

CENTRAL BANK OF ICELAND



MONETARY BULLETIN



MONETARY BULLETIN

2019 • 2

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The objective of the Central Bank of Iceland's monetary policy is to contribute to general economic well-being in Iceland. The Central Bank does so by promoting price stability, which is its main objective. In the joint declaration made by the Government of Iceland and Central Bank of Iceland on 27 March 2001, this is defined as aiming at an average rate of inflation, measured as the 12-month increase in the CPI, of as close to 2½% as possible. Professional analysis and transparency are prerequisites for credible monetary policy. In publishing *Monetary Bulletin* four times a year, the Central Bank aims to fulfil these principles.

Monetary Bulletin includes a detailed analysis of economic developments and prospects, on which the Monetary Policy Committee's interest rate decisions are based. It also represents a vehicle for the Bank's accountability towards Government authorities and the public.

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Icelandic letters:

ð/Ð (pronounced like th in English this)

þ/Þ (pronounced like th in English think)

In *Monetary Bulletin*, ð is transliterated as d and þ as th in personal names, for consistency with international references, but otherwise the Icelandic letters are retained.

Statement of the Monetary Policy Committee

22 May 2019

The Monetary Policy Committee (MPC) of the Central Bank of Iceland has decided to lower the Bank's interest rates by 0.5 percentage points. The Bank's key interest rate – the rate on seven-day term deposits – will therefore be 4%.

According to the Bank's new macroeconomic forecast, published in the May issue of *Monetary Bulletin*, the GDP growth outlook has changed markedly since the Bank's last forecast. Output is now forecast to contract by 0.4% this year instead of rising by 1.8%, as was forecast in February. This deterioration in the outlook is due primarily to a contraction in tourism and reduced marine product exports because of the capelin catch failure. As a result, the positive output gap will close and a slack emerge in the near future.

Inflation measured 3.1% in Q1/2019 but rose to 3.3% in April. Underlying inflation has developed in broadly the same manner, and the difference between measures of inflation including and excluding housing is at its smallest since autumn 2013. The króna has held relatively stable in 2019 to date, and the inflationary effects of the autumn 2018 depreciation have thus far been smaller than anticipated. The deterioration in the economic outlook has caused the inflation outlook to change markedly in a short period of time, and the Bank's forecast assumes that inflation will peak at 3.4% in mid-2019 and then ease back to the target by mid-2020.

Although the recently finalised private sector wage agreements provide for sizeable pay increases, the outcome was better in line with the inflation target than was widely expected. Inflation expectations have therefore moderated again after having risen markedly over the course of 2018. Market agents' long-term inflation expectations have now eased back below 3%.

Although the economic contraction will be challenging for households and businesses, the economy is much more resilient than before. Furthermore, monetary policy has considerable scope to respond to the contraction, particularly if inflation and inflation expectations remain close to the target, as is currently envisioned. Moreover, the Government's proposed fiscal measures in connection with wage settlements will pull in the same direction.

Near-term monetary policy decisions will depend on the interaction between developments in economic activity, on the one hand, and inflation and inflation expectations, on the other.

Monetary Bulletin 2019/2¹

The past few years have been unusually favourable for the Icelandic economy. Terms of trade have improved markedly, and exports have surged, particularly those related to tourism. These positive shocks have boosted incomes, enabling Icelandic households and businesses to de-leverage and strengthen their equity position. Domestic economic activity has grown rapidly at the same time.

But the outlook has clouded over. Terms of trade have deteriorated, and the increase in tourist arrivals lost pace rapidly in 2018, not least after airline WOW Air began to scale down its operations late in the year. It was clear early this year that tourist numbers would decline year-on-year in 2019, and with WOW Air's collapse they will fall still further. This is compounded by the capelin catch failure and the generally poorer outlook for marine product exports. Therefore, the outlook is for a nearly 4% contraction in goods and services exports this year, a substantial change from the Bank's February forecast.

The GDP growth outlook for 2019 has changed markedly as a result. Output growth is estimated to have slowed even further in Q1 and is expected to contract in Q2. It is forecast to fall by 0.4% for the year as a whole, the first year-on-year contraction in GDP since 2010. The baseline forecast assumes, however, that the economic contraction will be relatively brief and that GDP growth will rebound to 2½% in 2020.

Job growth has been strong in recent years, but the outlook is for job numbers to decline well into this year. Unemployment will rise as a result and is estimated to average 3.9% for 2019 as a whole, nearly 1 percentage point above the February forecast. The positive output gap that had opened up with the strong GDP growth of the past several years is therefore expected to close more rapidly than previously projected, and a slack to develop later this year.

Inflation rose following the depreciation of the króna last autumn, peaking at 3.7% in December. It fell to 3.1% in Q1/2019 but rose again in April, to 3.3%. Inflation expectations have fallen as well, after rising in 2018. Inflation is expected to pick up slightly until mid-year, albeit less than was assumed in February. The outlook is also for lower inflation throughout the forecast horizon than was projected in February. Inflation is expected to align with the target in mid-2020 and then dip temporarily below it late in the year. The changed inflation outlook is due primarily to the sharp turnaround in the economy, which is offset in part by a larger rise in unit labour costs and import prices. Uncertainty about the inflation outlook has receded since private sector wage agreements were finalised. The negotiated pay rises for this year are broadly in line with the February forecast, but wage increases in 2020 and 2021 are larger than was assumed. Because of this, together with the prospect of weaker productivity growth, unit labour costs are now forecast to rise more than previously projected.

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

I Economic outlook, key assumptions, and main uncertainties

Central Bank baseline forecast

Global output growth outlook continues to deteriorate

Global GDP growth declined as 2018 progressed, measuring 3.6% for the year as a whole, or 0.2 percentage points less than in 2017. The GDP growth outlook for 2019 has also deteriorated. For example, the International Monetary Fund (IMF) forecasts this year's global output growth rate at 3.3%, some 0.4 percentage points below its October 2018 forecast. The outlook for 2020 has deteriorated as well, although the Fund expects growth to pick up slightly between years.

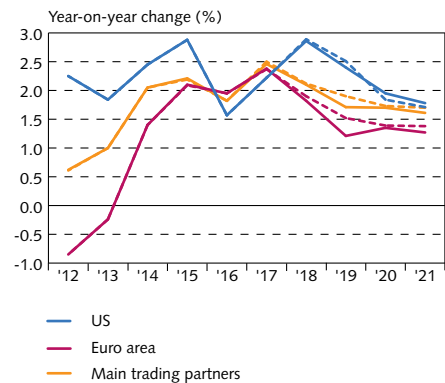
In Iceland's main trading partner countries, GDP growth averaged 2.1% in 2018. Growth eased over the course of the year, however, as the slack in trading partner economies narrowed. The outlook for 2019 has worsened in comparison with the February forecast (Chart I-1). Trading partners' GDP growth is now expected to average 1.7% this year, as opposed to 1.9% in the February forecast and 2.2% in the November 2018 forecast. The GDP growth outlook for the eurozone has been revised downwards by 0.3 percentage points since February, and weaker growth is also projected in the US, the UK, and Japan. Trading partner growth is expected to remain around 1.7% per year in 2020 and 2021. Further discussion of the global economy can be found in Chapter II, and uncertainties in the global outlook are discussed later in this chapter.

Króna relatively stable year-to-date and expected to hold broadly unchanged over the forecast horizon

After a virtually uninterrupted improvement beginning in mid-2014, terms of trade started to deteriorate in mid-2017. The deterioration through end-2018 totalled 7.5%, with most of it taking place in H2/2018. Last year's erosion in terms of trade, measuring 3.9%, is due in large part to a 30% rise in oil and alumina prices, although it was offset in part by a fairly robust rise in key exported goods prices. This is 1.3 percentage points more deterioration than was assumed in the February forecast (Chart I-2). As in February, terms of trade are projected to improve by an average of ½% per year from 2019 through 2021, owing to a continued rise in exported goods prices and a decline in oil and alumina prices. If this forecast materialises, terms of trade will be 1½% weaker by the end of the forecast horizon than was projected in February.

The króna depreciated by 13% from end-August through late November 2018, when the trade-weighted exchange rate was at its weakest. The slide began with news of WOW Air's mounting operational difficulties. It was fuelled further by increased pessimism about the output growth outlook, the erosion in terms of trade, and growing concerns about the outcome of wage negotiations. The króna seems to have been relatively unaffected by WOW Air's collapse in late March 2019, but it strengthened by nearly 3% after private sector wage agreements were signed in early April. On the whole, however,

Chart I-1
Global output growth 2012-2021¹



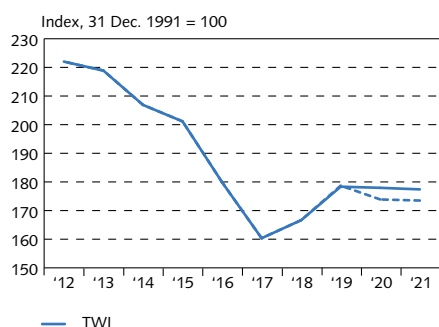
1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: OECD, Thomson Reuters, Central Bank of Iceland.

Chart I-2
Terms of trade 2012-2021¹



1. Central Bank baseline forecast 2019-2021. Broken line shows forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-3
Exchange rate 2012-2021¹



1. Narrow trade basket. Central Bank baseline forecast 2019-2021. Broken line shows forecast from MB 2019/1. Source: Central Bank of Iceland.

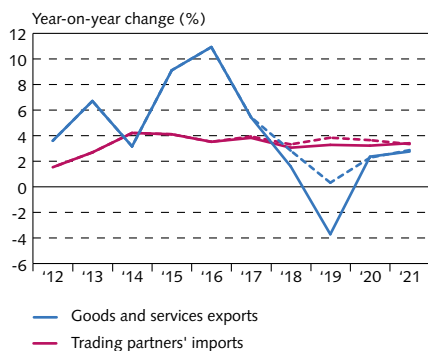
the króna has been broadly stable in 2019 to date. It is now close to where it was just before the February *Monetary Bulletin* was published, although it was a full 1% weaker in Q1 than was forecast in February. It is expected to hold more or less steady at the current level throughout the forecast horizon. If this forecast materialises, the trade-weighted average exchange rate will be just over 2% lower in 2020 and 2021 than was forecast in February (Chart I-3). The prospect of a weaker króna reflects, among other things, the deterioration in the growth outlook since the last forecast and the expectation of lower domestic interest rates than before, as can be seen in both the Bank's market expectations survey and forward interest rates. Furthermore, the equilibrium real exchange rate (i.e. the real exchange rate that is consistent with internal and external balance in the economy) is estimated to have fallen concurrent with the collapse of WOW Air, the erosion in terms of trade, the failure of the capelin catch, and the generally poorer outlook for marine exports. Counteracting these factors is the prospect of a slower rise in international interest rates and the reduction in the special reserve requirement on capital inflows, both of which support the króna, other things being equal. Further discussion of uncertainties in the exchange rate outlook can be found later in this chapter, and developments in terms of trade and the exchange rate are discussed in Chapters II and III.

Exports set to contract markedly in 2019

Goods exports grew by 3.5% in 2018, in line with the February forecast. Services exports were flat year-on-year, however, whereas the February forecast had assumed 2.5% growth. The deviation from the forecast was due largely to a contraction in passenger transport by air in Q4, even though domestic airlines' passenger numbers continued to rise. The outlook has also deteriorated sharply for this year. The turnaround is especially striking in the tourism industry, mainly as a result of WOW Air's collapse. Tourist arrivals are now expected to be 10½% fewer in 2019 than in 2018, and services exports are therefore projected to contract by nearly 9%. This is a sharp revision from the February forecast, which assumed a contraction of 1.5%. The change is even greater in comparison with the November forecast, which assumed that services exports would grow by nearly 4% this year. The outlook for goods exports has also worsened, driven mainly by the capelin catch failure and reduced catch quotas for blue whiting, mackerel, and Norwegian summer-spawning herring. After a record year in 2018, marine exports look set to contract by 5.5% this year, some 4 percentage points more than was forecast in February. Therefore, the outlook is for combined goods and services exports to contract by 3.7% in 2019 instead of remaining broadly flat year-on-year, as in the February forecast (Chart I-4). Tourist numbers are expected to begin rising again in 2020, and relatively robust growth in services exports is a key component of the 2½% year-on-year growth in total exports in 2020 and 2021.

Although export growth was weaker than expected in 2018 and the outlook for 2019 has deteriorated, the forecast for the trade balance is broadly unchanged since February. This is due primarily to a similar revision of the forecast for goods and services imports, which were

Chart I-4
Exports and global demand 2012-2021¹



1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1. Sources: Statistics Iceland, Thomson Reuters, Central Bank of Iceland.

virtually unchanged in 2018 and are expected to contract by 1% this year. The surplus on goods and services trade is forecast to shrink from 3.1% of GDP in 2018 to 1.9% this year and 1.3% by 2021 (Chart I-5). The current account surplus is expected to develop similarly, measuring about 1.3% of GDP this year and narrowing to just under 1% by 2021. Further discussion of exports and the external balance can be found in Chapter IV.

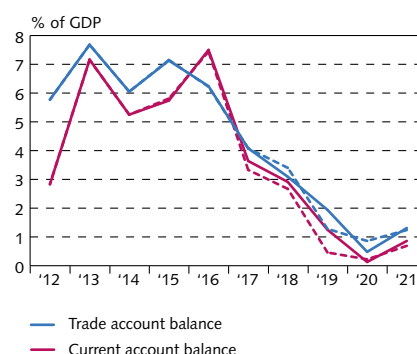
Marked slowdown in domestic demand this year ...

Private consumption grew by 3.3% in Q4/2018, down from more than 5% early in the year. The growth rate for 2018 as a whole was 4.8%, whereas the February forecast estimated it at 4.5%. Leading indicators imply that it slowed even further in Q1/2019. It is forecast to measure only 1.6% in 2019 as a whole, which would be the weakest private consumption growth since 2013 and well below the February forecast of 4% (Chart I-6). The slowdown is due mainly to weaker growth in real disposable income in 2018 and 2019, a much poorer employment outlook, and increased economic uncertainty now that the upswing of the past several years appears to be at an end. The outlook for the next two years is broadly unchanged, however, at just under 3% growth per year, as was forecast in February. To a significant extent, this reflects the impact of Government measures in connection with the private sector wage agreements, for without them, private consumption growth would be nearly 1 percentage point weaker per year in 2020 and 2021 (see Box 3).

Business investment began to contract in H2/2018, and for the year as a whole it shrank by 5.4%, somewhat more than was assumed in the February forecast (Chart I-7). Although total investment grew by 2.1% year-on-year, it has slowed markedly after averaging nearly 17% per year in 2015-2017. In 2018, growth in total investment was slightly below the February forecast, owing mainly to a stronger-than-projected contraction in general business investment (which excludes investment in energy-intensive industry and in ships and aircraft). The outlook is also for weaker investment activity this year than was forecast in February. To an extent, this reflects changes in aircraft imports planned for 2019 by Icelandair, as it is now clear that the aircraft will be leased and therefore will no longer be classified with investment and goods imports in the national accounts. Added to this is the sale of WOW Air's aircraft, which took place at the end of 2018 but showed up in Statistics Iceland's external trade figures in January and will therefore be deducted from investment in the Q1/2019 national accounts. Business investment is therefore projected to contract by 6.7% this year instead of growing by 4%, as was forecast in February. General business investment is expected to rise marginally, however, broadly as in the February forecast. Total investment will therefore contract slightly this year. The investment-to-GDP ratio will reach 22% this year and rise over the course of the forecast horizon, whereas the ratio of business investment to GDP will decline (Chart I-7).

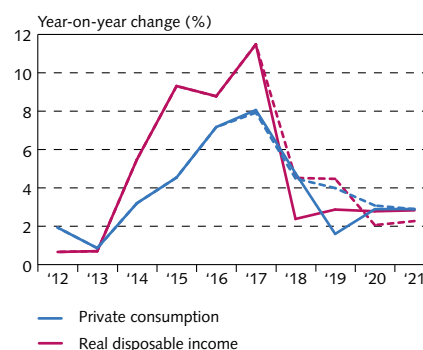
Domestic demand, which reflects all public and private sector consumption and investment spending, developed in line with the February forecast in 2018, growing by 4.1%, well below the 2015-

Chart I-5
Current account balance 2012-2021¹



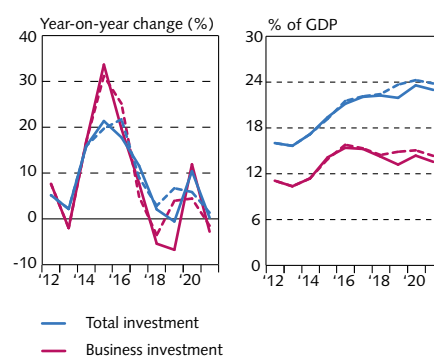
1. Current account balance based on estimated underlying balance 2008-2015. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-6
Private consumption and disposable income 2012-2021¹



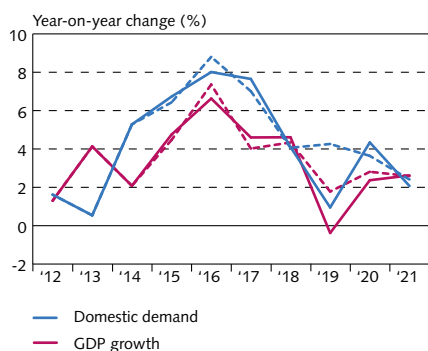
1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-7
Investment 2012-2021¹



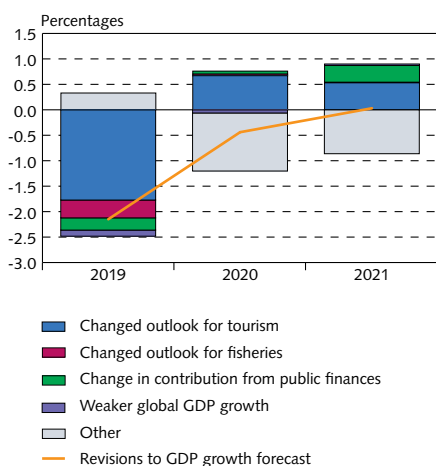
1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-8
Domestic demand and GDP growth 2012-2021¹



1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-9
Revisions to the GDP growth forecast in *Monetary Bulletin*¹



1. Change in GDP growth forecast between MB 2019/1 and 2019/2.
Source: Central Bank of Iceland.

2017 average of 7.5% per year. Growth eased as the year progressed and looks set to weaken even more in H1/2019, falling to only 1% for the year as a whole, more than 3 percentage points below the February forecast (Chart I-8). The outlook for the next two years is broadly unchanged, however. Further discussion of developments in private consumption, investment, and domestic demand can be found in Chapter IV.

... with the prospect of the first economic contraction since 2010

According to preliminary figures from Statistics Iceland, GDP growth measured 4% in Q4/2018, outpacing the February forecast. The growth rate for 2018 as a whole was 4.6%, which was 0.3 percentage points more than was forecast in February. The deviation is due to a more favourable contribution from net trade than was projected in February, while domestic demand growth was in line with the forecast.

Output growth is estimated to have slowed even further in Q1/2019, and GDP is expected to contract by just over 1% year-on-year in Q2. This is a marked change from the February forecast, owing to the above described external shocks recently hitting the economy. For the year as a whole, GDP is expected to fall by 0.4%, the first contraction in Iceland since 2010 (Chart I-8).² This is a major turnaround since February, when the Bank forecast 2019 output growth at 1.8%, and an even bigger shift from the November forecast, which estimated this year's growth at 2.7%. As Chart I-9 shows, the downward revision of the output growth forecast is driven mainly by the poorer outlook for tourism, although reduced marine product exports owing to this year's capelin catch failure weigh heavily as well. Added to this is the impact of slower trading partner growth, plus a revision of public expenditure growth since February. The baseline forecast assumes that the economic contraction will be relatively brief and that GDP growth will rebound to 2½% in 2020. Even so, this is below the growth rate forecast in February. Further discussion of developments in GDP growth can be found in Chapter IV.

Outlook for reduced job numbers and increased unemployment, with a slack opening in late 2019

Total hours worked increased by 1.8% year-on-year in Q1/2019, broadly in line with the February forecast. Job growth measured 2.6% but this was offset by a nearly 1% drop in average hours worked. Seasonally adjusted unemployment measured 3% in Q1, up by 0.4 percentage points from the previous quarter. Seasonally adjusted registered unemployment had risen to 3.5% by April, however, owing to a surge following the collapse of WOW Air and layoffs at companies that provided services to the airline. Thus, the outlook is for a noticeable rise in unemployment in Q2.

Because of the negative shocks that have hit the economy recently, job growth is much weaker than previously forecast. The outlook is for total hours worked to decline well into the year but remain

2. Previous recessions are discussed in Box 1. As is discussed in Box 2, the domestic economy is much better prepared to face negative shocks now than it was during the run-up to the 2008 crisis.

virtually flat between annual averages, whereas the February forecast assumed an increase of 1.4% (Chart I-10). The employment rate will therefore fall by 1½ percentage points relative to 2018, the third consecutive year-on-year decline. In the past two years, however, the labour participation rate has declined even further, and unemployment has therefore fallen. A drop in the participation rate is projected for this year as well, although it is expected to be smaller than the decline in the employment rate. As a result, unemployment will rise significantly. If this forecast materialises, unemployment will average 3.9% this year, 0.8 percentage points above the February forecast (Chart I-11). According to the forecast, it will subside again in 2020 and 2021 but remain well above the February forecast, and above the level considered consistent with price stability.

Because of Statistics Iceland's revision of historical GDP growth figures, the output gap is now estimated to have been larger in the past two years than previous figures indicated. This year's abrupt turnaround in economic activity means, however, that the output gap will close much more quickly than previously projected. The current baseline forecast assumes that an output slack will develop at the end of this year, but that it will close again by the end of 2020 (Chart I-11). It should be borne in mind that estimating the output gap is always subject to uncertainty, particularly at cyclical turning points like the present one. Further discussion of the labour market and factor utilisation can be found in Chapter V.

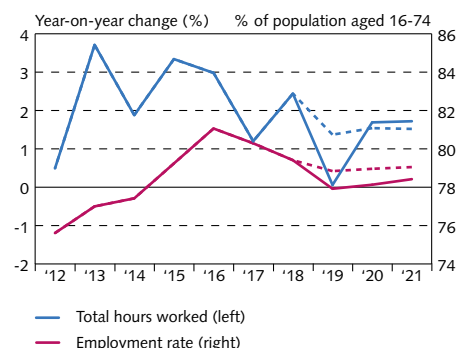
Inflation above target but expected to subside faster than previously forecast, aligning with the target in mid-2020

Inflation rose following the depreciation of the króna last autumn, peaking at 3.7% in December. It tapered off again in Q1/2019, averaging 3.1% during the quarter, 0.3 percentage points below the forecast in the February *Monetary Bulletin*. It bounced back up in April, however, to 3.3%. Inflation expectations also rose in 2018 but have fallen again, reflecting, among other things, the finalisation of private sector wage agreements providing for smaller wage hikes than many had expected. Households' and businesses' long-term inflation expectations have remained above 3%, while market agents' expectations have fallen to 2.7%. The breakeven inflation rate in the bond market has also subsided.

The year-2019 pay hikes provided for in the new wage agreements are broadly in line with the February forecast, but the wage rises for the two years following are somewhat larger (see Box 4). The outlook is also for weaker productivity growth than was projected in February and thus a larger increase in unit labour costs, which are now forecast to rise by 7% this year and 4% per year, on average, in 2020 and 2021 (Chart I-12).

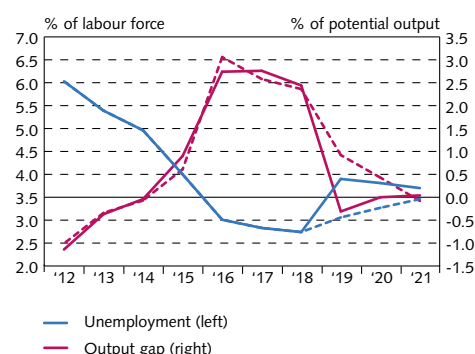
Because of the changed economic outlook, inflation is expected to be below the February forecast for the entire forecast horizon. It is forecast to peak at 3.4% in mid-2019 and ease to 3.1% in Q4, and then continue to taper off in 2020, reaching the target by mid-year and dipping below it later in the year (Chart I-13). The main reason for lower inflation than in the February forecast is the sudden turnaround

Chart I-10
Total hours worked and employment rate
2012-2021¹



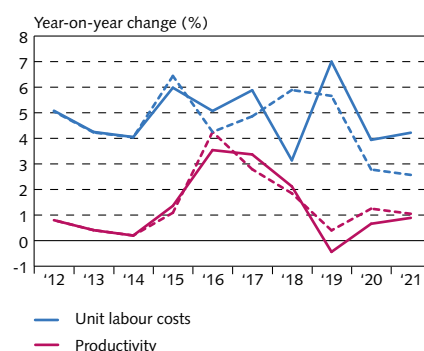
1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-11
Unemployment and output gap 2012-2021¹



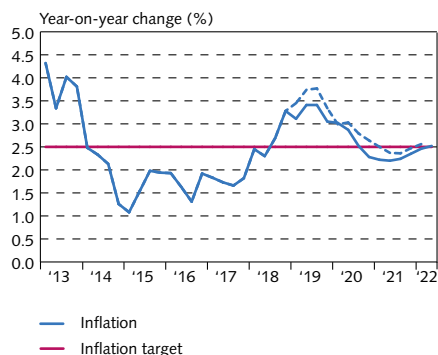
1. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-12
Unit labour costs and productivity 2012-2021¹



1. Productivity measured as GDP per total hours worked. Central Bank baseline forecast 2019-2021. Broken lines show forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-13
Inflation¹
Q1/2013 - Q2/2022



1. Central Bank baseline forecast Q2/2019-Q2/2022. Broken line shows forecast from MB 2019/1.
Sources: Statistics Iceland, Central Bank of Iceland.

in the economy, which can be seen in the output gap, which will close much faster than was projected in February. Pulling in the other direction, however, is the larger increase in unit labour costs and import prices. 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

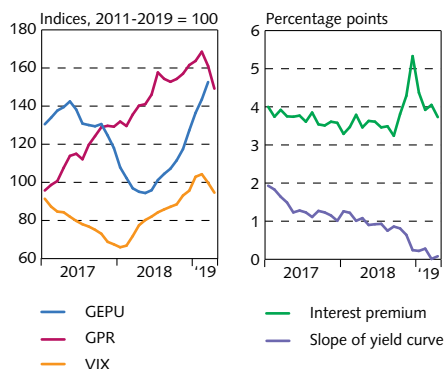
The baseline forecast reflects the assessment of the most likely economic developments during the forecast horizon. It is based on forecasts and assumptions concerning domestic economic policy and Iceland's external environment. It is also based on an assessment of the effectiveness of individual markets 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 uncertainties and explains how changes in key assumptions could lead to developments that deviate from the baseline forecast.

The fiscal stance and monetary policy

The fiscal stance in terms of changes in the cyclically adjusted Treasury primary balance was largely neutral in 2018. The outlook is for it to ease from this year through 2021, and by more than the Bank projected in November when the fiscal stance was last assessed. The easing is due to new discretionary measures on both revenues and expenditures sides that are over and above the assumptions in the current fiscal strategy, and to discretionary measures in connection with the private sector wage agreements (see Chapter IV and Box 3).

The Bank's key interest rate has been unchanged at 4.5% since November 2018, at which time it had fallen by 1.25 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 macroeconomic model, which ensures that inflation will be broadly at target over the medium term.

Chart I-14
Global economic uncertainty¹
January 2017 - April 2019



1. The GEPU index of Baker *et al.* (2016) for global economic uncertainty, and the GPR index of Caldara and Iacoviello (2018) for geopolitical uncertainty. The VIX index measures underlying volatility in the S&P500 index. All indices are 12-month moving averages. The interest premium on speculative-grade US corporate bonds. The slope of the yield curve is the interest rate differential between 10-year US Treasury bonds and 3-month US Treasury bills.
Sources: Baker, Bloom, and Davis (2016), Caldara and Iacoviello (2018), FRED, Thomson Reuters.

Mounting global economic uncertainty

Global economic uncertainty has grown in the recent past (Chart I-14),³ not least as a result of the trade disputes between the US and several of its trading partners, China in particular. Reciprocal tariff hikes have undermined world trade, adversely affected firms' investment plans, and acted as a drag on productivity growth. The risk is that the negative impact on the global economy will be amplified if the disputes persist or escalate further. For example, the US authorities are considering imposing tariffs on motor vehicle imports, which would have a severe impact on exports from countries such as Japan and

3. The chart shows measures of global economic policy uncertainty (the GEPU index) and geopolitical risk (the GPR index). See S. Baker, N. Bloom, and S. Davis (2016), "Measuring economic policy uncertainty", *Quarterly Journal of Economics*, 131, pp. 1593-1636, and D. Caldara and M. Iacoviello (2018), "Measuring geopolitical risk", Board of Governors of the Federal Reserve System, *International Finance Discussion Paper* no. 1222.

Germany, as well as a number of others involved in the car industry supply chain. Concerns are also growing about the economic recovery in the eurozone, which has softened in the recent past. This is due in large part to temporary production problems in the German motor vehicle industry and the aforementioned concerns about the impact of the trade dispute, although the fiscal situation in Italy and the mass protests in France are factors as well.

Increased global economic uncertainty has also surfaced in growing underlying asset price volatility, as can be seen, for instance, in the rise in the VIX implied volatility index in the past year, after a decline over the years before (Chart I-14). Elevated uncertainty is also reflected in rising corporate bond spreads. Spreads rose sharply in the US in late 2018, and while they fell again in early 2019, they are still higher than they were for much of last year. Furthermore, there are growing concerns that a new economic recession is in the offing, as can be seen, for instance, in the flattening of the US Treasury yield curve, which inverted for a short while — historically a harbinger of an imminent economic contraction in the US.

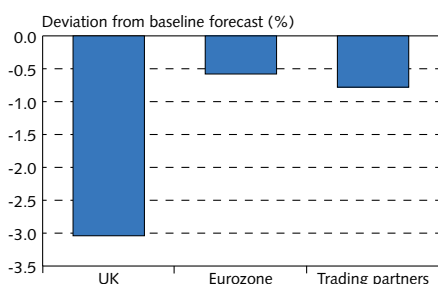
Leading indicators imply that the global economic recovery is losing steam. Although the global output growth outlook could firm up again if trade disputes are resolved satisfactorily, the risk that growth is overestimated in the Bank's baseline forecast has increased. If this materialises, GDP growth in Iceland could turn out weaker than is assumed in the baseline forecast (see, for instance, Chapter I in *Monetary Bulletin* 2018/4).

No-deal Brexit would adversely affect the global economy and growth in Iceland

Another important source of global economic uncertainty centres on Brexit; i.e., the UK's planned departure from the European Union (EU). The exit date was originally 29 March but was postponed until 12 April. Then, on 10 April, it was postponed again, until end-October 2019. It is hoped that the extra time will enable the British authorities to come to a decision about how they envision the exit process and what the UK's future relationship with the EU should be. The postponement has forestalled Britain's departure without an exit agreement, at least for a while, but depending on the outcome of a possible parliamentary election, a no-deal Brexit cannot be ruled out. Uncertainty about the entire process has already chilled British firms' optimism and investment plans and increasingly prompted UK households to defer house purchases. Many companies have moved their operations to the European mainland or are considering doing so, and signs that firms are hesitant to recruit staff are beginning to surface, especially in the services sector. As a result, output growth has slowed in the UK, and the growth outlook has deteriorated.

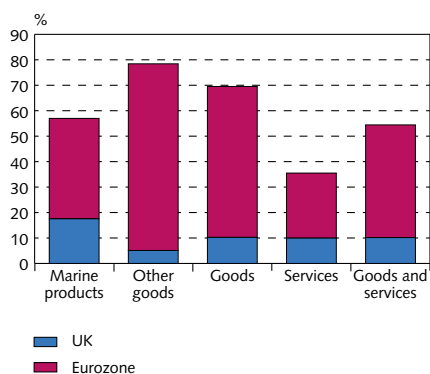
Virtually all studies of the macroeconomic impact of Brexit suggest that a no-deal Brexit would have an even greater negative effect on the British economy. Trade between the UK and the EU would probably become more costly and complicated, and cross-border supply chains would be disrupted. Both this and the impediments to cross-border movement of workers are likely to put a damper on pro-

Chart I-15
Impact of no-deal Brexit on GDP¹



1. The impact of a no-deal Brexit on GDP in the UK, the eurozone, and Iceland's main trading partner countries, as compared with a baseline example in which the UK exits the EU with most of its current relationship with the EU intact for the next few years. The chart shows the accumulated impact on GDP 2019-2022.
Sources: NIESR, Central Bank of Iceland.

Chart I-16
Exports to the UK and the eurozone
2010-2017¹



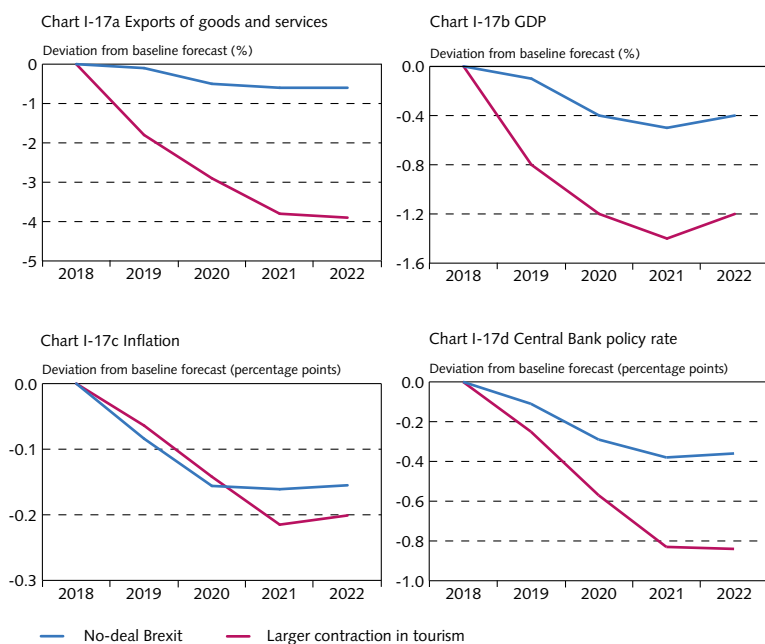
1. Share of goods and services exports to the UK and the eurozone. Averages for 2010-2017.
Source: Statistics Iceland.

ductivity growth and potential output in the UK. Added to this are increased uncertainty and rising risk premia on financial instruments, which would probably slow down domestic demand even further. In all likelihood, the pound sterling would depreciate, causing import prices to rise, and if inflation expectations became unmoored, the Bank of England could be forced to raise interest rates to keep inflation in check, thereby deepening the economic contraction. Britain's National Institute of Economic and Social Research (NIESR) has published an assessment of the macroeconomic impact of a no-deal Brexit on the UK economy. According to the Institute's findings, the pound sterling could weaken by roughly 10% and GDP in the UK could fall by a full 3% through 2022, as compared with an exit agreement retaining the better part of the UK and EU's current relationship in coming years (Chart I-15).⁴ To some extent, the impact could spread to the eurozone; for instance, with a slowdown in investment and exports, although the effect would be much weaker than in the UK, which is considerably more dependent on the eurozone than the eurozone is on the UK. A no-deal Brexit would also affect other countries, Iceland included. Based on the NIESR study of the impact of a no-deal Brexit on economic activity in the UK and the euro area, GDP in the eurozone could contract by 0.6% over the period through 2022, while Iceland's trading partners' GDP could contract by 0.8%.

About 10% of Iceland's exports go to the UK, and nearly 45% to the eurozone (Chart I-16). A no-deal Brexit could therefore have a tangible impact on Iceland's exports. This would be compounded by a nearly 1% rise in the real exchange rate due to the depreciation of the pound sterling, increased global uncertainty, and potential spillovers from rising interest rate spreads to financial conditions in Iceland. As Chart I-17 shows, exports of goods and services would contract marginally this year, and slightly more in 2020, when they would be ½% weaker than in the baseline forecast and remain there through end-2022. As Chart I-16 indicates, the UK market weighs more heavily in exports of marine products than in other goods exports; therefore, the fishing industry could be affected more than other export sectors. It is assumed here, though, that marine products can be sold readily in other markets, which limits the ultimate impact on marine export volumes. Marine product prices would decline by 3½% in foreign currency terms, however, in line with their historical relationship with global economic activity. Weaker export growth, poorer terms of trade, and elevated uncertainty would lower GDP growth in Iceland by 0.1 percentage points relative to the baseline forecast in 2019 and by 0.3 percentage points in 2020. GDP would therefore be about ½% below the level in the baseline forecast from 2020 onwards. With a higher real exchange rate and weaker growth in economic activity,

4. Therefore, some of the adverse effects of Britain's leaving the EU as opposed to remaining are incorporated into the baseline. See A. Hantzsche, A. Kara, and G. Young (2018), "The economic effects of the government's proposed Brexit deal", NIESR *National Institute Report*, 26 November 2018; A. Hantzsche, A. Kara, and G. Young (2019), "Prospects for the UK economy", NIESR *National Institute Economic Review*, no. 247; and J. S. Chadha, A. Hantzsche, A. Kara, and G. Young (2019), "Political cacophony and the 'Spring Statement'", NIESR *National Institute Policy Paper*, no. 011.

Chart I-17
Alternative scenario



Source: Central Bank of Iceland.

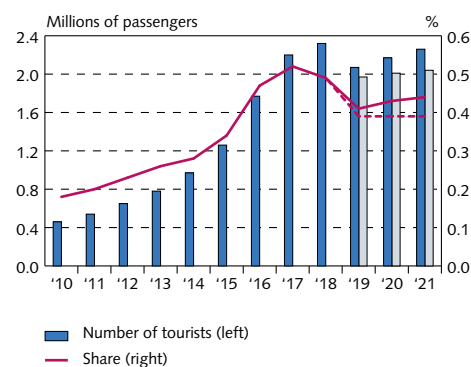
inflation would be marginally lower over the entire period, although a lower Central Bank key rate would mitigate contractionary effects.⁵

A cloudy outlook for the tourism industry

After surging in recent years, growth in tourism began to ease in 2018, and in the beginning of this year tourist arrivals started to decline. This is due in part to reduced activity by WOW Air, which had downsized its fleet of aircraft by almost half by the beginning of 2019. The company's insolvency in late March has exacerbated the contraction, and the outlook is now for tourist arrivals to decline by 10½% year-on-year, a full 8 percentage points more than was assumed in the February forecast. According to the current baseline forecast, visitor numbers will start to rise again in 2020, albeit much more slowly than in the past several years. The forecast assumes that arrivals will reach 2.3 million per year by the end of the forecast horizon; i.e., broadly the same number as in 2018. According to this, Iceland's share in travel and passenger transport among advanced European economies will fall from 0.52% in 2017 to 0.41% this year, and then rise again to 0.43% in 2020 (Chart I-18).⁶

The outlook is highly uncertain, however, and the possibility of a deeper contraction and slower recovery cannot be excluded; for instance, if the high real exchange rate causes a further drop in demand

Chart I-18
Tourism sector activity 2010-2021¹



1. Central Bank baseline forecast 2019-2021. The light columns and the broken line show the alternative scenario assuming a slower recovery in the tourism sector. The chart also shows Icelanders' share in travel exports and passenger transport by air (in US dollars) among advanced European economies.

Sources: Icelandic Tourist Board, Isavia, Statistics Iceland, United Nations (UNCTAD), Central Bank of Iceland.

5. Clearly, this assessment is highly uncertain. The impact could turn out stronger, for instance, if disturbances to trade are more protracted and severe, or if uncertainty escalates still further. But it could turn out weaker if efforts to spark demand in the UK with stimulative policy measures prove successful. The impact assumed here is very similar to that described by the IMF (*World Economic Outlook*, Chapter 1, April 2019). According to the Fund's likeliest scenario, GDP could contract by just over 4% through 2021 in the UK, and by 0.5% in the eurozone.

6. Growth in tourism among other European countries is forecast to range between 3-4% per year (see the *UNWTO World Tourism Barometer*, January 2019).

for travel to Iceland, if Icelandair cannot begin using its new Boeing 737 Max jets this summer, or if the reputational damage from WOW Air's collapse and the recent temporary strikes aimed at the tourism industry proves greater than is currently assumed. Chart I-18 depicts an alternative scenario in which tourist arrivals contract by 15% in 2019 instead of the 10½% in the baseline forecast and then recover at a slower pace than in the baseline over the ensuing two years. In that case, Iceland's share in travel and passenger transport in advanced European economies would fall to 0.39% this year and remain there, at roughly the same level as in 2015. Chart I-17 above shows how such developments in tourism could potentially affect the domestic economy. Exports would contract much more in 2019 and grow more slowly in the years to follow, and by 2022 they would be nearly 4% weaker than in the baseline scenario. Revenues would contract in comparison with the baseline scenario and domestic demand would be weaker. Weaker demand would also dampen imports, compounding the impact of export companies' reduced importation of inputs and the decline in the real exchange rate over the forecast horizon. GDP growth would be affected, albeit less than exports: output would contract by 0.8 percentage points more in 2019 than in the baseline forecast and growth would be 0.2-0.3 percentage points weaker in 2020 and 2021. Therefore, by 2022, GDP would be a full 1% lower than in the baseline forecast. The output slack would therefore be larger, offsetting the inflationary impact of a weaker króna. Inflation would be marginally lower each year than in the baseline example, and the Central Bank would be able to apply monetary policy to mitigate the economic impact of the shock. Later in the forecast period, the Bank's key rate would then be 0.8 percentage points lower than in the baseline.

Capelin catch failure could drag on longer than in the baseline forecast

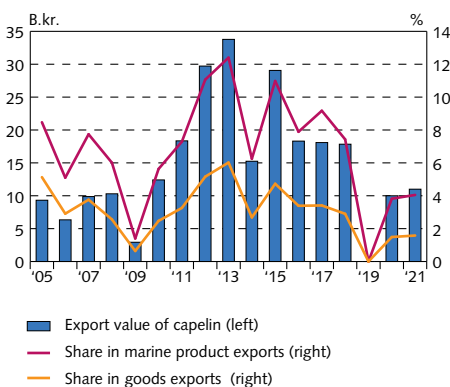
The export value of capelin has been about 18 b.kr. per year in the past three years, just over 8% of total marine exports and 3% of total goods exports. According to the baseline forecast, however, there will be no capelin catch this year, and the lost export revenues will strongly affect communities relying on capelin fishing. The economy as a whole will feel the effects as well: growth in total goods and services exports will be 0.7 percentage points lower this year and GDP growth 0.4 percentage points lower. Although the February forecast assumed a downturn in the capelin catch, the actual contraction will be about 11 b.kr. more than was projected there.

According to the current baseline forecast, capelin fishing will resume in 2020, but catches will be smaller than was assumed in the February forecast, as well as being smaller than in recent years (Chart I-19). Obviously, this assumption is highly uncertain, not least if rising ocean temperatures cause capelin spawning grounds to move outside Iceland's fishing waters. In that case, the GDP growth outlook for the next two years could prove overly optimistic.

Exchange rate outlook uncertain

The baseline forecast assumes that the impact of WOW Air's collapse on the exchange rate has already largely materialised. Underlying

Chart I-19
Export value of capelin 2005-2021¹



1. Central Bank baseline forecast 2019-2021.
Sources: Statistics Iceland, Central Bank of Iceland.

pressures on the króna in connection with investors' concerns about the outcome of wage negotiations have also receded in the wake of a relatively favourable result. According to the baseline forecast, exchange rate movements in the coming term will be affected by the decline in the equilibrium real exchange rate, a weaker GDP growth outlook, and expectations of lower domestic interest rates, on the one hand, and a poorer global GDP growth outlook coupled with expectations of a slower rise in global interest rates, on the other. All of these are subject to considerable uncertainty, however, and exchange rate developments could easily deviate from the baseline forecast. For instance, market agents appear more pessimistic about the exchange rate well into 2020, according to the Central Bank's most recent survey, as they expect the króna to depreciate by 2½% against the euro into next year.

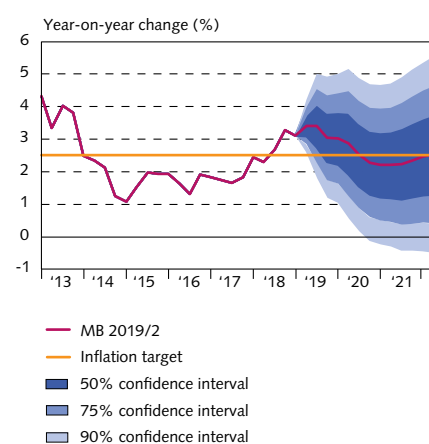
Uncertainty about the inflation outlook has subsided

Uncertainty about the inflation outlook has abated with the approval of private sector wage agreements. It has not disappeared entirely, however, as public sector wage settlements are still outstanding and could affect private sector agreements. Furthermore, there is always uncertainty about wage drift and about how far up the pay scale the generous pay rises for the lowest-paid workers will spread. The exchange rate of the króna is another important uncertainty. It is not impossible, for example, that some of the H2/2018 depreciation has yet to pass through to domestic inflation. In addition, the exchange rate assumptions in the baseline forecast could prove overly optimistic; e.g., if the shocks to the tourism industry prove long-lasting or if terms of trade deteriorate further. Demand pressures in the economy could also turn out more persistent than is currently assumed. By the same token, inflation could turn out higher than is forecast if inflation expectations start to rise again.

Nor can the possibility be excluded that inflation will turn out lower than is assumed in the baseline forecast. The króna could appreciate again, for instance, if external conditions improve. The global economic outlook could prove overly optimistic, and exports and GDP growth could therefore turn out weaker than is currently forecast. Moreover, productivity growth could turn out stronger than expected and the emerging spare capacity underestimated.

In order to reflect these uncertainties, Chart I-20 illustrates the confidence intervals of the forecast; i.e., the range in which there is considered to be a probability of up to 90% that inflation will lie over the next three years (the methodology is described in Appendix 3 in *Monetary Bulletin* 2005/1). Uncertainty about the inflation outlook is considered to have subsided since the last forecast, and the probability distribution is broadly symmetric, whereas in the most recent forecasts, inflation risk was skewed to the upside. There is a roughly 50% probability that inflation will be in the 2-3¾% range in one year and in the 1½-3¾% range by the end of the forecast horizon.

Chart I-20
Inflation forecast and confidence intervals
Q1/2013 - Q2/2022



Sources: Statistics Iceland, Central Bank of Iceland.

II The global economy and terms of trade

Output growth globally and among Iceland's main trading partners declined in 2018, and the outlook for 2019 has deteriorated. Escalating tariffs and international trade disputes have slowed down growth in world trade and in trading partner demand. Global inflation has picked up again as a result of rising oil prices, although underlying inflation remains low in most instances. Iceland's terms of trade deteriorated markedly in 2018, and the outlook is for a smaller improvement this year than previously forecast. After a steep rise in the past few years, the real exchange rate fell in 2018, partly reflecting the economy's adjustment to a lower equilibrium real exchange rate.

Global economy

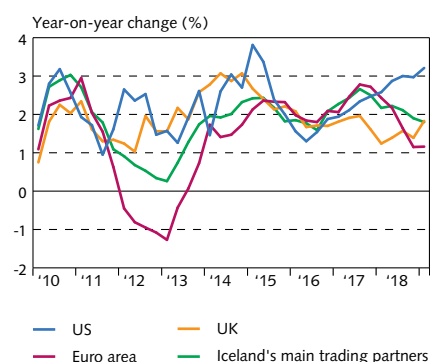
Trading partners' GDP growth softened in 2018 ...

GDP growth among Iceland's main trading partners gave way in H2/2018, after robust growth in the period beforehand. It measured 2% in H2/2018, down from 2.2% in H1 and 2.5% in 2017 (Chart II-1). Growth receded in most trading partner countries and turned out weaker than was assumed in the Bank's February forecast, particularly in the eurozone, where private sector optimism has diminished and export growth has slowed. This shift is affected in particular by weaker developments in large core countries in the region (Chart II-2). For example, GDP growth slowed markedly in Germany, owing in part to temporary production problems in the motor vehicle industry, but also to a general slowdown in economic activity. In Italy as well, output growth slowed significantly in 2018 and then contracted in Q4. This was due largely to fiscal uncertainty and rising risk premia on the sovereign, which, together with a downturn in corporate sentiment, had a negative impact on investment spending. GDP growth also lost pace in France, where mass protests played a major role. Mounting concerns about the possibility that Britain will leave the European Union (EU) without an exit agreement probably dampened investment spending in the eurozone as well. Brexit has been postponed twice, and the deadline for the exit deal, if one is reached, is now the end of October 2019. Uncertainty about Brexit has also taken a toll in the UK, with growing pessimism, particularly among businesses, sluggish investment, and a slowdown in hiring in the services sector. In the US, however, GDP growth gained steam, measuring 3% in H2/2018 and 2.9% for the year as a whole.

... as did global output growth

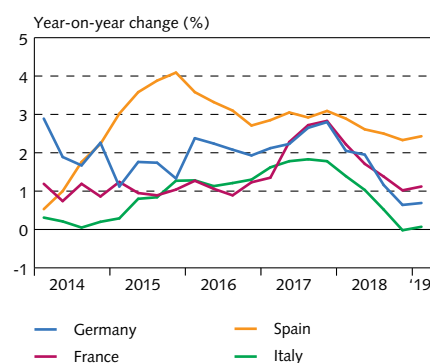
Global output growth lost ground in H2/2018 after rising strongly in the period beforehand, mainly as a result of falling growth rates in leading advanced economies. Global GDP growth measured 3.2% in H2, after approaching 4% in H1 and in 2017. The negative impact of escalating tariffs and international trade disputes took its toll, exacerbating pessimism among businesses and investors as the year progressed. Tighter financial conditions in many emerging market

Chart II-1
Global GDP growth¹
Q1/2010 - Q1/2019



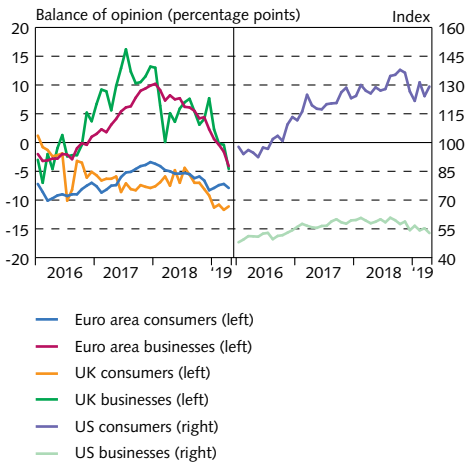
1. Central Bank baseline forecast Q1/2019 for main trading partners.
Sources: Thomson Reuters, Central Bank of Iceland.

Chart II-2
GDP growth in the eurozone
Q1/2014 - Q1/2019



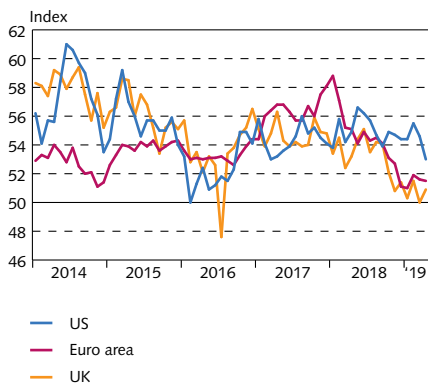
Source: Thomson Reuters.

Chart II-3
Private sector expectations¹
January 2016 - April 2019



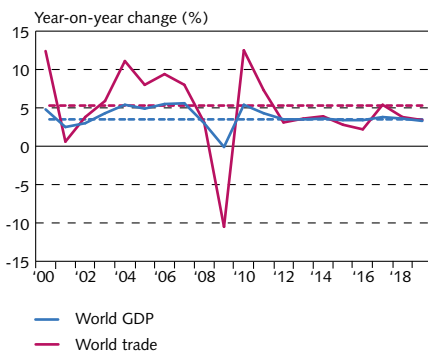
1. European Commission expectations indices for the eurozone and the UK; ISM Report on Business for the US.
Source: Thomson Reuters.

Chart II-4
Composite PMI¹
January 2014 - April 2019



1. Markit composite purchasing managers' index. The index is published monthly and is seasonally adjusted. An index value above 50 indicates month-on-month growth, and a value below 50 indicates a contraction.
Source: Thomson Reuters.

Chart II-5
World GDP and trade 2000-2019¹



1. Broken lines show average of 1980-2018. The values for 2019 are based on IMF's forecast (World Economic Outlook, April 2019).
Sources: International Monetary Fund, Central Bank of Iceland.

economies (EME) – and in advanced economies – also cut into global demand. GDP growth among EMEs weakened abruptly in H2/2018, largely reflecting reduced economic activity in China in the wake of government measures aimed at curbing credit growth and shadow banking activity, as well as placing output growth on a sustainable footing. These measures put a damper on investment, but in addition, the increase in import tariffs in the US has had a negative effect on exports from China.

The 2019 growth outlook for leading advanced economies has worsened ...

Leading indicators and forecasts imply that GDP growth in advanced economies will also be weaker this year than previously projected, particularly in H1. In the eurozone, GDP growth was weaker in Q1 than had been assumed in February, and the outlook for the year as a whole has deteriorated. Although labour market conditions have continued to improve, pessimism has increased among consumers and businesses (Chart II-3), economic indicators have turned out poorer than expected, and purchasing managers' indices (PMI) have weakened (Chart II-4). This is particularly the case for Germany, Italy, and France. GDP growth in the euro area is projected to fall from 1.8% in 2018 to only 1.2% this year, which would be the region's weakest growth rate since 2013. In the UK, Q1 GDP growth turned out marginally stronger than expected in February, at 1.8%, reflecting in part temporary build-up of inventories by UK firms. The growth outlook has deteriorated for the year as a whole, however, as the PMI for the UK has tumbled to a three-year low. According to the index, the British economy is likely to contract in Q2. In the US – despite the decline in the PMI, declining optimism among households and businesses, and the impact of the temporary federal government shutdown – GDP growth exceeded forecasts in Q1. It is expected to soften as the year progresses, however, and measure 2.4% for 2019 as a whole, slightly below the February forecast.

... and global growth is expected to lose pace

The International Monetary Fund's (IMF) most recent forecast estimates global GDP growth at 3.3% in 2019, some 0.2 percentage points below the Fund's January forecast and 0.4 percentage points below its October forecast. The weaker growth rate is due in particular to a poorer outlook for advanced economies, especially in the eurozone, and also for some developing and emerging countries.

Growth in world trade has eased

Growth in world trade slowed markedly in 2018, after a robust 2017 (Chart II-5). This is due mainly to the negative impact of trade disputes and tariff wars – particularly between the US and China – on investment-related spending by many companies around the world, as capital goods are usually heavily traded. The slower growth rate also appears to stem from overall sluggishness in global output, which looks set to slow even further this year. The IMF forecasts that world

trade will increase by 3.4% this year instead of the previously projected 4%. Significant uncertainty remains, however, including about the output growth outlook and the outcome of the trade negotiations between the US and China.

Outlook for GDP growth and demand in trading partner countries has worsened ...

In line with the poorer outlook for global GDP growth and trade, growth in output and imports among Iceland's main trading partners is now projected to be weaker than was assumed in the Bank's February forecast. Trading partners' GDP growth is projected to average 1.7%, which is 0.2 percentage points less than was forecast in February. This is due mainly to the poorer outlook for the euro area. Forecasts of trading partner imports have also been revised downwards, with the growth rate for this year now projected at 3.3% instead of the 3.8% assumed in the February forecast.

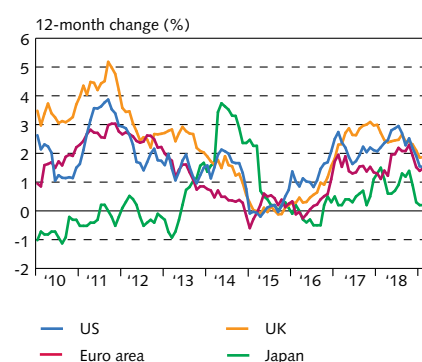
... but the outlook for trading partner inflation is broadly unchanged

Among Iceland's main trading partners, inflation declined in Q4/2018, following a sharp drop in oil prices. That trend continued in early 2019 (Chart II-6). Trading partner inflation averaged 2% in 2018 but had fallen to 1.6% in Q1/2019, somewhat below expectations. It was particularly low in the euro area and the US. The outlook is for inflation to pick up again as a result of the steep increase in oil prices in recent months. The inflation outlook for Iceland's trading partners is therefore broadly unchanged for 2019 as a whole, and inflation is expected to average 1.7% during the year. Core inflation is still low in many economies, however, despite the past two years' surge in domestic demand. It has risen in the eurozone but is still below the European Central Bank's (ECB) inflation target. In the US and the UK, however, core inflation is at target.

Leading central banks change their tone

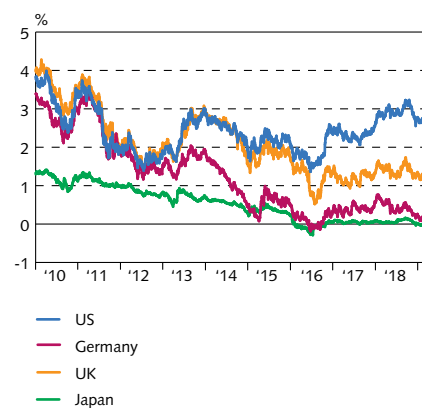
Central banks in most advanced economies have held their policy interest rates unchanged in 2019 to date, in response to the weaker GDP growth outlook and reduced inflationary pressures. In addition, many of them have signalled that the adjustment towards a neutral policy stance will be slower than previously assumed. This is particularly so for the US Federal Reserve, which has kept the policy rate flat this year after raising it by 1 percentage point in 2018 and a total of 2.25 percentage points since December 2015. The Fed had previously assumed that the policy rate would continue to rise this year, but it now expects to keep it unchanged through the year-end. The bank has also announced that it will reduce the net bond holdings on its balance sheet more slowly than previously planned and will end the balance sheet roll-off programme this autumn. The ECB also announced in March 2019 that policy rate hikes would be postponed at least until the end of the year. In addition, it announced new stimulative measures to bolster economic activity, whereas in December 2018 it had scaled back

Chart II-6
Inflation in selected industrialised countries
January 2010 - April 2019



Source: Thomson Reuters.

Chart II-7
10-year government bond yields in selected industrialised countries
1 January 2010 - 17 May 2019



Source: Thomson Reuters.

Chart II-8
Policy rates in selected industrialised economies¹
January 2013 - June 2022

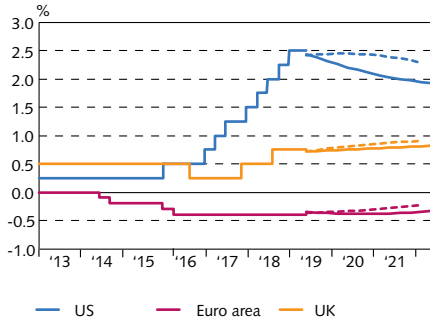


Chart II-9
Global market volatility¹
1 January 2015 - 17 May 2019

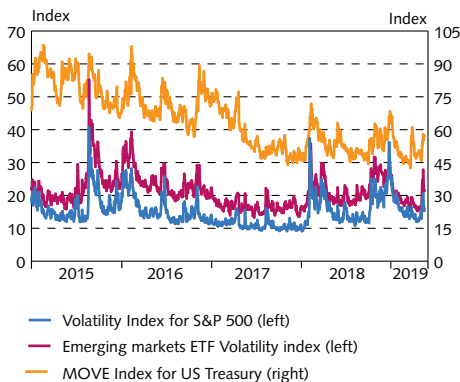
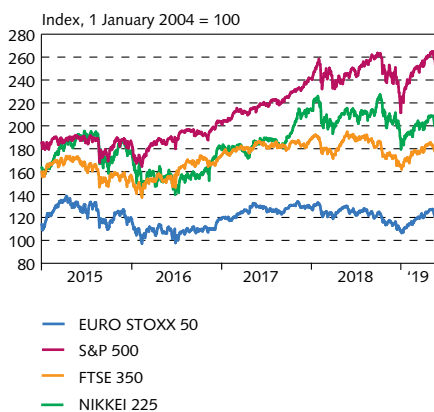


Chart II-10
Global equity prices
1 January 2015 - 17 May 2019



those measures by ending its net asset purchase programme. Moreover, the Bank of England and the Bank of Japan have announced their intention to exercise caution in their next monetary policy steps. This is not the case for Norges Bank, however, which raised its policy rate by 0.25 percentage points in March, to 1%.

The changed tone from leading central banks is reflected in the bond market, where interest rates have fallen, particularly on long government bonds (Chart II-7). Forward interest rates in the market also suggest that market agents expect smaller and more gradual rate hikes than they did earlier this year (Chart II-8). The change is perhaps the greatest in the US, where market participants increasingly think rates will start falling again.

Financial conditions improve again after upheaval in late 2018

Volatility in the global financial markets increased in late 2018, and financial conditions deteriorated, with falling asset prices and rising risk premia (Charts II-9 and II-10). This is due largely to the slowdown in global output growth, reduced corporate profits, and market agents' growing concerns that the Fed was tightening the monetary stance too quickly in the US. The situation turned around at the beginning of this year, however, as asset prices started to recover and risk premia eased. The turnaround was attributable mainly to changed forward guidance from the Fed and other major central banks, which alleviated market agents' concerns about further rate hikes this year. Market optimism about the outcome of the negotiations between the US and China supported this development. Significant uncertainty remains, however, including concerning international trade disputes, developments in global GDP growth, and the future relationship between the UK and the EU and its impact. The US administration's recent decision to raise import tariffs on Chinese goods and China's retaliation have further exacerbated uncertainty, raising market volatility again and cutting into equity prices.

Export prices and terms of trade

Marine product prices set to rise by about the same in 2019 as in 2018 ...

Foreign currency prices of Icelandic marine products rose by 4.7% in 2018 and appear likely to rise by a similar amount this year (Chart II-11). The market for Icelandic marine products has retained its strength, and nearly all product types have risen in price, owing to strong and steady demand in foreign markets, coupled with limited supply. In recent months, exports to the US and the UK have increased particularly strongly, perhaps due to uncertainty associated with tariffs, trade disputes, and Brexit. In the past few weeks, last year's remaining inventories of frozen capelin products have been reduced substantially because of strong excess demand, which in turn is due to capelin catch failures in both Icelandic waters and the Barents Sea. As was forecast in February, the rise in Icelandic marine product prices is forecast to ease in the next two years.

... but the outlook is for aluminium prices to fall more than previously forecast

Global aluminium prices have held relatively stable in 2019 to date, after a marked decline towards the end of 2018. In the first four months of this year, the average price was about 1,860 US dollars per tonne, some 15% lower than in the same period of 2018 (Chart II-11). The decline was due in part to the removal of US sanctions on Russian aluminium giant Rusal and expectations of increased alumina supplies following news that production at Brazilian company Alunorte, the largest alumina factory in the world, is returning to normal after difficulties in the recent term. The average price of aluminium is forecast to fall by 9% this year, over 2 percentage points more than was projected in February.

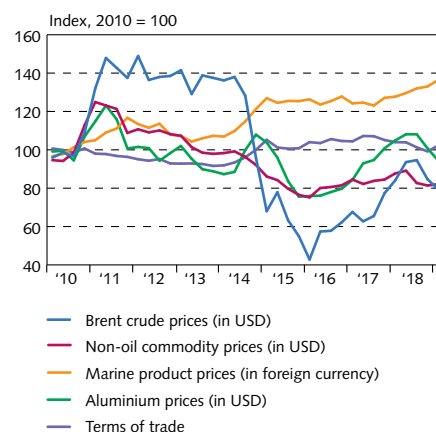
Oil prices up again as supplies decline

Global oil prices fell steeply in Q4/2018, after surging in the quarters beforehand. But this year they have risen again, more or less as they did at the same time in 2018. Prices are now just above 72 US dollars per barrel, up from about 52 dollars at the end of last year (Chart II-11). The jump is due mainly to a drop in supply because of reduced production in the OPEC countries, Saudi Arabia in particular, as well as in several countries outside OPEC. This is compounded by negative supply-side effects of the US government's embargo on Venezuela and Iran, as well as unrest in other oil-producing countries, especially Libya. The recent escalation of US sanctions on Iran has put even more upward pressure on oil prices. Pulling in the other direction, though, are the steady increase in production in the US and an overall dip in demand because of the slowdown in global output growth. Futures prices indicate that oil prices will remain broadly unchanged until the year-end and that the average 2019 price will be about 2% below the 2018 average. This reduction is a full 11 percentage points smaller than was assumed in the February forecast. As in February, futures prices suggest that oil prices will fall in the next two years but will be somewhat above the February forecast for the entire forecast horizon (Chart II-12). Developments in oil prices are more uncertain than usual at present. In particular, it is highly uncertain how other oil-producing countries will respond to the effects of tightened sanctions on Iran, as well as the effects of international trade disputes and the demand-side impact of weaker global output growth.

Non-oil commodities prices up slightly

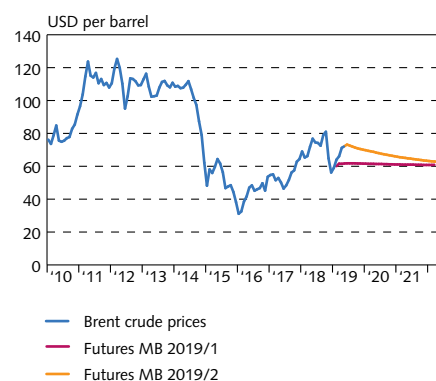
Non-oil commodities prices softened in H2/2018, after rising early in the year (Chart II-11). To a large extent, the decline reflects the impact of the international trade disputes and escalating tariffs, although reduced economic activity and weaker demand – particularly from China – are important factors as well. Virtually all types of commodities fell in price, although metals declined most. Commodities prices have picked up again slightly this year, metals and minerals prices in particular. This is attributable to the improved GDP growth outlook for China and dwindling supplies in several markets, including a disruption in iron ore supplies following the collapse of a dam at a mine in Brazil. Prices are

Chart II-11
Commodity prices and terms of trade¹
Q1/2010 - Q1/2019



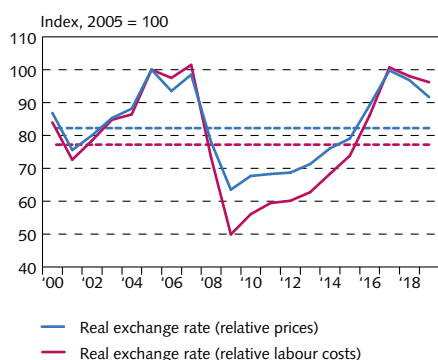
1. Foreign currency prices of marine products are calculated by dividing marine product prices in Icelandic krónur by the trade-weighted exchange rate index. USD prices of aluminium products are calculated by dividing aluminium prices in Icelandic krónur by the exchange rate of the USD. Central Bank baseline forecast Q1/2019 for terms of trade. Sources: Statistics Iceland, Thomson Reuters, World Bank, Central Bank of Iceland.

Chart II-12
Global oil prices¹
January 2010 - June 2022



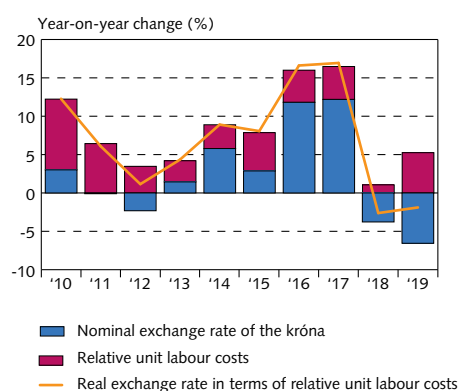
1. Brent crude prices based on data until 17 May 2019. Sources: Thomson Reuters, Central Bank of Iceland.

Chart II-13
Real exchange rate 2000-2019¹



1. Broken lines show 25-year average (1994-2018). Central Bank baseline forecast 2019.
Source: Central Bank of Iceland.

Chart II-14
Real exchange rate in terms of relative unit labour costs 2010-2019¹



1. Relative unit labour costs are defined as the ratio of unit labour costs in Iceland to unit labour costs abroad, measured in the same currency. Central Bank baseline forecast 2019.
Source: Central Bank of Iceland.

expected to keep rising throughout 2019 but are still projected to be marginally lower, on average, than in 2018.

Terms of trade improve more slowly this year after deteriorating in 2018

After a virtually continuous improvement dating from mid-2014, terms of trade for goods and services deteriorated by 3.9% in 2018 (Chart II-11), mainly because of the steep rise in oil and alumina prices. Overall import prices rose last year, which is the main reason why the erosion in terms of trade in 2018 was greater than previously projected. Despite indications that they continued to worsen in Q1/2019, the outlook is for terms of trade to improve by 0.3% this year, somewhat less than was forecast in February. This is due to the prospect of a smaller decline in oil prices and a larger decline in aluminium prices, offset by the prospect of a larger drop in alumina prices, particularly in H2.

Real exchange rate fell year-on-year in 2018, for the first time in nearly a decade ...

The real exchange rate in terms of relative consumer prices fell by 3% year-on-year in 2018, after having risen uninterrupted since 2010 (Chart II-13). The decline occurred almost entirely in Q4, after being relatively stable earlier in the year. In 2019 to date, it has risen slightly once again, but it is still 10.6% lower than at the same time in 2018. As has been discussed previously in *Monetary Bulletin*, the past few years' steep rise in the real exchange rate is considered a reflection of a higher equilibrium real exchange rate; i.e., the real exchange rate consistent with internal and external balance. The rise in the equilibrium real exchange rate reversed in part last year, owing to poorer terms of trade and weaker export growth. The decline is expected to continue this year, in response to the external shocks that have hit Iceland's export sectors recently.

... and is expected to fall further this year

According to the baseline forecast, the real exchange rate in terms of relative consumer prices will be 5.3% lower, on average, in 2019 than in 2018, which is broadly in line with the February forecast. In terms of relative unit labour costs, the real exchange rate will be a scant 2% lower this year than in 2018. This represents a drop of nearly 5% in two years. Therefore, even though unit labour costs are rising faster in Iceland than in major trading partner countries, the outlook is for the competitive position of domestic companies in the tradable sector to improve for the second year in a row (Chart II-14).

III Monetary policy and domestic financial markets

The Central Bank's key interest rate has been unchanged since November 2018, and the Bank's real rate has been broadly unchanged since February. Market agents expect the key rate to be lowered this year, and long-term interest rates are now at their lowest since nominal rates were liberalised in the 1980s. After depreciating last autumn, the króna has held broadly stable in 2019 to date. Growth in M3 eased at the beginning of the year, and corporate lending growth has slowed since the autumn, whereas household lending growth is still gathering pace. House price inflation has tapered off. The private sector debt ratio has risen slightly but is low in historical context. Some lenders have tightened their lending requirements, but private sector financial conditions appear broadly unchanged in other respects.

Monetary policy

Central Bank key rate unchanged since November 2018 ...

The Central Bank's Monetary Policy Committee has held the Bank's interest rates unchanged since November 2018. Prior to the publication of this *Monetary Bulletin*, the Bank's key interest rate – the rate on seven-day term deposits – was 4.5% (Chart III-1). Accepted rates in auctions of bills issued by the Treasury and the banks have developed in line with the Bank's key rate, as have rates in the interbank market for krónur, but trading in the interbank market has been sparse year-to-date.

... and the Bank's real rate is broadly unchanged since February

The Bank's real rate in terms of the average of various measures of inflation and one-year inflation expectations is now 1%, broadly where it was just before the February *Monetary Bulletin* but down 0.5 percentage points since mid-May 2018 (Table III-1). The real rate in terms of current twelve-month inflation has developed in a similar manner and is currently 1.2%. Other real rates have generally developed in line with the Bank's key rate (Chart III-2).

Table III-1 The monetary stance (%)

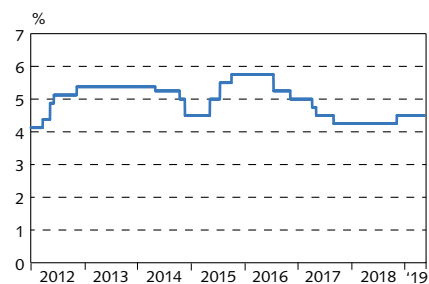
Real interest rate in terms of: ¹	Current stance (17 May '19)	Change from MB 2019/1 (1 Feb. '19)	Change from MB 2018/2 (11 May '18)
Twelve-month inflation	1.2	0.1	-0.7
Business inflation expectations (one-year)	0.5	0.0	-0.7
Household inflation expectations (one-year)	0.5	0.0	-0.7
Market inflation expectations (one-year) ²	1.5	0.5	-0.1
One-year breakeven inflation rate ³	1.2	0.2	-0.4
Central Bank inflation forecast ⁴	1.5	0.3	-0.1
Average	1.0	0.1	-0.5

1. The nominal rate on financial institutions' seven-day term deposits with the Central Bank. 2. Based on survey of market participants' expectations. 3. The one-year breakeven inflation rate based on the difference between the nominal and indexed yield curves (five-day moving average). 4. The Central Bank forecast of twelve-month inflation four quarters ahead.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-1

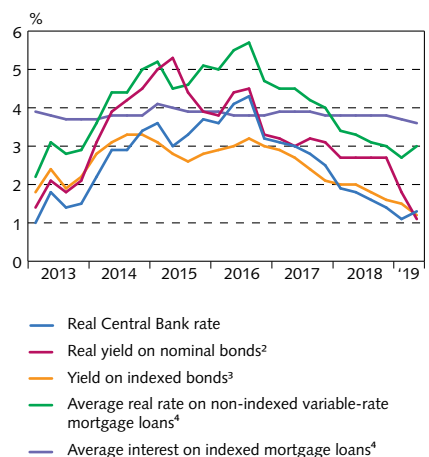
Central Bank of Iceland key interest rate¹
2 January 2012 - 17 May 2019



1. The Central Bank's key interest rate is defined as follows: the 7-day collateralised lending rate (until 31 March 2009), the rate on deposit institutions' current accounts with the Central Bank (1 April 2009 - 30 September 2009), the average of the current account rate and the rate on 28-day certificates of deposit (1 October 2009 - 20 May 2014), and the rate on 7-day term deposits (from 21 May 2014 onwards).
Source: Central Bank of Iceland.

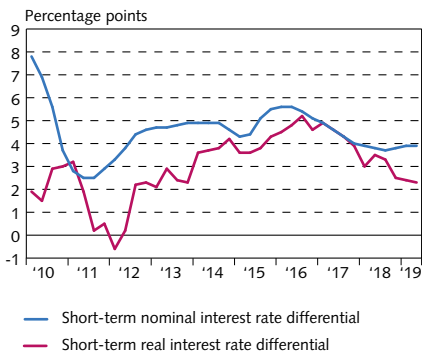
Chart III-2

Real Central Bank interest rate
and real market rates¹
Q1/2013 - Q2/2019



1. Based on data until 17 May 2019. 2. Five-year rate from the estimated nominal yield curve. 3. Five-year rate from the estimated real yield curve. 4. Simple average lowest lending rates from the three largest commercial banks. Fixed-rate period of five years or more on indexed mortgage loans.
Source: Central Bank of Iceland.

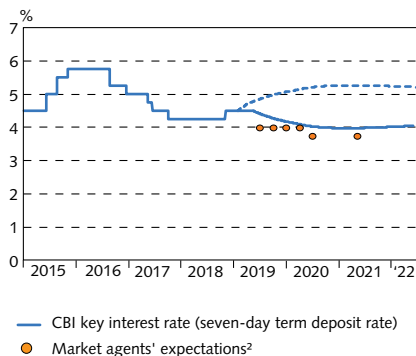
Chart III-3
Interest rate differential with main trading partners¹
Q1/2010 - Q2/2019



1. The difference between the Central Bank of Iceland's key interest rate and the weighted average key rate in Iceland's main trading partner countries. Real rates are based on current twelve-month inflation. Based on data until 17 May 2019. Central Bank baseline forecast Q2/2019 for international data.

Sources: Thomson Reuters, Central Bank of Iceland.

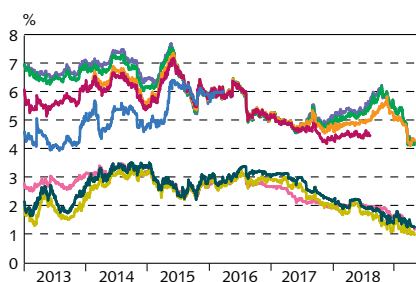
Chart III-4
Central Bank of Iceland key interest rate and expected developments¹
1 January 2015 - 30 June 2022



1. The Central Bank's key interest rate and Treasury bond yields were used to estimate the yield curve. Broken lines show forward market interest rates prior to MB 2019/1. 2. Estimated from the median response in the Central Bank's survey of market agents' expectations concerning the collateralised lending rate. The survey was carried out during the period 6-8 May 2019.

Source: Central Bank of Iceland.

Chart III-5
Nominal and indexed bond yields
2 January 2013 - 17 May 2019



Nominal Treasury bond maturing in:
— 2016 — 2019 — 2020 — 2025 — 2031

Indexed Treasury or HFF bond maturing in:
— 2021 — 2024 — 2044

Source: Central Bank of Iceland.

Real interest rate differential with abroad has narrowed

Although the difference between nominal interest rates in Iceland and its main trading partners has changed little year-to-date, the real interest rate differential has narrowed in line with the decline in domestic real rates and the rise in other advanced economies' real rates. It has narrowed by 1.2 percentage points since Q2/2018 and is at its smallest since H2/2013 (Chart III-3).

Market agents expect key rate to be cut

According to the Central Bank's survey of market agents' expectations, carried out in early May, respondents expected the Bank's key rate to be lowered by 0.5 percentage points by the end of June and by a further 0.25 percentage points in H1/2020 (Chart III-4). This is a significant change from the January survey, when respondents expected rates to be hiked this year. Forward rates show similar developments. They suggest that the Bank's key rate will fall over the course of this year, to about 4% by the year-end.

Market interest rates and risk premia

Long-term interest rates have fallen to a historical low

Yields on long- and short-term nominal Treasury bonds began falling late in 2018 and have continued to do so in 2019 to date. Yields on longer bonds have fallen more steeply, to just over 4% on all maturities just before this *Monetary Bulletin* went to press. For the longest bonds, this is a decline of about 2 percentage points from the autumn 2018 peak (Chart III-5). Long-term interest rates are at their lowest since nominal rates were liberalised in the 1980s. Indexed long-term interest rates have fallen as well and are now at a historical low. The yield on the longest indexed Treasury and Housing Financing Fund (HFF) bonds was 1.2% just before this *Monetary Bulletin* and has fallen by 0.5 percentage points since the beginning of the year.

With falling bond market rates, the yield curve has flattened and the breakeven inflation rate – i.e., the spread between indexed and nominal rates – has fallen. This probably reflects increased pessimism about the economic outlook, as well as falling inflation expectations. Market agents therefore expect the Bank's key rate to fall, as is indicated by forward rates (Chart III-4). Inflows of foreign capital into the bond market have increased since the special reserve requirement on foreign currency inflows was lowered to zero in early March (Chart III-6). Inflows are still relatively modest, however, and the situation is different from that in autumn 2015, when inflows of foreign capital and reduced market interest rates coincided with strong economic activity, rising inflation expectations, and clear signalling from the Central Bank of further interest rate hikes to follow.

Risk premium on Treasury foreign obligations broadly unchanged

Measures of the risk premium on Treasury foreign obligations have changed little in 2019, and rating agencies Fitch and Standard & Poor's recently affirmed Iceland's sovereign ratings, with a stable outlook. The CDS spread on the Treasury is now 0.8 percentage points. Interest

premia on domestic commercial banks' international bond issues rose in 2018, partly because of increased global economic uncertainty, but have fallen again this year.

Exchange rate of the króna

Net capital outflows increased over the course of 2018

Net capital outflows increased in H2/2018, primarily due to foreign securities purchases by domestic buyers – pension funds in particular – and deleveraging of foreign debt by domestic borrowers. Net capital outflows excluding changes in the Central Bank's international reserves totalled just under 92 b.kr. in Q3/2018 but fell to just under 31 b.kr. in Q4 (Chart III-7).

Króna broadly stable in the recent term

The króna has been relatively stable thus far in 2019, after a steep drop last autumn (Chart III-8). The tumble last autumn began with news about airline WOW Air's financing difficulties, followed by increased pessimism about the economic outlook and growing concerns about the results of the forthcoming wage agreements. The króna hardly moved after WOW Air finally collapsed in late March, however, and it appears that the impact of the company's insolvency had already been priced into the exchange rate. Furthermore, the reduction of the special reserve requirement on foreign capital inflows and the signing of wage agreements are likely to have supported the currency. Foreign exchange market outflows following Parliamentary approval of the release of the remaining offshore króna assets in early March have been smaller than expected to date, and offset to a degree by inflows for new investment. Since the February *Monetary Bulletin*, the Central Bank has intervened in the foreign exchange market three times, selling currency for approximately 4.5 b.kr., or roughly 7% of total market turnover for the period.

Market agents expect the króna to depreciate slightly

According to the Bank's survey of market agents' expectations, carried out in early May, respondents expect the króna to depreciate by roughly 2½% against the euro until May 2020 and remain broadly stable from then on. This is a slightly larger depreciation than they expected in a corresponding survey from January.

Money holdings and lending

Growth in money holdings slightly weaker than in H2/2018 ...

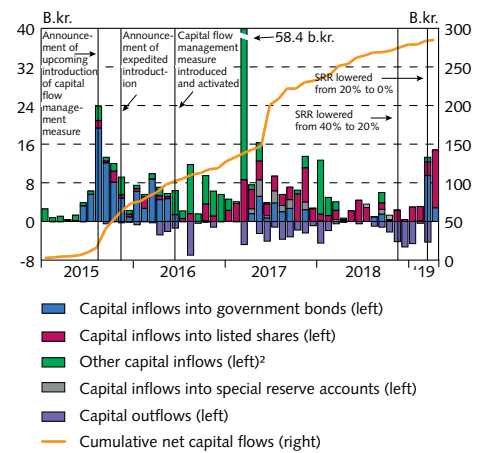
Year-on-year growth in M3 measured about 8% in Q1/2019, slightly below the growth rate in H2/2018 (Chart III-9). Growth is due largely to an increase in household deposits, as household saving has grown steadily in the recent term despite a surge in consumption spending (see Chapter IV). In Q1, household deposits grew year-on-year by just under 10%, which is roughly the rate prevailing since Q3/2016.

... and credit growth appears to have peaked ...

Growth in credit system lending to domestic borrowers began to gain pace in 2017, peaking at just over 10% year-on-year in Q4/2018. The

Chart III-6

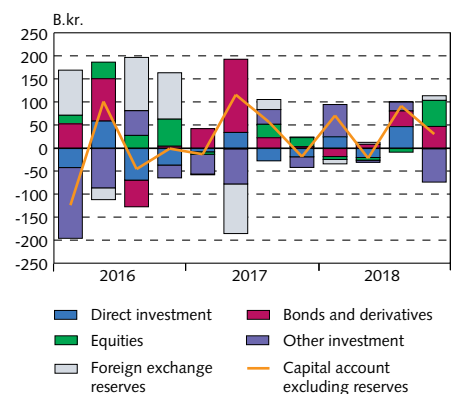
Capital flows due to registered new investments¹
January 2015 - April 2019



1. Investment commencing after 31 October 2009 and based on new inflows of foreign currency that is converted to domestic currency at a financial institution in Iceland. 2. Other inflows in March 2017 derive almost entirely from non-residents' acquisition of a holding in a domestic commercial bank.
Source: Central Bank of Iceland.

Chart III-7

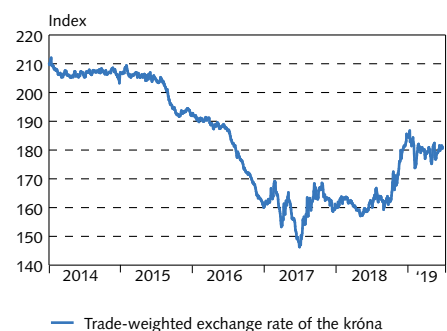
Capital flows¹
Q1/2016 – Q4/2018



1. Capital account balance (net capital outflows) and net capital flows to foreign direct investment, portfolio investment (bonds, derivatives, and equities), and other investment. Positive (negative) numbers represent an increase (decrease) in resident entities' foreign assets or a decrease (increase) in their foreign debt.
Source: Central Bank of Iceland.

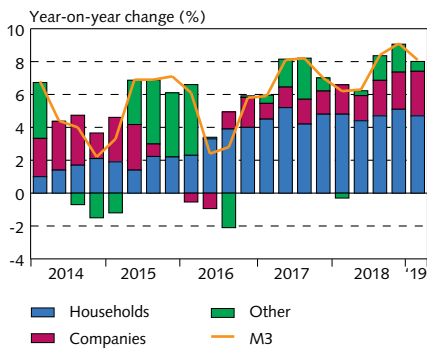
Chart III-8

Exchange rate of the króna¹
2 January 2014 - 17 May 2019



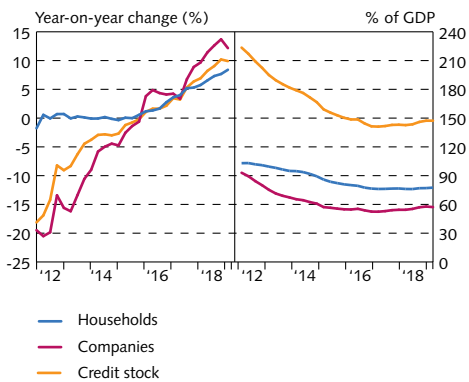
1. Price of foreign currency in krónur.
Source: Central Bank of Iceland.

Chart III-9
Money holdings¹
Q1/2014 - Q1/2019



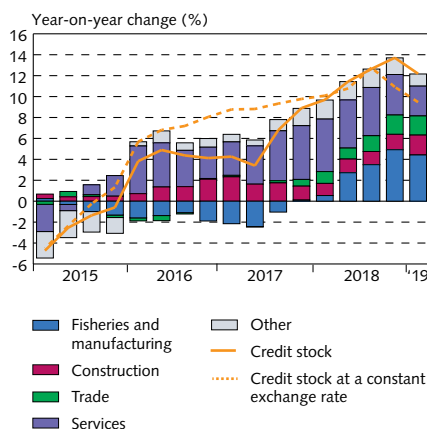
1. M3 is adjusted for deposits of failed financial institutions.
Source: Central Bank of Iceland.

Chart III-10
Credit system lending to resident borrowers¹
Q1/2012 - Q1/2019



1. Credit stock adjusted for reclassification and effect of Government debt relief measures. Only loans to pension fund members are included with pension funds. Excluding loans to deposit institutions, failed financial institutions and the Treasury. Companies include non-financial companies and non-profit institutions serving households. Q1/2019 figures are Central Bank estimates.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-11
Credit system lending to non-financial companies¹
Q1/2015 - Q1/2019



1. Excluding loans from failed financial institutions. The foreign-denominated credit stock is calculated using the March 2019 trade-weighted exchange rate index value.
Source: Central Bank of Iceland.

Q1/2019 growth rate was similar, but the credit stock has changed little relative to GDP since 2016 (Chart III-10).

... reflecting reduced growth in corporate lending ...

Since 2016, corporate lending growth has outpaced household lending growth; however, corporate lending growth fell to 12% in Q1/2019, after apparently peaking in Q4/2018 at just over 13½% (Chart III-10). The increase in corporate lending reflects in part the impact of the depreciation of the króna on foreign-denominated corporate loans. After adjusting for exchange rate movements, growth in corporate lending measures just under 9½%, which is closer to the household lending growth rate (Chart III-11). Corporate lending growth is spread across a broad range of sectors, although loans to manufacturing and fishing companies, on the one hand, and services companies, on the other, weigh heaviest. Growth in lending to services companies has subsided rather quickly, however, possibly reflecting expectations of reduced activity in tourism.

... while household lending growth continues to gain pace

Lending to households is still rising (Chart III-10). Year-on-year growth in household lending measured nearly 8½% in Q1/2019, and since H2/2018 households have turned increasingly to deposit institutions rather than pension funds for loans. This change could reflect a higher ratio of first-time homebuyers, who are probably likelier to borrow from deposit institutions offering higher loan-to-value (LTV) ratios.

Asset prices and financial conditions

House price inflation has eased ...

In March 2019, house prices in greater Reykjavík rose by 4.3% year-on-year, down from nearly 8% in the same month of 2018 and 24% at the May 2017 peak. In the past year, house prices have also risen more slowly than rent, which increased by 5.7% year-on-year in March. The decline in house price inflation reflects weaker economic activity and greater caution among households as regards spending decisions, but the strong increase in housing supply is also a factor. The number of properties for sale has risen steeply in the recent past (see *Financial Stability 2019/1*), and the supply of newly built homes is increasing rapidly.

House prices have risen faster in regional Iceland, which includes communities on the periphery of the capital area, than in greater Reykjavík. High prices per square metre in greater Reykjavík may well have stimulated demand for housing in communities on the outskirts of the capital area. In April 2019, house prices rose by 8.9% year-on-year in regional Iceland, as opposed to 4.6% nationwide (Chart III-12). In Q1/2019, the number of purchase agreements registered nationwide fell by 1.4% between years, including a nearly 17% decline in contracts for new construction. First-time buyers accounted for a fourth of house purchases in 2018, the largest share since before the financial crisis.

... and developments are better in line with economic fundamentals

In Q1, real house prices were 58% above the early 2010 trough (Chart III-13). The surge in demand for housing is due largely to strong population growth and a steep rise in households' disposable income during this period. This coincided with limited growth in the supply of new housing, and a sharp increase in short-term rentals to tourists, which cut into the supply available to potential buyers. Unlike the pre-crisis upswing, however, the recent rise in house prices has not been driven by rapid growth in household debt. Real house prices have fallen marginally from their late-2018 peak, while the rise relative to wages, income, and construction costs has halted. It is still uncertain what impact the recently finalised wage agreements and the contraction in tourism will have on house prices. If the contraction proves short-lived and wage agreements boost real disposable income, demand for housing will probably increase and house prices will be higher than they would otherwise. This is offset in part by an increased supply of new housing. There is also considerable uncertainty about the impact of planned Government measures on the mortgage lending market.

Share prices up in 2019 to date

The OMXI8 index is some 26% higher than it was at the time of the February *Monetary Bulletin* and about 22% higher than in mid-May 2018 (Chart III-14). The rise has been driven mainly by shares in Marel, which weighs heaviest in the index. Marel's stock price has risen 57% year-to-date, partly because of the planned dual listing on the exchange in Amsterdam. Total trading in equity securities on the Nasdaq Iceland exchange amounted to 149 b.kr. in Q1/2019, slightly less than in the same quarter of 2018. Of that total, companies on the OMXI8 accounted for 115 b.kr. and Marel 54 b.kr. Only six of the 19 companies on the Main List recorded an increase in profit between 2017 and 2018.

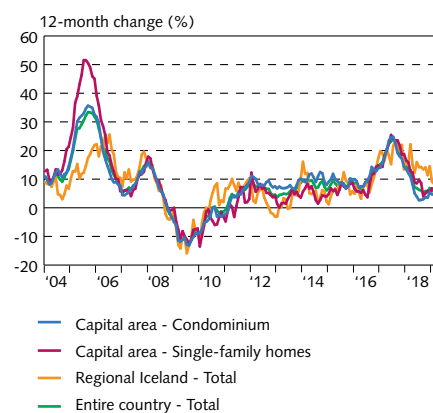
Private sector debt relatively low in historical context ...

Private sector debt totalled 164% of GDP at the end of 2018, nearly 4 percentage points higher than at the end of 2017 (Chart III-15). Corporate debt increased by 11% year-on-year in nominal terms, to 88% of GDP, 3 percentage points higher than at the end of 2017. Corporate debt owed to domestic financial institutions increased most. Debt owed to foreign financial institutions and issued marketable bonds changed very little, apart from changes attributable to the depreciation of the króna in autumn 2018. Household debt increased in nominal terms by nearly 8% year-on-year, and the debt-to-GDP ratio was nearly 76% at the year-end. Although private sector debt relative to GDP has risen slightly in the recent past, it is still low in historical context, and households and businesses appear to have grown much more resilient in recent years (see also Box 2).

... and non-performing loans are on the decline

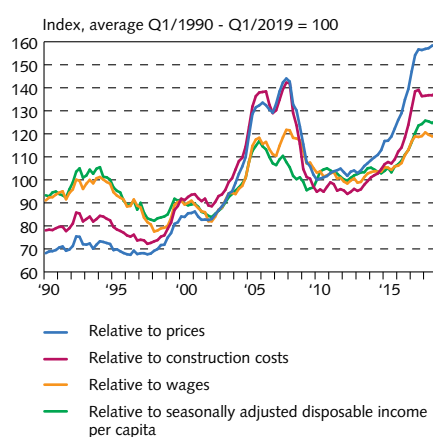
The share of household debt in arrears to the three large commercial banks and the HFF measured 2% of total lending at the end of March,

Chart III-12
Market price of residential housing
January 2004 - April 2019



Source: Statistics Iceland.

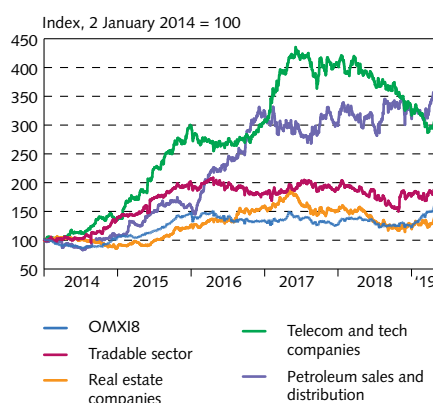
Chart III-13
House prices relative to prices, construction costs, wages, and income¹
Q1/1990 - Q1/2019



1. The ratio of house prices to the CPI, the building cost index, the wage index, and disposable income per capita (based on the working-age population).

Sources: Statistics Iceland, Central Bank of Iceland.

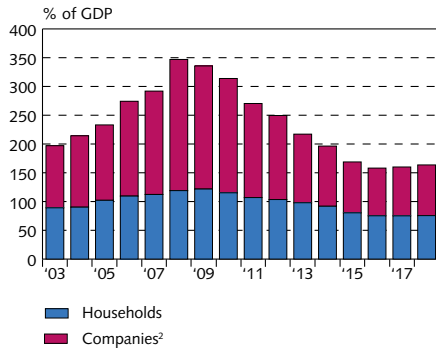
Chart III-14
Share prices by sector¹
2 January 2014 - 17 May 2019



1. Sectors refer to the average change in share price of listed companies in selected sectors, adjusted for dividend payments and share capital reductions.

Source: Nasdaq Iceland.

Chart III-15
Household and non-financial corporate
debt 2003-2018¹



1. Debt owed to financial undertakings and market bonds issued.
2. Excluding financial institutions (which includes holding companies).
Sources: Statistics Iceland, Central Bank of Iceland.

after falling by 0.7 percentage points between years. The number of individuals on the CreditInfo default register fell by 3.4% over the same period. The share of firms in default to credit institutions has also fallen, to 5.9% by March, a reduction of 2 percentage points from the previous year. The number of firms on the default register fell as well, by nearly 7% year-on-year. Despite declining arrears, the number of corporate insolvencies rose between years in 2018, although it fell again year-on-year in Q1/2019. The number of new company registrations fell in 2018 but rose again year-on-year in Q1/2019.

Several pension funds have lowered LTV ratios

The commercial banks' non-indexed deposit and lending rates and the pension funds' non-indexed lending rates have moved broadly in line with the rise in the Central Bank's key rate in November 2018, although non-indexed lending rates have fallen slightly since the February *Monetary Bulletin*. The commercial banks' fixed indexed rates and the pension funds' variable indexed rates have also fallen over the same period. As before, pension fund loans bear somewhat lower interest rates than comparable loans from the commercial banks. Some lenders have tightened their lending requirements, including several pension funds that have lowered their maximum LTV ratios, as loans to fund members are nearing the benchmarks provided for in some of the funds' investment strategies.

IV Demand and GDP growth

Although GDP growth eased over the course of 2018, it was still robust, measuring 4.6% for the year as a whole, the same as in 2017 and more than was forecast in the February *Monetary Bulletin*. The outlook for 2019 has changed markedly from the previous forecast, however. Output is expected to contract by 0.4% this year, and if this forecast materialises, it will be Iceland's first economic contraction since 2010. This sharp turnaround in the economy is due to negative external shocks in the tourism and fishing industries. Exports are forecast to shrink nearly 4% year-on-year, owing in large part to the contraction in tourism.

GDP growth and domestic private sector demand

GDP growth unchanged between years, but its composition has changed ...

According to preliminary figures from Statistics Iceland GDP growth measured 4% in Q4/2018, and even though it was up relative to Q3, it was only half as strong in H2 as in H1 (Chart IV-1). It measured 4.6% for 2018 as a whole, the same as in 2017, but the composition of growth changed. In the past few years, GDP growth has been driven by a robust increase in private consumption, strong export growth, and a rising investment level. All of this was offset by a strong growth in imports. The contribution from these main drivers of growth weakened in 2018, but import growth slowed markedly at the same time, and the contribution from net trade was therefore positive during the year. The contribution from the public sector was broadly unchanged between years in 2018, although public expenditure growth has picked up in the past two years. GDP growth for the year was stronger than in the Bank's February forecast, but to a large extent the deviation is due to Q4 imports, which turned out weaker than projected. While private consumption and the contribution from inventory changes were stronger than expected, public consumption and investment were weaker, and domestic demand growth was therefore in line with the forecast (Chart IV-2).

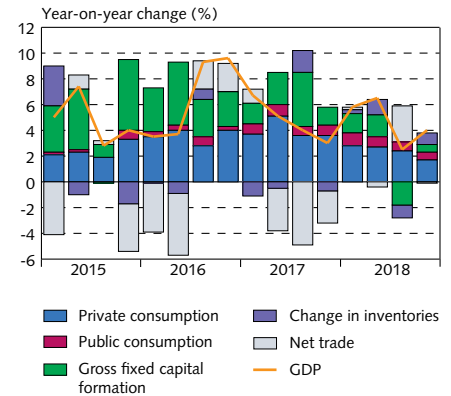
...as have sectoral contributions

In recent years, growth in the services sector and construction has been a major contributor to GDP growth, but growth was relatively broad-based in 2018 (Chart IV-3). The contribution from individual sectors therefore changed somewhat year-on-year in 2018, with fishing, energy-intensive industry, and pharmaceuticals gaining ground and domestic services losing it. The contribution from other competitive sectors, including those related to tourism, was weaker than in the previous year. These developments are reflected to a large degree in the expenditure accounts, which show weaker growth in private consumption and services exports.

Chart IV-1

GDP growth and contribution of underlying components¹

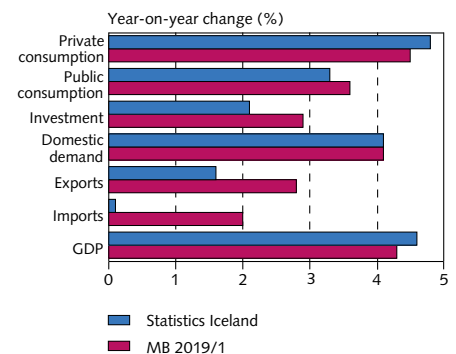
Q1/2015 - Q4/2018



1. The contribution of expenditure components do not have to sum exactly to GDP growth as these are chain-volume measures.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-2

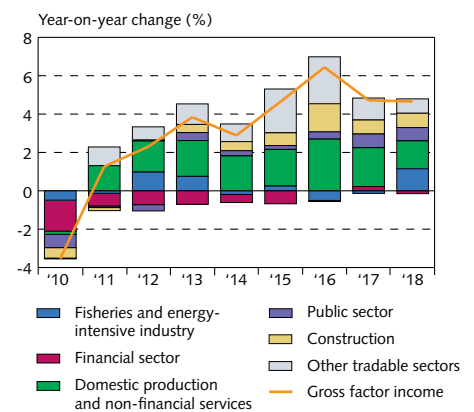
National accounts 2018



Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-3

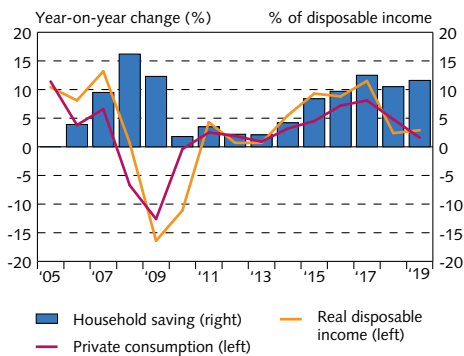
Gross factor income and sectoral contributions 2010-2018¹



1. Gross factor income measures the income of all parties involved in output. It is equal to GDP adjusted for indirect taxes and production subsidies. 75% of utilities are classified with energy-intensive industry and 25% with domestic production. Other tradable sectors include tourism and pharmaceuticals production.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-4

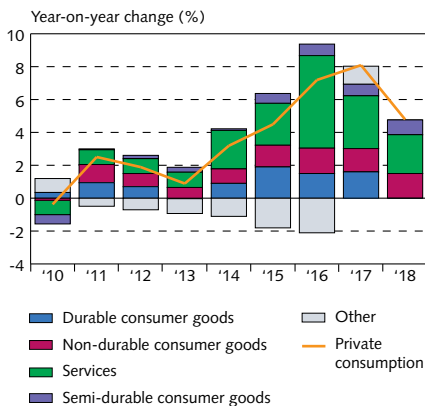
Private consumption, disposable income, and saving 2005-2019¹



1. There is some uncertainty about Statistics Iceland's figures on households' actual income levels, as disposable income accounts are not based on consolidated income accounts and balance sheets. The saving ratio is calculated based on the Central Bank's disposable income estimates, as Statistics Iceland figures are rescaled to reflect households' estimated expenses over a long period. Central Bank baseline forecast 2019. Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-5

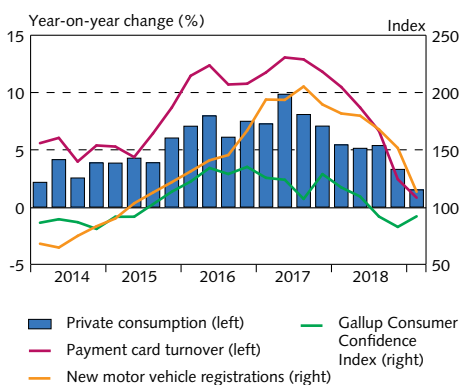
Private consumption and its main components 2010-2018¹



1. Non-profit institutions and Icelanders' spending abroad net of foreign tourists' spending in Iceland. Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-6

Private consumption and its indicators¹
Q1/2014 - Q1/2019



1. Private consumption and payment card turnover are year-on-year changes, while the figure for new motor vehicle registrations is a seasonally adjusted index with a mean of 100. New motor vehicle registrations net of car rental agencies' applications for new registrations in each quarter. Central Bank baseline forecast Q1/2019 for private consumption. Sources: Gallup, Statistics Iceland, Central Bank of Iceland.

Private consumption growth eased in 2018 following years of robust growth ...

Private consumption growth has tapered off after the boom of the past several years. It measured 3.3% in Q4/2018, down from a full 5% early in the year and about 6½%, on average, over the past three years. For 2018 as a whole, it measured 4.8%, up from the 4.5% growth rate in the Bank's February forecast (Chart IV-4). The real wage growth that has supported private consumption in recent years eased, and consumer optimism receded over the course of the year. In addition, household demand may be showing signs of saturation, as the growth spurt in 2015-2017 was driven to a large degree by increased spending on consumer durables, which was flat in 2018 (Chart IV-5).

... and is expected to ease even more in 2019

Leading indicators imply that private consumption growth eased even further in Q1/2019 (Chart IV-6), owing mainly to increased uncertainty about the economic outlook early in the year, including uncertainty about the labour market, headwinds in the tourism industry, and the slowdown in real disposable income growth. Recent news reports of insolvencies and layoffs in the tourism sector will probably cut into household demand, and increased uncertainty about the economy will prompt households to exercise caution in their spending decisions, although the recent finalisation of wage agreements may pull in the opposite direction. Household saving is therefore expected to increase marginally and private consumption growth to slow significantly this year (Chart IV-4). Private consumption growth for 2019 is forecast at only 1.6%, its weakest since 2013 and 2.4 percentage points below the February forecast. The poorer outlook is attributable to weaker real disposable income growth in 2018 and 2019, a much bleaker employment outlook, and elevated economic uncertainty.

Business investment shrank in 2018, after several years of strong growth ...

Business investment began to contract in H2/2018, and for the year as a whole it shrank by 5.4%, somewhat more than was assumed in the February forecast. The contraction stemmed for the most part from general business investment (i.e., excluding energy-intensive industry, ships, and aircraft). Investment in energy-intensive industry also weakened, although it was offset in H1 by increased investment in ships and aircraft. A large share of the contraction is due to reduced activity in the construction sector, which grew rapidly in 2013-2017 (Chart IV-7).

... and the outlook for 2019 is highly uncertain

The results of the Bank's spring 2019 survey of businesses' investment plans suggest that respondents plan to step up investment spending this year, but to a lesser degree than in the previous survey. On the whole, the increase measured just under 16% in nominal terms, much of it due to planned investment by firms in trade and services (Table IV-1). Firms in tourism, transport, and manufacturing plan to scale down investment spending this year, while other sectors expect to increase it.

The Bank's survey suggests that firms are more optimistic about investment plans for this year than Gallup's February survey of Iceland's 400 largest firms does. According to the Gallup survey, planned investment will also be weaker than was indicated by surveys taken last year (Chart IV-8). The same is true of firms' expected profit margins (Chart IV-9). Fewer firms plan unchanged or increased investment between years, while the number of firms planning to cut back on investment has risen. The balance of opinion – i.e., the difference between the share of respondents expecting to increase investment and the share expecting to reduce it – has narrowed in all sectors. It is negative in all of them, but most negative in transport, transit, and tourism.

Table IV-1 Survey of corporate investment plans (excluding ships and aircraft)¹

Largest 98 (99) firms Amounts in ISK billions	2017	2018	2019	Change	Change
				between 2017 and 2018 (%)	between 2018 and 2019 (%)
Fisheries (15)	14.4	10.3	11.1	-28.4 (-10.8)	8.1 (6.5)
Manufacturing (16)	8.5	7.5	4.9	-12.5 (-23.0)	-34.7 (-17.0)
Wholesale and retail trade (21)	8.6	6.8	12.2	-21.0 (-12.9)	79.3 (19.5)
Transport and tourism (8)	28.7	19.6	18.8	-31.7 (-36.7)	-4.1 (34.0)
Finance/Insurance (10)	3.6	3.3	5.4	-7.4 (54.3)	63.0 (9.6)
Media and IT (6)	7.6	8.0	9.7	5.8 (3.1)	20.7 (-3.3)
Services and other (22)	18.2	14.7	19.2	-18.9 (-22.2)	30.6 (34.6)
Total 98 (99)	89.5	70.2	81.3	-21.6 (-19.0)	15.8 (17.2)

1. In parentheses are figures from the last survey, in which respondents from 99 firms were asked about investment plans for 2018-2019 (*Monetary Bulletin* 2018/4). A paired comparison between years is presented, but because the sample could change between surveys, this could affect the results.

Source: Central Bank of Iceland.

Outlook for business investment to decline this year ...

Surveys taken by the Central Bank and Gallup sketch out differing pictures of firms' investment plans in the coming term, as is discussed above. In part, this is because the Bank's survey does not include activities related to the energy-intensive sector, where a marginal contraction is expected this year. Nor does the Bank's survey include firms' planned investment in ships, aircraft, or hotel construction. Leading indicators imply that investment in hotels will be weaker than previously assumed. By the same token, investment in ships and aircraft is expected to contract sharply this year. Plans in this area have changed markedly, as it has emerged that the aircraft Icelandair had intended to acquire this year will be leased instead of purchased and will therefore not be included in the national accounts data for investment and goods imports. Furthermore, the sale of WOW Air's aircraft in late 2018 shows up among exports in Q1/2019 and will therefore measure as disinvestment in Q1.

In view of Gallup's spring survey and other leading indicators, plus the fact that the Bank's investment survey does not include small companies, the baseline forecast assumes weaker growth in general business investment than is implied in the Bank's survey. Business investment as a whole is expected to contract by 6.7% year-on-year instead of increasing by 4%, as in the February forecast. A large share of the change is due to the aforementioned changes in figures on

Chart IV-7
Business investment and contribution by type 2010-2018

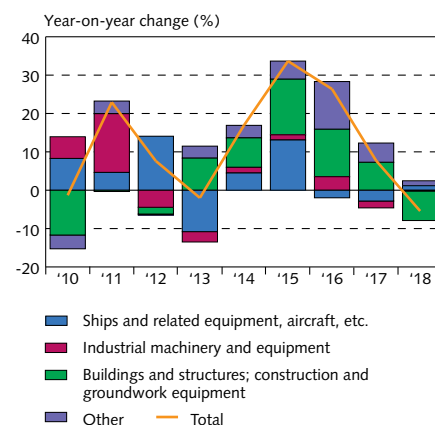


Chart IV-8
Business investment and surveys of corporate investment plans¹
H1/2009- H1/2019

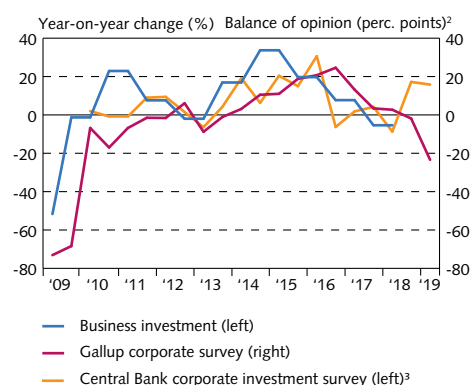


Chart IV-9
Business investment and its indicators¹
Q1/2014 – Q1/2019

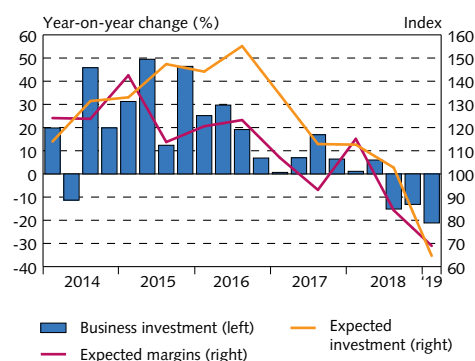
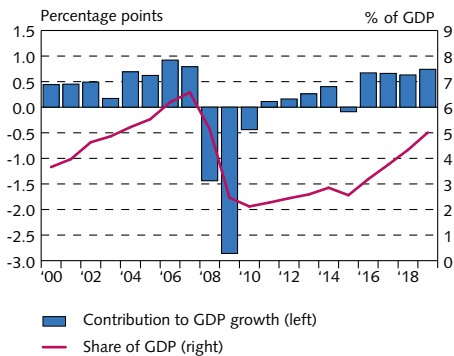
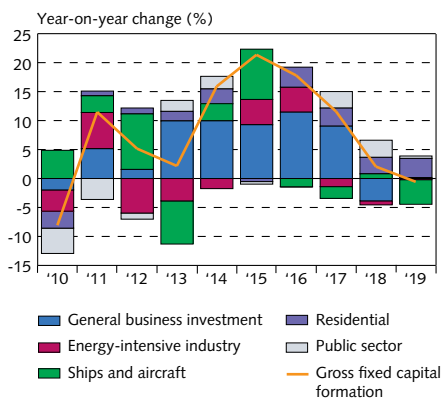


Chart IV-10
Residential investment 2000-2019¹



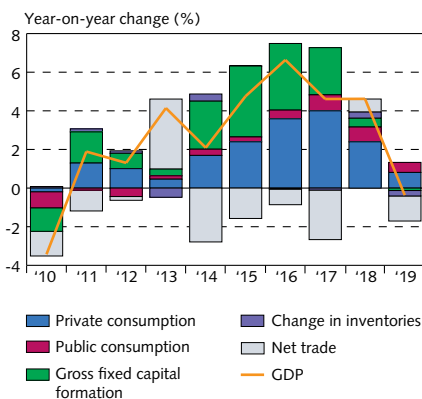
1. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-11
Gross fixed capital formation and contribution of main components 2010-2019¹



1. General business investment excludes ships, aircraft, and energy-intensive industry. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-12
GDP growth and contribution of underlying components 2010-2019¹



1. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

aircraft imports in the national accounts and the sale of WOW Air's aircraft out of the country.

... but residential investment is still growing

In the past several years, residential investment has grown strongly, supported by rising house prices, population growth, and improvements in households' financial conditions. In 2018, it grew by 16.7% year-on-year, slightly less than was assumed in the February forecast. In line with indicators, including the Federation of Icelandic Industries' figures on the number of flats under construction, growth is still projected to be strong this year, or around 17%. If this forecast materialises, this year's residential investment-to-GDP ratio will be about 5%, highest since 2008 (Chart IV-10).

Total investment projected to contract slightly in 2019

Total investment grew by 2.1% in 2018, down from the 2015-2017 average of nearly 17%. The outlook is for a marginal contraction this year, owing to a downturn in business investment and continued robust growth in residential and public investment (Chart IV-11). This is a weaker outlook than in the February forecast, but it stems mainly from the aforementioned change in the treatment of aircraft imports and the sale of aircraft out of the country.

Although this can be attributed in part to the turnaround in tourism and related sectors, the investment level had risen rapidly in the past few years and a slowdown in growth was to be expected. If the forecast materialises, the investment-to-GDP ratio will be around 22% this year, some ½ a percentage point above its twenty-five-year average.

Outlook for Iceland's first economic contraction since 2010

The outlook is for a marked slowdown in domestic demand growth this year, as well as in services exports, which have been the main driver of output growth in recent years. Output growth is estimated to have eased in Q1, and GDP is expected to contract in Q2. The outlook is for a 0.4% contraction in 2019 as a whole, owing to a 1% increase in domestic demand offset by a negative contribution from net trade of more than 1 percentage point (Chart IV-12). If the forecast materialises, the year will see Iceland's first economic contraction since 2010.¹ This is also a significant change from the 1.8% growth assumed in the February forecast. The reversal is due to much weaker growth in domestic demand, private consumption in particular, than previously forecast. As is discussed in Chapter I, the change in outlook is due to the negative external shocks that have hit the economy, especially the turnaround in tourism and the failure of the capelin catch.

1. Previous economic contractions are discussed in Box 1, and the economy's resilience to economic shocks is covered in Box 2.

Public sector

Public consumption set to grow less than was forecast in February, but offset by stronger public investment growth

In 2018, public consumption grew by more than 3% year-on-year for the second year in a row, and its contribution to GDP growth measured 0.8 percentage points (Chart IV-13). This is the fastest rate of public spending growth since 2008. Based on statements in the Government's new fiscal plan, public consumption growth is projected to ease this year to 2.2%, somewhat below the February forecast. The reduction in public consumption will be used to bolster investment in transport. The public investment-to-GDP ratio is expected to rise this year to the level last seen in 2009, after having been very low in historical terms since the financial crisis struck.

Treasury primary surplus smaller than in 2018

According to preliminary figures from Statistics Iceland, the Treasury operated at a surplus of 1.3% of GDP in 2018, or 0.4 percentage points more than in the Bank's previous estimate. Excluding dividends in excess of budgetary estimates, however, the underlying Treasury surplus measures 1.1% of GDP, as opposed to a surplus of 0.9% in 2017 (Chart IV-14). For this year, the underlying overall surplus is expected to narrow again to 0.8% of GDP, and the underlying primary surplus to shrink by 1.1 percentage points, to 2.5% of GDP.

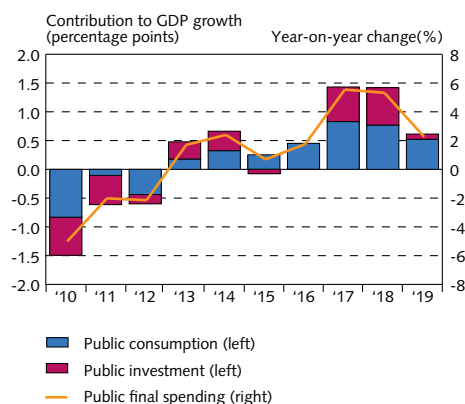
New fiscal plan for 2020-2024

In accordance with the Act on Public Finances, a Parliamentary resolution on a fiscal plan for the next five years was introduced before Parliament in March. According to the plan, the Treasury outcome will be positive by 0.9% of GDP in 2020, and the local government outcome will also be slightly positive. The surplus on general government operations will therefore amount to 1.1% of GDP. By 2024, the end of the five-year period, it is estimated that the central and general government outcome will have remained unchanged. The fiscal plan assumes that the Treasury outcome will be virtually unchanged from the current fiscal strategy, but this may be subject to review in light of the discretionary measures announced in connection with private sector wage agreements, as well as potential changes in economic fundamentals (the measures are discussed in Box 3).

Fiscal stance set to ease over the forecast horizon

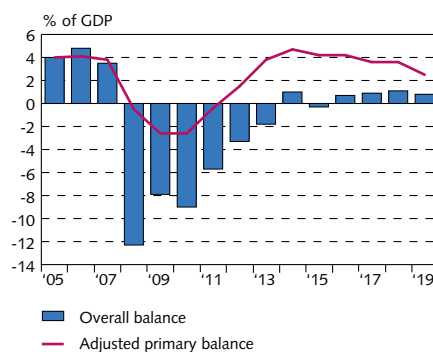
The Central Bank baseline forecast is based in large part on the Government's fiscal plan; however, underlying macroeconomic assumptions are different, as the forecast on which the fiscal plan was based is more favourable than the forecast in *Monetary Bulletin*, which also takes account of the aforementioned measures in connection with wage agreements. It is assumed that the cyclically adjusted primary balance will deteriorate by 0.3% of GDP this year, broadly as was forecast in November, when the fiscal stance was last assessed (Chart IV-15). It is assumed that the discretionary measures earmarked in the fiscal plan for possible allocation in connection with private sector

Chart IV-13
Public consumption and investment
2010-2019¹



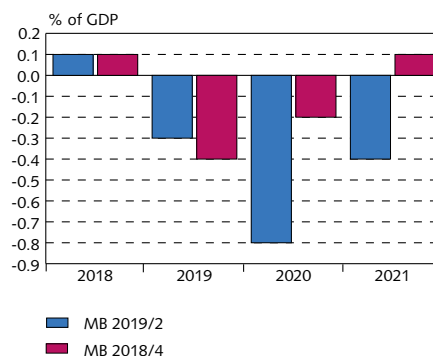
1. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-14
Treasury balance 2005-2019¹



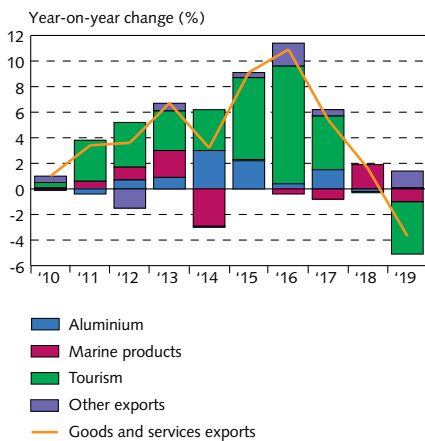
1. The primary balance is adjusted for one-off items. In 2016 to 2018, both the overall and primary balance is adjusted for stability contributions, accelerated write-downs of indexed mortgage loans, special payment to LSR A-division and dividends in excess of the National Budget.
Central Bank baseline forecast 2019.
Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

Chart IV-15
Change in central government cyclically adjusted primary balance 2018-2021¹



1. Primary balance is adjusted for one-off items (stability contributions, accelerated write-downs of indexed mortgage loans, special payment to LSR A-division and dividends in excess of the National Budget).
Central Bank baseline forecast 2018-2021.
Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

Chart IV-16
Exports and contribution of subcomponents
2010-2019¹



1. Aluminium exports as defined in the national accounts. Tourism is the sum of the services category "travel", i.e., revenues from foreign tourists in Iceland, and "passenger transport by air" i.e., Icelandic airlines' revenues from transporting foreign passengers. Central Bank baseline forecast 2019. Sources: Statistics Iceland, Central Bank of Iceland.

wage agreements will be implemented. These measures entail spending increases and tax cuts amounting to 1.6% of GDP in the next two years. Because of this, the assessment of the fiscal stance for the next two years has changed relative to both the Bank's last assessment and the fiscal plan presented by the Government in March.

According to the baseline forecast, general government debt will continue to fall and will approach a desirable minimum treasury debt level by the end of the forecast horizon. As a result, it can be assumed that the Government will shift its emphasis to paying down its pension obligations, which amount to nearly a fourth of GDP.

External trade and the current account balance

2018 exports weaker than was forecast in February

Goods and services exports grew by 1.6% year-on-year in 2018, compared to the 2.8% forecast in February. Strong growth in marine product exports carried virtually all of the weight (Chart IV-16). Exports of marine products were up 11.6% between years and goods exports as a whole by 3.5%, broadly in line with the February forecast. Services exports grew by only 0.1%, however, markedly below the February forecast, owing mainly to the slowdown in tourism growth in Q4. This in turn stemmed from a larger-than-expected contraction in passenger transport by air, which shrank by nearly 13% year-on-year in spite of a continued increase in domestic airlines' passenger numbers. The travel component of services exports – i.e., services revenues from foreign tourists after their arrival in the country – also grew less than expected. Furthermore, other services exports grew less than anticipated, particularly to include exported financial services.

Tourism set to contract sharply this year ...

The outlook for services exports has deteriorated markedly since the February forecast. This is due in very large part to the poorer outlook for tourism following the collapse of WOW Air in March. WOW had already downsized its fleet of aircraft by half, which was reflected in the Bank's February forecast. Even though Icelandair and several foreign airlines have increased their seat offerings since WOW fell, the outlook is for a contraction of up to a third in seat offerings to and from Iceland this year. This reduction will probably have relatively less impact on the number of foreign tourists visiting Iceland, in part because Icelandair has revised its flight schedule so as to prioritise Iceland-bound passengers over transit passengers. Foreign visitors to Iceland declined in number by nearly 8% year-on-year in the first four months of 2019, and the baseline forecast assumes a 10½% decline for the year as a whole. This is significantly more than the 2½% decline assumed in February. The number of passengers travelling via Keflavik Airport to other destinations is projected to decline by nearly half.

If the forecast materialises, it is clear that domestic airline passenger numbers will fall steeply between years. Other indicators also suggest that this year's contraction in tourism will be sharper than previously estimated. Google searches for hotels in Iceland and flights to the country have declined further, and the number of hotel bed-nights

has fallen between years (Chart IV-17). On the other hand, average spending per tourist in Iceland rose year-on-year in Q4/2018, and payment card turnover figures imply that it rose still further in Q1/2019. Presumably, the weaker króna has mitigated the negative impact of passenger numbers on the domestic tourism sector. The composition of tourists and their spending behaviour may also have changed with the reduction in WOW Air's activities: in 2018, according to a survey taken by the Icelandic Tourist Board, WOW's passengers generally stayed in the country for shorter periods and spent less, on average, than other tourists did. On the whole, then, the outlook for 2019 is for a 10.5% contraction in tourism and an 8.7% contraction in total services exports. The outlook is highly uncertain, however, and the contraction could turn out stronger if, for instance, Icelandair cannot begin using its new Boeing 737 Max jets this summer (see Chapter I).

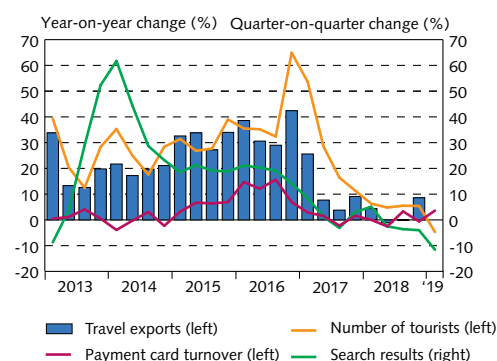
... and growth in goods exports to lose pace

In addition to a stronger contraction in services exports, it is now expected that goods exports this year will grow more slowly than was projected in February, or by 2% instead of the previous estimate of 2.4%. To some extent, this is affected by the above-mentioned sale of WOW Air's aircraft out of the country, as without those transactions, goods exports would contract by 1%. The larger-than-expected contraction in marine product exports is the most important factor here, as no capelin quotas were issued this year and the outlook is for weaker catches of other important pelagic species. The outlook for aluminium exports has also been revised downwards since February because technological modifications at one of the domestic smelters require a temporary reduction in output this year. In addition, growth in other goods exports is expected to weaken, particularly silicon metals and prosthetics. Exports of goods and services are expected to contract by 3.7% this year, whereas in February they were projected to grow by 0.3% year-on-year. If this forecast materialises, 2019 will be the first year since 2006 to see a year-on-year contraction in exports. It will also mean that Iceland's exports as a share of trading partner imports will fall even further this year, after rising virtually uninterrupted for a decade (Chart IV-18).

Imports broadly flat in 2018, after several years of robust growth ...

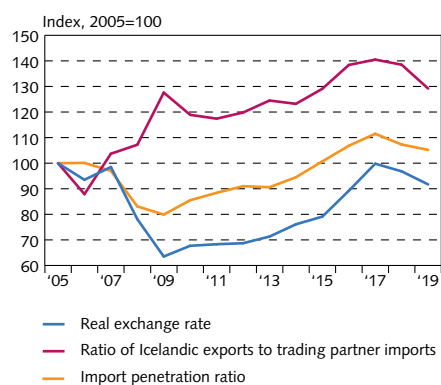
After growing strongly in recent years, imports of goods and services were virtually unchanged in 2018 (Chart IV-19). This is 2 percentage points less growth than was assumed in the February forecast, and 4 percentage points below domestic demand growth. The main factor is a contraction in goods imports, particularly in Q4, when they shrank by over 9%. The contraction in 2018 was due largely to a downturn in imports of motor vehicles for personal use, which were unusually strong in 2017. Imports of other consumer durables and semi-durables also contracted, as did imports of most other goods apart from fuels and lubricants. In addition, services imports contracted more than was forecast in February. The deviation from the forecast is due primarily

Chart IV-17
Indicators of tourism sector activity¹
Q1/2013 - Q1/2019



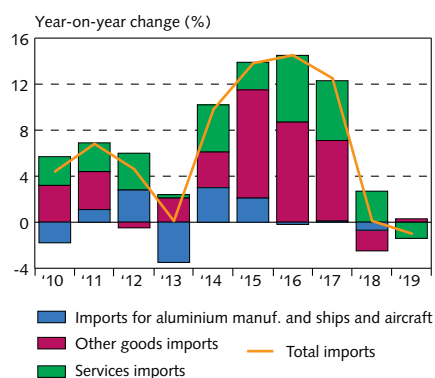
1. Travel exports at constant prices and payment card turnover per tourist in Iceland (excl. transport and public levies) in foreign currency (in terms of the trade weighted exchange rate index). Number of tourists is the number of passenger departures via Keflavik Airport. Search results according to a principal component model combining the frequency of five different Google search strings relating to travel to Iceland (seasonally adjusted, two-quarter moving average).
Sources: Centre for Retail Studies, Google Trends, Icelandic Tourist Board, Isavia, Statistics Iceland, Central Bank of Iceland.

Chart IV-18
External trade and real exchange rate
2005-2019¹



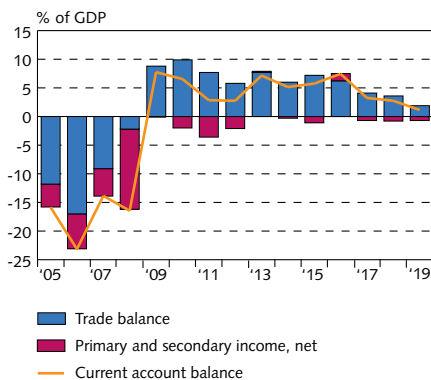
1. Real exchange rate in terms of relative consumer prices. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Thomson Reuters, Central Bank of Iceland.

Chart IV-19
Imports and contribution of subcomponents
2010-2019¹



1. Aluminium imports according to national accounts definition. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

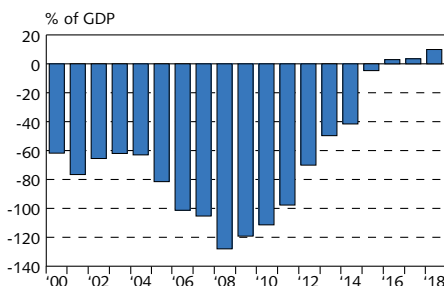
Chart IV-20
Current account balance 2005-2019¹



1. Current account excluding the effect of failed financial institutions 2008-2015 and the pharmaceuticals company Actavis 2009-2012 on primary income. Also adjusted for the failed financial institutions' financial intermediation services indirectly measured (FISIM). Central Bank baseline forecast 2019.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-21
Net international investment position
2008-2018¹



1. Underlying net international investment position 2008-2014.

Sources: Statistics Iceland, Central Bank of Iceland.

to an unexpected contraction in Q4/2018, when services exports fell to the lowest single-quarter level in over five years. The main factor in the decline was a contraction in the travel component of services imports in spite of a continued increase in Icelanders' overseas travel.

... and set to contract in 2019

Preliminary external trade figures from Statistics Iceland suggest that goods imports excluding ships and aircraft contracted by 4% year-on-year in Q1/2019. According to the baseline forecast, goods and services imports will contract by nearly 1% this year, a major change from the Bank's previous forecast of 5.6% growth. Icelandair's aforementioned decision to lease aircraft instead of purchasing it is an important factor in the change. Other imports are also expected to contract this year, owing largely to weaker growth in domestic demand but also to a turnaround in import penetration; i.e., the share of imports in domestic demand. That share had risen virtually without interruption since the onset of the financial crisis in autumn 2008 but then fell in 2018, in line with the decline in the real exchange rate (Chart IV-18). As a result, it appears that domestic spending has shifted increasingly towards domestic production. Furthermore, it is clear that the contraction in domestic tourism and in international airline operations calls for reduced goods imports, including jet fuel. Moreover, the failure of WOW Air leads to reduced services imports in connection with aircraft operation and leasing, although the increase in aircraft leased by Icelandair offsets this to a degree. Services imports in connection with Icelanders' overseas travel are likely to contract as well, with reduced seat offerings and higher ticket prices. This is supported by figures on Icelanders' departures via Keflavík Airport and Gallup's survey of households' overseas travel plans.

Trade surplus narrowed in 2018 ...

The surplus on goods and services trade amounted to 3.1% of GDP in 2018, Iceland's tenth year in a row with a trade surplus of 3% or more (Chart IV-20). The surplus narrowed by 1 percentage point year-on-year and turned out smaller than had been forecast in February, owing to poorer terms of trade, although this was offset by a more positive contribution of net trade to output growth.

The current account surplus for 2018 was 2.9%, down by 0.7 percentage points from the prior year. The surplus was slightly larger than was forecast in February, however, due to a more positive balance on primary income. This mainly reflected both an increase in net revenues from foreign direct investment in Q4 and an upward revision of historical figures for the first three quarters of the year. Net interest income also increased between years, concurrent with improvements in Iceland's external position and interest rate hikes abroad. The large current account surplus and increased national saving over the past decade have caused a turnaround in Iceland's net external position, which was positive by about 4% of GDP at the end of 2018 (Chart IV-21).

... and is expected to narrow further this year

The surplus on goods and services trade is projected to narrow still further this year, to 1.9% of GDP, about 0.7 percentage points above the February forecast, reflecting the offsetting impact of poorer terms of trade and a more positive contribution of net trade to output growth. The current account surplus is expected to narrow as well, to 1.3% of GDP. If the forecast materialises, gross national saving will decline from 25.5% of GDP in 2018 to 23.3% this year, which is nevertheless more than 4 percentage points above the twenty-five-year average.

V Labour market and factor utilisation

Total hours worked grew more slowly in Q1/2019 and the outlook is for a contraction in Q2. Unemployment inched upwards in Q1 and is expected to increase significantly over the course of the year, in the wake of the shocks that have hit the economy recently. Immigration of foreign labour continues to ease as the number of understaffed firms declines. The number of firms reporting difficulty responding to an unexpected increase in demand has fallen as well, and the share of such firms is close to its historical average. The outlook is for labour productivity to fall in 2019 and for the output gap to close and an output slack to open up.

Labour market

Growth in total hours has eased ...

According to the Statistics Iceland labour force survey (LFS), total hours worked increased by 1.8% year-on-year in Q1/2019, in line with the Bank's February forecast. This is due to a 2.6% increase in the number of employed persons, offset by a nearly 1% shortening of the average work week (Chart V-1). It appears that growth in total hours has begun to slow down: the Q1 growth rate was 0.7 percentage points lower than in Q4/2018 and nearly 1 percentage point below the average of the last six years. In the past two years, the increase in total hours has largely reflected growth in the working-age population. As a result, growth in total hours could weaken even more in the quarters to come if immigration of foreign workers continues to ease. A clearer sign of slower job growth can be seen in pay-as-you-earn (PAYE) data. According to the PAYE register, the year-on-year increase in employed persons has slowed all but continuously since mid-year 2017 and appears to have continued to slow in Q1/2019 (Chart V-2).

... and unemployment has risen

According to the LFS, the labour participation rate and the employment rate were broadly unchanged year-on-year in Q1/2019. At the same time, unemployment rose slightly between years, or by 0.2 percentage points, measuring 3% after adjusting for seasonality. The underemployment rate (part-time workers who would like to work more) remained low during the quarter, as did long-term unemployment. Registered unemployment had risen slightly more, however. It began to ease upwards in mid-2018 and, by Q1/2019, was 0.7 percentage points higher than in the same quarter of 2018. After adjusting for seasonality, however, it rose only slightly from the previous quarter, measuring 2.8%. The layoffs following airline WOW Air's collapse are not reflected in Q1 unemployment figures. They were reflected in the registered unemployment figures for April, however, as the number of persons on the unemployment register rose by 841 during the month. Seasonally adjusted registered unemployment measured 3.5% in April, an increase of 0.8 percentage points from the Q1 figure (Chart V-3). Thus the outlook is for a significant rise in unemployment both in

Chart V-1
Employment and hours worked¹
Q1/2005 - Q1/2019

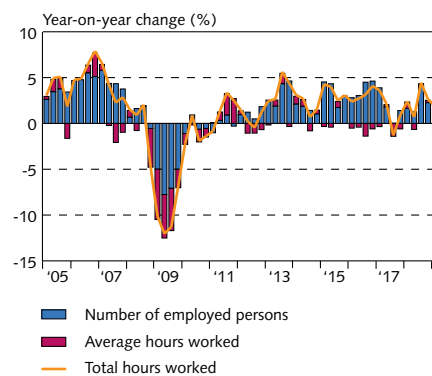


Chart V-2
Number of employed persons¹
Q1/2006 - Q1/2019

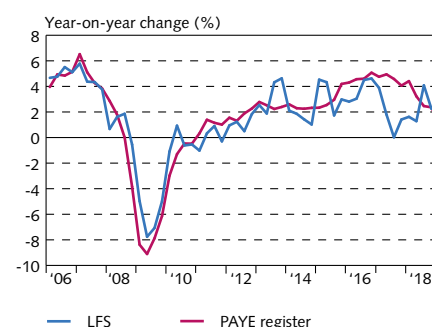


Chart V-3
Unemployment¹
Q1/2006 - Q2/2019

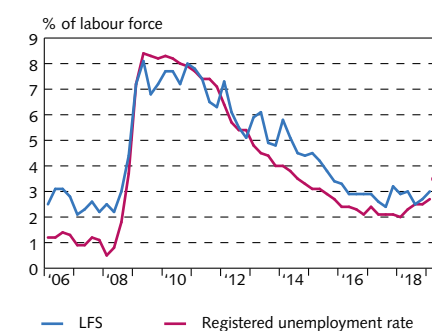
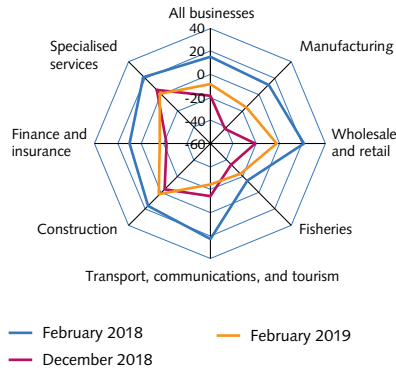
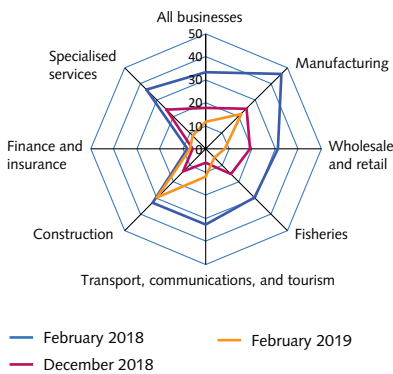


Chart V-4
Firms planning recruitment net of firms
planning redundancies within 6 months¹
Share of businesses (%)



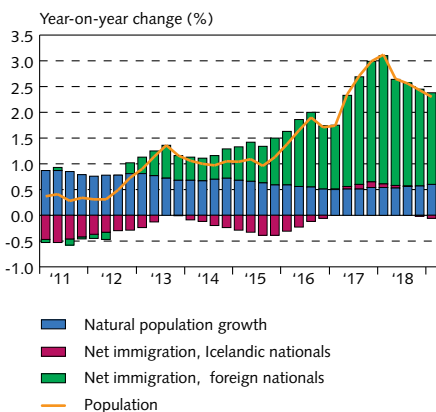
1. Seasonally adjusted figures.
Sources: Gallup, Central Bank of Iceland.

Chart V-5
Firms considering themselves
short-staffed¹
Share of businesses (%)



1. Seasonally adjusted figures.
Sources: Gallup, Central Bank of Iceland.

Chart V-6
Population
Q1/2011-Q1/2019



Source: Statistics Iceland.

Q2 and in 2019 as a whole. It is uncertain whether the repercussions of WOW Air's collapse have come fully to the fore, and in addition, other factors pull in the same direction. The outlook is for an economic contraction this year, owing partly to poorer external conditions, the failure of the capelin catch, weaker domestic demand, and a poorer competitive position because of contractual wage increases. As a consequence, unemployment could rise further. On the other hand, workers could exit the domestic labour market or firms could offer reduced working hours or lower pay, as they did following the financial crisis. According to the current baseline forecast, the outlook is for considerably higher unemployment this year than was forecast in February. Seasonally adjusted unemployment is projected to rise above 4% in H2 and measure 3.9% for 2019 as a whole. This is 0.8 percentage points above the February forecast, as well as being above the level considered consistent with stable inflation.

Outlook remains for reduction in job numbers in the next six months

According to the seasonally adjusted results of Gallup's spring survey among executives from Iceland's 400 largest companies, 14% of firms were planning to recruit, while 23% were planning to downsize. The balance of opinion was therefore negative by 9 percentage points, whereas in the winter survey it was negative by 19 percentage points (Chart V-4). The difference was greatest in transport, transit, and tourism, although the survey results were probably affected by strikes announced in tourism-related sectors at the time the survey was conducted. The outlook was for a slight increase in staffing in construction and utilities, as well as in miscellaneous specialised services, where the balance of opinion was positive by 2-3 percentage points. The difference was below its historical average in all sectors.

In line with the Gallup survey results, the baseline forecast assumes that seasonally adjusted job numbers will fall in Q2. The decline is smaller than it would be otherwise, however, as the economic contraction is expected to be relatively brief. Under such circumstances, it is likely that some employers will choose to maintain staffing levels even though their earnings might suffer in the short run. It is also assumed that firms will seek to streamline further by cutting back on working hours. Therefore, the decline in total hours worked will exceed the drop in job numbers. Even though total hours are assumed to continue to fall over the course of the year, the annual average will be unchanged between years, owing to base effects from 2018. This is a significant change from the February forecast, which assumed a 1.4% increase this year.

Indicators of factor utilisation

Staff shortages not a major problem

After adjusting for seasonality, 12% of executives surveyed considered themselves short-staffed, a decline of 6 percentage points since Gallup's winter survey. This share has fallen in the last four surveys and was 11 percentage points below its historical average this spring. The

percentage of executives considering themselves understaffed was largest in the construction and utilities sector, at 30%. On the other hand, only 5-8% of executives in fishing, financial services, miscellaneous specialised services, and retail and wholesale trade reported staffing shortages (Chart V-5).

Labour immigration has eased

Net migration figures for Q1/2019 show that Iceland's foreign work force continues to grow, but at a slower pace than in the past year. The population increased by 1.8% year-on-year during the quarter due to migration of foreign nationals, down from 2.5% in Q1/2018. Population growth has therefore eased since peaking at 3.1% in Q1/2018 (Chart V-6). Employees of temporary employment agencies and foreign services firms have continued to decline in number. They counted 1071 employees in April, down by 401 since year-end 2018. There has also been a slowdown in issuance of new temporary work permits.

Outlook for declining productivity in 2019

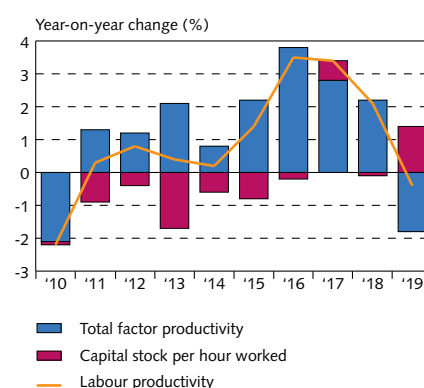
After the new national accounts were published in March, productivity growth figures for 2015-2017 were revised and preliminary figures for 2018 were published for the first time. Overall, developments were broadly in line with the February forecast, but labour productivity (measured as GDP per hours worked) is now estimated to have grown by 2.6%, on average, in 2015-2018, well above its historical average. However, because the outlook is for an economic contraction this year and virtually no increase in total hours, labour productivity is expected to contract by 0.4% from last year, whereas the February forecast assumed a corresponding rise in productivity. The outlook for the capital stock per hour worked is broadly unchanged since February; therefore, this development indicates primarily that the contribution of total factor productivity to productivity growth will be more negative than in the February forecast (Chart V-7). If the forecast materialises, 2019 will be the first year since 2010 to see a year-on-year contraction in labour productivity.

Output slack to open up in late 2019

According to the Gallup survey, 38% of firms reported difficulty in responding to unexpected demand. This is somewhat less than in the winter survey and close to the historical average. The percentage of executives reporting such difficulties was largest in the fishing industry, at 57%, possibly reflecting capacity constraints due to quotas. The strain on production factors was least in the wholesale and retail trade sector, where 21% of executives said they would have difficulty responding to increased demand.

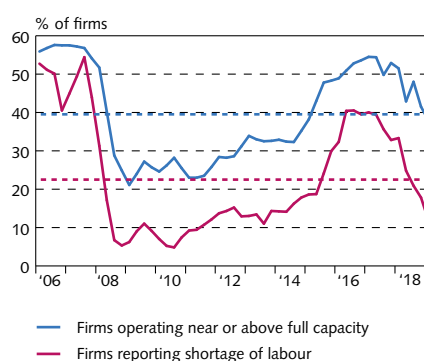
The resource utilisation (RU) indicator, which combines various indicators of factor utilisation, implies that the strain on production factors is easing rapidly. It fell even further in Q1/2019, albeit more slowly than in the past year (Chart V-9). The output gap of the past few years therefore appears to be closing rapidly. After averaging an estimated 2½% of potential output over the past three years, it is expected to fall to about 1% by mid-2019. The output gap is projected

Chart V-7
Labour productivity and its sub-components
2010-2019¹



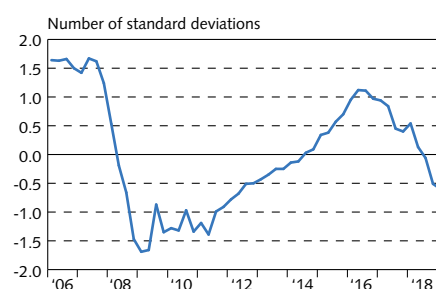
1. Labour productivity is given as GDP per total hours worked. Total factor productivity is given as the deviation of GDP from the output level obtained with full factor utilisation using the production function in the Bank's macroeconomic model. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-8
Capacity utilisation¹
Q1/2006 - Q1/2019



1. Indicators of factor utilisation are from the Gallup Sentiment Survey conducted among Iceland's 400 largest companies. Seasonally adjusted figures. Broken lines show period averages.
Sources: Gallup, Central Bank of Iceland.

Chart V-9
RU indicator¹
Q1/2006 - Q1/2019



1. The resource utilisation indicator (RU indicator) is the first principal component of selected indicators of factor utilisation; it is scaled so that its mean value is 0 and the standard deviation is 1. A more detailed description can be found in Box 3 in MB 2018/2.
Source: Central Bank of Iceland.

to close later in the year with an output slack to open by the year-end and then gradually close over the course of 2020. This is a significant change from the February forecast, which assumed that the output gap would not close until early 2021.

VI Inflation

Inflation measured 3.1% in Q1/2019, significantly lower than at year-end 2018, but rose again to 3.3% in April. Underlying inflation has followed a similar pattern. The contribution of house prices to inflation has continued to weaken, and in March, the twelve-month rise in the housing component was at its smallest since summer 2013. Furthermore, the pass-through from the depreciation of the króna to import prices receded in Q1/2019. The inflation outlook has improved from the February forecast due to the rapid cooling of the economy, even though it is offset to an extent by the rise in oil prices and firms' wage costs. In addition, long-term inflation expectations are starting to fall again.

Recent developments in inflation

Inflation has been slightly lower than expected

Inflation eased in Q1/2019, after having risen rapidly towards the end of 2018, reaching 3.7% in December (Chart VI-1). It measured 3.1% in Q1, 0.3 percentage points below the forecast in the February *Monetary Bulletin*. The deviation is due mainly to weaker-than-expected exchange rate pass-through from the depreciation of the króna in autumn 2018 to imported goods prices and a smaller-than-expected rise in house prices. Reductions in imported goods prices, particularly new motor vehicles, had the strongest impact on the CPI during the quarter, although this came in the wake of a noticeable increase in Q4/2018. The effects of the decline in new vehicle prices were similar to those in Q1/2017, when the króna had appreciated by nearly a fifth year-on-year (Chart VI-2). The recent contraction in new vehicle sales is likely to be a factor in this.

The CPI rose by 0.4% month-on-month in April, and twelve-month inflation increased to 3.3%. The April measurement was affected mainly by rising airfares and petrol prices. The increase in airfares was larger than usual for this time of year, owing partly to the collapse of the airline WOW Air, although prices generally rise around the Easter holidays.

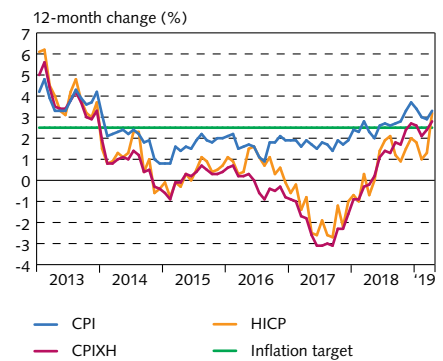
Twelve-month inflation excluding housing measured 2.8% in April and has risen by 3 percentage points year-on-year, far outpacing the rise in measured inflation. The difference between inflation including and excluding housing is at its smallest since autumn 2013 and is now close to its long-term average. The HICP, which also excludes owner-occupied housing costs, rose by 3.2% year-on-year in April, whereas in April 2018 there was 0.7% deflation.

Underlying inflation and other indicators of inflationary pressures

Underlying inflation developing broadly in line with measured inflation

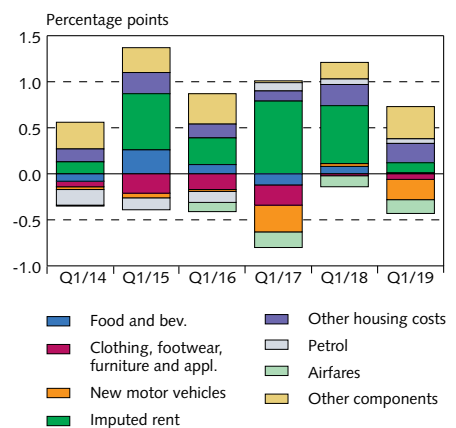
Underlying inflation in terms of the median of various measures was 3.2% in April and has fallen since the last *Monetary Bulletin* (Chart

Chart VI-1
Various measures of inflation
January 2013 - April 2019



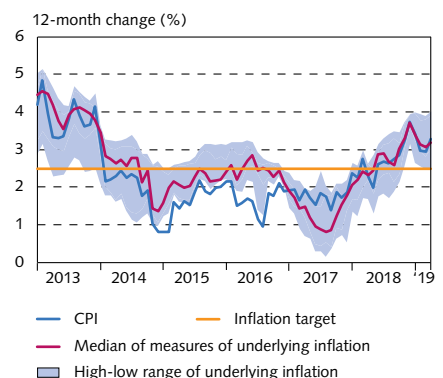
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-2
Subcomponents' effects on the CPI in
Q1 2014-2019



Source: Statistics Iceland.

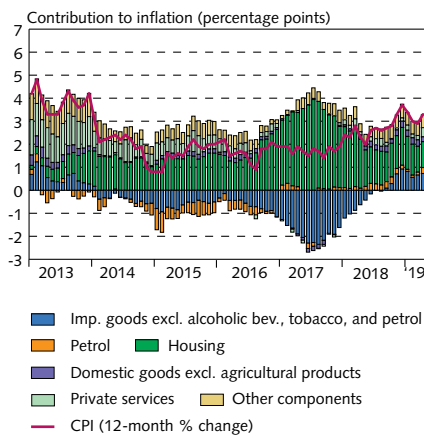
Chart VI-3
Headline and underlying inflation¹
January 2013 - April 2019



1. Underlying inflation measured using a core index (which excludes the effects of indirect taxes, volatile food items, petrol, public services, and real mortgage interest expense) and statistical measures (weighted median, trimmed mean, a dynamic factor model, and a common component of the CPI).

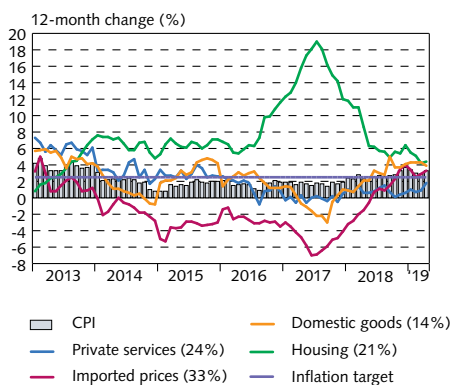
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-4
Components of CPI inflation
January 2013 - April 2019



Source: Statistics Iceland.

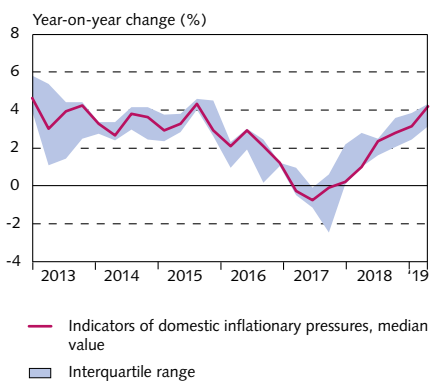
Chart VI-5
Imported and domestic inflation¹
January 2013 - April 2019



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-6
Domestic inflationary pressures¹
Q1/2013 - Q1/2019



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 Q1/2019 for the GDP price deflator and for unit labour costs. Sources: Statistics Iceland, Central Bank of Iceland.

VI-3), although it was nearly 1 percentage point higher than in April 2018. Developments in underlying inflation have been very similar to developments in measured inflation since end-2017. At the same time, the contribution of housing to inflation has tapered off after peaking in summer 2017 (Chart VI-4). In April, owner-occupied housing costs had risen by 4% year-on-year, and about a third of the increase in twelve-month inflation was due to the housing component. The contribution of imported and domestic goods to inflation has increased, however, and these two items explain nearly half of the inflation rate.

Exchange rate pass-through weakens ...

Following a rise in imported goods prices in H2/2018, the exchange rate pass-through from the depreciation of the króna to import prices weakened in Q1/2019. In trade-weighted terms, the króna has depreciated by just over 11% in the past twelve months, whereas in April, the price of imported goods in the CPI had risen by 3.3% between years (Chart VI-5). Firms have not as yet passed the entire depreciation through to prices, which probably reflects increased competition, weaker growth in domestic demand, lower trading partner inflation, and falling inflation expectations. For example, clothing and footwear prices have risen by only 1.3% between years, and furniture and housewares by around 3%. Global oil prices have risen since the beginning of the year, however, and in addition to the direct impact on measured inflation, there could be some indirect effects on, for example, airfares.

... but the outlook is uncertain because of firms' cost increases

Domestic inflationary pressures mounted as 2018 progressed and have continued to do so in 2019 to date (Chart VI-6). Domestic goods prices have risen by 3.9% in the past twelve months. They contributed 0.5 percentage points to twelve-month inflation in April, mainly because of an increase in domestic agricultural product prices. The rise in producer prices of goods sold domestically has eased, however, after a rapid increase in H2/2018. The contribution of private services to inflation has been limited in the recent term, and in Q1/2019 it was more or less unchanged year-on-year. It increased in April, however, mainly because of rising airfares, and at that time the twelve-month increase in private services prices measured 1.8% (Chart VI-7).

According to Gallup's spring survey of Iceland's 400 largest firms, just over half of respondents expected to have to raise their product prices in the next six months. This is virtually unchanged from the autumn 2018 survey (Chart VI-8). On the other hand, nearly 80% of executives expected input prices to rise in the next six months, a significant increase from the previous survey. The survey also revealed that 80% of executives considered wage costs the strongest driver of increases in their product prices.¹ In view of the fact that firms' costs have risen steeply in the recent term because of wage increases and the depreciation of the króna, the pay rises ahead could lead to grow-

1. The Gallup survey was carried out in February and March, before wage agreements were signed.

ing inflationary pressures, albeit offset to a degree by the prospect of a rapid narrowing of the output gap this year (see Chapter IV).

Larger wage increase in 2017, but a smaller one in 2018

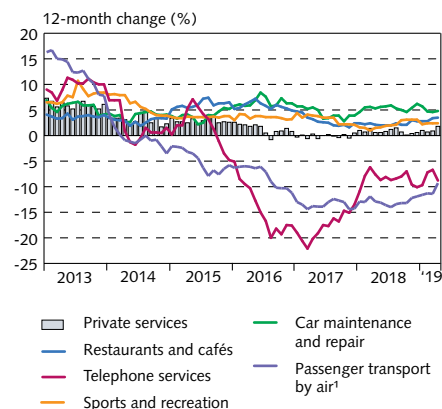
In March 2019, Statistics Iceland published new figures on wages and related expenses after a slight revision of the previous figures. Estimated wage developments in 2017 changed the most, as the twelve-month rise in wages per hour was revised upwards by 1.7 percentage points, to 9.2%. Furthermore, year-2018 figures, published for the first time, indicated that wages per hour had risen by 4.5% year-on-year, whereas the forecast in the February *Monetary Bulletin* projected the increase at 7%. Based on the most recent Statistics Iceland figures, wage developments therefore appear to have been underestimated for 2017 but overestimated for 2018. Developments for the two-year period as a whole were broadly in line with the February forecast: in February, the average wage increase in 2017-2018 was estimated at 7.5%, whereas the new figures put it at 7%. The revision of previous numbers had a comparable effect on the wage share; i.e., wages and related expenses relative to gross factor income. In 2017, the wage share was slightly higher than previously estimated, in 2018 it was slightly lower, and for both years combined it was in line with the February forecast. The wage share is now estimated at 64.3% in 2018, about 0.5 percentage points higher than in 2017 and 3.8 percentage points above its twenty-year average.

Unit labour costs set to rise more than forecast in February

The twelve-month rise in wages continued to ease in Q1/2019, as no contractual wage increases had been negotiated for the year. The general wage index rose by 5.7% year-on-year during the quarter, broadly in line with the Bank's February forecast. The rise in the total wage index was somewhat smaller in Q4/2018, however, at 5.4%, as compared with 6.1% for the general wage index (Chart VI-9).

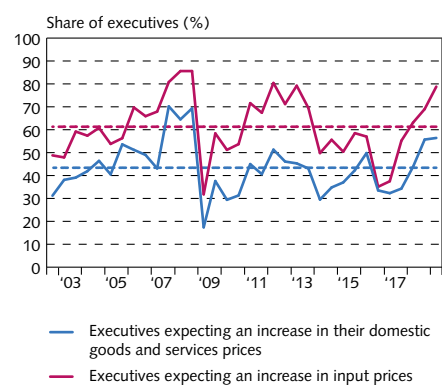
The wage settlements signed in April apply to a large share of private sector workers, although the impact will probably be felt more widely. The negotiated pay rises for 2019 are similar to those assumed in the Bank's February forecast. On the other hand, the February forecast assumed that wage agreements would be relatively front-loaded, whereas now it appears that the bulk of the pay increases will come later in the contract period (see also Box 4). According to the current baseline forecast, wages per hour will rise by 6.1% this year, slightly more than was projected in February. Nearly half of the increase for the year is due to base effects, however, because even if wages remained flat in 2019, the change between the 2018 and 2019 averages would measure 2.6%. Over the three years from 2019 through 2021, wages will rise by nearly 1 percentage point more per year than was assumed in the February forecast. The difference is greater in terms of unit labour costs, as the outlook is for weaker productivity growth during the period (see Chapter V). Labour productivity is expected to decline marginally this year and then increase by nearly 1 percentage point per year in 2020 and 2021. Unit labour costs will therefore rise by 7% this year and 4%, on average, in the two years following, or

Chart VI-7
Private services and selected subcomponents of the CPI
January 2013 - April 2019



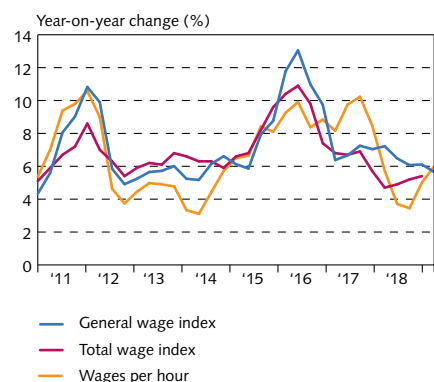
1. Twelve-month moving average.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-8
Corporate expectations of input and product prices 6 months ahead 2002-2019¹



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

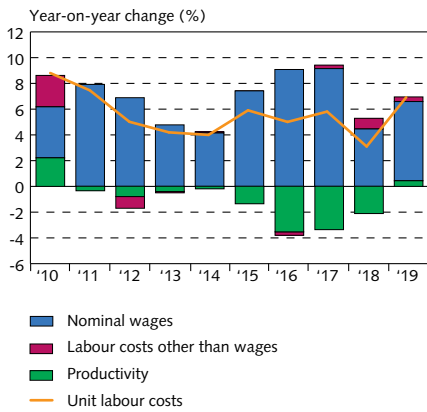
Chart VI-9
Different measures of wages¹
Q1/2011 - Q1/2019



1. Wages per hour worked are based on annual figures for the wage portion of the "wages and related expenses" category from the production accounts, as a share of total hours worked according to the Statistics Iceland labour force survey and are estimated for Q1/2019.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-10

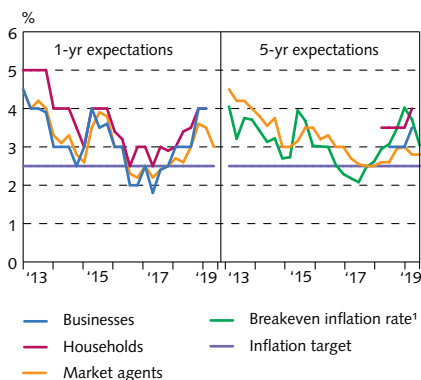
Unit labour costs and contribution of underlying components 2010-2019¹



1. Labour productivity growth is shown as a negative contribution to an increase in unit labour costs. Central Bank baseline forecast 2019.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-11

Inflation expectations
Q1/2013 - Q2/2019



1. The most recent value is the average of daily values from 1 April through 17 May 2019.
Sources: Gallup, Central Bank of Iceland.

about 1½ percentage points more per year than was forecast in February (Chart VI-10).

Inflation expectations

Short-term inflation expectations appear to have peaked ...

Short-term inflation expectations are now higher by all measures than they were a year ago, but they appear to have peaked. According to the surveys carried out by Gallup this spring, households' and corporate executives' one-year inflation expectations were unchanged from the previous survey, at 4%. Their two-year inflation expectations are broadly similar and have remained unchanged in the past year. Market agents' short-term inflation expectations have started to fall again, however, as has the breakeven inflation rate in the bond market (Table VI-1 and Chart VI-11).²

... and long-term inflation expectations have declined again

According to Gallup's spring surveys, households and executives expect inflation to average 3.5-4% over the next five years. This is an increase of 0.5 percentage points between surveys. On the other hand, market agents expect inflation to average 2.8% over the next five years and 2.7% over the next ten years, with ten-year expectations down slightly between surveys while five-year expectations are unchanged. The five- and ten-year breakeven inflation rate in the bond market has also fallen in recent months and has averaged 3% in Q2 to date. Long-term inflation expectations in the market have therefore eased towards the inflation target again, probably because of the prospect of a rapid easing of demand pressures, reduced uncertainty about wage agreements, and the relative stability of the króna in recent months.

Table VI-1 Inflation expectations (%)¹

	Q2 2019	Q1 2019	Q2 2018	Q2 2019	Q1 2019	Q2 2018
	1 year			2 years		
Businesses	-	4.0	3.0	-	3.5	3.5
Households	-	4.0	3.4	-	4.0	4.0
Market agents	3.0	3.5	2.6	2.8	3.0	2.7
Breakeven inflation rate	3.2	3.6	2.5	3.2	3.7	2.7
	5 years			10 years		
Businesses	-	3.5	3.0	-	-	-
Households	-	4.0	3.5	-	-	-
Market agents	2.8	2.8	2.7	2.7	2.8	2.7
Breakeven inflation rate	3.0	3.7	3.1	2.9	3.7	3.3

1. The most recent Gallup surveys of corporate and household inflation expectations were carried out in February and March 2019, and the Central Bank's survey of market agents' expectations was conducted in early May 2019. Households and businesses are not asked about ten-year inflation expectations. The most recent value for the breakeven inflation rate in the bond market is the average of daily values from 1 April 2019 through 17 May 2019.

Sources: Gallup, Central Bank of Iceland.

2. The breakeven inflation rate is calculated based on the interest rate differential between indexed and non-indexed bonds. It should be borne in mind, however, that the breakeven rate also includes a liquidity risk premium and an inflation risk premium. To some extent, last year's rise in the breakeven rate reflected a rise in the bond market risk premium. Therefore, the recent decline in the breakeven rate could also be attributed in part to a reduction in the risk premium.

One of the main characteristics of economic developments in Iceland and abroad is the recurrent alternation of economic contractions and expansions, commonly referred to as business cycles. These cycles can vary in duration and strength but are generally considered to last from one to eight years. There are various methods for identifying and dating business cycles, and in the US and the eurozone, expert committees are tasked with this. In the US, this is done by the National Bureau of Economic Research (NBER), and in the eurozone it is done by the Centre for Economic Policy Research (CEPR). Both use a variety of statistical methods to date business cycles based on underlying developments in a large number of economic variables. In other countries, where no official business cycle dates are published, simpler statistical methods are used and their reliability generally assessed based on how closely they approximate official business cycle estimates for the US and the eurozone.

One popular approach is the Markov switching model of Hamilton (1989), which has been shown to match closely the timing of economic contractions and expansions in the US (see, for example, Hamilton, 1989) and the eurozone (see, for example, Artis *et al.*, 2004), as well as being suitable for analysis and interpretation of the main characteristics of business cycles. Basically, the Markov switching model assumes that business cycles can be described as stochastic processes where the economy switches between two growth phases, or regimes. In one phase, GDP growth is weak or even negative, thus corresponding to a recession. In the other phase, GDP growth is stronger, corresponding to an expansion. In the Markov switching model, the probability distribution of regime switches is estimated jointly with the average growth rate of each phase. This model has previously been used by Elíasson (1998) and Pétursson (2000) to date business cycles in Iceland.

A simple Markov switching model of business cycles

If g_t represents GDP growth, the Hamilton Markov switching model can be described in its simplest form as follows:

$$(1) \quad g_t = \mu(s_t) + v_t$$

where $\mu(s_t)$ is average GDP growth and v_t is a normally distributed random variable with a mean of 0 and a standard deviation of σ_v . Therefore, according to the Markov model, GDP growth fluctuates around its average, $\mu(s_t)$, which is determined by a latent random variable, s_t , which can take two values that reflect, on the one hand, the recessionary phase ($s_t=0$), μ_0 , and on the other hand, the expansionary phase ($s_t=1$), μ_1 :

$$(2) \quad \mu(s_t) = (1 - s_t)\mu_0 + s_t\mu_1$$

The probability of switching between a recession and an expansion is described with a two-state Markov chain:

$$(3) \quad \Pr(s_t = 0 | s_{t-1} = 0) = p; \quad \Pr(s_t = 1 | s_{t-1} = 1) = q$$

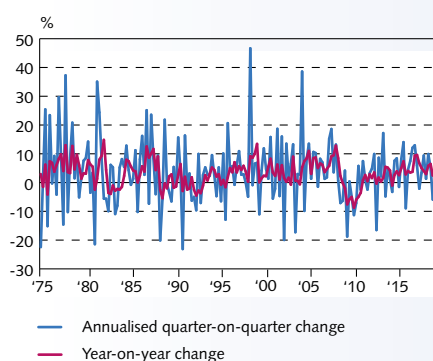
If the economy is currently in a recession, there is a probability of p that it will remain there into the next period, but a probability of $(1 - p)$ that it will switch to the expansionary phase. Similarly, there is a probability of q that the economy will continue to expand in the next period if it is currently in the expansionary phase, whereas there is a probability of $(1 - q)$ that it will switch to the recessionary phase.

To estimate the Markov model of business cycles in Iceland, quarterly GDP data from Q1/1975 through Q4/2018 are used. Because Statistics Iceland's quarterly national accounts extend only

Box 1

Economic recessions in Iceland since 1975

Chart 1
Output growth in Iceland¹
Q1/1975 - Q4/2018



1. Quarter-on-quarter change based on seasonally adjusted data. Data from 1997 onwards are from Statistics Iceland; data from before 1997 are Central Bank estimates.

Sources: Statistics Iceland, Central Bank of Iceland.

back to 1997, quarterly data prepared by the Central Bank for its macroeconomic model database are used for the period 1975-1996 (the methodology is described in Danielsson *et al.*, 2015, Chapter 14). As Chart 1 shows, quarterly GDP growth figures fluctuate widely, and there is often significant irregularity between quarters. Annual GDP growth is smoother and more regular; therefore, the Markov model is estimated with annual GDP growth; i.e., the logarithmic change in GDP from the same quarter in the prior year.

In order to describe short-term developments in GDP growth during the period more clearly, the model is estimated with two lags in GDP growth, which is consistent with the results of the Schwarz information criterion.¹ The estimated model is therefore given as:

$$(4) \quad g_t = \alpha(s_t) + \beta g_{t-1} + \gamma g_{t-2} + v_t$$

where average GDP growth in the two regimes is given as $\mu(s_t) = \alpha(s_t)/(1 - \beta - \gamma)$. Table 1 shows the estimation of the Markov switching model. In expansionary phases, GDP growth averages 4.8%, whereas during recessionary phases it averages -3.5%. The empirical results also indicate that the two business cycle phases are highly persistent: the probability of remaining in an expansion from one quarter to the next is about 95%, while the probability of remaining in a recession is slightly less, or 80%. It is therefore highly likely that the economy will continue in the same phase from one quarter to the next, and switching between states is relatively rare. This can also be seen in the estimation of the expected duration of the regimes. According to the empirical results, the expected duration of a recession is five quarters, or 1.25 years, whereas expansions are quite a bit longer, at about five years. Finally, the table shows the estimation of the unconditional probability of being in a recession or expansion during this period spanning nearly half a century. According to the estimation, the domestic economy has been in a recession for about a fifth of the period from 1975 onwards, and in an expansion for about 80% of the same period (average GDP growth over the entire period is therefore 3.1%; that is, $0.2 \times (-3.5\%) + 0.8 \times 4.8\%$). As can be expected, the economy is more often expanding than contracting, and expansions are generally much longer than recessions. Furthermore, the estimation of the expected duration of the two regimes corresponds to an average complete business cycle length of just over six years. As is mentioned above, this is consistent

Table 1 Estimation of two-state Markov switching model¹

	Parameter estimation
Average GDP growth during recessions, μ_0	-0.035
Average GDP growth during expansions, μ_1	0.048
Probability that ongoing recession will continue, p	0.800
Probability that ongoing expansion will continue, q	0.950
Expected duration of recessions, $d_0 = 1/(1-p)$	5.00
Expected duration of expansions, $d_1 = 1/(1-q)$	20.05
Probability of being in a recession, $\Pr(s_t = 0) = (1-q)/(2-p-q)$	0.200
Probability of being in an expansion, $\Pr(s_t = 1) = 1 - \Pr(s_t = 0)$	0.800

1. The table shows the results of estimating a two-state Markov switching model with quarterly data for the period from Q1/1975 through Q4/2018 (176 observations). Data from 1997 onwards are from Statistics Iceland; data from before 1997 are Central Bank estimates. The duration of recessions and expansions is given in quarters.

Source: Central Bank of Iceland.

1. The Hamilton Markov switching model can be expanded in various ways; for instance, by increasing the number of states or allowing the variability of the random variable v_t to differ between states. Various versions and expansions of the model are discussed in Pétursson (2000).

with the typical cycle duration. The Markov switching model successfully describes the main characteristics of conventional business cycles.

Estimated dating of recessions

The Markov model also provides an estimation of the probability that the economy is in a recession; i.e., periods where the probability that $s_t=0$ is greater than 50% (Chart 2). The empirical results identify four such episodes: the first in the early 1980s, the second towards the end of the 1980s, the third early in the 1990s, and the fourth in the wake of the 2008 financial crisis. Table 2 provides more detailed information about these four episodes.

Table 2 Recessions in Iceland since 1975¹

Beginning	End	Change GDP (%)	Average GDP growth (%)	Duration (quarters)	Duration (years)
Q2/1982	Q4/1983	-4.9	-1.7	7	1.75
Q2/1988	Q4/1988	-2.2	-2.8	3	0.75
Q4/1990	Q4/1992	-7.2	-1.9	9	2.25
Q2/2008	Q3/2010	-12.1	-4.1	10	2.50

1. The table shows the beginning and end of recessions estimated using the two-state Markov switching model in Table 1. The change in GDP shows the change from the peak at the beginning of the recession until its end; average GDP growth shows the annual average change in GDP during the recession.

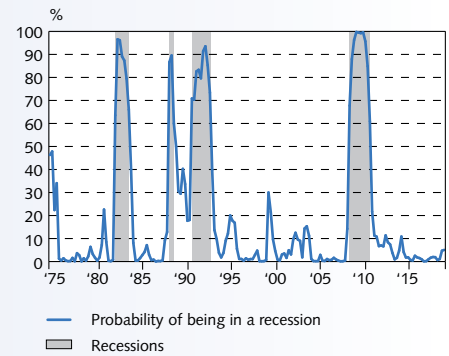
Source: Central Bank of Iceland.

The first recession, from mid-1982 through end-1983, lasted just under two years. Its beginning can be traced to the severe fish catch failure that caused a steep decline in exports and economic activity. GDP contracted by nearly 5% from the beginning to the end of the recession, and annual GDP growth averaged -1.7% over the period. Later in the 1980s, a decline in fish catches concurrent with a deterioration in terms of trade led to a recession lasting from mid-1988 through the end of that year. This recession was therefore relatively short and mild, but GDP contracted by just over 2%. The third recession came soon thereafter, beginning in late 1990 and lasting until end-1992. It was considerably more severe than its predecessor: it lasted more than two years, and GDP contracted by over 7%. In addition to the still-palpable impact of the downturn in fish catches and the erosion in terms of trade came the contractionary effect of significant monetary tightening towards the end of the decade, after nominal interest rates were liberalised and domestic economic policy increasingly focused on price stability. The last recession, which followed the financial crisis in autumn 2008, was by far the most severe experienced by Iceland over this half-century period.² GDP growth contracted by 12% in just over two years, and average GDP growth measured -4% over the period. This can be seen even more clearly in Chart 3, which shows seasonally adjusted GDP over the period.³

2. It was also the most severe in modern Icelandic history, as is discussed in Einarsson *et al.* (2015).

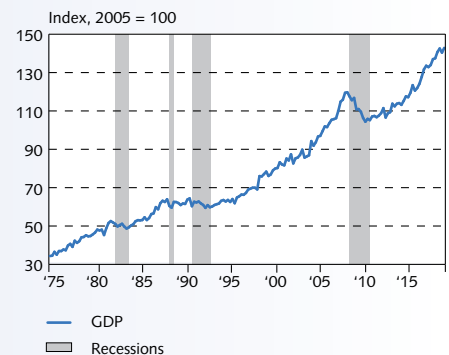
3. The dating of these four recessions accords well with the results of other research on the domestic business cycle – for example, Magnússon and Einarsson (1985), Eliásson (1998), and Pétursson (2000) – the last two of which are also based on an estimation of the Markov switching model. The main differences lie in the dating of the two recessions in the late 1980s and early 1990s, which Eliásson (1998) and Pétursson (2000) identify as a single recession lasting eight years. The dating also accords well with the findings of Einarsson *et al.* (2013), who used the Harding and Pagan (2002) turning point algorithm.

Chart 2
Economic recessions in Iceland¹
Q1/1975 - Q4/2018



1. Smoothed probability of being in a recession according to a two-state Markov model for economic growth. Estimated using quarterly data for the period 1975-2018. Data from 1997 onwards are from Statistics Iceland; data from before 1997 are Central Bank estimates. Sources: Statistics Iceland, Central Bank of Iceland.

Chart 3
GDP in Iceland and economic recessions¹
Q1/1975 - Q4/2018



1. Seasonally adjusted gross domestic product (GDP). Data from 1997 onwards are from Statistics Iceland; data from before 1997 are Central Bank estimates. Sources: Statistics Iceland, Central Bank of Iceland.

International comparison of recessions

Table 3 compares the dates of recessions in Iceland with those in the US and the eurozone, based on official dating by NBER and CEPR. As the table shows, they line up quite well. A recession occurred internationally in the mid-1970s, following the first OPEC crisis. No recession was measured in Iceland according to the Markov model, but as can be seen in Chart 2, the model comes very close to identifying H1/1975 as a recession. There was a recession in the US and the eurozone in the early 1980s, owing mainly to policy action taken by central banks around the world in a bid to rein in inflation. The recession in the early 1990s stemmed from the same causes, albeit amplified by the adverse impact of the 1990 oil crisis. A brief recession occurred in the US in the early 2000s, due to an abrupt correction in tech company share prices. A worldwide recession occurred in the wake of the global financial crisis, but in 2011-2013 the euro area also experienced a recession relating to sovereign debt problems facing a number of eurozone countries.

Table 3 International comparison of recession dates from 1975¹

<i>United States</i>	<i>Eurozone</i>	<i>Iceland</i>
Q1/1974-Q1/1975 (5)	Q4/1974-Q1/1975 (2)	
Q2/1980-Q3/1980 (2)		
Q4/1981-Q4/1982 (5)	Q2/1980-Q3/1982 (10)	Q2/1982-Q4/1983 (7)
		Q2/1988-Q4/1988 (3)
Q4/1990-Q1/1991 (2)	Q2/1992-Q3/1993 (6)	Q4/1990-Q4/1992 (9)
Q2/2001-Q4/2001 (3)		
Q1/2008-Q2/2009 (6)	Q2/2008-Q2/2009 (5)	Q2/2008-Q3/2010 (10)
	Q4/2011-Q1/2013 (6)	
Average duration 1.0 year	Average duration 1.5 year	Average duration 1.8 year
Average contraction -2.1%	Average contraction -2.2%	Average contraction -6.6%

1. The table shows the dates of recessions in Iceland, taken from Table 2, and a comparison with recessions in the US (dated by NBER) and the eurozone (dated by CEPR). The duration of each recession, in quarters, is shown in parentheses.

Sources: CEPR, European Central Bank AWM database, NBER, Thomson Reuters, Central Bank of Iceland.

As can be seen in Table 3, all four recessions in Iceland have foreign counterparts occurring at or near the same time, and the domestic business cycle is in the same phase as that in the US and the eurozone 80% of the time. Recessions have generally been longer in duration in Iceland than in the other two economies, but they are fewer in number. Table 3 also shows that recessions in Iceland have generally been deeper. In part, this reflects the severity of the 2008 financial crisis, but it also reflects the fact that Iceland's economy has long been more volatile than larger advanced economies.

Summary

Estimating the domestic business cycle using the Hamilton Markov switching model identifies four recessions in Iceland since 1975. The first occurred in the early 1980s, following a severe catch failure. Two recessions occurred around 1990: the first took place following a deterioration in terms of trade and a contraction in the marine sector after several years of overfishing, and the second was compounded by the contractionary impact of rising real interest rates after the liberalisation of nominal rates in the late 1980s. The last and most severe recession followed on from the global financial crisis, which struck in autumn 2008. Although domestic factors weigh heavily in the recessions in Iceland, the similar timing of the beginning of recessions in Iceland, the US, and the eurozone suggests that international factors are also important.

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Economic resilience as the cycle turns

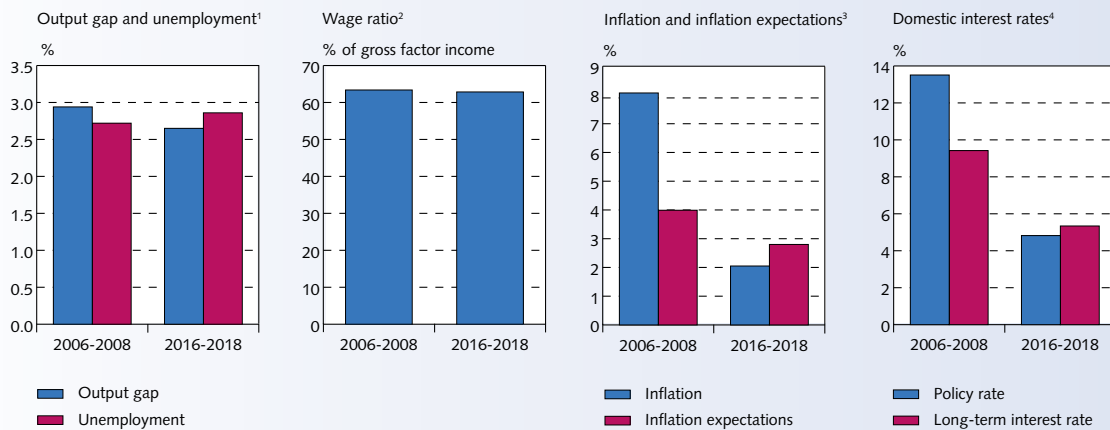
Box 2

Economic activity has begun to lose pace, and the outlook is for output to contract this year. In this context, it is worthwhile to examine how well prepared the economy is to face economic headwinds. Comparing the current economic situation with the run-up to the contraction that followed the 2008 financial crisis shows that households, businesses, and the economy as a whole are now much better prepared for an economic downturn.

Capacity pressures similar to those a decade ago ...

As can be seen in Chart 1, the output gap in 2016-2018 was similar in size to that in 2006-2008. Tension in the labour market was also comparable, as can be seen in the similarly low unemployment rate and high wage share during the two periods.

Chart 1
Output gap similar but inflation and interest rates lower



1. Output gap as % of potential output and unemployment (% of labour force) according to Statistics Iceland's labour force survey. 2. Wages and wage expenses as % of gross factor income. 3. Break-even inflation rate of five-year bonds. 4. The Central Bank's policy rate as defined in each period. The long-term interest rate is the 10-year interest rate on Government bonds, estimated from the yield curve.
Sources: Statistics Iceland, Central Bank of Iceland.

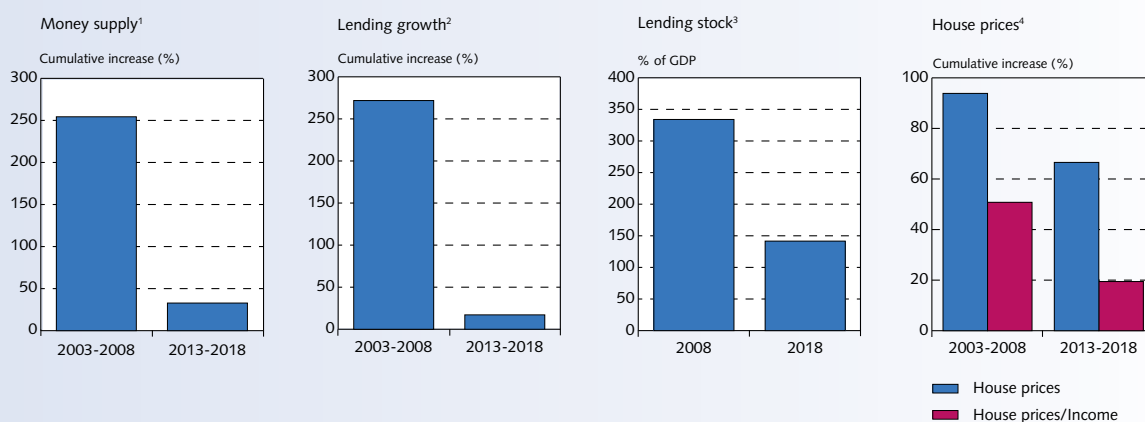
That said, even though demand pressures were comparable in the two periods, inflation has been much lower in recent years than at the end of the last upswing, averaging only 2% in the past three years, as opposed to 8% in 2006-2008. The greater price stability of the past few years can also be seen in long-term inflation expectations, which have been much lower in the more recent period, and closer to the Bank's inflation target than they were during the pre-crisis period. As a result, interest rates have been considerably lower than before the crisis, in terms of both long-term bond market rates and the Central Bank's key rate.

... but financial system imbalances are much less pronounced now ...

Among the main characteristics of the upswing leading into the financial crisis were the severe financial imbalances that had developed following the privatisation of a large share of the domestic banking system and the structural changes in the domestic mortgage market in the first half of the 2000s. As Chart 2 indicates, money balances soared, as did credit system lending growth. Although growth in both money and credit has gained pace in the recent term, it is nowhere near the level seen before the financial crisis. The credit-to-GDP ratio has actually risen very little in recent years and is now much lower than when the financial crisis struck.

House prices have risen in the past several years, although the pace has eased in recent months. The increase in 2013-2018, while

Chart 2
Financial system imbalances are much smaller than before the financial crisis



1. Growth in broad money (M3) in 2003-2008 and 2013-2018. For the latter period, figures are adjusted for deposits held by failed financial institutions. 2. Increase in total credit institution lending (adjusted for reclassification and Government debt relief measures) in 2003-2008 and 2013-2018. 3. Stock of credit institution loans as % of GDP. 4. House price increases and ratio of house prices to labour income (disposable after-tax income excluding capital gains) in 2003-2008 and 2013-2018.
Sources: Statistics Iceland, Central Bank of Iceland.

large, was still smaller than the one in 2003-2008. The difference between the two is even more visible when placed in context with the strong income growth of the past several years. Seen in this light, the recent surge in house prices is less indicative of bubble formation than the one occurring before the financial crisis.¹

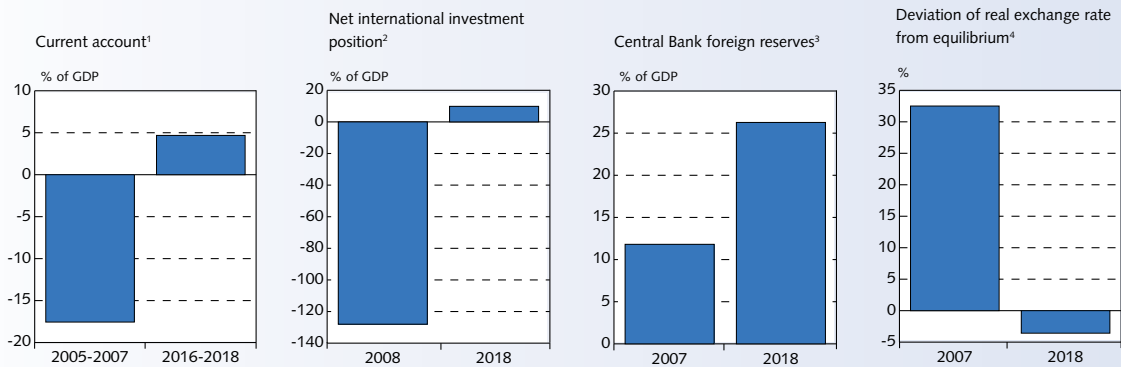
... and Iceland's external position is much more favourable now than a decade ago

One manifestation of the severe financial imbalances that developed during the run-up to the financial crisis was the enormous current account deficit, which peaked at 23% of GDP in 2006. Although the deficit narrowed somewhat during the years thereafter, it remained sizeable until the financial crisis struck, whereupon access to foreign credit to finance the deficit abruptly dried up. The past decade has been entirely different. Since 2009, Iceland has run a sizeable current account surplus that, in the past three years, has averaged just under 5% of GDP (Chart 3).

A dramatic turnaround can also be seen in Iceland's net external asset position. Due to a decades-long current account deficit, the country had amassed substantial external debt, and by end-2008 its net external asset position was negative by nearly 130% of GDP. Sizable current account surpluses and the Government's settlement with the failed bank estates means, however, that since 2016 the net position has been positive, with external assets exceeding external liabilities. In 2018, it was positive by nearly 10% of GDP. Over the same period, the Central Bank has accumulated international reserves that are funded domestically and are large enough to cover short-term liabilities. This is a major change from the pre-crisis situation, when the international reserves were much smaller.

1. The results of formal statistical testing leading to the same conclusion are discussed in Chapter I of *Monetary Bulletin* 2017/2. The assessment that financial imbalances are less pronounced now than they were a decade ago is also consistent with analysis of the domestic financial cycle. See, for example, Bjarni G. Einarsson, Kristófer Gunnlaugsson, Thorvaldur Tjörvi Ólafsson, and Thórarinn G. Pétursson (2016), "The Long history of financial boom-bust cycles in Iceland – Part II: Financial cycles", Central Bank of Iceland *Working Papers* no. 72, and Öundur P. Ragnarsson, Jón Magnús Hannesson, and Loftur Hreinsson (2019), "Financial cycles as early warning indicators: Lessons from the Nordic region", Central Bank of Iceland *Working Papers* no. 80.

Chart 3
Major change in the external position



1. Current account as % of GDP. 2. Net international investment position as % of GDP. 3. International reserves as % of GDP. 4. Deviation of real exchange rate from estimated equilibrium real exchange rate.

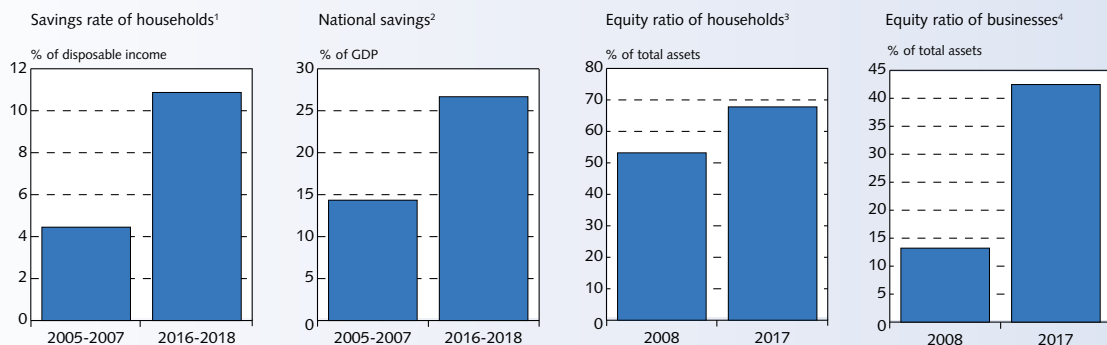
Sources: Statistics Iceland, Central Bank of Iceland.

This improved external balance is also reflected in exchange rate developments, which are now based more firmly on underlying economic fundamentals. During the run-up to the financial crisis, the króna appeared to be overvalued, as can be seen in a misalignment of roughly a third between the actual and equilibrium real exchange rates. Even though the real exchange rate has risen significantly in recent years, the deviation from its estimated equilibrium level has been less pronounced, and according to the Bank's most recent estimate, it may well have been slightly below its equilibrium level in 2018.

Saving has increased significantly, and households' and businesses' financial position has improved

Another manifestation of the sustained current account surplus and the turnaround in Iceland's net external asset position is increased domestic saving. During the run-up to the financial crisis, Icelandic households saved relatively little, and gross national saving – i.e., total saving by households, businesses, and the public sector – was at a historical low. Now the situation is entirely different, with households and the economy as a whole having stepped up saving despite strong spending growth in recent years (Chart 4). Because of this, together with the vast improvement in households' and businesses' equity position, the economy is much better prepared to withstand negative economic shocks than it was a decade ago.

Chart 4
Saving is up markedly and private sector equity ratios are strong



1. Household saving as % of disposable income. 2. National saving as % of GDP. 3. Household equity excluding pension claims as % of total assets according to tax returns; equity securities holdings according to financial accounts and Nasdaq CSD. 4. Businesses' equity excluding pharmaceuticals, financial services, and insurance companies as % of total assets.

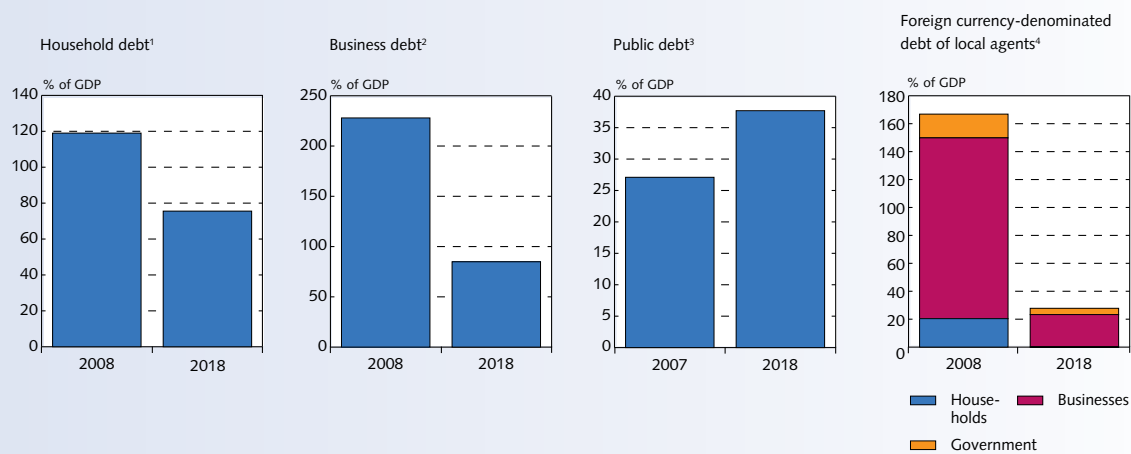
Sources: Nasdaq CSD, Statistics Iceland, Central Bank of Iceland.

Households and businesses have deleveraged and are now much less vulnerable to exchange rate fluctuations

As Chart 5 shows, private sector debt has fallen markedly from its pre-crisis level. At the end of 2018, household debt amounted to 75% of GDP, down from 120% of GDP at the end of 2008. Corporate debt has fallen even more, from 228% of GDP in 2008 to 88% of GDP in 2018. Unlike households and businesses, the public sector is now carrying more debt than it did a decade ago, which shows how severely the financial crisis affected public sector finances. The debt level has fallen quickly the recent term, though, and looks set to continue doing so in the years to come.

Chart 5

Sharp drop in private sector debt and foreign currency-denominated debt



1. Total household debt as % of GDP. 2. Total corporate debt (debt and issued bonds) as % of GDP. Businesses excluding financial services firms (including holding companies). 3. Gross public debt as % of GDP. 4. Foreign currency-denominated or exchange rate-linked debt as % of GDP. Businesses excluding financial services firms (including holding companies). Figures for 2008 are from September (households and businesses) and August (Government).

Sources: Statistics Iceland, Central Bank of Iceland.

Both private and public sectors have dramatically reduced their foreign currency-denominated debt. In 2008, households' foreign currency-denominated (or exchange rate-linked) debt amounted to just over 20% of GDP, whereas it is virtually non-existent today. Businesses' foreign currency-denominated debt measured 130% of GDP in 2008 but had fallen to 23% of GDP by year-end 2018 and, at present, is concentrated in the export sector, which receives foreign currency income. The public sector's foreign currency-denominated debt has fallen from 17% of GDP to just under 5% of GDP over the same period. As a result, public and private sector debt and balance sheets are much less exposed to an exchange rate depreciation than they were a decade ago.

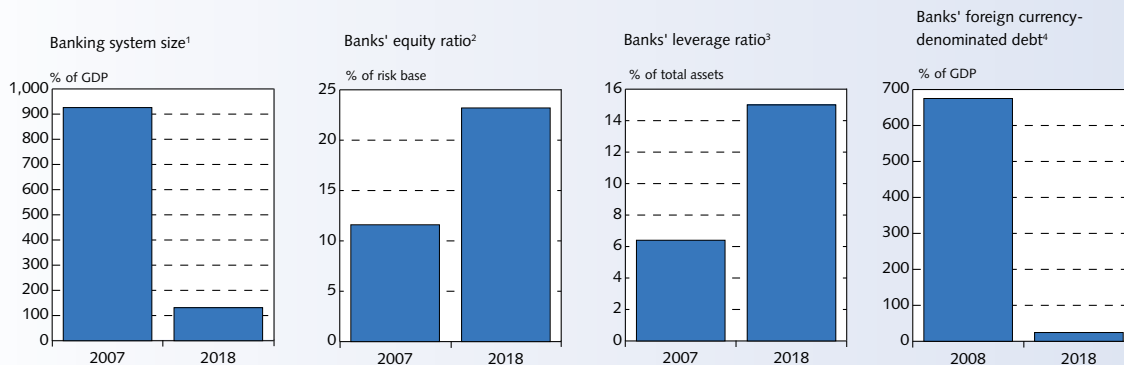
The domestic banking system has shrunk and is much more resilient than before

One of the main characteristics of the upswing in the run-up to the financial crisis was the enormous growth in the financial system and the body blow its collapse dealt to the domestic economy. As is the case with other economic indicators described here, the size and resilience of the financial system have changed radically. As a share of GDP, the banking system has shrunk to a size much closer to that typically found in other advanced economies (Chart 6). Shocks in the financial system are therefore much more manageable now than they were ten years ago.

In addition, the financial position of the banking system has changed so that the probability of severe shocks in the financial

system has diminished significantly. The capital position of the three largest banks has changed, and the banks are now much better prepared to face headwinds than they were before the crisis. The three banks' leverage ratio tells the same story, and it shows that risk-taking in the banking system is much more moderate than it was ten years ago. In addition, the banking system, like other sectors of the economy, has greatly reduced its foreign currency-denominated debt.

Chart 6
Banking system now much smaller and more resilient



1. Total deposit institution assets as % of GDP. 2. Consolidated equity ratio for the three largest commercial banks as % of risk base. 3. Equity base as % of total assets. 4. Foreign currency-denominated or exchange rate-linked debt as % of GDP. Figures for 2008 are from September.
Sources: Statistics Iceland, Central Bank of Iceland.

Summary

Although the economic outlook has deteriorated, there is limited risk of a shock comparable to the one that struck Iceland ten years ago. The financial crisis and the ensuing economic recession were coloured by the severe economic and financial imbalances that had built up during the prelude to the crisis, as could be seen in the large current account deficit and associated foreign debt, plus massive debt accumulation by households and businesses. Some of that debt was in foreign currencies, leaving borrowers severely exposed to the inevitable correction in the exchange rate, which had risen far more than was warranted by underlying fundamentals. When the shock struck, heavily leveraged households and businesses were ill equipped to face it. The vulnerability of the private sector was compounded by the collapse of the huge banking system, which had grown at a breakneck pace and taken on enormous risk.

Conditions today are very different, however. There is a sustained current account surplus, and external assets exceed external liabilities. Households and businesses have built up savings, deleveraged significantly, and repaired their balance sheets. As a result, they are much better prepared to withstand negative economic shocks. Foreign currency-denominated debt has also declined substantially, and the domestic banking system is on a much firmer footing than it was a decade ago.

The cost of Government measures to support the wage agreements reached by the social partners in April ranges up to an estimated 80 b.kr., according to a statement from the authorities. That expense will accrue over the term of the agreements, which is three years and seven months. The measures are laid out in 45 items and are therefore extensive. The main emphasis is on increasing households' disposable income and making it easier for certain groups – young people and lower-income households in particular – to enter the housing market.

Measures to increase disposable income

The income tax system will be changed to include a new low-income bracket. This will increase disposable income most at the 325,000 kr. threshold between the two lowest tax brackets, or by as much as 10,000 kr. per month. In addition, child benefits will increase by 16%, and means testing will be eased. The bulk of the expense lies in these two measures, which cost just under 66 b.kr. The fiscal plan presented by the Government in March had already assumed expenditures of 63 b.kr. in connection with these changes.

Home purchase measures

The authorisation to allocate a portion of third-pillar pension savings tax-free to mortgage loans, which has been in place since July 2014, will be extended for two years. In addition, first-time home buyers and those who have not owned property for five years are authorised to shift up to 3.5 percentage points of the pension contribution previously allocated to mutual pension funds to their third-pillar pension savings and use it, tax-free, towards a home purchase. In addition to these two special options for third-pillar pension savings, the authorities intend to work with the social partners to find mortgage loan options that make it easier for young people and low-income earners to buy their first property.

Other measures

The authorities intend to work towards reducing the importance of price indexation in the credit market. Legislative amendments are to be made so as to limit the maximum term of inflation-indexed annuity loans to 25 years and to base new indexed loans on the CPI excluding housing. There are numerous other measures, but the bulk of their cost stems from lengthening childbirth leave to twelve months.

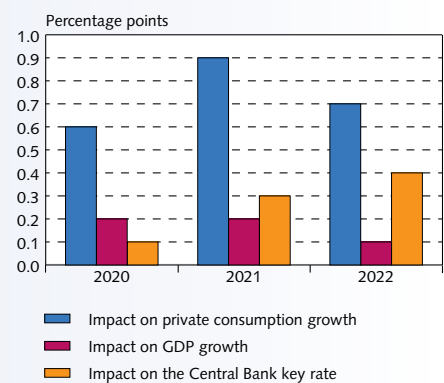
Macroeconomic impact of the measures

Reducing taxes and increasing financial support to households will increase their disposable income, thereby boosting demand for goods and services. On the whole, the measures aimed at increasing disposable income are estimated to cost 20 b.kr. in 2020 and about 25 b.kr. per year in 2021 and 2022, which translates to about 0.6–0.7% of GDP per year. These measures can be expected to increase private consumption growth by $\frac{3}{4}$ of a percentage point per year, on average (Chart 1). The impact on GDP growth is smaller, however, or about 0.2 percentage points per year, as some of the increased spending will be directed towards imported goods and services. The fiscal measures will therefore boost demand. As a result, a smaller monetary policy response to the negative shocks that have recently hit the economy will suffice. In 2020, the Central Bank's policy rate will therefore be marginally higher than it would have been without the measures, but by 2022 it will be nearly $\frac{1}{2}$ a percentage point higher.

Box 3

Fiscal measures in relation to the new wage agreements

Chart 1
Economic impact of Government measures in connection with wage agreements



Source: Central Bank of Iceland.

Box 4

Newly concluded private sector wage agreements

At the beginning of April, all member unions of the Federation of General and Special Workers and the Commercial Federation of Iceland signed new wage agreements with the Confederation of Icelandic Employers. The agreements extend to a large majority of private sector workers. They are based on fixed-amount pay rises resulting in a larger relative wage gain for the lowest wage earners. The negotiating parties assume that these agreements reflect a broad-based consensus on the remuneration policy the agreements entail, and that the contracts will provide a basis for those yet to be negotiated in private and public sectors alike. The new wage agreements will remain in effect for three years and seven months, with an expiry date of 1 November 2022. They were accompanied by a Government declaration on income tax, childbirth leave, child benefits, housing and pension affairs, social underbidding, economic policy, prices and indexation, simplification of the regulatory framework, and oversight (see Box 3 on Government measures).

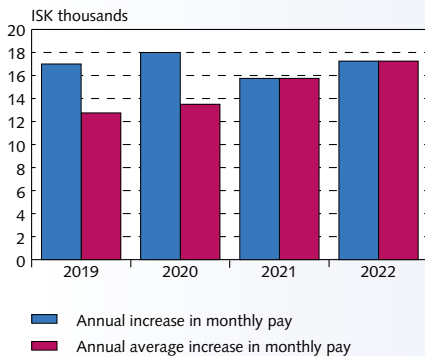
Assumptions and review clauses

The wage agreements specify three contractual assumptions. First, real wages as reflected in the Statistics Iceland wage index must rise during the contract period. Second, interest rates must fall significantly before the first review of the contracts and must remain low throughout the contract period. Third, the authorities must honour the pledges they have given. The negotiating parties' committee on wages and assumptions will meet twice during the contract period – in September 2020 and September 2021 – to assess whether the assumptions have held.

Back-loaded wage agreements ...

Table 1 shows the pay rises provided for in the agreements, in krónur, and the effective date of each. Monthly wages will increase annually by an average of 17,000 kr. during the term of the agreements, with pay scales rising more strongly beginning in 2020. In the first two years, pay rises will take effect in April; therefore, the average wage increase will be 12,750 kr. per month in 2019 and 13,500 kr. per month in 2020 (Chart 1). The wage hikes in the latter half of the contract period take effect at the beginning of the year, however, and the average monthly pay rise will therefore be larger in 2021 and 2022. In essence, then, the contracts are back-loaded, which is unusual, and as a result, there should be less incentive for labour unions to terminate them on grounds of a breach of premises.

Chart 1
Pay rises according to private sector wage agreements 2019-2022



Sources: Private sector wage agreements.

Table 1 Wage increases for full-time position

Date	Monthly wages (kr.)	Pay scales (kr.)
1 April 2019	17,000	17,000
1 April 2020	18,000	24,000
1 January 2021	15,750	24,000
1 January 2022	17,250	25,000

Sources: Private sector wage agreements.

... with the potential for further pay rises

The contracts specify two types of wage supplements that could, under certain circumstances, lead to further wage increases. The pay scale supplement will be activated if the private sector wage index rises in excess of the proportional increase in the Federation of General and Special Workers' highest effective wage category

during each reference period.¹ If the wage index rises more than this, the negotiating parties' committee on wages and assumptions shall rule on a fixed-amount pay rise to be calculated as the ratio of the excess rise to the aforementioned wage category. Because pay scales rise considerably more than monthly wages according to the contracts, it can be assumed that wage drift or pay rises among other private sector groups would have to be quite large in order to activate the provision.

The other wage supplement, called the output growth supplement, is a new feature of Icelandic wage negotiations. Under this provision, fixed-amount pay rises will be added to wages in accordance with developments in the growth rate of GDP per capita, as is shown in Table 2. This provision, aiming to link pay rises to productivity growth, is a positive step in wage negotiations because, in the long run, it is labour productivity that determines real wages.

Table 2 Output growth supplement

GDP per capita, year-on-year change (%)	Supplement added to pay scale (kr.)	Supplement added to monthly wages (kr.)
1.00 - 1.50%	3,000	2,250
1.51 - 2.00%	5,500	4,125
2.01 - 2.50%	8,000	6,000
2.51 - 3.00%	10,500	7,875
> 3.00%	13,000	9,750

Sources: Private sector wage agreements.

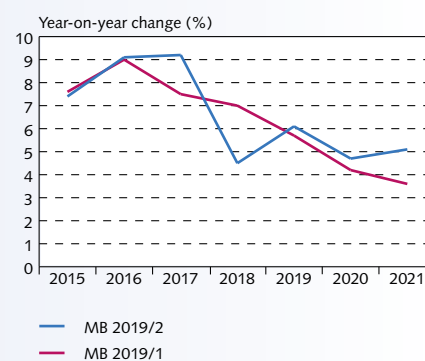
The output growth supplement is subject to limitations, however, as it is not based on conventional labour productivity measures such as GDP per hour worked. For example, streamlining working hours could deliver a productivity increase that does not trigger the supplement, whereas increased labour participation or an increase in the working-age population as a share of total population (i.e., due to migration) could trigger the supplement without reflecting a rise in productivity. Furthermore, the output growth supplement can result in pay increases only; that is, a decline in GDP per capita would not result in smaller pay rises. On the other hand, linking wage increases to a single measure will never be without drawbacks. In the final analysis, it is the task of the wage and assumption committee to determine the amount of the pay supplement and thereby evaluate these factors.

Impact on wage developments in the Central Bank's baseline forecast

The new wage agreements affect the Central Bank's assessment of the outlook for wage developments in the coming term. In addition, the new national accounts published in March led to a revision in recent wage developments (see Chapter VI). The pay rises negotiated in the new wage agreements are similar to those assumed in the February *Monetary Bulletin* forecast for this year. That forecast assumed that contracts would have a term of three years and would be relatively front-loaded. Because the new agreements are back-loaded, actual pay rises in the latter half of the contract period will be somewhat larger than was projected in the February fore-

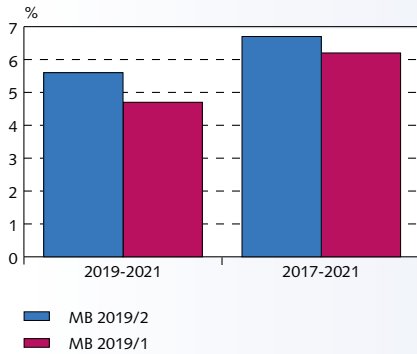
1. The Federation of General and Special Workers' highest effective wage category is category 17, with five years' work experience. The calculations are based on the private sector wage index, adjusted using a method recommended by a foreign expert, as is described in the report from the task force on public wage statistics. The reference period is from December to December of each year, beginning with December 2019 to December 2020, and the results shall be available in March of the following year.

Chart 2
Wages per hour 2015-2021



Source: Central Bank of Iceland.

Chart 3
Annual average increase in wages per hour



Source: Central Bank of Iceland.

cast (Chart 2). In addition to the negotiated pay rises, the current forecast assumes modest wage drift. It is now assumed that wages per hour will rise by 6.1% this year, as opposed to 5.7% in the February forecast. However, a large portion of this year's increase is due to base effects from last year, as the increase between the 2018 and 2019 averages would measure 2.6% even if wages remained unchanged at the Q4/2018 level until end-2019. Wages per hour are forecast to rise by 4.7% in 2020 and by another 5.1% in 2021, when pay rises will take effect at the beginning of the year. As a consequence, wages per hour will rise by a total of 17% this year and in the two years following, or by an average of 5.6% per annum. This is an increase of nearly 1 percentage point more than was assumed in the February forecast (Chart 3). On the other hand, the increase in wages over the period from 2017 through 2021, including the revision of previous figures on wages and related expenses, comes to an average of 6.7% per year, which is only 0.4 percentage points above the February forecast.

The Bank's current baseline forecast assumes that the output growth provision of the wage agreements will not be triggered, although it comes close towards the end of the forecast horizon. Clearly, both this and other aspects of the outlook for wage developments are subject to uncertainty. Public sector wage agreements are still pending, for instance, and it is difficult to evaluate the full impact of fixed-amount pay rises without adequate information on underlying wage distribution. Furthermore, wage drift could develop differently than is assumed here.

Appendix 1

Forecast tables

Table 1 GDP and its main components¹

	2017	2018	2019	2020	2021
Private consumption	8.1 (7.9)	4.8 (4.5)	1.6 (4.0)	2.9 (3.1)	2.9 (2.9)
Public consumption	3.6 (3.7)	3.3 (3.6)	2.2 (3.0)	2.1 (2.9)	2.0 (2.5)
Gross capital formation	11.6 (9.0)	2.1 (2.9)	-0.6 (6.7)	10.4 (5.9)	0.3 (1.4)
Business investment	7.7 (4.8)	-5.4 (-3.5)	-6.7 (4.0)	11.9 (4.4)	-2.8 (-1.5)
Residential investment	20.7 (18.4)	16.7 (19.5)	17.1 (15.2)	11.4 (11.2)	4.6 (7.7)
Public investment	23.3 (23.0)	21.2 (14.4)	2.5 (7.0)	3.9 (4.1)	5.5 (3.5)
Domestic demand	7.6 (7.0)	4.1 (4.1)	1.0 (4.3)	4.3 (3.6)	2.1 (2.4)
Exports of goods and services	5.4 (5.5)	1.6 (2.8)	-3.7 (0.3)	2.4 (2.3)	2.8 (2.9)
Imports of goods and services	12.5 (12.5)	0.1 (2.0)	-1.0 (5.6)	6.7 (4.0)	1.6 (2.5)
Gross domestic product (GDP)	4.6 (4.0)	4.6 (4.3)	-0.4 (1.8)	2.4 (2.8)	2.6 (2.6)
GDP at current prices (ISK billions)	2,617 (2,616)	2,803 (2,805)	2,936 (2,969)	3,102 (3,152)	3,282 (3,325)
GDP at current prices (growth rate)	5.1 (4.5)	7.1 (7.2)	4.7 (5.9)	5.7 (6.1)	5.8 (5.5)
Total investment (% of GDP)	22.1 (22.2)	22.2 (22.4)	22.0 (23.6)	23.5 (24.2)	23.0 (23.8)
Business investment (% of GDP)	15.3 (15.3)	14.2 (14.4)	13.2 (14.8)	14.3 (15.0)	13.5 (14.3)
Gross national saving (% of GDP) ²	25.8 (25.5)	25.5 (25.3)	23.3 (24.1)	23.3 (24.4)	23.6 (24.5)
Contribution of net trade to GDP growth (percentage points)	-2.6 (-2.6)	0.7 (0.4)	-1.3 (-2.3)	-1.9 (-0.8)	0.6 (0.2)

1. Year-on-year change (%) unless otherwise specified (figures in parentheses are from the forecast in MB 2019/1). 2. The sum of investment, inventory changes, and the current account balance.

Sources: Statistics Iceland, Central Bank of Iceland.

Table 2 Global economy, external conditions, and exports¹

	2017	2018	2019	2020	2021
Marine production for export	-3.9 (-3.9)	11.6 (11.3)	-5.5 (-1.5)	0.0 (1.0)	0.5 (2.0)
Aluminium production for export ²	4.9 (4.5)	-1.2 (-1.5)	-0.3 (1.5)	2.5 (1.0)	1.0 (1.0)
Foreign currency prices of marine products	-0.8 (-0.8)	4.7 (5.0)	4.8 (4.5)	3.2 (3.5)	3.5 (3.5)
Aluminium prices in USD ³	20.3 (20.3)	13.2 (13.9)	-9.0 (-6.7)	4.0 (3.9)	3.0 (3.1)
Fuel prices in USD ⁴	24.1 (24.1)	30.6 (30.6)	-2.1 (-13.6)	-2.3 (0.1)	-4.9 (-0.7)
Terms of trade for goods and services	1.7 (1.7)	-3.9 (-2.6)	0.3 (0.5)	1.0 (0.9)	0.7 (0.5)
Inflation in main trading partners ⁵	1.7 (1.7)	2.0 (1.9)	1.7 (1.8)	1.8 (1.8)	1.8 (1.8)
GDP growth in main trading partners ⁵	2.5 (2.5)	2.1 (2.1)	1.7 (1.9)	1.7 (1.7)	1.6 (1.7)
Main trading partners' imports ⁵	3.8 (3.9)	3.1 (3.3)	3.3 (3.8)	3.2 (3.6)	3.4 (3.3)
Policy rates in main trading partners (%) ⁶	0.2 (0.2)	0.5 (0.5)	0.6 (0.6)	0.6 (0.6)	0.6 (0.7)

1. Year-on-year change (%) unless otherwise specified (figures in parentheses are from the forecast in MB 2019/1). 2. According to Statistics Iceland's external trade data. 3. Forecast based on aluminium futures and analysts' forecasts. 4. Based on average price of Brent crude oil futures during the period 24-30 April 2019. 5. Forecast based on Consensus Forecasts, Global Insight, IMF, and OECD. 6. Forecast based on main trading partners' forward policy rates.

Sources: Bloomberg, Consensus Forecasts, Global Insight, IMF, New York Mercantile Exchange, OECD, Statistics Iceland, Thomson Reuters, Central Bank of Iceland.

Table 3 Current account balance and its subcomponents¹

	2017	2018	2019	2020	2021
Trade balance	4.1 (4.1)	3.1 (3.4)	1.9 (1.3)	0.5 (0.9)	1.3 (1.2)
Balance on primary income ²	-0.4 (-0.7)	-0.2 (-0.7)	-0.7 (-0.8)	-0.3 (-0.6)	-0.4 (-0.6)
Current account balance	3.6 (3.3)	2.9 (2.7)	1.3 (0.5)	0.1 (0.2)	0.9 (0.7)

1. % of GDP (figures in parentheses are from the forecast in MB 2019/1). 2. The sum of primary and secondary income.

Sources: Statistics Iceland, Central Bank of Iceland.

Table 4 Public sector finances¹

	2017	2018	2019	2020	2021
Overall Treasury balance	1.7 (1.2)	1.3 (0.9)	0.8 (0.9)	0.4 (0.8)	0.3 (0.6)
Primary Treasury balance	4.6 (4.0)	3.6 (3.3)	2.5 (2.5)	1.9 (2.3)	1.6 (2.1)
Primary Treasury balance excluding one-off items ²	3.6 (2.2)	3.6 (2.4)	2.5 (1.5)	1.8 (0.8)	1.5 (0.7)
Overall general government balance	0.5 (0.0)	1.1 (1.1)	1.0 (1.1)	0.6 (1.0)	0.5 (0.9)
Primary general government balance	3.6 (3.0)	3.6 (4.0)	3.2 (3.2)	2.5 (2.9)	2.2 (2.7)
Total general government debt	43 (42)	38 (40)	35 (37)	34 (36)	33 (32)
Net general government debt ³	36 (35)	30 (32)	27 (29)	26 (28)	25 (24)

1. % of GDP on an accrual basis (figures in parentheses are from the forecast in MB 2018/4). 2. One-off items are principally dividends in excess of the National Budget. 3. Net debt is defined here as total liabilities excluding pension obligations and accounts payable and net of cash and bank deposits.

Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

Table 5 Labour market and factor utilisation¹

	2017	2018	2019	2020	2021
Unemployment (% of labour force)	2.8 (2.8)	2.7 (2.7)	3.9 (3.1)	3.8 (3.3)	3.7 (3.5)
Employment rate (% of population aged 16-74)	80.3 (80.3)	79.4 (79.4)	77.9 (78.8)	78.1 (79.0)	78.4 (79.0)
Total hours worked	1.2 (1.2)	2.4 (2.4)	0.1 (1.4)	1.7 (1.5)	1.7 (1.5)
Labour productivity ²	3.4 (2.8)	2.1 (1.9)	-0.4 (0.4)	0.7 (1.3)	0.9 (1.0)
Unit labour costs ³	5.9 (4.9)	3.1 (5.9)	7.0 (5.7)	3.9 (2.8)	4.2 (2.6)
Wage share (% of gross factor income)	63.8 (63.1)	64.3 (65.0)	65.4 (66.1)	65.9 (65.8)	66.6 (65.6)
Real disposable income	11.5 (11.5)	2.4 (4.5)	2.9 (4.5)	2.8 (2.1)	2.8 (2.3)
Output gap (% of potential output)	2.8 (2.6)	2.4 (2.4)	-0.3 (0.9)	0.0 (0.4)	0.0 (-0.1)

1. Year-on-year change (%) unless otherwise specified (figures in parentheses are from the forecast in MB 2019/1). 2. GDP per total hours worked. 3. Wage costs divided by productivity.

Sources: Statistics Iceland, Central Bank of Iceland.

Table 6 Exchange rate and inflation¹

	2017	2018	2019	2020	2021
Trade-weighted exchange rate index ²	160.3 (160.3)	166.7 (166.7)	178.3 (178.7)	177.9 (173.9)	177.4 (173.5)
Real exchange rate (relative consumer prices) ³	99.8 (99.8)	96.8 (96.9)	91.7 (91.8)	92.7 (95.4)	93.4 (96.1)
Real exchange rate (relative unit labour costs) ³	100.7 (99.8)	98.0 (99.8)	96.2 (96.5)	98.2 (99.8)	100.3 (100.2)
Inflation (consumer price index, CPI)	1.8 (1.8)	2.7 (2.7)	3.2 (3.6)	2.7 (2.9)	2.3 (2.4)
Inflation (CPI excluding effects of indirect taxes)	1.5 (1.5)	2.6 (2.6)	3.2 (3.5)	2.6 (2.8)	2.2 (2.4)

1. Year-on-year change (%) unless otherwise specified (figures in parentheses are from the forecast in MB 2019/1). 2. Narrow trade-weighted basket (index, 31 December 1991 = 100). The index has been recalculated so that on 2 January 2009 it was assigned a value equivalent to that of the now-discontinued Exchange Rate Index. 3. Average 2005 = 100.

Sources: Statistics Iceland, Central Bank of Iceland.

Table 7 Quarterly inflation forecast (%)¹

Quarter	Inflation (year-on-year change)	Inflation excluding effects of indirect taxes (year-on-year change)	Inflation (annualised quarter-on-quarter change)
<i>Measured value</i>			
2018:2	2.3 (2.3)	2.2 (2.2)	3.1 (3.1)
2018:3	2.7 (2.7)	2.6 (2.6)	2.6 (2.6)
2018:4	3.3 (3.3)	3.2 (3.2)	4.9 (4.9)
2019:1	3.1 (3.4)	3.0 (3.4)	1.9 (3.2)
<i>Forecasted value</i>			
2019:2	3.4 (3.7)	3.3 (3.7)	4.3 (4.3)
2019:3	3.4 (3.8)	3.3 (3.7)	2.6 (2.7)
2019:4	3.1 (3.3)	3.0 (3.2)	3.5 (3.2)
2020:1	3.0 (3.0)	2.9 (2.9)	1.8 (1.8)
2020:2	2.9 (3.0)	2.8 (3.0)	3.7 (4.4)
2020:3	2.5 (2.8)	2.4 (2.7)	1.2 (1.7)
2020:4	2.3 (2.6)	2.2 (2.6)	2.5 (2.6)
2021:1	2.2 (2.5)	2.2 (2.4)	1.5 (1.3)
2021:2	2.2 (2.4)	2.1 (2.3)	3.6 (3.9)
2021:3	2.2 (2.4)	2.2 (2.3)	1.4 (1.7)
2021:4	2.3 (2.5)	2.3 (2.4)	2.9 (3.0)
2022:1	2.5 (2.6)	2.5 (2.6)	1.9 (1.7)
2022:2	2.5	2.5	3.9

1. Figures in parentheses are from the forecast in MB 2019/1.

Sources: Statistics Iceland, Central Bank of Iceland.