

ARTICLE – Many indications that inflation will be high this year and next year

Over the start of 2022, inflation has risen significantly faster than expected and the upturn has been broad. In addition to energy prices, a clear upturn is now visible in food prices, prices for other goods and, to a certain extent, service prices. The war in Ukraine is contributing to higher inflation and this assessment is confirmed by various indicators pointing to further rises in consumer prices. In addition, various measures of underlying inflation have risen rapidly in recent months, indicating that inflation may become more lastingly high. The Riksbank now assesses that inflation will be higher for a longer period and will be above target over the next two-year period. How inflation develops in the slightly longer term largely depends on how the inflation expectations of companies and households are affected, which, in turn depends on how monetary policy is adjusted.

Higher inflation than expected

Energy prices started to rise from low levels in the second half of 2020, at the same time as higher freight costs, disruptions in deliveries and shortages of certain input goods created problems that were expected to affect consumer prices.⁴³ Costs also gradually increased in almost all sectors. Since last summer, the Riksbank has discussed uncertainty in the inflation forecast linked to how large the effects of higher costs for companies would be. The Riksbank has assessed that the higher costs would subsequently affect consumer prices and lead to higher inflation, particularly in 2022.⁴⁴ ⁴⁵ However, the rise has been much larger and faster than the Riksbank and other analysts had expected. According to the forecast in the Monetary Policy Report from February, the Riksbank expected inflation according to the CPIF excluding energy to be 1.9 per cent in January. An average of forecasts from other analysts also

⁴³ See, among others, “As soon as you find one component, you realise you’re missing another”, The Riksbank’s Business Survey, September 2021, Sveriges Riksbank.

⁴⁴ See, among others, “Higher inflation – temporary or persistent?”, in Monetary Policy Report, November 2021, Sveriges Riksbank and “High energy prices – how will other consumer prices be affected?” in Monetary Policy Report, February 2022, Sveriges Riksbank.

⁴⁵ Apart from the indirect effects of higher costs in companies, the Reports also discussed another type of effect that could arise if inflation expectations were to change more lastingly. This kind of effect, usually called a secondary effect, affects inflation through such things as higher wage demands.

amounted to 1.9 per cent but the outcome was 2.5 per cent, an unusually large forecast error one month ahead.⁴⁶ The outcomes in February and March were also much higher than expected, resulting in even larger forecasting errors.

One way of aggregating information from various early indicators of inflation is to use models that include, for instance, summarising indices of a number of different indicators. Before the pandemic broke out in 2020, the Riksbank regularly included forecasts from such short-term models in its Monetary Policy Reports.⁴⁷ Since 2020, the information content in the model-based forecasts has decreased. Among other things, it is difficult for the models to manage the sudden fluctuations and new seasonal patterns created by changed consumption patterns during the pandemic. Ahead of the January, February and March 2022 outcomes, a number of model forecasts pointed to rising inflation, but no model forecast came close to forecasting the unusually rapid rise in consumer prices that occurred. The impact of developments such as higher producer prices on consumer prices was thus significantly greater than historical correlations indicate.

Which prices have contributed to the rapid increase in inflation in Sweden?

Several prices for food and other goods are contributing to the rise in inflation being broad. There are also signs that some service prices are rising faster than normally. Figure 46 shows the proportion of the price index in the CPIF whose average rate of increase is now above the average since 2000.⁴⁸ The price index is divided into food, other goods and services.⁴⁹ The figure shows that the proportion of food prices that is rising faster than normal has increased rapidly from a very low level recently. The rate of increase for food prices was negative as recently as May 2021. Just now, the development of prices for coffee and tomatoes sticks out, along with prices for salmon, flour and bread.

The proportion of prices for goods that is increasing more rapidly than normal is also high and rose earlier than food prices did. The upturn is broad here too, as the rate of increase for 21 of the 27 subindices included in this aggregate are now higher than usual (see red line). Some examples of products that have risen unusually much in price are furniture and furnishings, bicycles, cars, leisure goods and household utensils.⁵⁰ The rate of increase in goods prices was also negative in parts of 2021, in line

⁴⁶ Bloomberg publishes one-step ahead forecasts (forecasts one month ahead) every month from a number of forecasters. The number of analysts varies slightly from month to month but amounted to 11 in January. Analysts include the major Swedish banks and other private financial agents.

⁴⁷ The variant usually included in the Monetary Policy Reports models the CPIF excluding energy directly. Explanatory variables include indicators, as well as variable that capture the time series dynamic, such as delayed effects of the dependent variable and seasonal variation.

⁴⁸ The calculations are based on 65 subindices, according to the Riksbank's classification. Together, they make up the CPIF excluding energy. The average rate of increase of each subindex has been calculated for the period January 2000 to March 2022.

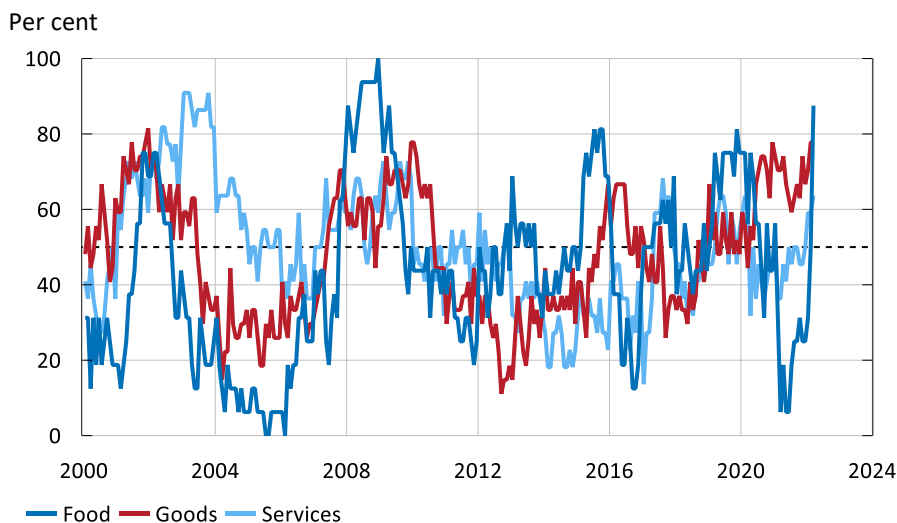
⁴⁹ We disregard energy prices here. All subindices in this aggregate are clearly increasing faster than the average.

⁵⁰ In December 2021, one of the world's largest furniture companies, IKEA, announced an increase in prices of half of its range by an average of 9 per cent. This announcement referred to higher costs for transport and logistics.

with the historical average, and was close to zero as recently as December 2021. In March, the annual percentage change amounted to 4.1 per cent.

The share of the service price index that has risen faster than normal has also increased but not at all to the same extent as prices for food and other goods. Among services, for example, prices for hotel rooms have risen rapidly, which is partly connected to the re-opening of the economy after the pandemic.

Figure 46. Proportion of above-average price increases since 2000



Note. Goods refers to goods prices excluding energy and food. The food prices group includes 16 subindices and the goods prices group includes 27 subindices. The results for service prices is based on 22 subindices. Broken line indicates 50 per cent. On average, over the entire period, about 50 per cent of the subindex in each respective group is increasing faster than its average and about 50 per cent is increasing more slowly.

Sources: Statistics Sweden and the Riksbank.

Various measures of underlying inflation have risen, which may indicate more permanently high inflation

One important part of the analysis of inflation is the attempt to assess how large a part of inflation is temporary and how much is more permanent. In addition to the aggregate and various subindices in the CPIF, the Riksbank also therefore analyses various measures of underlying inflation in an attempt to reduce the importance of prices that usually vary greatly. The idea is that the part of inflation that usually changes relatively slowly (is more persistent) can say more about the future development of inflation than current CPIF inflation does.⁵¹ Recently, all of the various measures of underlying inflation that the Riksbank calculates and monitors have risen rapidly.⁵² The median of the measure, which has varied relatively little over the last

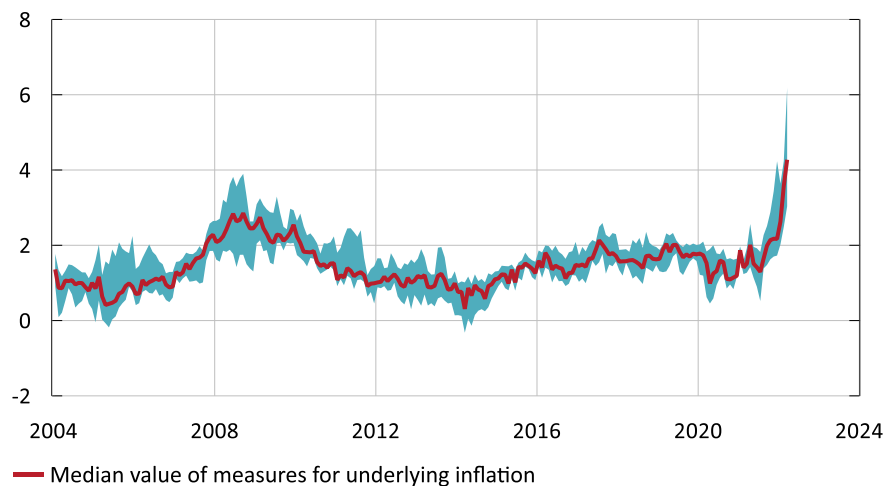
⁵¹ See, among other things, "Why measures of core inflation?" in Monetary Policy Report, October 2018.

⁵² The Riksbank usually reports a number of measures of underlying inflation. This includes CPIF excluding energy, CPIF excluding energy and perishables, persistence-weighted inflation (CPIFPV), factors from principal component analysis (CPIFPC) and weighted mean inflation (Trim1). Trim85 is also included among these measures. There, 7.5 per cent of the highest and the lowest rates of price change have been removed for

ten-year period, rose from 2.6 per cent in January to 3.6 per cent in February and 4.3 per cent in March, which is a historically rapid rise over such a brief period (see Figure 47).

Figure 47. Different measures of underlying inflation

Annual percentage change



Note. The field shows the highest and lowest outcome among 7 different measures of underlying inflation: CPIF excluding energy, UND24, Trim85, CPIF excluding energy and perishables, persistence-weighted inflation (CPIFPV), factors from principal component analysis (CPIFPC) and weighted mean inflation (Trim1).

Sources: Statistics Sweden and the Riksbank.

The rise in prices in Sweden and abroad – are there any common elements?

If one studies the development of Swedish consumer prices over time in relation to the corresponding prices abroad, it becomes clear that the covariation, or correlation, is most tangible with regard to *energy prices*. The correlation is highest if Swedish consumer prices for energy in a certain month are matched with energy prices abroad in the same month. This correlation also holds over the last two-year period.⁵³ The rate of increase in consumer prices for energy in Sweden, the euro area, the United Kingdom and the United States bottomed out in mid-2020 and then started to rise relatively quickly.

The covariation is also clear if one studies price developments on *food*. Similarly to energy prices, the most recent rise in food prices was relatively simultaneous in Sweden and abroad, but it took place from different levels (see Figure 48). Like energy prices,

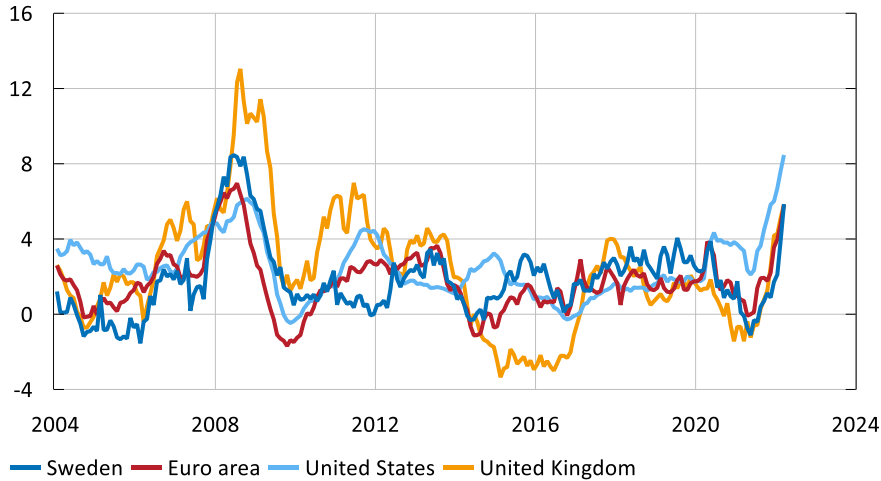
the sub-groups included in the CPIF each month. A measure known as UND24 is also included. In this, all of the components are retained but are given a different weight to the one they have in the CPIF. The new weight depends on how much the prices have varied over the last 24 months.

⁵³ The analysis studies annual percentage changes in various subindices. Turning points in annual rates have been identified using different equalisation methods such as HP filters and the trend cycle component from the seasonal adjustment procedure x12. These turning points are often much easier to identify later on and significantly more difficult to pinpoint in real time.

the annual percentage change in commodity prices for food started to rise in the second six months of 2020.⁵⁴ In spring/summer 2021, consumer prices on food also started to rise gradually in Sweden and abroad. The rise in food prices is probably partly due to rising energy costs, which usually affect the entire supply chain in the food industry, from farming to transport, processing, storage and sale.

Figure 48. Food prices in various countries and regions

Annual percentage change

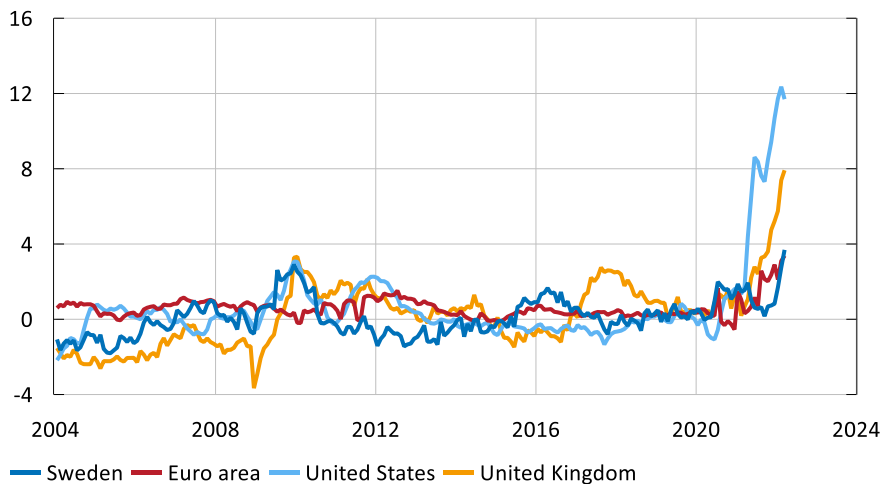


Note. Inflation measured as the HICP for Sweden and the euro area and the CPI for the US and the UK.

Sources: Eurostat, UK Office for National Statistics and US Bureau of Labor Statistics.

Figure 49. Goods prices in various countries and regions

Annual percentage change



Note. Refers to goods excluding energy and food. Inflation measured as the HICP for Sweden and the euro area and the CPI for the US and the UK.

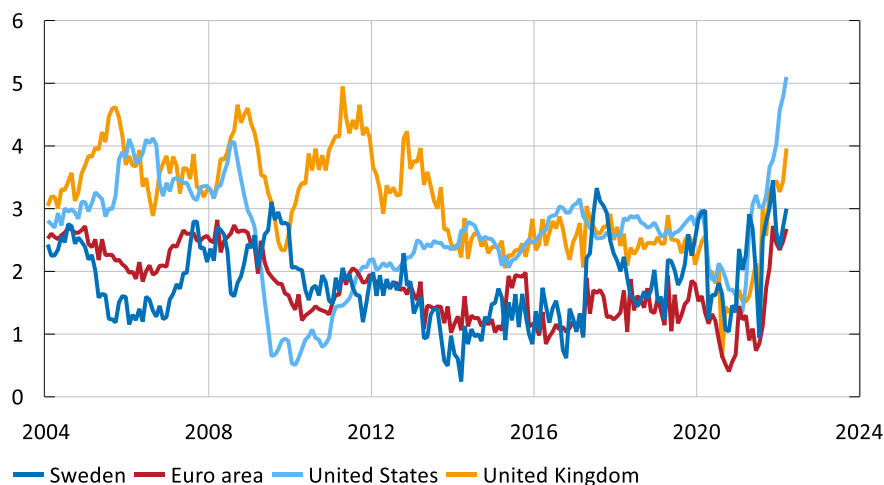
Sources: Eurostat, UK Office for National Statistics and US Bureau of Labor Statistics.

⁵⁴ According to the Economist's commodity price index for food.

The covariation between *prices for other goods than food* in Sweden and abroad is not at all as clear over time (see Figure 49). The average rates of increase for the period are also different. Exchange rates can explain differences between countries/regions in this case, as can the way prices are measured, differences in consumption patterns and differences in methods of quality adjustments.⁵⁵ The recent rise has not been particularly simultaneous either. Prices had already started to rise in the United States in summer 2020. Towards the end of 2020, prices for goods started to rise in the euro area, albeit at a much slower rate. A little later, prices for goods started to rise in the United Kingdom, but there the rate of increase was steeper. In Sweden, the rate of increase rose in the second half of 2020 and first half of 2021 but then slowed down and became negative in most of the second half of 2021. In 2022, however, prices for goods increased rapidly in Sweden. The rise in prices can primarily be explained by strong global demand in combination with various supply problems. Higher energy prices have contributed to increased transport costs, at the same time as other commodity prices have risen. Bottlenecks in the global supply chain have also contributed to higher freight costs. Similarly to food prices, part of the rising prices for goods can thus be explained by so-called indirect effects of rising prices on important input goods.

Figure 50. Service prices in various countries and regions

Annual percentage change



Note. Inflation measured as the HICP for Sweden and the euro area and the CPI for the US and the UK.

Sources: Eurostat, UK Office for National Statistics and US Bureau of Labor Statistics.

The correlation between the development of *service prices* in Sweden and other countries is positive and clearer than for goods prices, but not as strong as for energy and food prices (see Figure 50). The rate of increase in service prices started to rise around the end of 2020/start of 2021 in Sweden and abroad and the development is probably connected to the lifting of pandemic restrictions entailing rapidly rising demand for

⁵⁵ For a discussion of price comparisons between countries, see O. Tysklind, "Quality adjustments and international price comparisons", Staff Memo, January 2020.

services. In Sweden, the upward trend has been uneven due to large weight adjustments in subindices with large seasonal variations such as foreign travel. In general, the price increase on services is so far not as large as that for food and other goods. However, in the United States, service prices have increased much more than in other countries and wage growth has also increased rapidly.

The war in Ukraine is pushing inflation further upwards

Even before the war broke out in Ukraine, food prices had started to rise. The war in Ukraine is expected to contribute to even higher food prices as the supply of wheat, for example, will fall (see also the article “Economic consequences of the war in Ukraine”). Continued disruptions on the energy market are also expected to affect the food industry. Prices for natural gas, which is an input good in the production of fertiliser, and electricity and fuels, which are also important input goods in agriculture, have risen since the war broke out.

Other examples of products becoming more expensive due to sanctions imposed by western countries on Russia are wood products, packaging and plastics of various kinds. This is because several of the input goods used in the manufacture of such products are produced in Russia. The war in Ukraine is expected to create new price impulses, with even higher inflation this year.

Various indicators also point to higher inflation in the near term

According to the Riksbank’s Business Surveys, which were conducted in February, before Russia’s invasion of Ukraine, costs for input goods, transport, energy and labour are increasing. Several companies have already raised their sales prices and, compared to the September survey, more companies are now planning to increase sales prices going forward to compensate for the higher cost pressures and other developments. According to the Economic Tendency Survey, the share of companies in the retail trade and service sector planning to raise their prices has risen further. The rate of price increase for input goods according to the Purchasing Managers’ Index (PMI) seems to have stabilised at record high levels in both the manufacturing sector and the service sector. The rate of increase in producer prices for consumer goods is also still rising (see Figure 45). Different indicators are thus unambiguously pointing towards higher consumer prices in the coming period.

According to interviews with companies conducted by the Riksbank at the start of April, there have already been large price rises, but selling prices are expected to be raised further. The companies also say that acceptance of price rises is generally greater now, both towards subcontractors and from customers.⁵⁶ This was a tendency that had already been clear before the war broke out.

⁵⁶ The interviews were conducted after Russia’s invasion of Ukraine with a smaller selection of companies. A total of 19 companies and trade organisations were interviewed concerning the effects of the war on their operations and pricing at the moment. The results of the next ordinary business survey will be published in June.

The Riksbank's assessment for the next two years

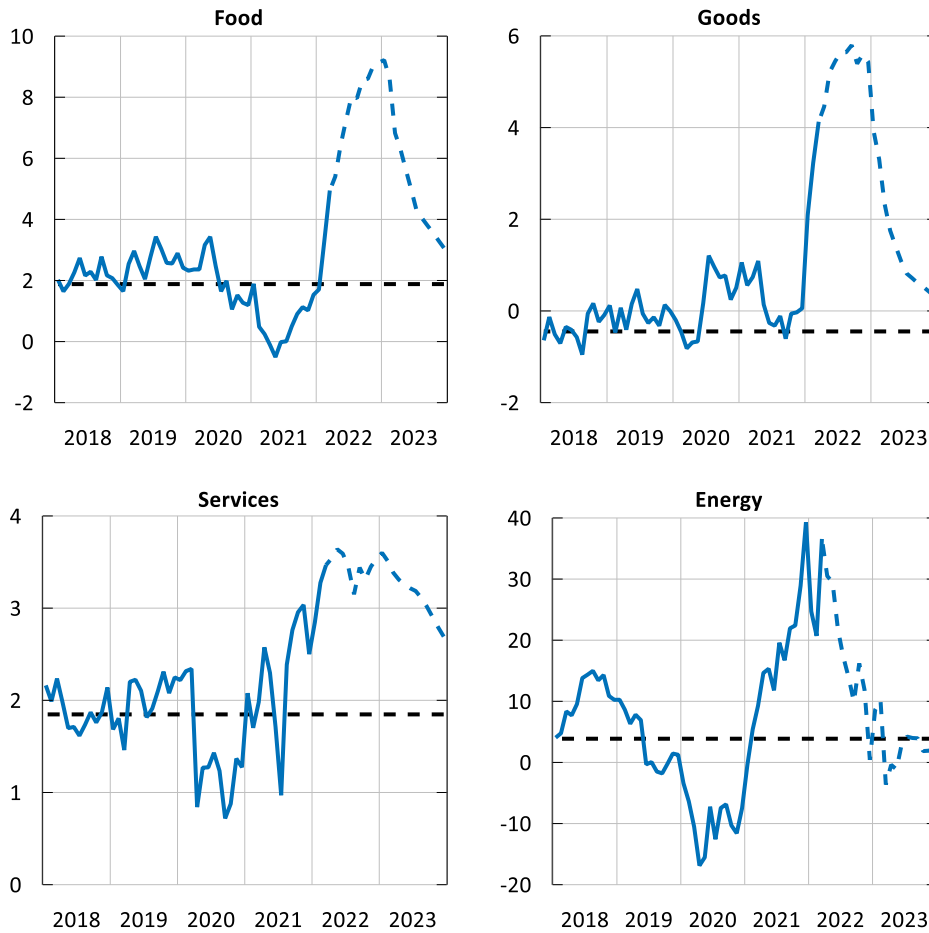
Several different indicators, such as price plans in the Economic Tendency Survey and producer prices, thus suggest that the large price rises that have taken place in commodities and producer channels in recent years have not yet fully been passed along to consumers. In addition, the war in Ukraine entails new price impulses. Consumer prices are thereby expected to rise further and the Riksbank has carried out a major revision of the inflation forecast until 2023 against the forecast from February (see Figure 7 in Chapter 1). The rate of increase in prices for food and other goods has been rapid but is expected to rise further and peak in the second half of this year (see Figure 51). The rate of increase in service prices is expected to remain on a higher than normal level this year and next year, while the rate of increase in energy prices will slow down somewhat sooner.

The assessment does not mean that prices of food, goods and energy will fall going forward, but they are not expected to continue rising as fast. There is support for this assessment in forward prices in the markets for food, other commodities and energy.

How inflation develops in the slightly longer term depends on how the inflation expectations of companies and households are affected by this and on how monetary policy is adjusted. Various measures of underlying inflation have risen recently, which could be an indication that inflation may become more permanently high. So far, however, it is difficult to see any clear signs of so-called secondary effects in Sweden, where higher inflation expectations, in turn, are generating higher prices and wages. The upturn in more long-term inflation expectations is relatively modest so far, and there are no signs of rapidly rising wages. The rise in service prices, which would perhaps primarily be affected by such a development, has also been more limited than the rise in other prices.

Figure 51. Forecasts for various subindices in the CPIF 2022 and 2023

Annual percentage change



Note. Goods refers to goods prices excluding energy and food. The weight for food prices in the CPIF, according to the Riksbank's classification, amounts to 18.2 per cent for 2022, while prices for other goods weigh 28.9 per cent. The weight for service prices is 43.7 per cent and the weight for energy prices is 5.9 per cent. The capital stock index, which has a weight of 3.4 per cent, is not shown here. Horizontal broken lines represent mean values for the period 2000–2019. Solid line refers to outcome, broken line represents the Riksbank's forecast.

Sources: Statistics Sweden and the Riksbank.