

## Faster adjustment of GDP growth to its long-term trend rate

The global economic recovery has gained further momentum and now extends to more countries than before. There is increased optimism about the global outlook, although the effects of geopolitical uncertainty can still be felt. Even though the global economic recovery has picked up, Iceland's export growth has eased, following a surge in H2/2016. It appears that it has taken longer to make up the production loss in the fishing industry following the fishermen's strike at the beginning of the year and that growth in service exports has subsided more quickly than was assumed in the August *Monetary Bulletin*. Furthermore, there are signs that marine product prices, the main source of the past few years' improvement in terms of trade, fell in Q3 and that terms of trade will improve somewhat less this year than previously forecast. As a result, the outlook is for the current account surplus to shrink more rapidly than previously assumed.

A slowdown in export growth changes the 2017 GDP growth outlook from the Bank's previous forecast. GDP growth measured 4.3% in H1/2017, down from over 10% in H2/2016. The H1 growth rate is below expectations, and for the year as a whole, GDP growth is now forecast at 3.7% instead of the 5.2% projected in August. Growth in domestic demand looks set to remain broadly unchanged, however. It is forecast to increase by 6.3% year-on-year, supported by fiscal easing and hefty rises in disposable income. The GDP growth outlook for the next two years is largely unchanged from the previous forecast, however. Growth is expected to continue broadly at this year's pace in 2018 and then ease still further towards its long-term trend rate as the forecast horizon progresses. It will nevertheless be robust over most of the forecast horizon and well over both its historical average and the trading partner average.

There are signs that the output gap that opened up early in 2015 has peaked. Because of the strong GDP growth in recent years and over the majority of the forecast horizon, the output gap will not disappear entirely until very late in the forecast period. Inflation measured 1.9% in October and has been at or below target for almost four years. There are signs that long-term inflation expectations are more firmly anchored to the target than before. The outlook is for inflation to remain below target until mid-2018 and to be at target, on average, over the forecast horizon as a whole. Inflation is projected to be somewhat below the August forecast for most of the forecast horizon, mainly because of weaker demand pressures in the economy and smaller increases in unit labour costs than forecast in August.

# I Economic outlook, key assumptions, and main uncertainties

## Central Bank baseline forecast<sup>1</sup>

### Global GDP growth gains momentum and spreads to more countries

Global GDP growth measured 3.2% in 2016, the weakest in the post-crisis period and nearly ½ a percentage point below its historical average. Indications of a recovery have grown clearer as 2017 has progressed, however. GDP growth also appears to be picking up and spreading to more countries. The International Monetary Fund (IMF) forecasts that global GDP growth will reach its long-term average this year and that output will grow by 3.6% year-on-year. According to the Fund's forecast, global GDP growth will gain pace in the next few years, averaging 3.7% per year. This is an improvement from the IMF's previous forecast and the second time in a row that the Fund has revised its forecast upwards, a change from its previous pattern of systematically overestimating the global GDP growth outlook.

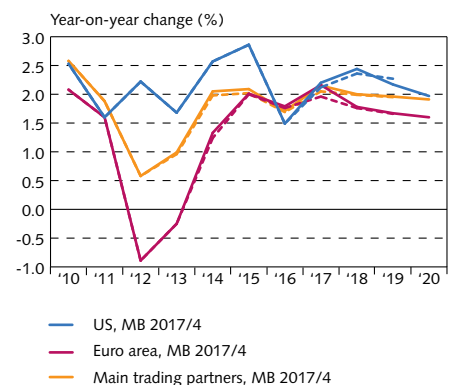
According to the baseline forecast, GDP growth among Iceland's main trading partners will measure 2.2% this year, a marginal improvement from the August forecast (Chart I-1). The most important factor is the strong economic recovery in the eurozone, although the GDP growth outlook in the US is considered slightly improved. On the other hand, indicators suggest that GDP growth in the UK will be weaker than previously forecast. As in August, output growth among Iceland's trading partners is expected to weaken slightly next year, to an annual average of 2% over the next three years. Further discussion of the global economy can be found in Chapter II, and uncertainties in the global outlook are discussed later in this chapter.

### Terms of trade weaker this year than previously forecast, while the exchange rate outlook is largely unchanged

Terms of trade for goods and services improved substantially in 2014-2015, owing primarily to a decline in global oil and commodity prices and favourable developments in marine product prices (see Box 1 in *Monetary Bulletin* 2016/2). In 2016, foreign currency prices of marine products were unchanged, however, and terms of trade for goods deteriorated by over 2%, even though terms of trade improved overall (Chart I-2). This trend looks set to continue this year: terms of trade for goods will deteriorate by another 2%, while terms of trade overall will improve by nearly 1%. This is a less favourable than was forecast in August and is due primarily to much lower marine product prices in Q3/2017, plus a more rapid rise in oil and commodity prices, although more favourable developments in aluminium prices pull in the opposite direction. According to the forecast, terms of trade for goods will continue to weaken in the next few years, while for goods and services combined they will remain broadly unchanged.

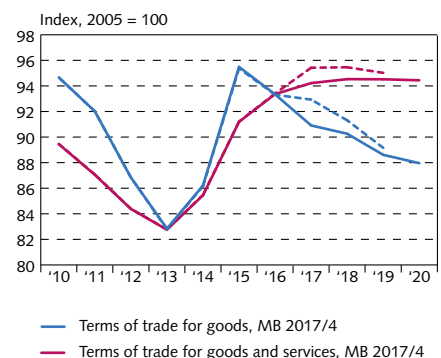
1. The analysis presented in this *Monetary Bulletin* is based on data available in mid-November.

Chart I-1  
Global output growth 2010-2020<sup>1</sup>



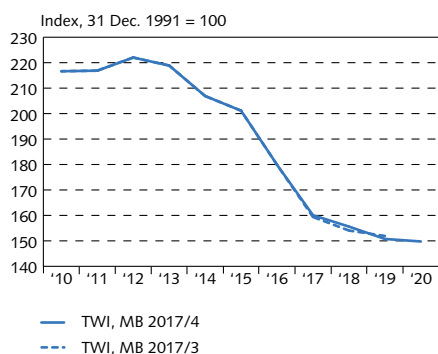
1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: OECD, Thomson Reuters, Central Bank of Iceland.

Chart I-2  
Terms of trade 2010-2020<sup>1</sup>



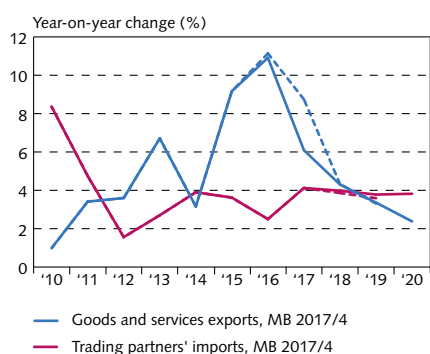
1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-3  
Exchange rate 2010-2020<sup>1</sup>



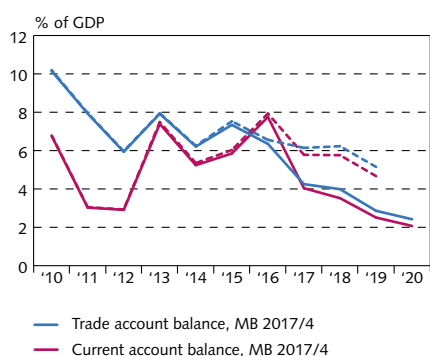
1. Central Bank baseline forecast 2017-2020. Narrow trade basket.  
Source: Central Bank of Iceland.

Chart I-4  
Exports and global demand 2010-2020<sup>1</sup>



1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Thomson Reuters, Central Bank of Iceland.

Chart I-5  
Current account balance 2010-2020<sup>1</sup>



1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3. Current account balance based on estimated underlying balance 2008-2015.  
Sources: Statistics Iceland, Central Bank of Iceland.

Fluctuations in the exchange rate of the króna increased during the summer but have subsided again as the foreign exchange market has adjusted to the new environment of free movement of capital.<sup>2</sup> The króna depreciated in trade-weighted terms by just over 5% quarter-on-quarter in Q3, broadly as was forecast in the August *Monetary Bulletin*. Nevertheless, the króna was a full 8% stronger, on average, against the average of other currencies than it was in Q3/2016. As in August, the exchange rate is expected to rise in the near term, but much less than in the past year (Chart I-3). As before, the increase will be driven by a rise in the equilibrium real exchange rate. The equilibrium rate is expected to rise somewhat less than previously assumed, in line with a poorer outlook for terms of trade and a forecast of a smaller external trade surplus, as is discussed below. Both the outlook and the estimate of the equilibrium real exchange rate are always subject to some uncertainty, however. Further discussion of this uncertainty can be found later in this chapter, and terms of trade and the exchange rate are discussed in Chapters II and III.

### Weaker export growth this year and prospect of a more rapid contraction in the current account surplus than previously assumed

One of the main drivers of the economic recovery in recent years has been the extraordinary rise of the Icelandic tourism industry, which has been the main source of the 10% average export growth in the past two years. As 2017 has progressed, however, there have been signs that the rate of growth is easing. In H1, exports of goods and services grew by just over 6% year-on-year, and the outlook is for broadly similar growth for the year as a whole. This is still a handsome growth rate, however, particularly given that growth in trading partner demand has averaged roughly 3% in recent years (Chart I-4). It is somewhat below the August forecast, however, because services exports grew less in H1 than previously assumed and are expected to grow less strongly for the remainder of the year. The other main reason for the poorer outlook for exports in 2017 is that marine product exports appear to have grown much less in Q3 than was previously assumed, and interviews with fishing company executives suggest that it took longer than expected to make up the production losses from the fishermen's strike early in the year. In addition, silicon exports are expected to be weaker this year than previously estimated. As in the Bank's previous forecast, export growth is expected to slow down still further in the next few years.

Because of the combined effect of weaker export growth and a weaker improvement in terms of trade, the surplus on goods and services trade is forecast to be smaller this year than previously assumed. According to the August forecast, the trade surplus was estimated at 6% of GDP, whereas it is now projected at 4.2%, with three-fourths of the difference due to weaker export growth (Chart I-5). The surplus will also shrink more rapidly next year because of the additional impact

2. A discussion of exchange rate fluctuations in historical and international context can be found in Box 1. Box 2 discusses the special reserve requirement used by the Central Bank to temper capital inflows.

of more rapid growth in services imports. The trade surplus is forecast at 4% in 2018 and is expected to narrow to 2½% by 2020. The current account balance will develop similarly: the surplus measured nearly 8% of GDP in 2016 and will contract to 4% this year and 2% by 2020. Further discussion of exports and the external balance can be found in Chapter IV.

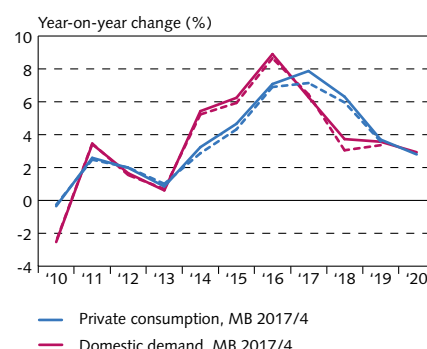
### Strong growth in domestic demand and signs of more rapid private consumption growth than forecast in August

Real disposable income has risen by over 9% per year in the past two years and is expected to increase by nearly 8% this year. It has therefore grown by more than a third in four years and has now overtaken its pre-crisis peak. At the same time, households' real net wealth has increased by nearly one-fourth per year. Households' financial conditions have therefore improved substantially, as is reflected in strong growth in private consumption, which increased by over 7% in 2016 and by 8.3% in H1/2017, according to preliminary figures from Statistics Iceland. The Bank has therefore revised its forecast for year-2017 private consumption growth upwards to 7.9%, from 7.1% in August (Chart I-6). The pace of private consumption growth is expected to ease slightly as the forecast horizon progresses. In spite of a large increase in consumption spending, households have been able to build up significant savings, as disposable income has grown even more rapidly. It is estimated that households saved 10½% of their disposable income in 2016, and the saving rate is expected to remain broadly steady for the remainder of the forecast horizon.

Investment activity has also picked up strongly in recent years. In 2016, business investment increased by over 26%, on the back of nearly 30% growth in 2015. Residential investment was strong as well, growing by nearly a third in 2016. Total investment therefore grew by nearly 23% last year, and the investment-to-GDP ratio was slightly above 21%, the highest since 2008 and almost 1 percentage point above the twenty-five-year average. It was foreseen that this surge would subside this year, yet the pace of growth will remain robust, at nearly 9%. As in the Bank's August forecast, total investment is projected to contract slightly in 2018, owing to a downturn in business investment. This reflects a reduction in investment in energy-intensive industry and in ships and aircraft. Other business investment will continue to grow by nearly 10%, however. If the forecast materialises, the investment-to-GDP ratio will hold steady at just over 21% throughout the forecast horizon (Chart I-7).

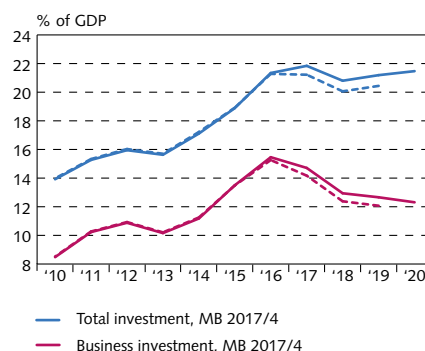
Consumption and investment spending grew by 6.1% in H1/2017. This was offset by a contraction in inventories, particularly in the fishing sector; therefore, domestic demand grew at a slower rate, or 5.4%. Growth in domestic demand is projected at 6.3% for 2017 as a whole, on the heels of 8.9% in 2016 and an average of nearly 7% over the past three years (Chart I-6). It is estimated to measure 3½% per year over the next two years and then taper off to about 3% in 2020. Further discussion of private and public sector demand can be found in Chapter IV.

Chart I-6  
Private consumption and domestic demand  
2010-2020<sup>1</sup>



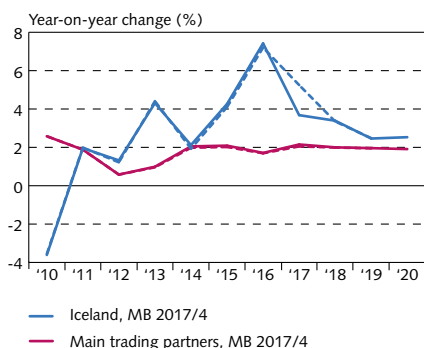
1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-7  
Investment 2010-2020<sup>1</sup>



1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-8  
GDP growth in Iceland and trading partners  
2010-2020<sup>1</sup>



1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Thomson Reuters, Central Bank of Iceland.

### GDP growth subsides faster than previously forecast

GDP growth measured 10.4% in H2/2016, but preliminary figures from Statistics Iceland indicate that it slowed markedly in H1/2017. It measured 5.2% in Q1 and then subsided still further in Q2, to 3.4%. This decline in GDP growth was foreseeable to an extent, as the rapid growth in services exports in H2/2016 was expected to ease and it was known that H1/2017 exports and inventories would be affected by the fishermen's strike. Even so, the fall was steeper than was assumed in the August forecast, which provided for 5.6% GDP growth in H1/2017, whereas Statistics Iceland's preliminary figures indicate a growth rate of 4.3%. The outlook for Q3 is also poorer, in view of indications that export growth has weakened more rapidly than previously forecast. GDP growth is now forecast at just over 1% for Q3 and just over 3% for H2, as opposed to almost 5% in the August forecast. For the year as a whole, output growth will therefore be markedly weaker than was projected in August, or 3.7% instead of the previously forecast 5.2% (Chart I-8). The outlook for the next two years is broadly unchanged, however: GDP growth is forecast to measure 3.4% in 2018, which is similar to this year's growth rate, and then ease towards long-term trend growth and measure approximately 2.5% per year in 2019 and 2020.<sup>3</sup>

As in the Bank's previous forecasts, GDP growth will be above the trading partner average for the entire forecast horizon, and if this forecast materialises, the current growth phase will span a decade, the longest GDP growth per capita episode since measurements began. Further discussion of developments in GDP growth can be found in Chapter IV.

### Signs that labour demand growth is easing and the output gap has peaked

Further indications that growth in economic activity is moderating can be found in the labour market, where job creation has slowed markedly, according to the Statistics Iceland labour force survey (LFS). The number of jobs rose by 1.8% in Q2 but stood still in Q3. Because of a reduction in average hours worked, total hours contracted in Q3, for the first time since 2012. This is surprising because the number of foreign nationals migrating to Iceland is still rising fast, as is the working-age population. It is likely that this reflects to some extent measurement problems in the LFS, which appears to capture the number of foreign workers in Iceland poorly or with a time lag (see Chapter V). Although the LFS results should be interpreted with some caution, it does appear that growth in labour demand has subsided. According to a recent Gallup survey, the share of firms planning to add on staff net of the share planning to downsize has fallen somewhat, and the same can be said of the share of firms considering themselves understaffed or operating at or above full capacity. These ratios are still high

3. As is discussed in Box 3, the Bank also uses forecasts from its DSGE model as a cross-check for the Bank's baseline forecast. The DSGE model forecasts stronger GDP growth in 2018 but a lower growth rate for 2019. For the forecast period as a whole, the growth outlook is almost identical, however. The inflation outlook is also broadly similar, reflecting the offsetting effects of a lower exchange rate and smaller wage increases according to the DSGE model than are assumed in the baseline forecast.

in international and historical context, however, and a considerably larger number of companies are planning further recruiting than are interested in laying off staff. Unemployment is still falling, to a seasonally adjusted rate of 2.3% in Q3.

For the remainder of the year, total hours are expected to rise broadly as they have in 2017 to date. The year-on-year increase will therefore be slightly more than 1%, considerably below the August forecast (Chart I-9). As a result, the employment rate will be almost 1 percentage point lower this year than previously estimated, a difference that will remain for the rest of the forecast horizon. Unemployment is forecast to average 2.6% this year, a reduction of 0.4 percentage points year-on-year and almost 6 percentage points from its 2010 peak. The large-scale importation of labour is expected to hold back wage increases, and the equilibrium unemployment rate is therefore lower than previously thought. As a result, measured unemployment will rise more slowly in coming years than previously forecast, to just over 3% by the end of the forecast horizon (Chart I-10).

Because of Statistics Iceland's revision of GDP growth figures for the past few years, the output gap is estimated to have been larger at year-end 2016 than was assumed in the Bank's August forecast.<sup>4</sup> The prospect of weaker GDP growth this year means that the output gap is expected to be smaller, however. It is estimated to measure just under 2% of potential output by the end of the year, down by about 1 percentage point from the August forecast (Chart I-10). As was the case in August, it is expected to narrow further and virtually disappear by end-2020.

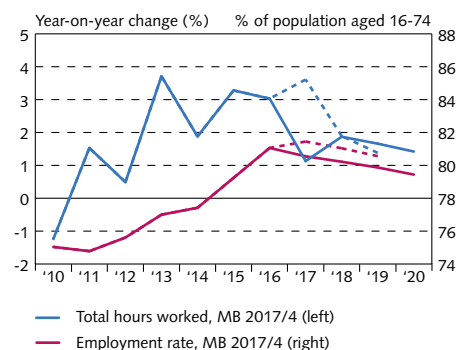
As was discussed in *Monetary Bulletin* 2017/2, current estimates of the output gap are based on the assumption that potential output has increased rapidly in recent years, and well in excess of its long-term trend. This is due to strong importation of labour and production equipment. Growth in potential output is expected to ease towards its long-term rate over the forecast horizon, as is GDP growth. It should be borne in mind that the assessment of potential output and growth in potential output, including the output gap itself, is always subject to uncertainty. Further discussion of the labour market and factor utilisation can be found in Chapter V.

### Inflation to rise as 2018 progresses but remain close to target over the forecast horizon

Inflation measured 1.7% in Q3 and was unchanged from the previous quarter. It has fluctuated within a 1½-2% range since Q2/2015 and has been at or below the inflation target for nearly four years. It rose in October, to 1.9%, after having fallen to 1.4% in September. As before, inflation excluding the effects of housing costs was considerably lower. The CPI excluding housing had fallen by 2.3% year-on-year in October, and in September the HICP had fallen 2.7% year-on-year.

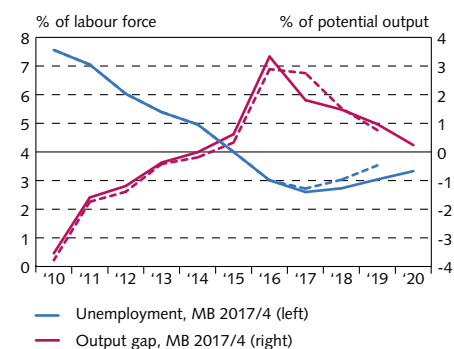
Inflation expectations appear well in line with the target. They seem to be more firmly anchored than before, as can be seen in the

Chart I-9  
Total hours worked and employment rate  
2010-2020<sup>1</sup>



1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Central Bank of Iceland.

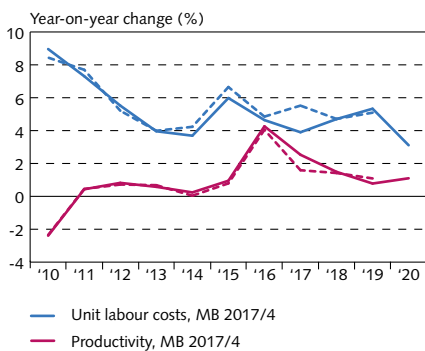
Chart I-10  
Unemployment and output gap 2010-2020<sup>1</sup>



1. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3.  
Sources: Statistics Iceland, Central Bank of Iceland.

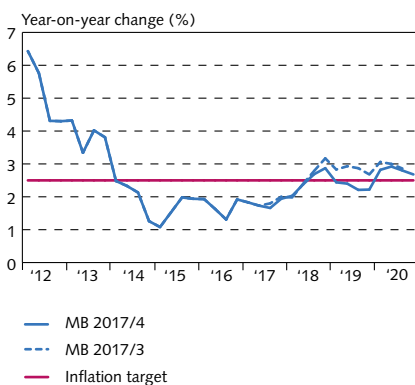
4. Statistics Iceland has revised its GDP growth figures back to 1997. For the past three years, GDP growth has been revised upwards by 0.2 percentage points each year, and the year-2016 GDP level has been revised upwards by 1½% (see Box 4).

Chart I-11  
Unit labour costs and productivity 2010-2020<sup>1</sup>



1. Productivity measured as GDP per total hours worked. Central Bank baseline forecast 2017-2020. Broken lines show forecast from MB 2017/3. Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-12  
Inflation<sup>1</sup>  
Q1/2012 - Q4/2020



1. Central Bank baseline forecast Q4/2017 - Q4/2020. Sources: Statistics Iceland, Central Bank of Iceland.

relatively limited impact of last summer's depreciation of the króna on long-term expectations. As is discussed in a recently published Central Bank report, this is a change from previous years, when long-term inflation expectations seemed more sensitive to unexpected economic events.<sup>5</sup>

The Statistics Iceland wage index rose by 7.4% year-on-year in Q3, and wage costs are expected to rise by an average of just over 6% this year, in the wake of an increase of more than 9% in 2016 and about 17% over the past two years. These steep pay rises have mitigated the deflationary effects of imported deflation and the appreciation of the króna. Increased labour productivity also counteracts the effects of wage increases on inflation, as official Statistics Iceland figures indicate unusually strong productivity growth in 2016, or over 4%. This is most likely an overestimation that can be attributed to an underestimation of the increase in the number of foreign workers in the labour market. This has probably affected productivity growth estimates for 2017 as well. It is also likely that the rise in unit labour costs – 4½% in 2016 and nearly 4% this year – is underestimated. Labour productivity is forecast to increase by 1-1½% per year in the next two years and that unit labour costs to increase by approximately 5% per year. This is significantly above the rate consistent with the 2.5% inflation target over the medium term, but by 2020 the rise in wage costs is expected to be better aligned with the target. The outlook is for unit labour costs to rise less in 2017 than was forecast in August, in addition to the revised of historical figures indicating that they also rose less in the past three years (Chart I-11). The outlook for the next few years is broadly in line with the August forecast, however.

According to the baseline forecast, inflation will rise to 1.9% in Q4/2017. If the forecast materialises, inflation will average 1.8% over the year as a whole and 2017 will be the fourth consecutive year with average inflation measuring 2% or less. This is the longest episode of such low and stable inflation since the economic crisis of the early 1990s. The baseline forecast assumes that inflation will inch upwards toward the target over the course of next year and will be close to target for the bulk of the forecast horizon. As is discussed in Box 5, the fiscal budget proposal provides for several changes in indirect taxes that will affect measured inflation in coming years. Chief among them is the reduction in the upper value-added tax bracket at the beginning of 2019, which explains the drop in headline inflation from the first quarter of that year until the effects of the tax cut disappear from twelve-month inflation measurements a year later (Chart I-12). Excluding the effects of the tax cut, inflation will remain relatively stable at just above the target from Q4/2018 onwards but ease back towards the target near the end of the forecast horizon (Chart I-13). The outlook is for inflation to be lower than was forecast in August for most of the forecast horizon, mainly because the output gap is

5. The report also states that deviations of inflation from target have grown much smaller in recent years and large deviations from target occur much less frequently than before. Furthermore, fluctuations in inflation and inflation expectations have grown smaller. Because of this, fluctuations in long-term real interest rates have grown smaller as well, which has mitigated volatility in economic activity and the exchange rate of the króna. See Central Bank of Iceland (2017), "Monetary policy based on inflation targeting: experience since 2001 and post-crisis changes", *Special Publication* no. 11.

expected to be smaller and unit labour costs are expected to rise less than previously thought. The uncertainties in the inflation forecast are discussed below. Developments in global prices are discussed in Chapter II, and domestic inflation and inflation expectations are discussed in Chapter VI.

## Key assumptions and main uncertainties

The baseline forecast reflects the assessment of the most likely economic developments during the forecast horizon. It is based on forecasts and assumptions concerning domestic economic policy and Iceland's external environment. It is also based on an assessment of activities in individual markets and how monetary policy is transmitted to the real economy. All of these factors are subject to uncertainty. The discussion below explains the assumptions about domestic economic policy. It also lists several important risks to the forecast and explains how changes in key assumptions could lead to developments different from those provided for in the baseline forecast.

### Fiscal and monetary policies

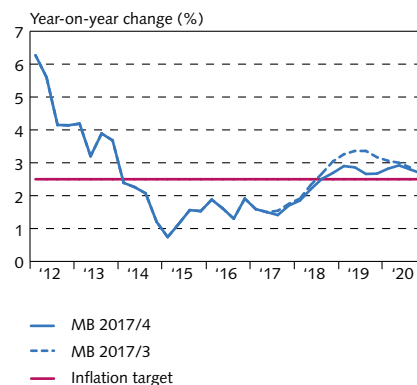
According to the baseline forecast, the fiscal stance will ease significantly this year. The cyclically adjusted primary surplus will narrow by 1.5% of GDP, adding to a similar easing in 2015-2016 (see also Chapter IV and Box 5). According to the current fiscal budget proposal, however, the fiscal stance will be tighter next year. This is similar to the outlook described in the May issue of *Monetary Bulletin*.

The Central Bank's nominal interest rates have fallen in the past year, in line with indications of firmer anchoring of inflation expectations to the inflation target. Before the publication of this *Monetary Bulletin*, the Central Bank's key interest rate was 4.25%, having declined by 1 percentage point year-on-year and 1.5 percentage points since August 2016 (see Chapter III). The baseline forecast is based on the assumption that, during the forecast horizon, the key rate will develop in line with the monetary policy rule in the Bank's QMM, which ensures that inflation will be broadly at target over the medium term.

### Government spending could turn out more than is assumed in the baseline forecast

There is some uncertainty about the fate of the fiscal budget proposal and the state of public sector finances following the fall of the Government and candidates' statements during the run-up to the recent elections. The budget proposal entails tighter fiscal policy next year, as the cyclically adjusted primary balance will improve. During the campaign, however, various ideas entailing increased spending or tax cuts were aired, but in many cases without it being clear whether the changes were funded or not or to what extent those changes were to be implemented in 2018 or later in the electoral term. In this context, it is important to remember that even though GDP growth is weaker than it was in 2016, it remains robust. The economy is running at full capacity, and an output gap remains and is expected to remain for most of the forecast horizon. A more accommodative fiscal stance will

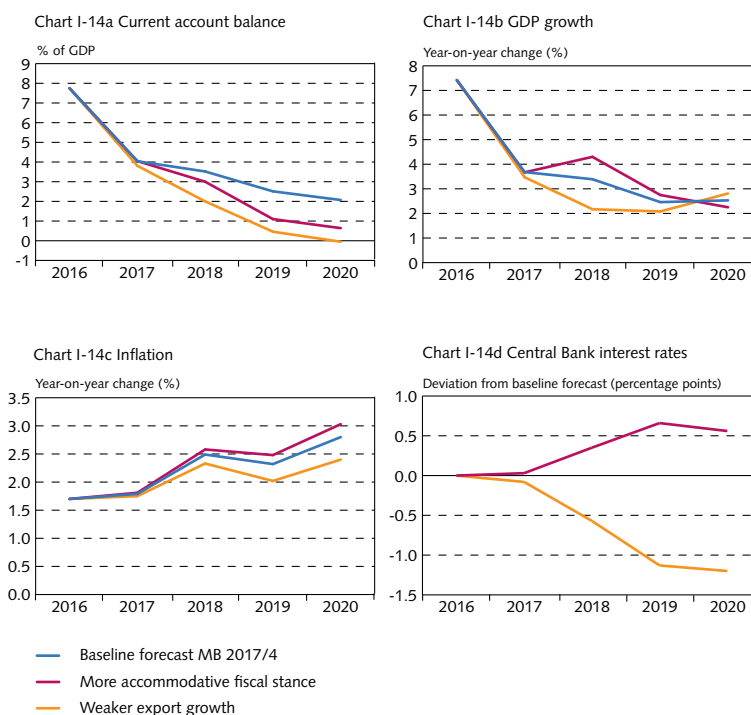
Chart I-13  
Inflation excluding effects of indirect taxes<sup>1</sup>  
Q1/2012 - Q4/2020



1. Central Bank baseline forecast Q4/2017 - Q4/2020.  
Sources: Statistics Iceland, Central Bank of Iceland.



Chart I-14  
Alternative scenario



Sources: Statistics Iceland, Central Bank of Iceland.

inevitable cause interest rates and the exchange rate of the króna to be higher than they would be otherwise.

In order to illustrate the potential impact of increased fiscal easing on the economy, an alternative scenario is presented in which Government spending increases broadly in line with the apparent lower limit of the campaign promises made during the prelude to the election. It is assumed that public consumption spending will increase by approximately 16 b.kr. per year, transfers to households will rise by 6 b.kr., and investment spending will rise by 20 b.kr. These additional expenditures would increase the ratio of public spending to GDP more or less to the pre-crisis average. The total spending increase amounts to about 42 b.kr. per year, or 1.7% of year-2016 GDP. It is assumed that these plans will materialise beginning in 2018. In addition to this, it is assumed that plans to raise the value-added tax on tourism-related services to the upper tax bracket in 2019 will not materialise. This amounts to an additional 18 b.kr. in fiscal easing, the equivalent of 0.7% of 2016 GDP. Taken all together, these measures imply that the general government surplus assumed in the baseline forecast will disappear next year and a deficit will open up in 2019.

As Chart I-14 indicates, this additional fiscal easing entails an increase in aggregate demand, although the impact on GDP growth will be less than the spending increase, as some of the increased demand will be shifted to imported goods and services.<sup>6</sup> This additional fiscal

6. It should be borne in mind that although increased investment in infrastructure could boost long-term potential output, the short-term impact on aggregate demand is broadly the same as with other easing measures during a period when the economy is operating at full capacity. As a result, it is important that such projects be timed so as to have maximum benefit and minimum risk of contributing to the overheating of the economy.

easing will also be offset with tighter monetary policy, which will cut into private sector demand so as to create scope for increased public sector demand and will push the exchange rate of the króna upwards, shifting even more of the demand out of the economy. The current account surplus will therefore shrink more quickly and will have nearly disappeared by 2020. GDP growth will be about 1 percentage point more in 2018 and about 0.3 percentage points more in 2019, but over time the effects of the stimulative measures will taper off. Because GDP growth will be stronger than in the baseline forecast, a larger output gap will develop and inflation will therefore be somewhat higher. Offsetting this, however, the Central Bank's key rate will be a roughly ½ a percentage point from 2018 onwards.

### Global economic outlook improved, but uncertainty remains

Although the global economic outlook continues to improve and the short-term outlook gives cause for increased optimism, the uncertainties that have affected the global economy in the recent term are still present. Uncertainty in the euro area receded somewhat following the presidential election in France this spring, but it is still difficult to determine what the US government's policy is on a number of issues, and Brexit negotiations between the UK and the EU appear to be moving forward very slowly. In spite of these uncertainties, the global financial markets are relatively buoyant, however, and underlying stock price volatility is historically low. Nevertheless, the cost of hedging against major stock price declines using option markets has been rising steadily as global uncertainty has mounted (Chart I-15).<sup>7</sup>

### The outlook for exports could be overly optimistic

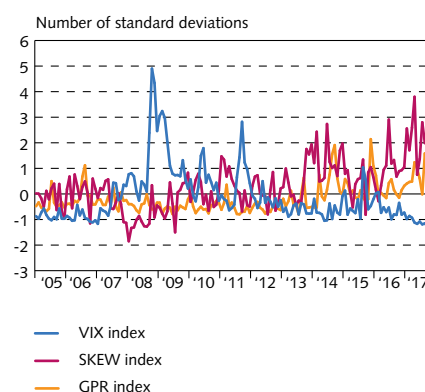
Services exports have grown very strongly in recent years, mainly because of the surge in tourism. On average, services exports have grown by nearly 11% per year in the last five years, whereas goods exports are up by only 3% per year. Because of the surge in services exports, Iceland's share in global services trade has grown rapidly in recent years, while other advanced economies' share has generally been on the decline (Chart I-16). There are signs that this growth has begun to ease, however, and that it will be weaker in the near future than previously projected in spite of a more favourable outlook for world trade and trading partner demand. Despite this, the baseline forecast assumes that services exports will grow more rapidly in Iceland than in other advanced economies for the bulk of the forecast horizon, and that Iceland's share in world services trade will therefore keep rising.<sup>8</sup>

The forecast for export growth could turn out overly optimistic, however. Chart I-14 shows an alternative scenario in which Iceland's share in worldwide services trade remains broadly unchanged at the

7. The geopolitical risk (GPR) index is a measure of geopolitical uncertainty based on an electronic search of international media. See D. Caldara and M. Iacoviello, (2017), "Measuring geopolitical risk", Board of Governors of the Federal Reserve System, *Working Paper*, August 2017.

8. According to the World Tourism Organization, travel and transport are estimated to grow in developed countries by just over 2% annually in coming years (*UNWTO Tourism Highlights*, 2017). This should correspond to approximately 2% annual growth in services exports, as travel and transport weigh heavily in total services exports.

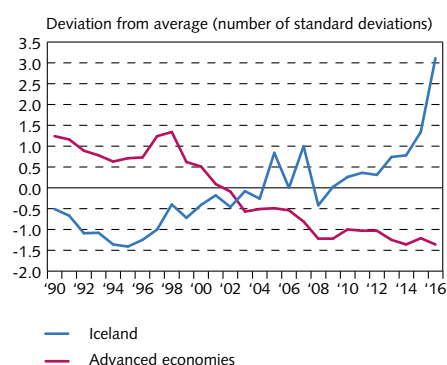
Chart I-15  
Global economic uncertainty<sup>1</sup>  
January 2005 – October 2017



1. The VIX implied volatility index measures underlying share price volatility, while the SKEW index measures the cost of hedging against steep declines in share prices. Both VIX and SKEW are calculated from S&P 500 options prices. The GPR index measures geopolitical uncertainty. The chart shows deviations from January 2000–October 2017 average, measured in terms of the number of standard deviations.

Sources: D. Caldara and M. Iacoviello (2017), Thomson Reuters.

Chart I-16  
Share in services trade 1990-2016<sup>1</sup>



1. Weight in global services trade. Deviation from 30-year average (1987-2016), measured in terms of number of standard deviations. Source: United Nations (UNCTAD).

year-2016 level throughout the forecast horizon. This assumption has an impact as soon as Q4/2017, leading to weaker export growth in 2017 than is provided for in the baseline forecast. Export growth will be nearly 3 percentage points less in 2018 and almost 1½ percentage points less in 2019. The current account surplus will therefore shrink even faster than in the baseline forecast and will have disappeared by 2020. GDP growth is also considerably weaker in the next two years – by 1¼ percentage points in 2018 and about ½ a percentage point in 2019 – albeit offset by weaker imports than in the baseline forecast, owing to reduced domestic income and a decline in importation of inputs for export activities. Offsetting these negative GDP growth effects will be a depreciation of the króna, which will also mitigate the impact of a smaller output gap on inflation. In this scenario, a lower Central Bank key rate will pull in the same direction, as the key rate will be 1¼ percentage points lower than in the baseline forecast by 2020. The alternative scenario therefore highlights how independent monetary policy and a flexible exchange rate can offset the effects of a negative external shock.

#### Exchange rate outlook uncertain

According to the baseline forecast, the exchange rate of the króna will continue to rise early in the forecast horizon. This technical assumption concerning the exchange rate is affected, on the one hand, by the GDP growth outlook and the interest rate differential with abroad, and on the other, by the estimated equilibrium real exchange rate of the króna. All of these factors are highly uncertain.

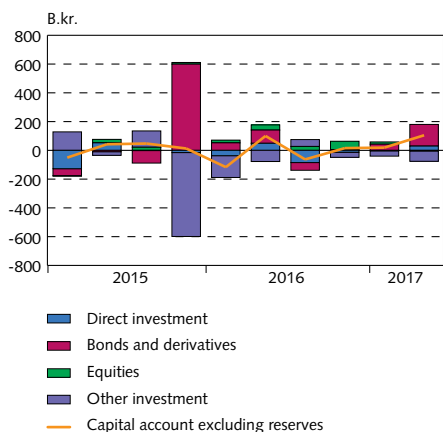
The equilibrium real exchange rate is likely to have risen in the recent term, owing primarily to improved terms of trade and rapid export growth, which supported the current account surplus and improved Iceland's external position (see, for example, Box 3 in *Monetary Bulletin* 2016/2). The revised estimate of the equilibrium real exchange rate suggests that the real exchange rate is close to equilibrium or perhaps slightly below it. But this assumption is also subject to considerable uncertainty. Furthermore, the equilibrium real exchange rate could fall again if the economy is hit by external shocks such as those described in the alternative scenario above, with a weaker outlook for exports.

In addition to these, there is also uncertainty about capital flows to and from Iceland, which could affect short-term exchange rate developments. Since the capital controls were liberalised earlier this year, there have not been any visible signs of large-scale capital outflows, although there were some indications of an uptick in Q2 (Chart I-17). It is not abnormal that investors – households, businesses, and pension funds – would seek to rebalance their asset portfolios to include more foreign assets, prompting an increase in outflows that would lower the exchange rate, other things being equal, at least in the short run.

#### Abrupt correction in house price unlikely unless in connection with an external economic shock

House prices have risen steeply in the recent term but the pace of the increase has begun to ease. Since 2012, when house prices began

Chart I-17  
Non-reserve capital flows<sup>1</sup>  
Q1/2015 – Q2/2017



1. Capital account balance excluding changes in the Central Bank's foreign exchange reserves and net capital flows to foreign direct investment, portfolio investment (bonds, derivatives, and equities), and other investment. Large movements in Q4/2015 reflect the settlement of the failed banks' estates.

Source: Central Bank of Iceland.

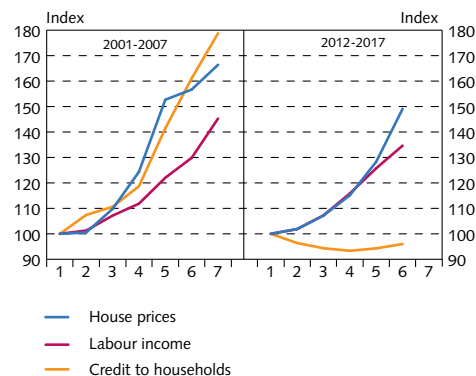
rising, real house prices have increased by nearly 50%, broadly the same as in the period 2003-2007 but somewhat less if compared to the complete house price cycle from 2001 to 2007. As Chart I-18 indicates, the foundations for the current increase are entirely different from the earlier one. House prices are now rising alongside a steep rise in disposable income and without the rapid increase in debt that accompanied the earlier episode, when house prices rose well in excess of income. Another difference between the two episodes is that the rise in income in the past few years has been driven largely by positive external shocks, including an improvement in terms of trade (Chart I-19). During the former episode, the rise in disposable income was caused not by external shocks but by unsustainable increases financed with foreign credit.

These differences in the interactions between house prices, disposable income, and mortgage lending will probably play a key role in house price developments in the coming term. It is difficult to envision that house prices will continue to rise at the same pace as they did earlier this year without a surge in borrowing, particularly because the outlook is for a marked increase in the supply of new housing and a slowdown in disposable income growth. By the same token, a sudden correction in the housing market like that taking place in the previous cycle is unlikely. In the absence of further external shocks, it is therefore most likely that the pace of house price inflation will continue to ease and the housing market to rebalance. This adjustment could be expedited by more pronounced slowdown in export growth such as that described above in the alternative scenario, or a deterioration in terms of trade (see the alternative scenario providing for poorer terms of trade in *Monetary Bulletin* 2016/4).

### Key uncertainties in the inflation outlook are the same as before

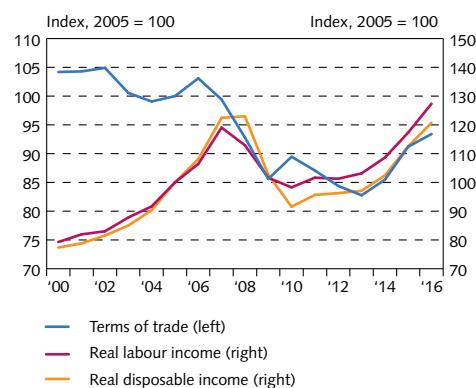
The points discussed above emphasise that the inflation outlook over the next three years could easily differ from that described in the baseline forecast. It could be argued that inflation could rise higher than is provided for in the baseline example. Unemployment is very low, for instance, and many wage settlements are set to expire soon. As a result, contractual wage increases could turn out larger than is assumed in the baseline forecast, and wage drift could be underestimated. Because firms have at best limited scope for pay increases – particularly firms in the tradable sector – there is a risk that large wage rises will pass more quickly and more strongly through to prices than they did following the last wage settlements, when improved terms of trade gave companies greater ability to absorb cost increases. The assumptions in the baseline forecast concerning continued appreciation of the króna through 2018 and slower rises in house prices could also prove incorrect. Demand pressures in the economy could be underestimated, in part because of an overestimation of potential output growth, which is considered to have been well above its historical average in the recent term as a result of strong importation of production factors. Demand pressures could also prove to be underestimated if the fiscal stance eases more than is assumed in the baseline forecast. All of this could test the newly established anchor for inflation expectations.

Chart I-18  
House prices, income, and credit in two house price cycles<sup>1</sup>



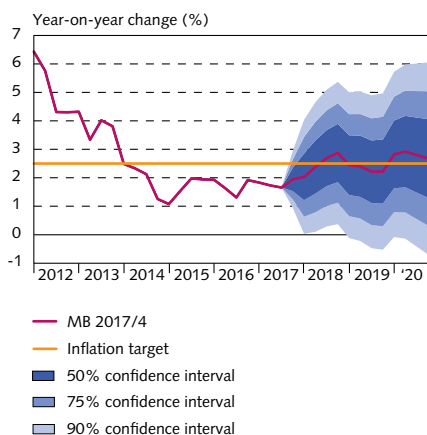
1. The chart shows house prices relative to the general price level, real labour income (disposable income excluding financial income) after taxes, and credit to households at constant prices (adjusted for the Government's debt relief measures from 2009 onwards). It shows two house price cycles and sets the first year of each episode (year 1) equal to 100. Figures for 2017 are based on the first three quarters of the year. Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-19  
Terms of trade and disposable household income 2000-2016<sup>1</sup>



1. Labour income is disposable income excluding financial income. Labour income and disposable income are after taxes. Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-20  
Inflation forecast and confidence intervals  
Q1/2012 - Q4/2020



Sources: Statistics Iceland, Central Bank of Iceland.

Inflation could also turn out lower than is assumed in the baseline forecast. The króna could appreciate more strongly than forecast – if external conditions prove more favourable, for instance. Weaker global GDP growth and a weaker recovery of global oil and commodity prices could also dampen domestic economic activity and prolong the impact of imported deflation on domestic inflation. The rise in house prices could slow more abruptly than is assumed in the forecast. The impact of increased international competition on domestic retailers' scope to raise prices could also be underestimated. Although the baseline forecast attempts to account for the effects of strong factor importation, potential output could nevertheless be underestimated and the inflationary pressures based on the cyclical position of the economy could therefore be overestimated.

In order to capture these uncertainties, Chart I-20 illustrates the confidence intervals of the forecast; i.e., the range in which there is considered to be a 90% probability that inflation will lie over the next three years (the methodology is described in Appendix 3 in *Monetary Bulletin* 2005/1). The uncertainty about the inflation outlook is broadly unchanged since August. As was the case then, the probability distribution of the inflation forecast is broadly symmetrical. There is a roughly 50% probability that inflation will be in the 1¾-4% range in one year and in the 1⅓-4% range by the end of the forecast horizon.