

## VI Inflation

Inflation measured 1.7% in Q3/2017, slightly less than was forecast in August. It has been driven mainly by rising house prices, although the pace of the increase has eased in recent months. The exchange rate of the króna has fallen since the beginning of June, following a significant appreciation earlier this year. The effect of the depreciation on prices seems to have been limited thus far. This could be due in part to firmer anchoring of inflation expectations, which reduces the pass-through of short-term exchange rate fluctuations to the price level. Increased competition in the retail market may be a factor as well. Although the rise in wages has slowed down year-to-date, wage inflation remains high. Inflation expectations have risen by several measures since August, although they are broadly in line with the inflation target.

### Recent developments in inflation

#### Inflation below target for nearly four years

Inflation measured 1.7% in Q3, slightly below the August forecast of 1.8%. The rise in house prices was the main determinant of developments in the CPI during the quarter, with reduced airfares and imported goods prices pulling in the other direction.

The CPI rose by 0.5% month-on-month in October, and twelve-month inflation measured 1.9% (Chart VI-1).<sup>1</sup> Inflation is marginally higher than at the time of the last *Monetary Bulletin*. It has ranged between 1½% and 2% for a year and has been at or below the Bank's inflation target for nearly four years. The main factor in the CPI rise in October was a surge in food prices. House prices fell marginally between months – the first month-on-month decline in over two years. As before, inflation according to measures excluding housing costs was significantly lower than CPI inflation. The CPI excluding the housing component had declined by 2.3% year-on-year in October. In September, the HICP, which also excludes costs related to housing, had fallen 2.7% between years.

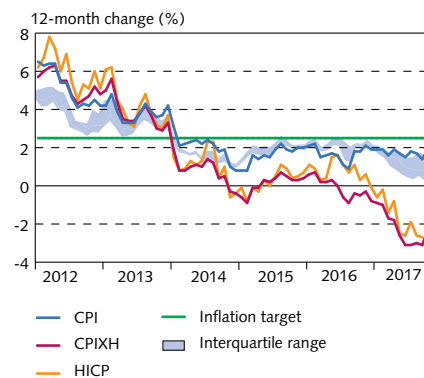
### Underlying inflation and other indicators of inflationary pressures

#### House price inflation has eased ...

By most measures apart from core index 3 excluding tax effects, underlying inflation has risen since the last *Monetary Bulletin*. Core 3 inflation measured 2.1% in October, some 0.3 percentage points less than in July.<sup>2</sup> It has measured 2½% or less for three years. Most statistical measures suggest that underlying inflation lies between ½% and 2% and has risen by an average of 0.3 percentage points since July

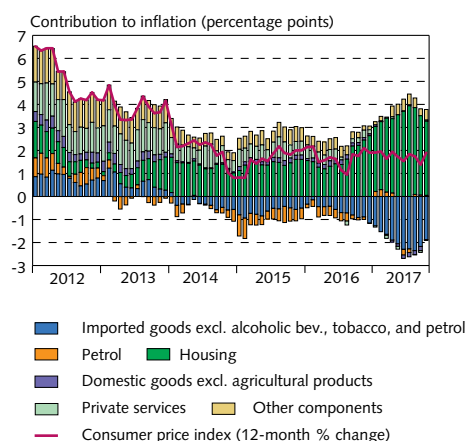
1. In September 2017, a year had passed since Statistics Iceland corrected the error it made in calculating the CPI during the period from March through August 2016, which caused an underestimation of inflation over that period and an overestimation for the same period in 2017. As a result, that error no longer affects twelve-month inflation figures, which exaggerated the disinflation between August and September 2017.
2. Core index 3 excluding tax effects excludes the effects of indirect taxes, volatile food items, petrol, public services, and real mortgage interest expense.

Chart VI-1  
Headline and underlying inflation<sup>1</sup>  
January 2012 - October 2017



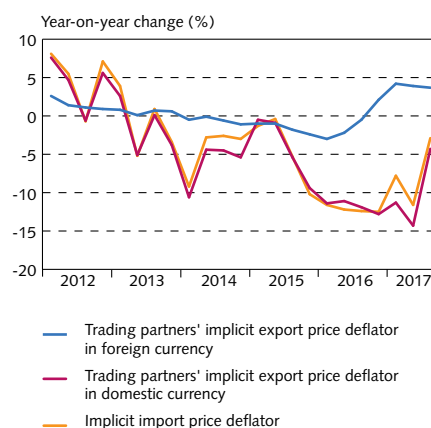
1. The shaded area includes the interquartile range of estimates of underlying inflation as measured using core indices that exclude the effects of indirect taxes, volatile food items, petrol, public services, and owner-equivalent rent; and using statistical measures such as the weighted median, the trimmed mean, and a dynamic factor model. Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-2  
Components of CPI inflation  
January 2012 - October 2017



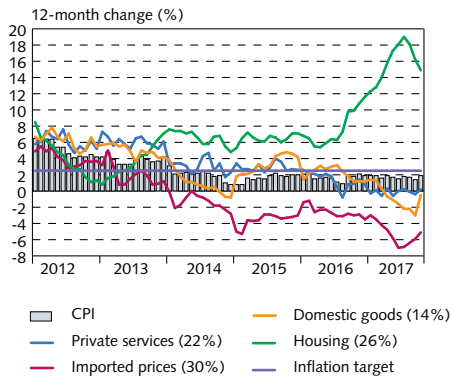
Source: Statistics Iceland.

Chart VI-3  
Import prices and international export prices<sup>1</sup>  
Q1/2012 - Q3/2017



1. Central Bank baseline forecast Q3/2017. Sources: Statistics Iceland, Thomson Reuters, Central Bank of Iceland.

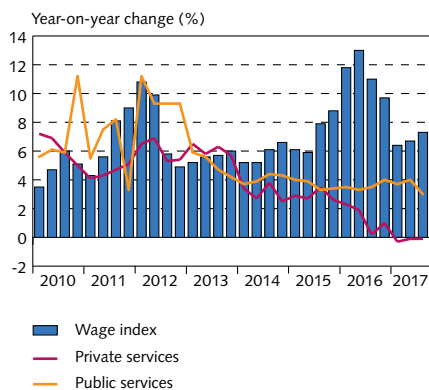
Chart VI-4  
Imported and domestic inflation<sup>1</sup>  
January 2012 - October 2017



1. Imported inflation is estimated using imported food and beverages and the price of new motor vehicles and spare parts, petrol, and other imported goods. The figures in parentheses show the current weight of these items in the CPI.

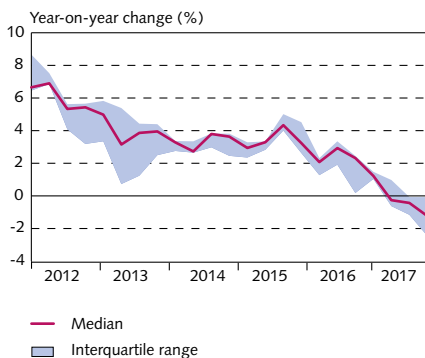
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-5  
Wages and services prices  
Q1/2010 - Q3/2017



Source: Statistics Iceland.

Chart VI-6  
Domestic inflationary pressures<sup>1</sup>  
Q1/2012 - Q3/2017



1. The shaded area includes five indicators of domestic inflationary pressures. The indicators are unit labour costs (moving average), the GDP price deflator, prices of private services and domestic goods, and producer prices of goods sold domestically. Central Bank baseline forecast Q3/2017 for the GDP price deflator and for unit labour costs. Sources: Statistics Iceland, Central Bank of Iceland.

(Chart VI-1). It appears, then, that underlying inflationary pressures are growing, although the signs are not unequivocal.

In the recent past, inflation has been driven mainly by rising house prices (Chart VI-2). The twelve-month rise in the housing component of the CPI measured almost 15% in October, after peaking at 19% this past summer. There are signs that the pace of the increase will slow still further in the coming term, as real house prices are at a historical high, housing market turnover has eased, and the supply of residential property is on the rise (see Chapter III).

### ... and firmer anchoring of inflation expectations and increased competition mitigate the effects of the currency depreciation

In the past three years, a persistent decline in the local currency price of imported goods stemming from the appreciation of the króna and low global inflation has counteracted the rise in house prices and the domestic cost pressures from pay rises. However, the króna has fluctuated somewhat thus far in 2017. When it peaked in early June, it had appreciated by 10½% year-to-date, but just before this *Monetary Bulletin* went to press, it had weakened again but was still 1.8% higher than at year-end 2016. Concurrent with this, the decline in imported goods and services prices has eased – to just under 3% year-on-year in Q3, as opposed to a twelve-month decline of more than 12% in Q3/2016 (Chart VI-3). The price of imported goods in the CPI had fallen by just over 5% year-on-year in October, as compared with nearly 7% in July (Chart VI-4).

The depreciation of the króna since June came in the wake of a significant appreciation earlier this year. There are signs that firmer anchoring of inflation expectations at target and increased competition from online shopping and from the entry of international retail giants into the local market have mitigated the inflationary effects of the depreciation of the króna.<sup>3</sup> For example, prices of various imported goods, including clothing, footwear, and furniture, have fallen since June, in spite of the weaker króna. Food prices only rose by 1.4% over the same period, and electronics prices by 0.5%. The steep rise in October of both domestic and imported goods prices indicates, however, that the exchange rate pass-through effect is emerging more strongly and that the impact of increased competition is receding. It is also possible that the increase in exchange rate fluctuations has prompted companies to wait longer before changing their goods and services prices.

### Domestic inflationary pressures have been modest ...

Domestic inflationary pressures have been modest in the recent term, in spite of a sizeable increase in unit labour costs (Charts VI-5 and VI-6). The price of domestic goods in the CPI has fallen by 0.5% in the past twelve months, and private services prices have risen by only 0.2%. Moreover, these subcomponents of the index have fallen since the publication of the last *Monetary Bulletin*. Producer prices of goods

3. According to a press release issued by Statistics Iceland on 11 September 2017, the impact on the CPI of changes in households' purchasing patterns as a result of new retail stores is under evaluation. If it is deemed warranted, these changes will affect the December 2017 CPI.

sold domestically have also declined markedly in the past year. The decline in prices of domestic goods is due largely to favourable exchange rate developments, as the cost of imported inputs has fallen. Competition has made an impact as well – not only on domestic retail goods prices but also on factors such as airfares, which have fallen steeply as a result of increased competition in passenger transport to and from Iceland.

According to Gallup's autumn survey of Iceland's 400 largest firms, the share of respondents who considered it necessary to raise their prices in the next six months rose slightly from the spring survey, to just over one-third (Chart VI-7). Responses concerning input prices changed much more markedly between surveys, as over half of executives expected input prices to rise in the next six months, up from 38% in the last survey. The share of respondents expecting an increase in input prices is approaching its historical average. The depreciation of the króna in the past few months is probably a factor. In view of this, it is noteworthy that about 60% of survey participants cited wage costs as the most important factor in their own price increases, while 15% cited input prices. Furthermore, a fourth of executives cited input prices as the second-strongest factor in their price increases (Chart VI-8).

### ... although wage inflation is still high

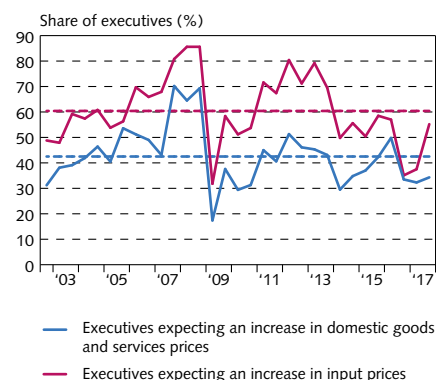
According to figures from Statistics Iceland, wages per hour rose by over 9% in 2016, which is in line with the Bank's August forecast. Pay rises in 2014-2015 were slightly smaller than previously estimated, however.<sup>4</sup> Thus far in 2017, the pace of wage rises has eased, although it remains brisk. For example, the Statistics Iceland wage index rose in Q3 by 2.1% quarter-on-quarter and 7.4% year-on-year. The pay increases provided for in the most recent wage agreements have shown in the wage index, in line with the August forecast, and wage drift has been somewhat more than was projected at that time.

Although wage agreements for most State-employed university-educated workers have expired, negotiations have stalled since the Government coalition fell in September. As a result, no changes have been made to the assessment of wage developments in 2017 or over the forecast horizon. As before, it is assumed that agreements made will be accommodated within the SALEK agreement and will not trigger a review of private sector wage settlements in 2018.

Wages and related expenses are expected to rise by just over 6% this year, or 0.7 percentage points less than was assumed in August. Productivity growth pulls in the same direction, as it is expected to be about 1 percentage point more than previously forecast, owing to a slower increase in total hours worked; therefore, unit labour costs are projected to rise by just under 4% year-on-year, which is 1½ percentage points less than previously assumed (Chart VI-9). As is discussed

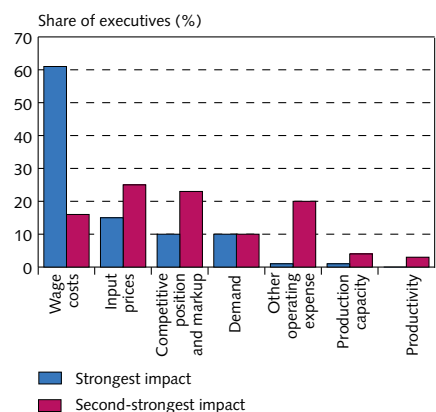
4. Statistics Iceland has revised its previous estimate of developments in wages and related expenses back to 1997. The Central Bank has relied on Statistics Iceland's figures through 2014 but used its own estimates for 2015, as it was of the opinion that Statistics Iceland's figures underestimated the actual wage increases for that year. Statistics Iceland has revised its previous figures for 2015 and now estimates the increase in wages and related expenses at 7% instead of the previous 6.5%. This is much closer to the 7.2% rise in the wage index for the year and to the Bank's previous estimate of a 7.5% increase.

Chart VI-7  
Corporate expectations of input and product prices 6 months ahead 2002-2017<sup>1</sup>



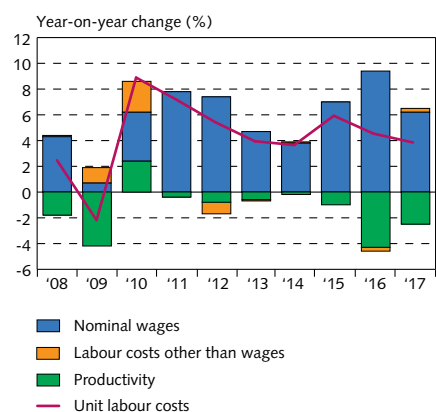
1. Broken lines show averages from 2002.  
Source: Gallup.

Chart VI-8  
Firms' price-setting decisions<sup>1</sup>  
September 2017



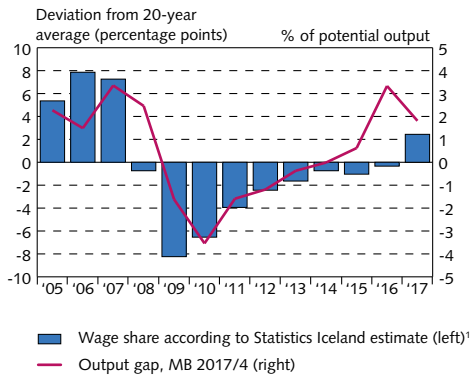
1. Executives were asked which of these factors would have the strongest and second-strongest impact on their firms' decision to raise the price of their goods or services over the coming six months.  
Source: Gallup.

Chart VI-9  
Unit labour costs and contribution of underlying components 2008-2017<sup>1</sup>



1. Labour productivity growth is shown as a negative contribution to an increase in unit labour costs.  
Sources: Statistics Iceland, Central Bank of Iceland.

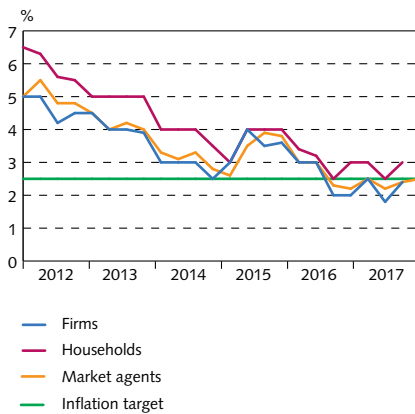
Chart VI-10  
Wage share and output gap 2005-2017



1. Wages and related expenses as a share of gross factor income. The 20-year average is 61% (1997-2016, base 1997). Central Bank baseline forecast 2017.

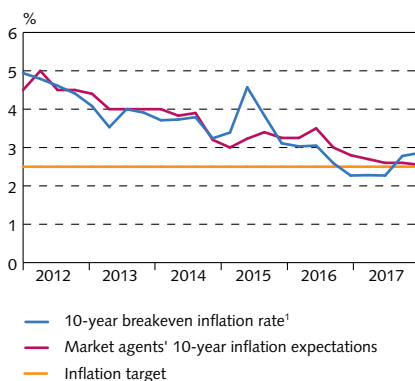
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-11  
Inflation expectations 1 year ahead  
Q1/2012 - Q4/2017



Sources: Gallup, Central Bank of Iceland.

Chart VI-12  
Long-term inflation expectations  
Q1/2012 - Q4/2017



1. The value for Q4/2017 is the Q4 average to date.  
Source: Central Bank of Iceland.

in Chapter V, productivity growth is probably overestimated for both 2016 and 2017; therefore, the rise in unit labour costs is probably underestimated. Forecasts of wage increases in 2017 indicate that the wage share will continue to rise, to 63.5% this year, some 2½ percentage points above its historical average (Chart VI-10).

## Inflation expectations

### Short-term inflation expectations have risen ...

One- and two-year inflation expectations have risen by several measures since the last *Monetary Bulletin* (Chart VI-11). According to Gallup's autumn survey, corporate executives expect inflation to measure 2.4% in one year, an increase of 0.6 percentage points from the summer survey. On the other hand, two-year inflation expectations were unchanged at 3%. Households' inflation expectations one year ahead measured 3% and had risen by 0.5 percentage points, and their expectations two years ahead had risen as well, to 3.2%.

Market agents' inflation expectations have remained broadly unchanged, however. According to the survey carried out by the Central Bank in early November, market agents expected inflation to measure 2.5% both one and two years ahead. The two-year breakeven inflation rate in the bond market, as calculated from the spread between interest on indexed and non-indexed bonds, averaged just over 2% in October and was unchanged since August.<sup>5</sup>

### ... but appear well aligned with the inflation target, as do long-term expectations

Although short-term inflation expectations have risen by several measures, they are generally well aligned with the inflation target. The same seems to apply to long-term inflation expectations. According to the Bank's November survey, market agents expect inflation to average 2.5% over the next five and ten years. Respondents' expectations have therefore remained broadly unchanged since easing towards the target late in 2016, and therefore appear to have withstood the depreciation of the króna during the summer.<sup>6</sup> The breakeven inflation rate in the bond market spiked in September, however, but as is discussed in Chapter III, this may well have reflected a temporary surge in bond market risk premia. The rise in the breakeven rate has reversed in part since then, and the ten-year rate has averaged 2.9% in Q4 to date (Chart VI-12).

5. Breakeven rates should be interpreted with caution, however, as they also include a liquidity risk premium and an inflation risk premium.
6. The signs that inflation expectations are more securely anchored are discussed in Central Bank of Iceland (2017), "Monetary Policy based on inflation targeting: Iceland's experience since 2001 and post-crisis changes", *Special Publication* no. 11.