V Inflation

Inflation measured 1.3% in Q3/2016, in line with the forecast in the August *Monetary Bulletin*, and has been below the Bank's inflation target for nearly three years. House prices continue to rise and are still the main driver of inflation. In spite of a strong economic recovery and sizeable pay hikes in the recent term, domestic inflation has remained low, offset by improved terms of trade and the appreciation of the króna. In recent months, however, global deflation has slowed and oil prices have risen, and the outlook is for this trend to continue in the coming term. Long-term inflation expectations have eased downwards and appear more firmly anchored to the Central Bank's inflation target.

Recent developments in inflation

Inflation is below target but has risen since the last *Monetary Bulletin*

Inflation has been below the inflation target for nearly three years. It measured 1.3% in Q3, in line with the Bank's August forecast, but has risen somewhat since then. The increase is due in part to Statistics Iceland's CPI calculation error over the period from March through August and the subsequent correction. Because of the error, the rise in imputed rent in March was used as a basis for the calculation of the index not in March but in April, giving rise to a one-month lag in this component of the CPI. Statistics Iceland discovered this error in September and corrected it by basing the September CPI calculation on the rise in imputed rent in both August and September. Inflation was therefore underestimated over this period, with the strongest impact in July and August. August inflation should therefore have measured 1.2% instead of Statistics Iceland's published figure of 0.9%, and therefore, headline inflation never fell below the 1% defined as the lower deviation threshold of the inflation target.

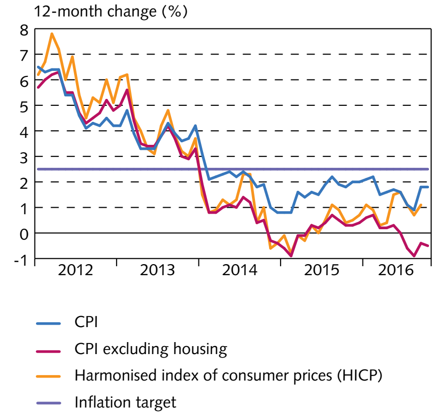
The CPI was unchanged month-on-month in October, and twelve-month inflation was 1.8%, as in October 2015 (Chart V-1). The main drivers in October were rising house prices and reduced imported goods prices. The CPI excluding the housing component declined by 0.5% year-on-year, however. HICP inflation, which also excludes housing, measured 1.1% in September.

Underlying inflation and other indicators of inflationary pressures

Rising house prices are one of the main manifestations of domestic inflationary pressures …

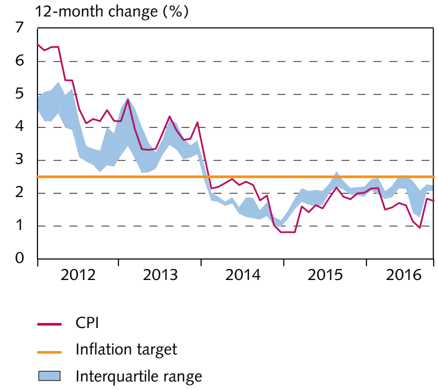
Underlying twelve-month inflation as measured by core index 3 (which excludes the effects of indirect taxes, volatile food items, petrol, public services, and real mortgage interest expense) has been at or below target since early 2014. It measured 2.1% in October and has risen since the publication of the August *Monetary Bulletin*. Statistical measures

Chart V-1
Various measures of inflation
January 2012 - October 2016



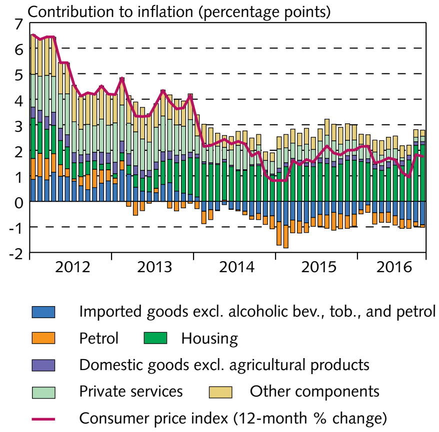
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-2
Headline and underlying inflation[1]
January 2012 - October 2016



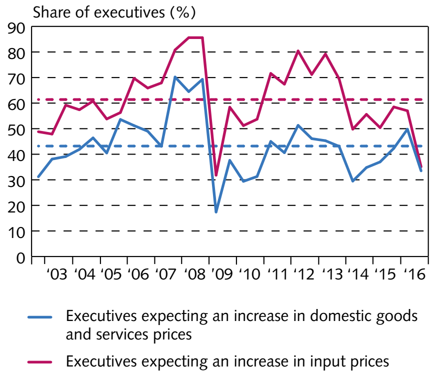
1. The shaded area includes the interquartile range of estimates of underlying inflation; core indices that exclude the effects of volatile food items, petrol, public services and owner-equivalent rent and statistical measures such as the weighted median, the trimmed mean and a dynamic factor model.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

Chart V-3
Components of CPI inflation
January 2012 - October 2016



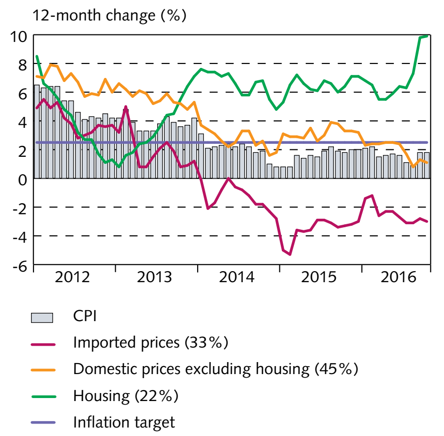
Source: Statistics Iceland.

Chart V-4
Corporate expectations of input and product prices 6 months ahead 2002-2016[1]



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

Chart V-5
Imported and domestic inflation[1]
January 2012 - October 2016



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. Domestic inflation is estimated using the price of domestic goods and the price of private and public services. The figures in parentheses show the current weight of these items in the CPI.
Sources: Statistics Iceland, Central Bank of Iceland.

of underlying inflation have developed similarly. Most of them indicate that underlying inflation was around 2% in October (Chart V-2).[1]

In spite of increased purchasing power and a strong economic recovery, there are no decisive signs that general domestic inflationary pressures are growing. However, clearer signs can be seen in house prices, which have been the main driver of inflation in the recent past (Chart V-3). Limited supply is also a major factor here, as residential investment has been relatively weak and private rentals to tourists have soared, particularly in the capital area (see Chapter III). Further signs of mounting tension in the housing market can be seen in Gallup's autumn survey among Iceland's 400 largest firms. According to the survey, about 60% of construction companies expect to raise their domestic product prices in the next six months. On the other hand, sectors that rely more heavily on imports appear less likely to do so. For example, only 13% of firms in retail and wholesale trade expect to raise prices in the next six months, as opposed to nearly half in the previous survey. On the whole, the share of firms expecting to raise prices has fallen from 50% in the last survey to 34% in the current one (Chart V-4). The same is true of executives' expectations concerning input prices, as 35% now expect price hikes in the next six months, down from 57% in March.

… but are offset by an higher exchange rate of the króna

As is discussed in Box 5 of *Monetary Bulletin* 2016/2, the fact that inflation has been below target since early 2014 is mainly explained by the appreciation of the króna and the decline in imported goods prices. Those factors have pulled together with a tight monetary stance to contain inflationary pressures from the labour market. The contribution from imported prices still pulls the CPI somewhat downwards (Chart V-5), even though oil prices have begun rising and reductions in trading partners' export prices in foreign currency have lost pace (Chart V-6). Pulling in the opposite direction is the appreciation of the króna, which has kept the twelve-month reduction in trading partners' export prices in krónur terms at just over 10% for this entire year. Import prices have developed similarly.

The twelve-month rise in domestic prices excluding housing has lost pace since the last *Monetary Bulletin*. In October it measured 1.1%, well below the H1/2016 average of 2.4% per month, owing mainly to private services prices, which rose by only 0.9% in October. Since July, the contribution of private services to twelve-month inflation has been very limited compared to historical averages. However, public services prices have risen more than their private counterpart (Chart V-7). In most cases, wage costs are services companies' largest expense item; therefore, services prices could be expected to have increased more than they actually have, given the large pay increases negotiated recently. However, the appreciation of the króna is most likely a factor, as services sectors use imported inputs even though

1. It should be noted that, owing to Statistics Iceland's error, underlying inflation was also underestimated over the period from March through August. By the same token, Statistics Iceland's official figures will overestimate year-on-year inflation (both in terms of the CPI and in terms of core indices or statistical measures) over the same period in 2017.

they are more labour-intensive than many other sectors.[2] Declining input prices have enabled domestic firms to absorb wage-related cost increases without raising prices, thereby containing inflation. Nevertheless, domestic inflationary pressures appear to have increased since the beginning of the year, although they remain modest by most measures (Chart V-8). As before, signs of increased inflationary pressures come mainly from the labour market, as unit labour costs have risen well in excess of other indicators.

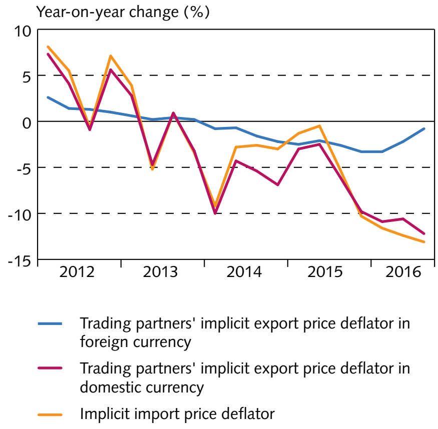
Wages are estimated to have risen more in 2015 than Statistics Iceland's preliminary figures indicate ...

Wages, as measured by the wage index, have risen in line with the previous forecast, and wage drift is broadly in line with the forecast as well. The wage index rose in Q3/2016 by 1.6% quarter-on-quarter and by 11% year-on-year. In historical context, wage drift is still limited given how many firms consider themselves short-staffed. This is probably because employers are importing labour instead of competing for workers by overbidding on wages (see Chapter IV).

As is discussed in Box 2 of *Monetary Bulletin* 2016/2, Statistics Iceland's first estimates of increases in wages and related expenses, published in March, indicated that wages per hour rose by 5.5% in 2015, only half of the 10.4% forecast in the February *Monetary Bulletin*. Statistics Iceland's September estimate of 2015 wage rises was unchanged from the March estimate and is small given the size of the recent contractual pay increases; furthermore, it fits poorly with the contracting parties' own estimates, which are based on those pay increases. It is also less than the 7.2% year-on-year rise in the wage index, and it is unlikely that wages per hour have risen less than the wage index, given how the index underestimated pay increases in 2015 (see Box 4 of *Monetary Bulletin* 2015/4). Statistics Iceland's figures suggest that the wage share fell by almost 1 percentage point in 2015, which is also unlikely in view of the historical relationship between the output gap and the wage share. Given the growing demand pressures in the economy, the wage share should generally be rising, not falling (Chart V-9). Since the wage share began rising again in 2010, it has risen by an average of 1.6 percentage points per year. If it had risen by that amount last year, wages per hour would have risen by 10.2%, and in order for the wage share to remain unchanged, wages would have to rise by 7.3%. In September, Statistics Iceland published disposable income figures for the household sector, which are based largely on individuals' income tax returns. According to those figures, wages per hour rose considerably more in 2015 than according to Statistics Iceland's production accounts, or by 7.4%, which is in line with the rise in the wage index. And finally, a survey carried out by the Confederation of Icelandic Employers among its member organisations indicates that, instead of laying off workers, firms have

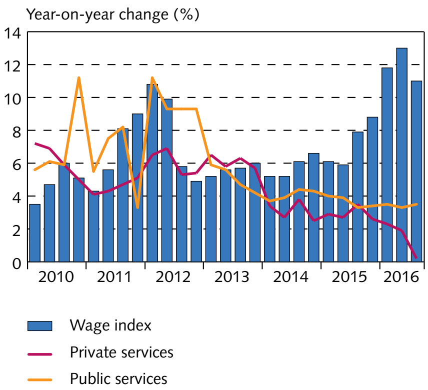
2. According to the OCED's input-output figures from 2011 (http://stats.oecd.org/Index.aspx?DataSetCode=IOTS), the share of foreign inputs in the domestic private services sector is as much as 15%. In most instances, this percentage was much lower for public services (for example, about 5% for education and public administration), which explains to some extent why public services prices have risen more than private services prices.

Chart V-6
Import prices and international export prices[1]
Q1/2012 - Q3/2016



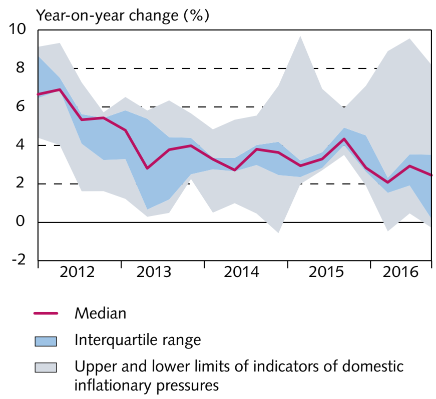
1. Central Bank baseline forecast Q3/2016.
Sources: Statistics Iceland, Macrobond, Central Bank of Iceland.

Chart V-7
Wages and services prices
Q1/2010 - Q3/2016



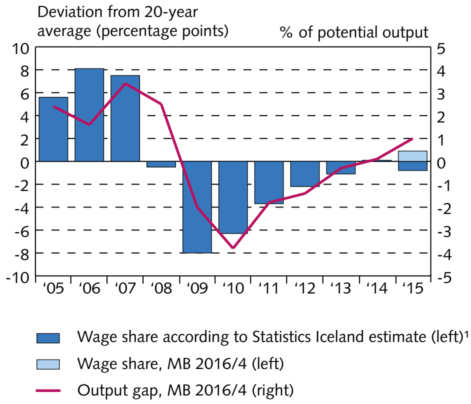
Source: Statistics Iceland.

Chart V-8
Domestic inflationary pressures[1]
Q1/2012 - Q3/2016



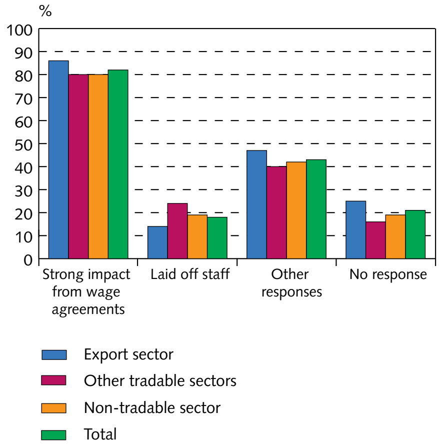
1. The shaded area includes five indicators of domestic inflationary pressures. The indicators are unit labour costs (moving average), the GDP price deflator, prices of private services and domestic goods, and producer prices of goods sold domestically. Central Bank baseline forecast Q3/2016 for the GDP price deflator and 2015-2016 for unit labour costs.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-9
Wage share and output gap 2005-2015



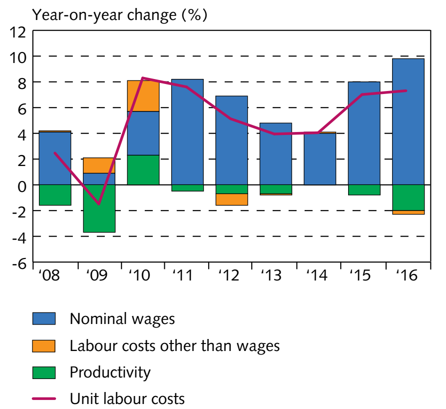
1. Wages and related expenses as a share of gross factor income. The 20-year average is 60.8% (1995-2014, base 1997).
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-10
Wage agreements: impact on companies and companies' responses



Source: Confederation of Icelandic Employers.

Chart V-11
Unit labour costs and contribution of underlying components 2008-2016[1]



1. Labour productivity growth is shown as a negative contribution to an increase in unit labour costs. Central Bank baseline forecast 2015-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

taken other action to reduce the costs associated with contractual pay increases (Chart V-10). Many firms indicate that they have reduced overtime, which could explain why wages per hour have not risen as the first estimates indicated.

In view of this, it is still assumed that wages rose more in 2015 than Statistics Iceland's preliminary figures according to the production accounts indicate. They are estimated to have risen by 8% last year, less than was assumed in August. The wage share is therefore estimated to have been just about 61½% of gross factor income last year, an increase of ¾ of a percentage point since 2014.

… and are expected to continue rising strongly this year

Estimates of wage developments in 2016 and over the forecast horizon are unchanged from the last forecast; therefore, quarter-on-quarter wage increases are assumed to be broadly in line with that forecast. Because it is estimated that wages rose less in 2015 than was assumed in August, the increase between annual averages will also be smaller this year. It is assumed that wages will rise by nearly 10% between annual averages in 2016, and that the wage share will rise to about 64½%, or 3½ percentage points above the twenty-year average. Offsetting the steep wage increases is nearly 2% productivity growth. Unit labour costs therefore rise by about 7½% this year, or about 1½ percentage points less than was projected in August (Chart V-11). As before, it is not assumed that the wage settlement review next February will lead to further pay hikes than have already been negotiated. This is somewhat uncertain, however, and given the tension that has developed in the labour market, wage drift could also be underestimated.

Inflation expectations

Short-term inflation expectations approach target …

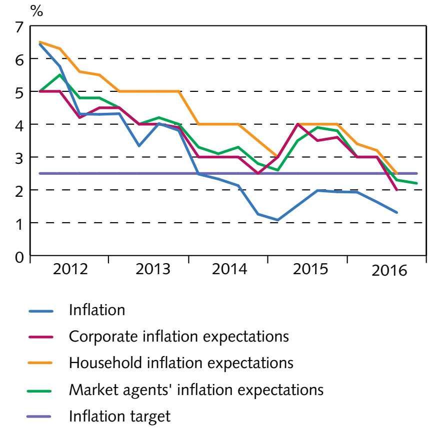
One- and two-year inflation expectations have fallen markedly in the recent term, alongside the decline in inflation (Chart V-12). According to Gallup's September survey, household inflation expectations fell steeply between surveys and are now at a historical low. Households' one-year expectations now measure 2.5%, a reduction of 0.7 percentage points between surveys, and their two-year expectations fell by 1 percentage point between surveys, to 3%. Corporate inflation expectations have developed in a similar manner, and one-year expectations are now lower than at any time apart from the immediate aftermath of the financial crisis. Executives expect inflation to measure 2% in one year, a reduction of 1 percentage point from the May survey. Executives' two-year inflation expectations have fallen to an all-time low of 3%, a reduction of ½ a percentage point since the March survey.

Market agents' inflation expectations have also declined in the recent past. According to the survey carried out by the Central Bank in early November, market agents expect inflation to measure 2.2% in one year, which is broadly unchanged from the August survey. Two-year inflation expectations measured 3% which is unchanged from August. The short-term breakeven inflation rate in the bond market, as calculated in terms of the spread between indexed and non-indexed bonds, also fell in the wake of the Central Bank's interest rate cut in August but rose again after Statistics Iceland published its September inflation measurement. In October, the one- and two-year breakeven inflation rates averaged 2.4%.[3]

... and long-term inflation expectations appear more firmly anchored to target

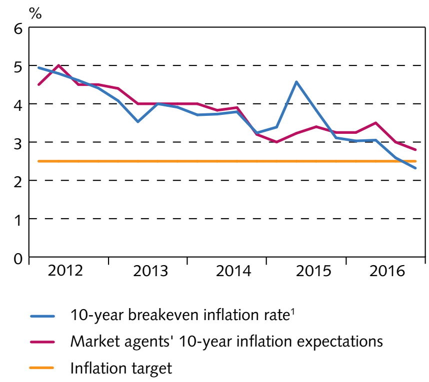
Market agents' long-term inflation expectations have gradually eased downwards towards the inflation target. According to the Bank's November survey, market agents expect inflation to average 2.8% over the next ten years, a decline of 0.2 percentage points from the previous survey (Chart V-13). The breakeven inflation rate in the bond market tells a similar tale, as the ten-year breakeven rate has been about 2.4% thus far in Q4. It is noteworthy that the Bank's interest rate reduction in August and Statistics Iceland's correction of its error in CPI measurements both had less effect on the long-term breakeven rate than on the short-term rate. Both this and recent developments in inflation expectations and the breakeven inflation rate suggest that inflation expectations are more firmly anchored than before.

Chart V-12
Inflation and inflation expectations one year ahead
Q1/2012 - Q4/2016



Sources: Gallup, Statistics Iceland, Central Bank of Iceland.

Chart V-13
Long-term inflation expectations
Q1/2012 - Q4/2016



1. The value for Q4/2016 is the Q4 average to date.
Source: Central Bank of Iceland.

3. Breakeven rates should be interpreted with caution, however, as they also include a liquidity risk premium and an inflation risk premium.