5)	2.2
Final figure for domestic demand*	3.6	3.8 (3.6)	2.4 (2.4)	2.6 (2.7)	2.5
Net exports*	0.3	-0.7 (-0.7)	-0.4 (-0.2)	-0.2 (-0.2)	-0.2
Current account (NA), per cent of GDP	5.4	4.6 (4.2)	4.0 (3.8)	3.7 (3.5)	3.3

*Contribution to GDP growth, percentage points

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

	2015	2016	2017	2018	2019
Population, aged 15–74	0.7	0.9 (0.9)	1.1 (1.1)	0.9 (0.9)	0.6
Potential hours worked	0.9	0.8 (0.8)	0.7 (0.6)	0.6 (0.5)	0.5
GDP, calendar-adjusted	3.9	3.0 (3.0)	2.3 (2.4)	2.5 (2.5)	2.2
Number of hours worked, calendar-adjusted	1.0	2.0 (2.2)	1.1 (1.0)	0.8 (0.8)	0.7
Employed, aged 15–74	1.4	1.4 (1.6)	1.1 (1.0)	0.8 (0.7)	0.6
Labour force, aged 15–74	0.8	0.9 (1.0)	0.9 (0.8)	0.8 (0.7)	0.7
Unemployment, aged 15–74 *	7.4	6.9 (6.9)	6.7 (6.7)	6.7 (6.7)	6.7

* 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

	2015	2016	2017	2018	2019
Hourly wage, NMO	2.4	2.6 (2.7)	3.2 (3.3)	3.5 (3.6)	3.6
Hourly wage, NA	3.5	2.7 (2.7)	3.5 (3.5)	3.8 (3.8)	3.8
Employers' contribution*	0.9	0.6 (0.4)	0.0 (0.0)	-0.1 (-0.1)	-0.1
Hourly labour cost, NA	4.4	3.3 (3.0)	3.5 (3.5)	3.7 (3.7)	3.7
Productivity	2.9	1.0 (0.8)	1.2 (1.5)	1.6 (1.8)	1.6
Unit labour cost	1.5	2.3 (2.2)	2.3 (2.0)	2.0 (1.9)	2.1

* 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 divided by the seasonally adjusted total number of hours worked. Unit labour cost is defined as labour cost divided by seasonally-adjusted value added at constant prices.

Sources: National Mediation Office, Statistics Sweden and the Riksbank



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