CENTRAL BANK OF ICELAND

MONETARY BULLETIN

2021|4

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.

Published by:
The Central Bank of Iceland, Kalkofnsvegur 1, 101 Reykjavík, Iceland
(+354) 569 9600, sedlabanki@sedlabanki.is, www.sedlabanki.is

Vol. 23 no. 4, 17 November 2021 ISSN 1670-438X, online
This is a translation of a document originally written in Icelandic. In case of discrepancy or difference in interpretation, the Icelandic original prevails. Both versions are available at www.cb.is.

Statement of the Monetary Policy Committee 17 November 2021

The Monetary Policy Committee (MPC) of the Central Bank of Iceland has decided to raise 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 2%.

According to the Bank's new macroeconomic forecast, published in the November *Monetary Bulletin*, the outlook is for GDP growth to measure about 4% in 2021, broadly in line with the August forecast. However, better prospects for exports result in an improved outlook for year-2022 GDP growth, which is expected to measure just over 5%. Nevertheless, significant uncertainty remains, and as before, economic developments will depend on the path the pandemic takes.

Inflation rose to 4.5% in October. The contribution from domestic cost pressures, rising house prices, and wage growth has accounted for a large share of inflation recently, but the effects of rising global oil and commodity prices have also grown stronger. Underlying inflation is lower, however, and has declined in recent months.

The inflation outlook has deteriorated somewhat since August, owing in part to more persistent global price increases, a more rapid rebound in domestic economic activity, and rising wage costs. The outlook is for inflation to continue rising in coming months but then start to ease, given that inflation expectations remain anchored to the target.

The MPC reiterates that it will apply the tools at its disposal to ensure that inflation eases back to the target within an acceptable time frame.

Symbols:

*	Preliminary or estimated data.
0	Less than half of the unit used.
-	Nil.
...	Not available.
.	Not applicable.

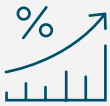
Icelandic letters:

ð/Ð (pronounced like th in English this)
þ/Þ (pronounced like th in English think)
In this report, ð is transliterated as d and þ as th in personal names, for consistency with international references, but otherwise the Icelandic letters are retained.

Table of contents

Monetary Bulletin in a nutshell

Global GDP growth was stronger in H1/2021 than was assumed in the August *Monetary Bulletin* but looks set to sag in H2, largely because of the persistent supply-chain disruptions that can be seen, for example, in shortages of intermediate inputs for industrial manufacturing and in shipping bottlenecks. The interaction between these factors and the strong recovery of demand for goods has pushed commodity prices and shipping costs sharply upwards. As a result, inflation has risen steeply worldwide.



In Iceland, GDP growth was a full 1 percentage point lower in H1 than was projected in August. Although there are signs of robust growth in H2, the outlook is for year-2021 GDP growth to be marginally below the August forecast, at 3.9% instead of 4%. The outlook for 2022 has improved markedly, however, owing to better prospects for the tourism and fishing industries. GDP growth is forecast to measure 5.1% in 2022 and ease to around 2½% from 2023 onwards.

Job numbers continue to rise, and unemployment is approaching its pre-pandemic level. The number of job vacancies has also risen steeply, as has the number of firms that consider themselves short-staffed. The outlook is for unemployment to keep falling, and towards the end of the forecast horizon it is expected to measure about 4%, close to its estimated equilibrium level. Leading indicators also imply that the slack in output is narrowing quickly and may even have closed already.

Inflation has been more persistent than was assumed in August. Although the effects of last year's depreciation of the króna have disappeared, global oil and commodity prices have risen more than expected, and shipping costs are far higher than could have been foreseen. Furthermore, some domestic inflationary pressures remain, as can be seen in steeply rising wages and house prices. Inflation measured 4.5% in October and has therefore remained above 4% throughout 2021. Although inflation excluding housing and underlying inflation have eased, there are signs that long-term inflation expectations have risen. The inflation outlook is therefore considered to have deteriorated since the Bank's last forecast, owing primarily to persistent global price rises, larger wage increases, and the expectation of a larger output gap in 2022. Inflation appears set to measure 4.7% in Q4/2021, or 0.6 percentage points above the August forecast. It is not expected to fall below 4% until next spring, and it will not fall below 3% until Q4/2022.

Forecasts of the economic recovery in Iceland and elsewhere are based to some extent on the assumption that there will not be a setback in the fight against the pandemic. Another major uncertainty lies in how quickly the supply-chain disruptions underlying the surge in global commodity prices and shipping costs can be unwound. Added to this is uncertainty about fiscal policy in the wake of Iceland's recent Parliamentary elections, as well as about wage developments and how rapidly households will tap into the savings they built up during the pandemic. The inflation outlook could therefore be overly optimistic, particularly if inflation expectations have become unmoored from the target.

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

The global economy and terms of trade

I

The global economy

After a setback in Q1, the global economic recovery resumed in Q2 …

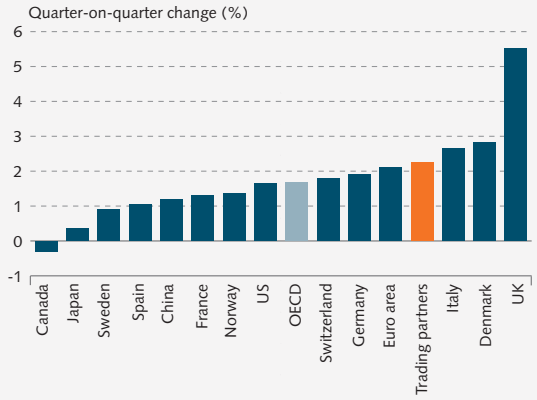
Among Iceland's main trading partners, GDP contracted by 0.1% between quarters in Q1/2021, in the wake of tightened public health measures imposed to halt the increased spread of the pandemic (Chart 1 in Appendix 1). Economic activity started to pick up swiftly in Q2, however, with GDP rising by 2.2% quarter-on-quarter as vaccination rates rose and public health measures were eased (Chart I-1). This is one of the strongest quarterly average GDP growth rates recorded in trading partner countries. Even so, it was considerably weaker than following the rebound in Q3/2020, after the first wave of the pandemic subsided. GDP growth was particularly robust in the UK, where very stringent public health measures in Q1 had weighed heavily on economic activity. There was also a marked turnaround in Denmark, Norway, and the eurozone. In spite of this, GDP was still nearly 3% below the pre-pandemic level both in the UK and the eurozone (Chart I-2). In the US and Denmark, however, output was above the pre-pandemic level, and in China it was a full 8% higher. Trading partner GDP rose by 6.3% year-on-year in H1/2021, about 0.3 percentage points above the Bank's August forecast.

… driven mainly by private consumption

In Q2/2021, global GDP growth was driven mainly by the recovery of private consumption (Chart I-3), which followed the relaxation of the public health measures that have limited consumers' spending opportunities. Other domestic demand also grew in major advanced economies. In many of these countries, however, this was offset by a negative contribution from net trade,

Chart I-1

Global GDP growth in Q2/2021[1]

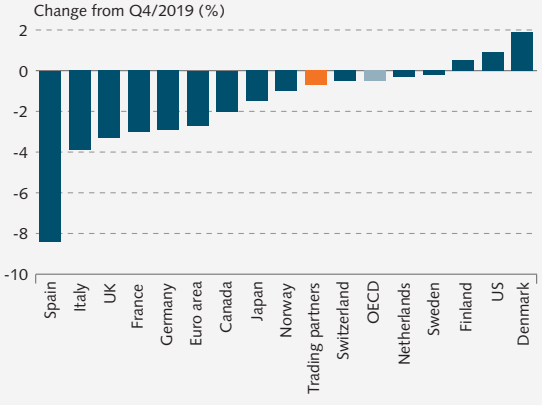


1. Seasonally adjusted data. Figures for Norway exclude the production and shipping of oil and gas.

Sources: Refinitiv Datastream, Central Bank of Iceland.

Chart I-2

Global GDP growth in Q2/2021[1]



1. Seasonally adjusted data. Figures for Norway exclude the production and shipping of oil and gas.

Sources: Refinitiv Datastream, Central Bank of Iceland.

which was fuelled by growth in imports alongside the recovery of private consumption. Furthermore, many countries recorded a negative contribution from inventory changes, as firms have widely been destocking because global production has been unable to keep pace with growth in demand for goods. Increased demand for goods is due in large part to changes in consumption patterns, with households shifting their spending from services to goods in response to the effects of the pandemic and public health measures.

The recovery is set to continue in major advanced economies …

COVID infection rates surged worldwide this summer, following the spread of the Delta variant of the virus (Chart 1 in Appendix 1). They began to decline again in September, but in recent weeks the pandemic has gained ground once more, particularly in Europe. In spite of this, major advanced economies are expected to continue recovering, largely because of high vaccination rates. Although the vaccines have not protected against infection to the degree previously hoped, they have greatly reduced the probability of severe illness and hospitalisation. Reduced strain on healthcare systems has given governments the flexibility to maintain less stringent public health measures than in previous waves of the pandemic, and in many areas restrictions have been eased further despite a continued rise in case numbers. The economic impact of the pandemic has therefore receded, although significant uncertainty remains, particularly about the efficacy of vaccines against new variants of the virus. Therefore, the possibility that governments will have to tighten public health measures once more cannot be ruled out.

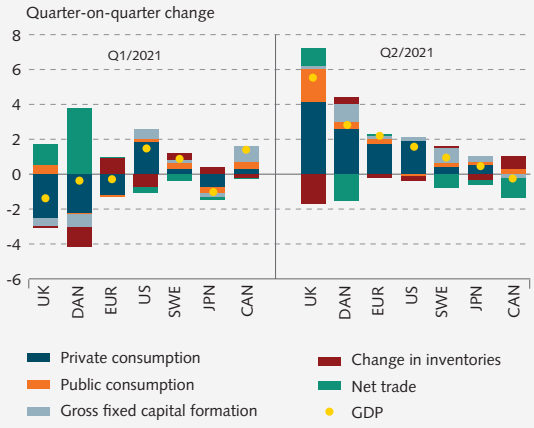
… but the outlook is for slower growth in economic activity in H2 …

Leading indicators and global forecasts suggest that economic activity will continue to grow in H2/2021. It appears, however, that the pace has eased recently, largely because of weaker activity in manufacturing sectors, owing to persistent shortages of important inputs and continued shipping problems. This situation has caused protracted disruptions in production and lengthened delivery times, prompting firms to raise prices significantly.

Weaker activity in manufacturing sectors can be seen in reduced industrial production and lower PMI indices (Charts I-4 and I-5). Indicators imply as well that growth in services sectors has slowed in the wake of the Delta wave of the pandemic, and firms have experienced

Chart I-3

GDP growth and contribution of underlying components

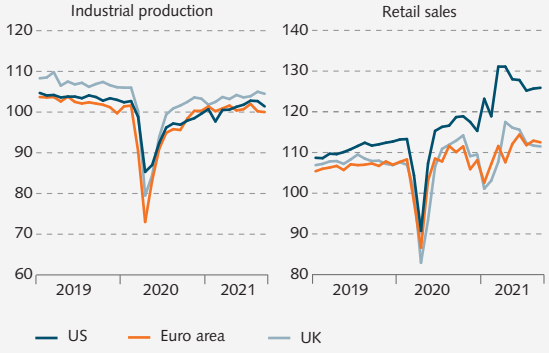


Source: Refinitiv Datastream.

Chart I-4

Industrial production and retail sales[1]

January 2019 - September 2021



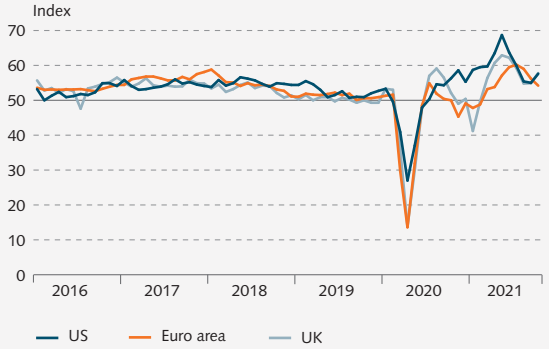
1. Seasonally adjusted volume indices (2016 = 100).

Source: Refinitiv Datastream.

Chart I-5

Composite PMI[1]

January 2016 - October 2021



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

Source: Refinitiv Datastream.

continuing difficulties in filling job vacancies in order to meet the increase in demand. Retail sales have weakened recently in major advanced economies, and households and businesses appear more pessimistic about the economic outlook, particularly in the US and the UK. To some degree, this could be due to concerns about the pandemic, although high-frequency data on traffic, retail sales, and recreational activity show little change in mobility among the general public (Chart 1 in Appendix 1). Furthermore, energy prices have risen steeply in the recent term because of limited supply – especially of natural gas in Europe – pushing households' and businesses' costs higher and potentially slowing down the economic recovery even further.

… as is indicated by preliminary GDP growth figures for Q3

According to newly published preliminary figures for Q3/2021, GDP grew by 0.5% quarter-on-quarter in the US, 1.3% in the UK, and only 0.2% in China (Chart I-6). This is weaker growth than in Q2 in all three countries, and well below the projections in the August forecast. GDP growth turned out stronger, however, in the euro-zone and Sweden, and this is the main reason the trading partner average for Q3 is still forecast at 1.5%. The GDP growth outlook for Q4 has deteriorated relative to the August forecast, however.

Global GDP growth for 2021 set to be marginally weaker than previously forecast …

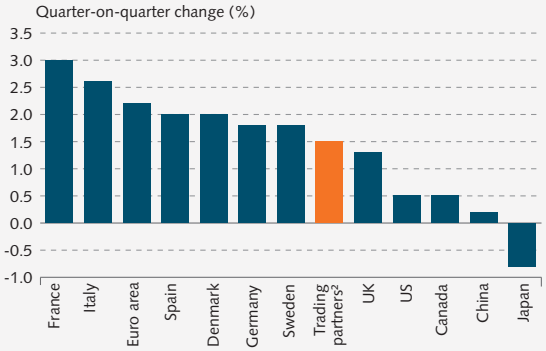
According to the International Monetary Fund's (IMF) mid-October forecast, global GDP growth is projected to measure 5.9% in 2021, which is 0.1 percentage points below the Fund's July forecast. The slight downward revision stems from weaker output growth in advanced economies, mainly the US, Canada, Japan, and Germany. Elsewhere in the euro area, however, the outlook has improved, and stronger GDP growth is now forecast for the region as a whole. On the other hand, the IMF expects stronger growth in emerging and developing economies despite the prospect of slightly weaker output growth in China. For 2022, global output growth is forecast at 4.9%, as in July. World trade is projected to continue recovering apace in 2021 and 2022.

… but the outlook has improved for Iceland's main trading partners

According to the Bank's baseline forecast, GDP growth among Iceland's main trading partners will measure 5.5% this year, after a contraction of 5% in 2020 (Chart I-7). The projection for this year is 0.2 percentage points

Chart I-6

Global GDP growth in Q3/2021[1]

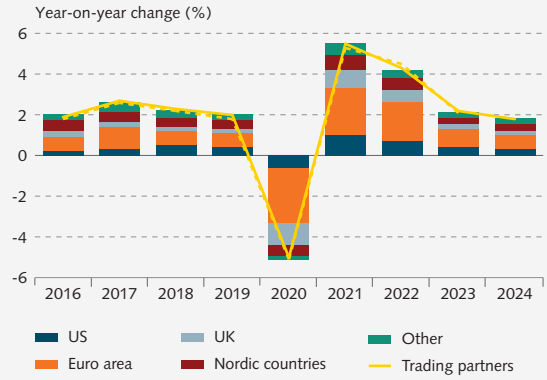


1. Seasonally adjusted data. Figures for Norway exclude the production and shipping of oil and gas. 2. Central Bank baseline forecast.

Sources: Refinitiv Datastream, Central Bank of Iceland.

Chart I-7

GDP growth in Iceland's trading partners and contribution from selected countries 2016-2024[1]



1. Trade-weighted contribution from selected countries. Central Bank baseline forecast 2021-2024. Broken line shows forecast from MB 2021/3. "Nordic countries" is the average for Denmark, Norway, and Sweden.

Sources: Refinitiv Datastream, Central Bank of Iceland.

above the August forecast, owing to stronger output growth in H1. The outlook for 2021 has improved for the euro area and Denmark in particular, but also for the UK and Sweden, while it has deteriorated for the US, Japan, Canada, and China. Trading partners' GDP growth is projected to measure 4.3% in 2022, or 0.2 percentage points below the August forecast. Trading partners' imports are forecast to grow strongly, in line with more robust economic activity. According to the baseline forecast, trading partner countries' imports will grow year-on-year by an average of 8.3% in 2021 and 7.2% in 2022.

The economic outlook is still highly uncertain, however, not least as regards developments in the pandemic and whether a re-tightening of public health measures will be required. Moreover, the economic recovery will also be determined in large part by how households use the savings they have accumulated in the wake of the pandemic and how successfully the persistent supply-chain bottlenecks can be resolved (for further discussion, see Box 1).

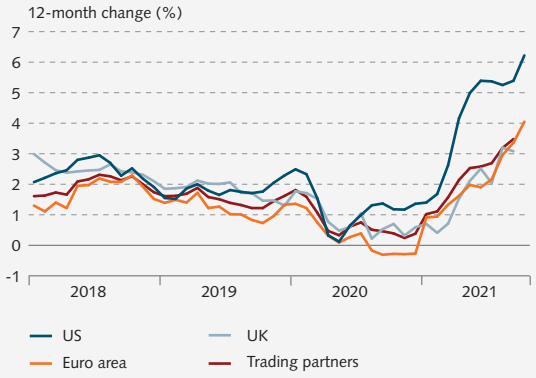
Global inflation has risen still higher, in line with commodity price hikes and disruptions in value chains …

Inflation averaged 3.1% among Iceland's trading partners in Q3/2021 (Chart I-8), or ½ a percentage point above the August forecast. It has now risen by 2½ percentage points year-to-date, mostly in the US, but also in the eurozone and the UK. Increased inflation is due largely to higher energy and commodity prices, in line with relaxation of public health measures and increased economic activity in the past year (Charts I-9 and I-16). The surge in demand for goods and the disruptions in production brought on by the pandemic have thrown global value chains into disarray and have also contributed to rising prices. This can be seen in the long waiting lines that have developed at many important shipping harbours, as well as in the shortage of shipping containers, which has caused shipping costs to snowball since the beginning of 2020. The problem has been compounded by the continued rise in energy prices in the recent term, especially natural gas prices in Europe. Furthermore, the relaxation of public health measures has caused the price of many consumer items to rise again after last year's pandemic-induced decline. This applies in particular to used cars, accommodation, and airfares in the US, although there are signs that prices are starting to subside again. Underlying inflation, which excludes volatile items such as food and energy, has also risen rapidly, particularly in the US, where it is now at its highest in over thirty years.

Chart I-8

Global inflation

January 2018 - October 2021

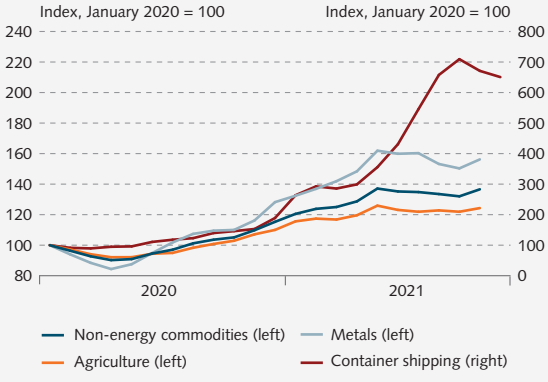


Sources: Refinitiv Datastream, Central Bank of Iceland.

Chart I-9

Global shipping and commodity prices[1]

January 2020 – November 2021



1. Agricultural products are divided into food (62%), beverages (13%), and raw materials (25%). Container shipping based on the Freightos Global Container Index. Based on data through 12 November 2021.

Sources: Freightos Limited, World Bank.

… and the global inflation outlook continues to deteriorate

As before, a large share of increased twelve-month inflation in trading partner countries is due to base effects from limited inflationary pressures in 2020 and temporary government measures, particularly the value-added tax cut in Germany. As a consequence, inflation is still projected to ease in the coming year. In addition, it is expected that the supply-chain disruptions will gradually be unwound over the course of 2022 and that household demand will shift more decisively from goods to services at the same time. However, more persistent supply-chain problems and steeper energy price hikes will cause inflation to be higher than in the Bank's previous forecasts. Inflation in trading partner countries is expected to average 2.7% this year and 2.4% in 2022, or 0.4 and 0.6 percentage points, respectively, above the August forecast. It is expected to be just under 2% in 2023 and 2024. The outlook is highly uncertain, however, and global inflationary pressures could prove even more persistent. Box 1 discusses the potential impact of this on the domestic economic outlook.

Central banks in advanced economies have begun withdrawing support measures …

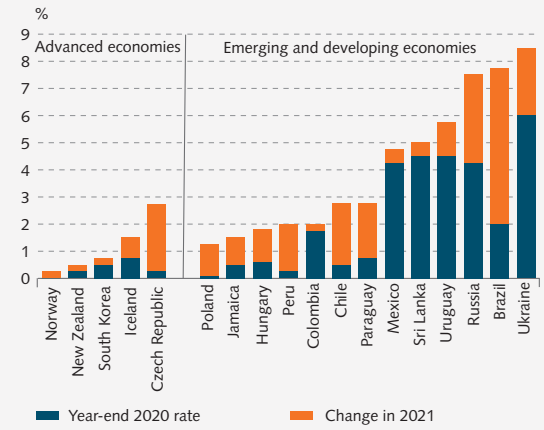
Central banks in major advanced economies have supported the economic recovery with low interest rates and other stimulative measures. Until now, they have held their policy rates unchanged despite an improving economic outlook and higher inflation, and they have announced their intention to maintain this stance until it becomes clearer that the economic recovery has gained a foothold. In September, however, the European Central Bank (ECB) announced that it would reduce the pace of its monthly bond purchases in response to the improved outlook. The US Federal Reserve made a similar announcement in early November. Furthermore, the Bank of England signalled that it may start raising interest rates earlier than previously planned, owing to the deteriorating inflation outlook. On the other hand, central banks in several other developed countries have already raised rates, joining the ranks of emerging country central banks that have started tightening their monetary stance (Chart I-10).

… and long-term interest rates have risen worldwide

Long-term bond interest rates have surged once again this autumn, after falling during the summer (Chart I-11), and they are widely at or above the pre-pandemic level. The increase reflects expectations of a more rapid rise in central bank rates, in light of the continued eco-

Chart I-10

Central bank policy rates in selected economies[1]



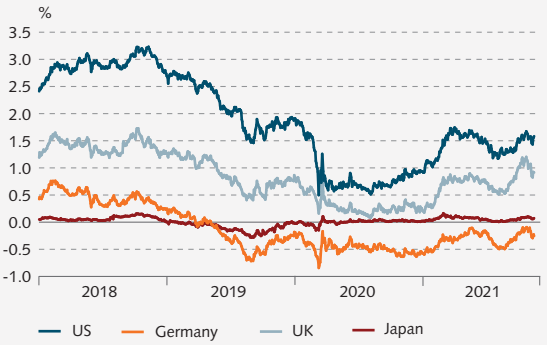
1. Based on data through 12 November 2021.

Sources: IMF, Revinitiv Datastream.

Chart I-11

10-year government bond yields

1 January 2018 - 12 November 2021

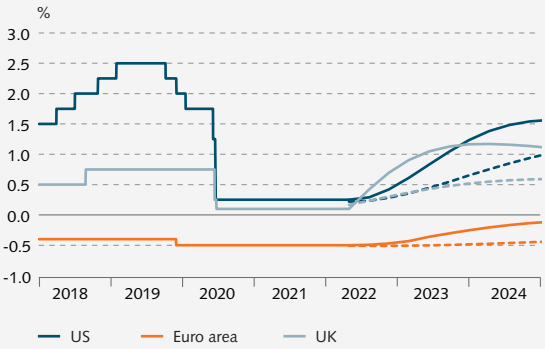


Source: Refinitiv Datastream.

Chart I-12

Central bank policy rates[1]

January 2018 - December 2024



1. Daily data 1 January 2018 through 12 November 2021, and quarterly data Q4/2021 through Q4/2024. US interest rates are the upper bound of the US Federal Reserve Bank's interest rate corridor, and rates for the euro area are the European Central Bank's deposit facility rate. Forward rates are based on overnight index swaps (OIS). Solid lines are based on forward rates as of mid-November 2021, and broken lines as of mid-August 2021.

Sources: Bloomberg, Refinitiv Datastream.

nomic recovery and the poorer inflation outlook (Chart I-12). Market agents' inflation expectations have risen as well, particularly in the eurozone, and are now in line with the ECB's inflation target (Chart I-13). Furthermore, there is greater uncertainty about future developments in inflation and interest rates, which has prompted a rise in term premia on government bonds. In the US, the premium on long-term bonds is now ½ a percentage point higher than at the beginning of the year. Expectations of reduced bond purchases by major central banks play an important role in this trend and have contributed to a rise in bond interest rates.

Financial conditions are still favourable

Global share prices sagged in September, in tandem with increased concerns about developments in inflation and the pandemic (Chart I-14). Greater uncertainty about developments in US fiscal affairs also contributed to the decline, as did concerns about the Chinese real estate market. Share prices in major advanced economies have rebounded, however, in response to strong corporate earnings reports in Q3. Market agents' concerns about US fiscal developments have also receded. Moreover, share price volatility has subsided and premia on riskier financial assets have tapered off. Financial conditions therefore remain particularly favourable in spite of the recent rise in bond rates.

Export prices and terms of trade

Outlook for a smaller rise in marine product prices …

Icelandic marine product prices fell steeply in 2020, owing to the impact of the pandemic (Chart I-15). They started to rise again in Q2/2021 and picked up even more in Q3, as trading partners eased public health restrictions and market conditions improved. However, the increase in Q3 was below the August forecast, and the foreign currency price of marine product exports therefore looks set to hold broadly steady year-on-year in 2021, instead of rising by 2%. Prices are projected to rise in coming years as market conditions normalise, albeit a bit more slowly than was forecast in August. One contributing factor here is the probability that the expected surge in the capelin catch will cause the market price of capelin products to fall somewhat.

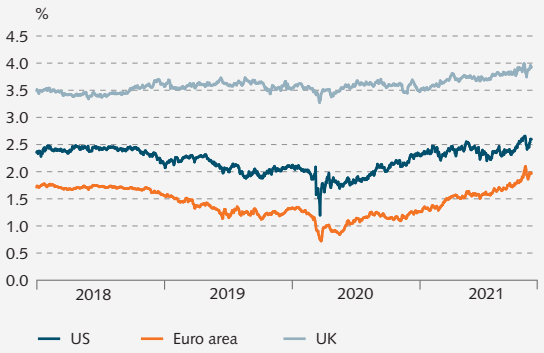
… but a larger rise in aluminium prices

Global aluminium prices have risen steadily after bottoming out in mid-2020 (Chart I-15). They jumped more than 10% between Q2 and Q3/2021, to their highest in thirteen years. The rise in Q3 is due largely to production

Chart I-13

Breakeven inflation rates[1]

1 January 2018 - 12 November 2021



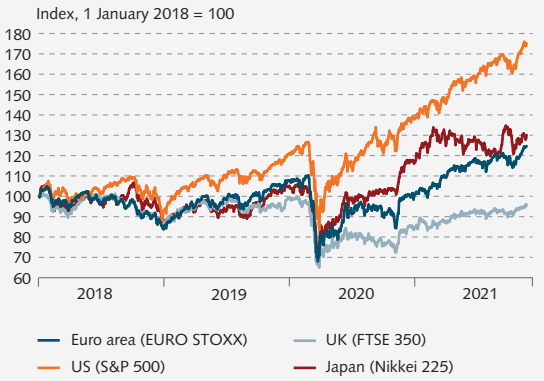
1. 5-year, 5-year forward breakeven inflation rate. The breakeven inflation rate for UK is based on the Retail Price Index (RPI).

Source: Refinitiv Datastream.

Chart I-14

Global share prices

1 January 2018 - 12 November 2021

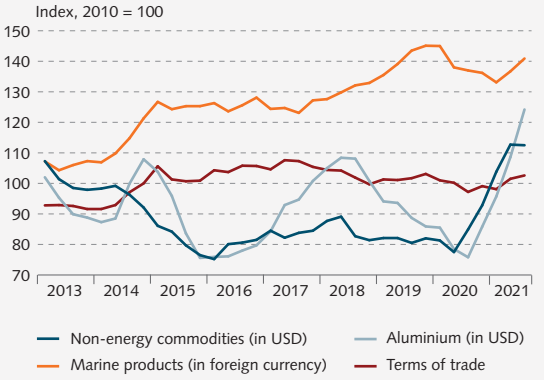


Source: Refinitiv Datastream.

Chart I-15

Commodity prices and terms of trade[1]

Q1/2013 - Q3/2021



1. Central Bank baseline forecast Q3/2021 for terms of trade.

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

cuts in China, which in turn stem from a change in the Chinese government's environmental policy, leading to a reduction in the supply of energy for power-intensive manufacturing. Production also contracted in India because of a shortage of coal, and in Brazil because of reduced hydropower plant output. Furthermore, the price of alumina, a key ingredient in aluminium manufacture, has risen because of supply disruptions in Brazil and Jamaica, contributing to higher aluminium prices. The price of Iceland's aluminium exports is expected to be 43% higher this year than in 2020, instead of 37% higher, as in the August forecast. For next year, the price increase is projected at 16%, twice as much as was assumed in August.

Oil prices have kept rising, hitting a seven-year high …

Global crude oil prices have risen virtually without interruption after plunging in March and April 2020, following the onset of the pandemic (Chart I-16). They softened slightly in August, after the spread of the Delta variant of the virus, but have risen still further since then. The recent increase is attributable to reduced output after production was disrupted by a hurricane in the US. Furthermore, it has taken longer than previously envisioned to lift the production limits in OPEC nations and other oil-producing countries. At the same time, demand for oil has increased in line with growing economic activity, and a limited supply of other energy sources, natural gas in particular, has pushed prices upwards and contributed to greater demand for oil. Reduced production and increased demand can be seen in a drop in oil inventories, which are now below the average of the past five years.

The price of Brent crude averaged just under 84 US dollars per barrel in October, its highest in seven years. Although futures prices suggest that oil prices will decline during the forecast horizon, the outlook is for prices to be well above the August forecast over the horizon as a whole.

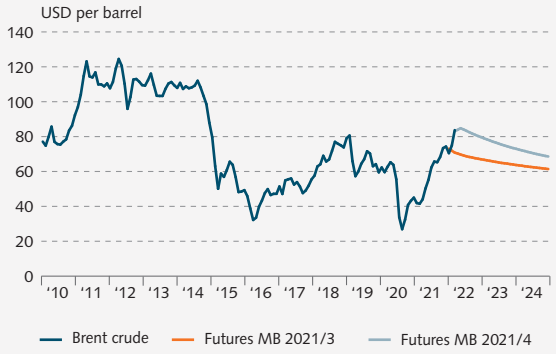
… but other commodity prices have started falling, after rising steeply in the recent term

The price of non-energy commodities declined marginally in Q3, after having risen virtually unimpeded since spring 2020 (Chart I-15). Commodity prices are still more than a third above their pre-pandemic level, however. Metals prices fell 1.4% quarter-on-quarter in Q3, owing to lower iron ore and copper prices. The drop in iron ore prices is due largely to reduced demand in China, which in turn stems from the aforementioned environmental policy shift by the Chinese government.

Chart I-16

Global oil prices

January 2010 - December 2024



Sources: Refinitiv, Central Bank of Iceland.

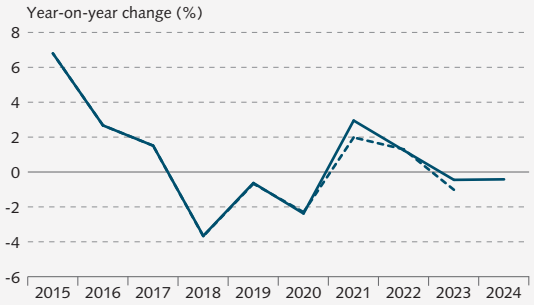
This was offset, however, by continuing rises in the price of other metals, owing to increased global economic activity and to disruptions in production caused by the energy shortage. Food prices also fell in Q3, while the price of beverages kept rising. Despite the decline in Q3, non-energy commodity prices were higher than was assumed in the Bank's August forecast. The outlook is for commodity prices to rise by an average of just under a third this year and not one-fourth, as was forecast in August. The decline projected for 2022 is also expected to be smaller than was assumed in August, but prices are expected to be broadly in line with that forecast in the latter part of the forecast horizon. The outlook is highly uncertain, and one of the alternative scenarios in Box 1 explores the potential impact on the domestic economy if price hikes turn out more persistent than in the baseline forecast.

Terms of trade set to improve more strongly this year

Terms of trade for goods and services improved by 1.3% year-on-year in Q2/2021, more than was forecast in August. The main reason for the deviation is the larger increase in the price of exported goods, ferrosilicon in particular. In addition, the price of imported alumina rose less than anticipated. Terms of trade appear to have continued improving in Q3, and in 2021 as a whole they are expected to improve by 2.9%, or 1 percentage point more than was forecast in August. The difference is due primarily to a larger rise in aluminium prices, which outweighs the larger rise in the price of imports, especially oil and commodities. The outlook for the next two years is broadly unchanged from the August forecast, however (Chart I-17).

Chart I-17

Terms of trade for goods and services 2015-2024[1]



1. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Monetary policy and domestic financial markets

II

Monetary policy and market interest rates

The key interest rate has risen this year ...

Prior to the publication of this *Monetary Bulletin*, the Bank's key interest rate – the rate on seven-day term deposits – was 1.5% (Chart II-1). It has been raised three times since May, each time by 0.25 percentage points, but is still 1.25 percentage points lower than when the COVID-19 pandemic reached Iceland in late February 2020. The baseline forecast assumes that, during the forecast horizon, the key rate will develop in line with the monetary policy rule in the Bank's quarterly macroeconomic model, which ensures that inflation will be broadly at the Bank's inflation target over the medium term.

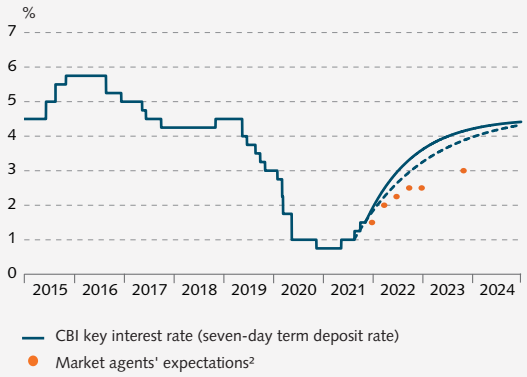
According to the Bank's early-November survey, market agents expect no additional rate hikes this year; however, they expect further monetary tightening in 2022. They expect the key rate to measure 2.25% in mid-2022 and 3% two years from now. This is a higher interest rate than in the Bank's August survey. Forward interest rates have risen slightly since August. They continue to suggest expectations of more rapid rate hikes than are indicated by the Bank's market expectations survey.

The Bank's real rate has risen since H1/2021, alongside the increase in the key rate. In terms of the average of various measures of inflation and one-year inflation expectations, it is now -2.2% and has risen by about 0.6 percentage points since mid-May. The interest rate differential with abroad has also widened during the year, and short-term real rates in Iceland are now 0.6 percentage points above the trading partner average.

Chart II-1

Central Bank of Iceland key interest rate[1]

1 January 2015 - 31 December 2024



1. The Central Bank's key interest rate and Treasury bond yields are used to estimate the yield curve. The broken line shows forward market interest rates prior to MB 2021/3. 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 1-3 November 2021.

Source: Central Bank of Iceland.

… and long-term nominal rates are above the pre-pandemic level

The yield on ten-year nominal Treasury bonds has risen by 0.9 percentage points year-to-date. It was 4.2% just before this *Monetary Bulletin* was published and is now higher than before the pandemic (Chart II-2). The yield on five-year nominal bonds has risen somewhat more over the same period, or 1.4 percentage points, and the slope of the yield curve has flattened slightly. On the other hand, the yield on ten-year indexed Treasury bonds has fallen by 0.2 percentage points year-to-date, to 0.6% just before this *Monetary Bulletin* went to press.

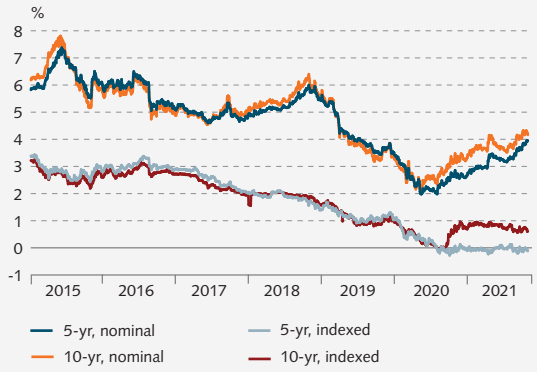
The H1/2021 rise in nominal yields was due largely to an increase in the breakeven inflation rate, which in turn stemmed from the worsening inflation outlook (see Chapter V). The breakeven rate began to ease again this summer, however, following the policy rate hike in May (Chart II-3). It has risen again since August, though, and has pushed long-term nominal rates upwards, albeit offset by the decline in the long-term real rate.

Concurrent with the interest rate hike in August, the Central Bank decided to stop buying Treasury bonds in the secondary market, although it did not rule out the possibility of reinstating the bond purchase programme if conditions should warrant it. It appears that the Treasury will have less need to issue domestic bonds than was envisioned at the beginning of the pandemic, as financing efforts have been successful, including foreign borrowing and the sale of a portion of the State's holding in Íslandsbanki. From the onset of the pandemic until the present, the Bank has bought Treasury bonds in the secondary market in the amount of 22.6 b.kr.

Chart II-2

Government-guaranteed bond yields[1]

2 January 2015 - 12 November 2021

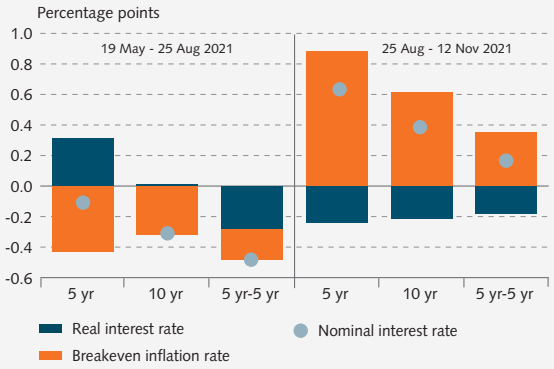


1. Based on the zero-coupon yield curve, estimated with the Nelson-Siegel method, using money market interest rates and Government-guaranteed bonds.

Source: Central Bank of Iceland.

Chart II-3

Breakdown of change in nominal bond interest rate[1]



1. Change in nominal Treasury bond yields (estimated using the Nelson-Siegel method) and the contribution of corresponding changes in indexed bond yields and the breakeven inflation rate.

Source: Central Bank of Iceland.

Exchange rate of the króna

The króna has depreciated since this summer …

The exchange rate of the króna has fallen by 2.3% relative to the trading partner average since the August *Monetary Bulletin*, but it is nearly 7½% above its early September 2020 trough (Chart II-4). Nevertheless, the average exchange rate is still about 7½% lower than when the pandemic reached Iceland.

The króna weakened again this summer in spite of a strong rebound in tourism and increased foreign payment card use in Iceland. Outflows relating to new investments are still considerable, as foreign investors have sold sizeable holdings in domestic equities and Treasury bonds, with net sales totalling 62 b.kr. in the first ten months of this year. Over the same period, the pension funds' net foreign currency purchases

Chart II-4

Exchange rate of the króna[1]

2 January 2015 - 12 November 2021

1. Price of foreign currency in krónur. Narrow trade index.

Source: Central Bank of Iceland.

were broadly unchanged year-on-year, at just under 55 b.kr. Their purchases have declined relative to the pre-pandemic period, although their foreign assets have grown markedly, owing in part to rising prices in foreign asset markets. Some of the funds have approached their internal benchmarks for foreign assets as a share of total assets and have therefore pulled back on new investments abroad. At the same time, the Bank's intervention in the foreign exchange market has been relatively limited, as the market appears to be fairly well balanced.

… but will remain relatively stable during the forecast horizon, according to the baseline forecast

The trade-weighted exchange rate index (TWI) stood at 194 points in Q3/2021, and the króna was therefore about 1% weaker, on average, than was forecast in the August *Monetary Bulletin*. According to the baseline forecast, the average exchange rate will remain broadly stable over the forecast horizon, and therefore slightly lower than was assumed in the August forecast (Chart II-5). If the forecast materialises, the real exchange rate will rise by 2½% over the forecast horizon, although at the end of the period it will still be 11% below its 2017 peak.

Money holdings and lending

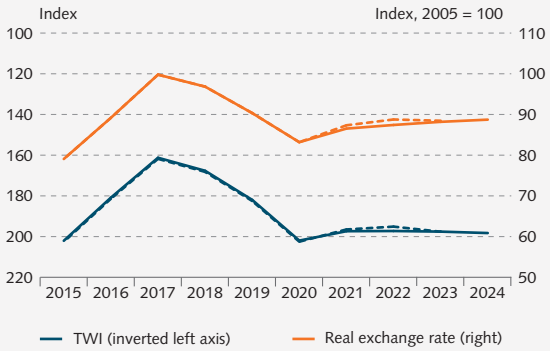
Growth in money holdings has eased in 2021 to date …

In H2/2020, growth in money holdings accelerated as the impact of falling interest rates and Central Bank liquidity measures came to the fore. Year-on-year growth peaked at about 14% in November 2020 but has lost pace since then. It measured 8.1% in Q3/2021, about the same as in Q2 (Chart II-6). Household deposits with the banking system increased by 8½% year-on-year in Q3/2021. The rate of growth has eased somewhat, although it remains relatively robust. Furthermore, financial companies' deposits have contracted in 2021 to date, particularly those held by pension funds and money market funds.

Rapid growth in money holdings in the wake of the pandemic is not a uniquely Icelandic phenomenon (Chart II-7). It reflects the significant monetary easing adopted widely by monetary authorities, in addition to extensive fiscal support measures. Moreover, households found their consumption options significantly limited by the pandemic, and some of the savings they accumulated as a result were held in deposit accounts with the banking system (see Chapter III). The increase in household deposits also reflects strong growth in mortgage lending.

Chart II-5

Exchange rate of the króna 2015-2024[1]



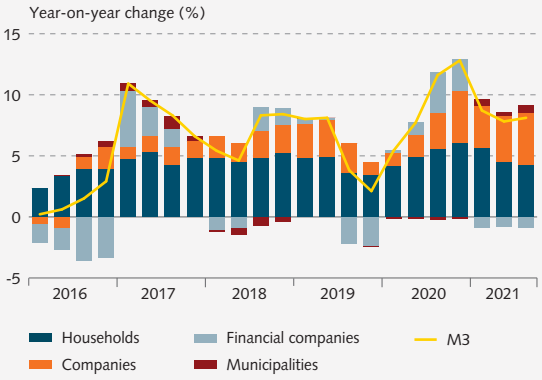
1. The trade-weighted exchange rate index (TWI) is based on a narrow trade basket. Real exchange rate in terms of relative consumer prices. Central Bank baseline forecast 2021-2024. The broken lines show the forecast from MB 2021/3.

Source: Central Bank of Iceland.

Chart II-6

Money holdings[1]

Q1/2016 - Q3/2021

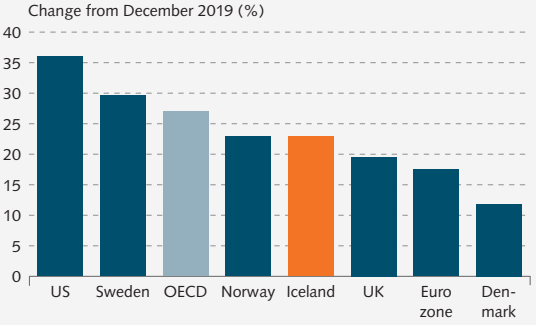


1. M3 is adjusted for deposits of failed financial institutions. Companies include non-financial companies and non-profit institutions serving households.

Source: Central Bank of Iceland.

Chart II-7

Money holdings[1]



1. M3 except for the US, which is M2. Change from December 2019 through September 2021 except OECD, which is through August 2021.

Source: Refinitiv Datastream, Central Bank of Iceland.

… but mortgage lending is still growing apace …

Year-on-year growth in credit system lending has held relatively stable in 2021 to date, hovering around 5½% after rising above 6% in Q4/2020 (Chart II-8). As before, a large share of this stems from loans to households, which have grown by 9-11% thus far in 2021. As in the recent past, this growth is due almost entirely to increased mortgage lending, reflecting brisk activity in the real estate market. The share attributable to refinancing has fallen, however, in line with the recent rise in interest rates. The commercial banks' share in the outstanding mortgage stock has continued to increase and is now around 70%, up from 55% at the beginning of 2020. At the same time, the banks' covered bond issues have increased only slightly, indicating that the banks rely more heavily on deposits for funding than before.

… while corporate lending continues to contract

Corporate lending has contracted in 2021 to date. In Q3, the corporate credit stock was 2.9% smaller than in Q3/2020, whereas it was 1% smaller after adjusting for the impact of exchange rate movements on foreign-denominated corporate loans. Lending to nearly all sectors has contracted, even though economic activity has picked up strongly. The downturn in lending has been offset to a degree by financing through market issues and institutional investment funds.

Debt ratios and credit spreads have been broadly unchanged recently

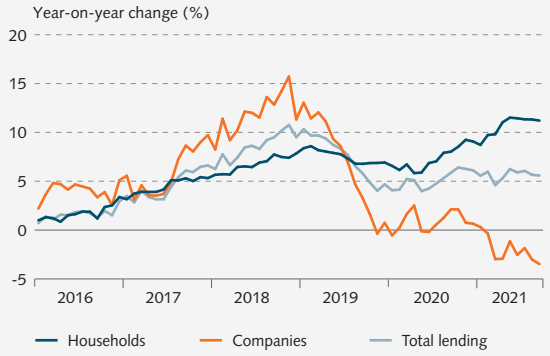
The household debt-to-GDP ratio is higher than before the pandemic, but household indebtedness is still relatively modest (Chart II-9). Loan-to-value (LTV) ratios on new mortgages have increased, on average, partly because of rising house prices, although the increased share of first-time buyers is also a factor. Furthermore, the share of non-performing household loans has fallen year-to-date, after rising temporarily last year. The share of non-performing corporate loans has fallen as well, although it is still considerably above its pre-pandemic level (for further discussion, see *Financial Stability* 2021/2). At the same time, the number of business insolvencies was up 28% year-on-year in the first nine months of 2021.

The share of non-indexed loans in the household mortgage stock is at an all-time high, as is the share of variable-rate loans. The effects of changes in Central Bank interest rates therefore show more quickly than before, and it is clear that recent interest rate hikes have already started to affect some households' debt service burden. Demand for fixed-rate mortgages – on which interest is generally fixed for either three or five years

Chart II-8

Credit system lending[1]

January 2016 - September 2021



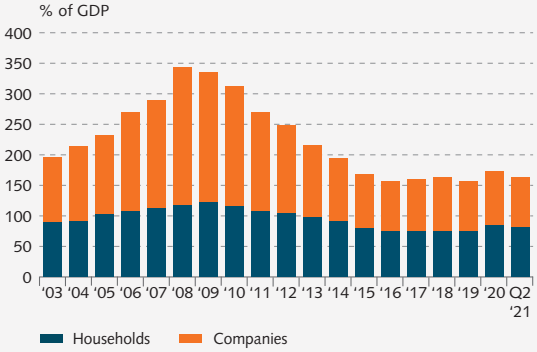
1. Credit stock adjusted for reclassification and effect of Government debt relief measures. Excluding loans to deposit institutions, failed financial institutions, and the Government. Companies include non-financial companies and non-profit institutions serving households.

Source: Central Bank of Iceland.

Chart II-9

Household and non-financial corporate debt[1]

2003-2021



1. Debt owed to financial undertakings and market bonds issued. Excluding financial institutions (which includes holding companies). GDP for 2021 is based on the Central Bank's latest baseline forecast.

Sources: Statistics Iceland, Central Bank of Iceland.

– has increased since the summer. Such loans typically bear higher interest than variable-rate loans; therefore, households that opt for fixed interest increase their debt service burden immediately.

Interest on new mortgage loans has developed broadly in line with deposit rates and the Central Bank key rate (Chart II-10). Credit spreads on mortgage loans have therefore held relatively stable. Interest rates on corporate loans have risen this year, but in terms of the deposit rates offered to businesses, credit spreads are still reasonably low in comparison with recent years.

Asset prices

House prices still rising steeply …

House prices have surged since late last year, and the market has been buoyant, with turnover peaking in March 2021. Lower interest rates and increased savings enabled households to buy larger homes and helped first-time buyers to enter the market. The share of first-time buyers has soared, while the year-on-year increase in rent prices has slowed down significantly. Real estate market activity has contracted in recent months, however, and the number of registered purchase agreements was nearly 40% lower in September than in March. In spite of this, house prices are still climbing, and the year-on-year increase in greater Reykjavík measured 16.6% in September, its largest since October 2017 (Chart II-11).

Alongside last year's burst of activity, the number of flats for sale began to fall. By October 2021, the number of properties listed for sale nationwide had fallen to just under 1,500, the lowest ever measured in a single month. Reduced supply explains the continued rise in prices to some extent; however, the share of properties that sell at a premium on the asking price has trebled nationwide since mid-2020, peaking in May at 32% (Chart II-12). By the same token, the average time-to-sale has been very short, at 1.7 months in September. There are signs of a rebound in new construction, however, as is discussed in Chapter III.

… outpacing developments in macroeconomic fundamentals in recent months

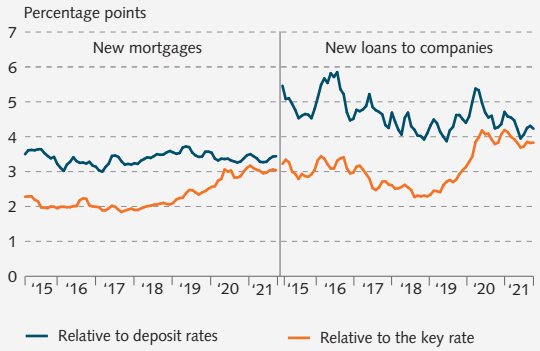
The ratio of house prices to rent is now just over three standard deviations above the mean for the past decade (Chart II-11). This trend can also be seen abroad, as the recent rise in house prices is similar to that in many other advanced economies (Chart II-13).[1] Although this

1 See, for example, Box 1.1 International Monetary Fund (2010), *World Economic Outlook*, October 2021.

Chart II-10

Credit spreads[1]

March 2015 - September 2021



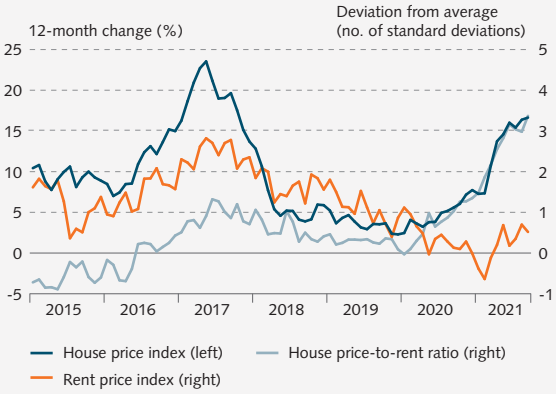
1. The difference between a weighted average of the large commercial banks' non-indexed lending rates and, on the one hand, the Central Bank's key rate, and on the other, a weighted average of their deposit rates. Three-month moving average.

Source: Central Bank of Iceland.

Chart II-11

House prices and rent[1]

January 2015 - September 2021



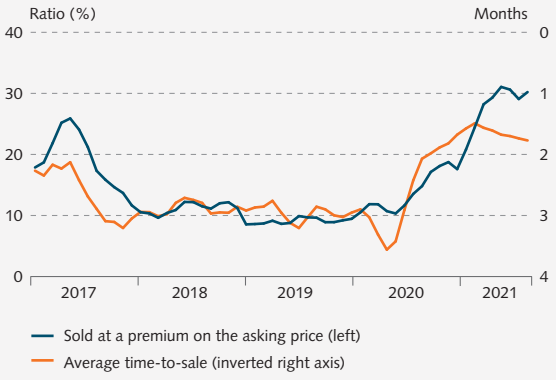
1. House prices and rent in the greater Reykjavík area. Deviation of the house price-to-rent ratio from the 2011-2021 average, measured in number of standard deviations.

Sources: Registers Iceland, Central Bank of Iceland.

Chart II-12

Flats sold at a premium on the asking price and average time-to-sale nationwide[1]

January 2017 - September 2021



1. Flats sold at a premium on the asking price as a percentage of flats for sale. Three-month moving average. The number of purchase agreements is seasonally adjusted by the Central Bank.

Sources: Housing and Construction Authority, Morgunbladid Real Estate Website (mbl.is), Registers Iceland, Central Bank of Iceland.

largely reflects lower global interest rates and broad-based government support measures, the steep rise in forced saving caused by restricted consumption options and the subsequent channelling of accumulated savings into the housing market plays a role as well. However, as in other countries, there are increasing signs that house prices have risen more than can be attributed to developments in the macroeconomic fundamentals that generally determine long-term house price movements. For example, Chart II-14 gives a comparison of developments in house prices with a dynamic forecast using the house price equation from the Bank's macroeconomic model, from Q1/2020 through Q3/2021. House prices rose less in 2020 than could have been expected based on the historical relationship between house prices, real disposable income, and real mortgage interest rates, but the increase over the past two quarters has been larger than the forecast indicates.

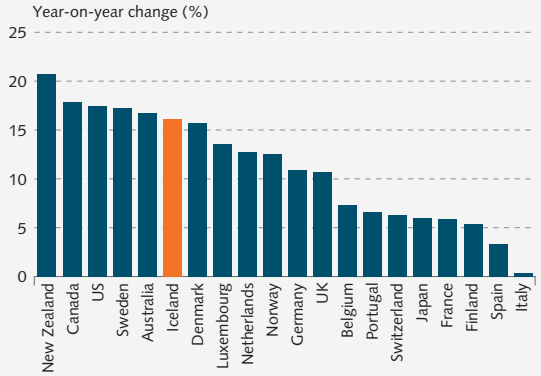
In view of the above-described developments, the Bank's Financial Stability Committee (FSC) decided earlier this year to lower the maximum LTV ratio on new mortgages from 85% to 80% and, effective 1 December 2021, to cap the debt service ratio on new mortgages at 35% of the borrower's disposable income. The rules are more lenient, however, for first-time buyers. The FSC also decided to increase the countercyclical capital buffer for financial institutions, effective a year from now. This will require that financial institutions set aside additional capital to cover unexpected shocks. These measures, together with the Bank's interest rate hikes, should help to ease house price inflation. The baseline forecast assumes that the year-on-year rise in house prices will begin to slow down in H2/2022.

Share prices keep rising

The OMXI10 index has risen by 31% year-to-date and by 73% since the pandemic reached Iceland in late February 2020. However, it has declined by 0.4% since the last *Monetary Bulletin*, owing to a just under 9% drop in the price of shares in one company that comprises about half of the index. Over the same period, shares in other companies in the Main Market rose in price by an average of 12%. Stock market turnover was 89% higher in the first ten months of the year than over the same period in 2020.

Chart II-13

House prices in selected OECD countries[1]



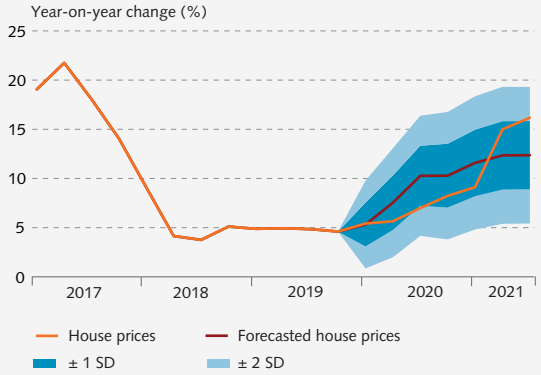
1. Year-on-year house price inflation in Q3/2021 for Iceland and Canada, in Q1/2021 for New Zealand, and in Q2/2021 for all other countries.

Sources: Refinitiv Datastream, Registers Iceland.

Chart II-14

Actual and forecasted house prices[1]

Q1/2017 - Q3/2021



1. Forecasted year-on-year change in house prices from Q1/2020 through Q3/2021, obtained with a dynamic forecast using a house price equation similar to the one from the Bank's macroeconomic model, estimated for the period from Q3/2001 through Q4/2017.

Sources: Registers Iceland, Central Bank of Iceland.

Demand and GDP growth

III

Domestic private sector demand

Private consumption contracted again in Q2/2021 …

Private consumption contracted by 0.8% quarter-on-quarter in Q2/2021, after growing by 1.6% in Q1 (Chart III-1). The household saving ratio therefore rose somewhat after having held broadly stable for the two preceding quarters. This is somewhat below the August forecast, and it appears to stem primarily from the fact that growth in households' spending abroad was more sluggish than payment card turnover data had implied.

Owing to a steep contraction in Q2/2020, private consumption grew 8.5% year-on-year but still below the August forecast of nearly 10%. Pulling in the other direction was Statistics Iceland's revision of historical data, which resulted in a smaller deviation in private consumption in H1. The Bank's August forecast assumed a growth rate of 5.2% year-on-year in H1, as opposed to the actual 4.7% according to Statistics Iceland's first figures.

The Government's public health measures have had a significant impact on the composition of consumption spending during the pandemic, but in Q2, household spending increased year-on-year in all categories, particularly those that had been affected by the ban on public gatherings (Chart III-2).

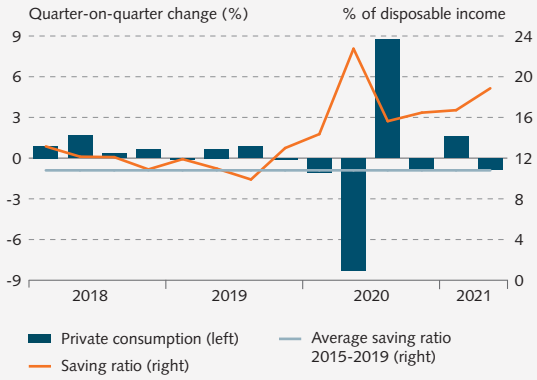
… but there are signs of robust growth in Q3 …

As Chart III-2 shows, household expenditures continued to rise year-on-year in Q3. There are signs that the impact of the pandemic and public health measures on consumption and travel patterns has subsided. Traffic data in the capital area in August and September suggest that more people returned to their workplaces and schools, following a long period of home-based

Chart III-1

Private consumption and household saving[1]

Q1/2018 - Q2/2021

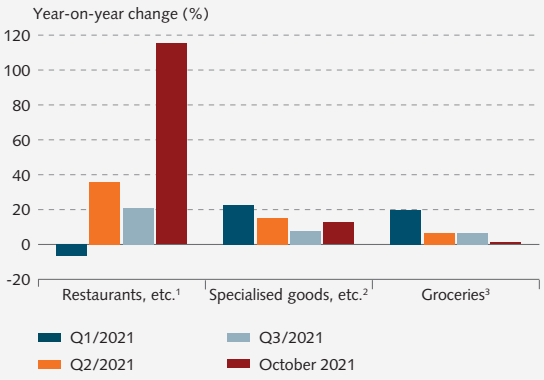


1. The saving ratio is calculated based on the Central Bank's disposable income estimates. Seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-2

Payment card turnover, by category



1. Restaurants, accommodation, transport, package tours, duty-free shopping, culture and recreation, and personal care and services. 2. Electronics, household appliances, furniture, clothing, and other specialised retail goods and services. 3. Grocery stores and supermarkets.

Source: Centre for Retail Studies.

work and study after the pandemic became entrenched in Iceland (Chart 2 in Appendix 1). The composition of consumption spending is also shifting increasingly towards services, non-durables purchased domestically, and consumption abroad, after having been concentrated largely in domestic purchases of consumer durables at the height of the pandemic. Furthermore, new motor vehicle registrations (excluding rental cars) were up nearly 18% year-on-year in July and August. Real incomes have also been on the rise, and the employment outlook has improved markedly. Consumers are also increasingly optimistic, and the Gallup Consumer Confidence Index is at its highest in five years (Chart III-3).

… and year-2021 private consumption growth is poised to be stronger than previously forecast

According to the Bank's baseline forecast, private consumption grew in Q3/2021 by nearly 6% between quarters and 7.5% between years. Year-on-year growth is projected at just under 5% in Q4 and 5.4% in 2021 as a whole, which is 1.2 percentage points above the August forecast. Thus the outlook is for considerably stronger private consumption growth in H2 than was forecast in August, in part because the pandemic's impact on households' appetite and opportunities for consumption is weaker than previously assumed.

Private consumption growth is projected to ease in 2022, partly because of base effects from this year's robust growth (Chart III-4). The outlook is for an annual growth rate of around 4%, on average, over the forecast horizon, up from the 3½% projected in August. The baseline forecast assumes that the household saving ratio will remain above its historical average during the forecast horizon instead of falling gradually back to its pre-pandemic level, as was considered likeliest just after the pandemic reached Iceland. This is highly uncertain, however, and Box 1 describes an alternative scenario based on the assumption that households will draw down their accumulated savings more rapidly than in the baseline forecast. If that scenario materialises, private consumption growth could turn out stronger over the forecast horizon than is assumed in the baseline. Growth could also turn out weaker if global prices rise faster and domestic inflation turns out more persistent, as is described in the other alternative scenario in Box 1.

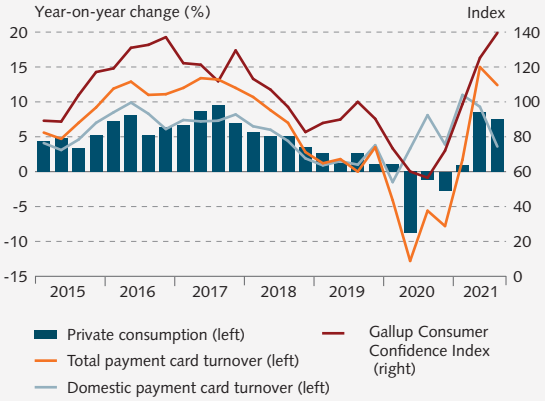
Business investment grows strongly in H1 …

Business investment grew by 21.7% year-on-year in H1/2021, more than double the rate assumed in August. The deviation is due for the most part to a change in Statistics Iceland's treatment of asset leasing agree-

Chart III-3

Private consumption and its indicators[1]

Q1/2015 - Q3/2021

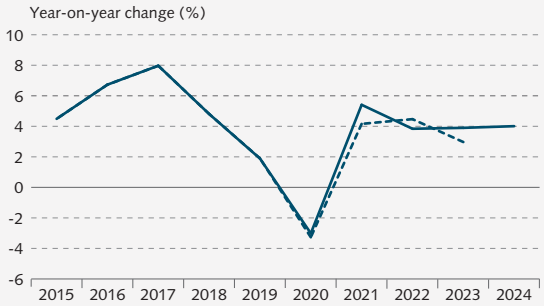


1. The Gallup Consumer Confidence Index is seasonally adjusted. Central Bank baseline forecast Q3/2021 for private consumption.

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

Chart III-4

Private consumption 2015-2024[1]



1. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

ments in the national accounts, according to which leased operational assets are in some cases recognised as investments undertaken by the lessee. As a result of this change, investment in aircraft measured much stronger, which explains the lion's share of the more than 40% increase in business investment in Q2/2021 (Chart III-5). Although this is considerably more investment than was assumed in August, the deviation did not have a discernible impact on GDP growth estimates, as corresponding changes were made to goods imports.[1]

Other subcomponents of business investment in H1 were well in line with the Bank's August forecast. Furthermore, the outcome shows a marked rise in corporate investment early in 2021, as revised figures from Statistics Iceland revealed that general business investment (excluding energy-intensive industry, ships, and aircraft) grew much more in Q1 than previous figures had implied. As can be seen in Chart III-6, high-frequency indicators had already suggested that this would be the case. As a result, the expected revision for Q1 was included with Q2 investment in the Bank's August forecast. On the whole, general business investment grew by 16.1% in H1, in line with the August forecast.

… and the outlook for 2021 as a whole has improved since the spring

Leading indicators imply that investment remained strong in Q3. Imports of general investment goods were up 60% year-on-year at constant exchange rates in Q3, far outpacing the first two quarters of the year (Chart III-6). Likewise, the increase in job numbers since this summer indicates that activity in the construction sector has picked up.

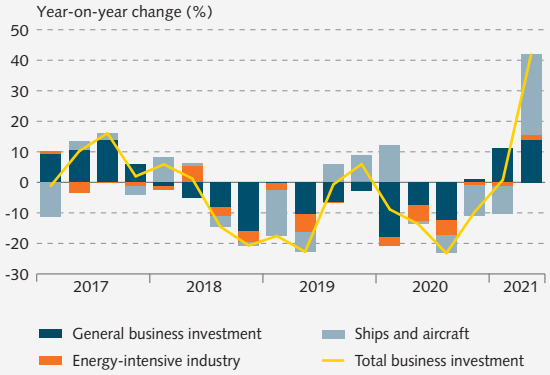
Growing investment activity is also in line with survey findings. The results of Gallup's September survey of Iceland's 400 largest firms suggest that executives are much more sanguine about year-2021 investment than they were in the survey taken in March. The Bank's survey of firms' investment plans, also conducted in September, points in the same direction. According to that survey, firms are planning to step up investment this year by over 16% in nominal terms. This is a larger increase than was suggested by the Bank's March survey (Chart III-7). The same survey also indicates that investment in 2021 will be driven by investment in tourism and transport, manufacturing, and information technology. On the other hand, a large contraction is expected in the fishing industry, although it should be noted that the

1 The change causes GDP to rise marginally, as payments of leasing costs previously included in services imports are no longer recorded in the expenditure approach to GDP calculation in the national accounts.

Chart III-5

Business investment and contribution of components

Q1/2017 - Q2/2021

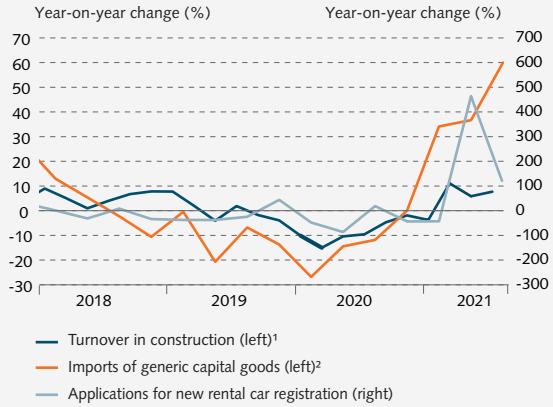


Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-6

Indicators of general business investment

Q1/2018 - Q3/2021

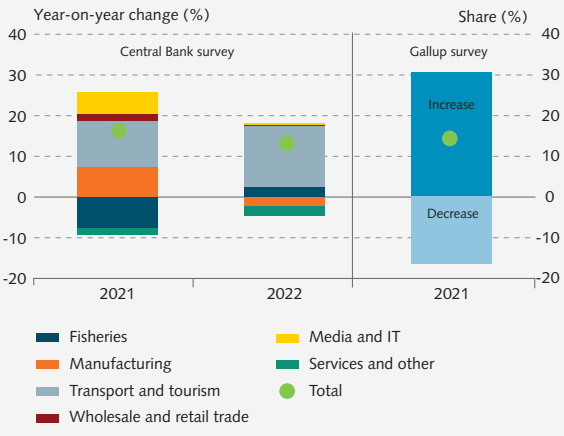


1. Total turnover in the construction sector. The data are according to two-month VAT periods and deflated with the building cost index. 2. Total value of imported capital goods and imported transport equipment excluding ships and aircraft, deflated with the exchange rate index.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-7

Indicators of investment plans in 2021-2022[1]



1. Central Bank survey of firms' investment plans (excluding investments in ships and aircraft). Gallup survey of Iceland's 400 largest firms' investment plans. The chart shows the share of firms intending to increase investment and the share intending to decrease it.

Sources: Gallup, Central Bank of Iceland.

survey does not include investments in ships and related equipment. Neither does it capture the full impact of current plans for large-scale development in the aquaculture sector, where investment is estimated to double this year and grow still further in 2022. Hotel construction, however, is set to contract. It slowed markedly in 2020, after growing apace in the years beforehand, and several planned hotel projects were postponed or abandoned altogether.

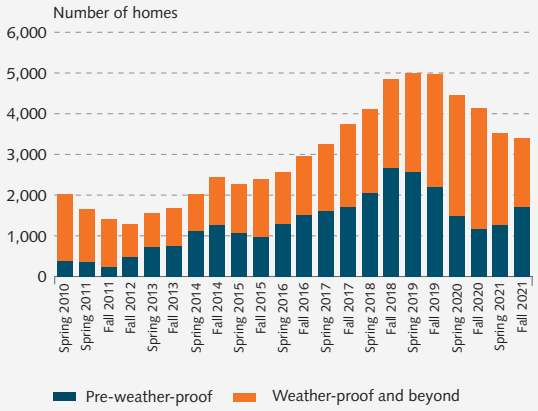
The improved outlook since this spring gives cause to assume that business investment will be stronger this year than was anticipated then. It is now expected to grow by 17.6% year-on-year, over 13 percentage points more than was forecast in August. The aforementioned change in Statistics Iceland's treatment of asset leasing agreements weighs heavily in this, but the outlook for general business investment has improved as well. It is estimated to have grown by a fourth year-on-year in Q3 and is projected to grow by 15½% in 2021 as a whole, up from just over 9% in the August forecast. Business investment spending is also expected to be slightly stronger next year than was assumed in August, but this year's strong investment will cause a larger year-on-year contraction between 2021 and 2022.

Residential investment to contract in 2021, broadly as was forecast in August

Residential investment contracted by 6.7% year-on-year in H1/2021, whereas the August forecast assumed a contraction of 8.6%. Year-2020 figures have been revised upwards in the national accounts, with the result that residential investment is now estimated to have increased by 1.2% between years instead of contracting by that amount. The Federation of Icelandic Industries' recent tally of flats under construction suggests that fewer homes are being built now than in the spring. Owing to robust sales in the recent past, contractors have prioritised construction of properties that are closer to completion. This can be seen in a reduction in the number of flats that are weather-proof and beyond (Chart III-8). The number of homes at the pre-weather-proof stage has begun to rise again, however, and there are signs of increased new construction activity. In spite of this, residential investment looks set to contract this year by about 8%, broadly as was projected in August. Over the next three years, however, the outlook is for growth averaging over 9% per year, which is above the August forecast. If the forecast materialises, the ratio of residential investment to GDP will have risen to 6%, or 2 percentage points above its twenty-five-year average, by the end of the forecast horizon.

Chart III-8

Residential housing under construction in the capital area[1]

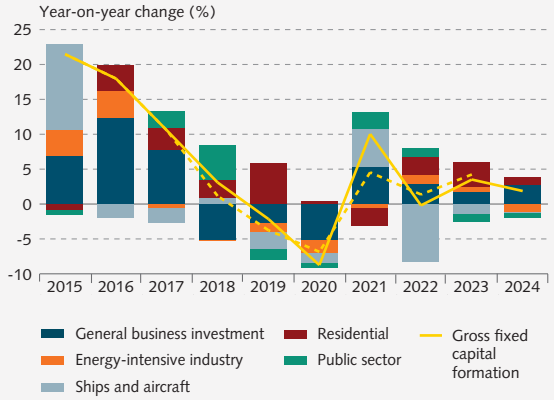


1. According to residential construction tallies conducted by the Federation of Icelandic Industries.

Source: Federation of Icelandic Industries.

Chart III-9

Gross fixed capital formation and contribution of main components 2015-2024[1]



1. General business investment excludes ships, aircraft, and energy-intensive industry. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Investment set to grow substantially in 2021

According to the baseline forecast, investment will be 10½% higher this year than in 2020 (Chart III-9). This is more than twice the growth rate projected in August, owing largely to the fact that investment in ships and aircraft has increased as a result of the aforementioned change made by Statistics Iceland. Excluding ships and aircraft, year-2021 investment is driven largely by businesses and the public sector (see below), albeit offset by reduced residential investment. Investment is now stronger over the entire forecast horizon, but because of base effects, the growth rate is projected to ease from 2022 onwards. By the end of the forecast horizon, the investment-to-GDP ratio will be around 21%, broadly in line with the August forecast.

Public sector

Brisk public sector activity during the pandemic

Public sector demand is projected to grow by 3.9% this year, up from 3.2% in 2020. The weight of public investment is expected to be greater this year than last year; however, public consumption spending growth is set to ease after accelerating in 2020. Public investment grew by 14% in H1/2021, driven mainly by central government investment expenditure. Although this increase was considerably smaller than was assumed in August, public investment spending in H1 was nevertheless in line with the August forecast. The deviation is due to Statistics Iceland's large upward revision of year-2020 investment. There is little change in the estimate of public investment for 2021 as a whole, but because of the aforementioned revision of last year's figures, year-on-year growth will be weaker, at 17% instead of the nearly one-fourth projected in August. Public consumption is expected to grow by just over 2% this year, somewhat more than was forecast in August. On the whole, growth in public sector demand will be nearly ½ a percentage point weaker than was assumed in August – again, owing to the aforementioned revision of year-2020 expenditure figures. The outlook for public sector demand growth in coming years is broadly in line with the August forecast.

As can be seen in Chart III-10, the baseline forecast assumes that the public sector share in GDP will continue to increase this year, after rising strongly in 2020, when the steep increase in public spending occurred alongside a contraction in other components of GDP. According to the baseline forecast, the ratio is set to decline again in 2022 but remain considerably above its twenty-year average.

Chart III-10

Public cosumption and investment as a share of GDP 2000-2024[1]

1. Central Bank baseline forecast 2021-2024.

Sources: Statistics Iceland, Central bank of Iceland.

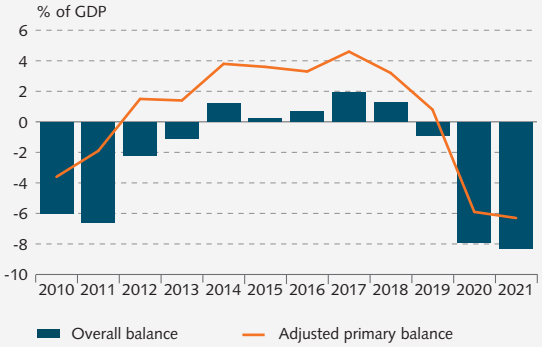
Fiscal deficit due largely to COVID-related measures

Last year's economic contraction, together with the Government's broad-based measures to mitigate the impact of the COVID-19 pandemic, resulted in a central government deficit measuring 8% of GDP (Chart III-11). In H1/2021, the deficit was 7.4%, which represented an improvement of 1.3 percentage points year-on-year, whereas in both the fiscal plan introduced by the Government this past spring and the forecast in the May issue of *Monetary Bulletin*, it was assumed that the deficit would be larger this year than in 2020. This goes hand-in-hand with developments in economic activity, which generally have a strong impact on the Treasury outcome.

According to the baseline forecast, this year's Treasury deficit is estimated to be over 8% of GDP, broadly the same as in 2020. As in the Bank's previous forecasts and the Government's fiscal plan, it is expected that deficit operations will be unwound decisively in coming years as COVID-related measures are unwound and Treasury revenue sources grow stronger.[2]

Chart III-11

Treasury outcome 2010-2021[1]



1. The primary balance is adjusted for one-off items. For 2016 through 2020, both the overall balance and the primary balance are adjusted for stability contributions, accelerated write-downs of indexed mortgage loans, a special payment to LSR A-division, dividends in excess of the National Budget, delivery of the Hvalfjarðargöng tunnel project and other discretionary measures. Central Bank baseline forecast 2021.

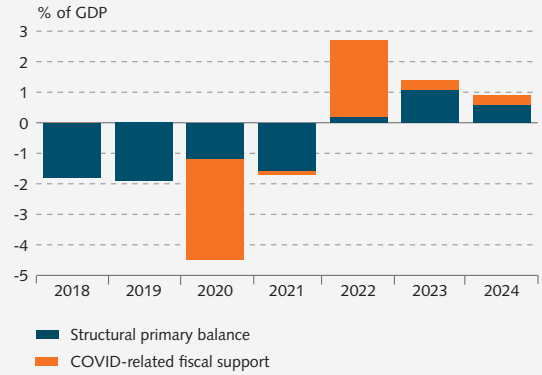
Source: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

Continued fiscal easing in 2021, with a turnaround expected thereafter

The cyclically adjusted Treasury outcome deteriorated by 4.5% of GDP in 2020 (Chart III-12). This represents a more accommodative fiscal stance than was estimated when the stance was assessed this past spring, reflecting a larger rise in Treasury spending than Statistics Iceland's revised figures indicated. The bulk of last year's fiscal easing is attributed to COVID-related Government measures, although increased public consumption has some effect as well. This year, the fiscal stance is expected to ease by a further 1.7% of GDP, partly because of the previously approved reduction in the lowest personal income tax rate. The combined easing in 2020 and 2021 is therefore estimated at just over 6% of GDP, whereas the August forecast assumed a total of nearly 8%. Most of the Government's COVID-related measures will expire late this year, and all else being equal, the fiscal stance will then tighten once again. In the latter half of the forecast horizon, fiscal consolidation is assumed to increase by just over 1% of GDP per year, as the fiscal plan introduced this spring provided for annual tightening until the rise in the public debt ratio is halted in 2025.

Chart III-12

Change in central government cyclically adjusted primary balance 2018-2024[1]



1. The primary balance is adjusted for one-off items. Central Bank baseline forecast 2021-2024.

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

2 Traditionally, the baseline forecast of the Treasury outcome in the November *Monetary Bulletin* is based in part on assumptions that can be found in the fiscal budget proposal for the coming year. This time, however, the proposal was not available when the forecast was prepared, and the fiscal plan from this spring was used instead. For the same reason, this issue of *Monetary Bulletin* does not contain the customary Box on the fiscal budget proposal.

This assessment could change, however, with the fiscal plan prepared by the new Government (see also Box 1).

External trade and the current account balance

Exports recover gradually in H1 after last year's contraction …

Goods and services exports grew by 7.5% quarter-on-quarter in Q2/2021, after contracting in Q1 (Chart III-13). Stronger exports related to tourism and other services weighed heavily in the increase but were supplemented by marine product exports, which stemmed in particular from a strong capelin season. Year-on-year export growth measured nearly 28% during the quarter, some 9 percentage points below the August forecast. Year-on-year growth in services exports was also well below the forecast, owing in particular to weaker-than-expected exports relating to passenger transport by air. This is due in large part to Statistics Iceland's revision of year-2020 data.

Stringent public health measures were in place in the first half of the quarter, but they were eased as the pandemic subsided and vaccination rates rose in Iceland and trading partner countries, and tourist arrivals to Iceland began to increase rapidly as a result. Tourism-related exports surged by over 273% year-on-year during the quarter, concurrent with the increase in tourist visits. Even so, services exports measured only 23%, and tourist arrivals only 14%, of the respective totals for Q2/2019.

Developments in goods exports in H1/2021 were well in line with the Bank's August forecast, however. In Q2, goods exports were up 16.3% year-on-year, which is consistent with that forecast. The steep rise in marine product exports was a major factor in this, although exports of other goods grew as well, particularly to aquaculture products and manufactured goods other than aluminium.

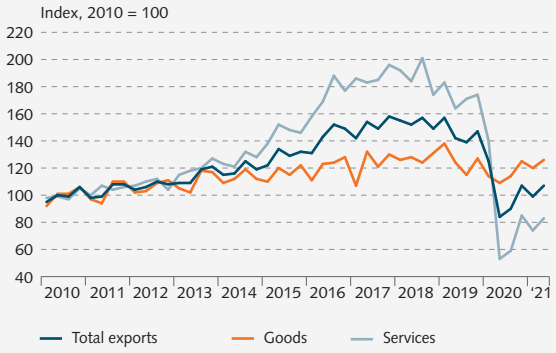
… and pick up in Q3

Export growth appears to have been stronger in Q3/2021 than was projected in August. Tourism recovered more decisively, and tourist arrivals trebled between years, although they were still barely more than half of the total for Q3/2019 (Chart III-14). Furthermore, there are indications that tourists stayed longer and spent more, on average, than in previous years. Moreover, exports of aluminium and other goods grew markedly during the quarter, concurrent with sharply rising prices, whereas marine product exports were weaker than in Q3/2020, after capelin exports peaked this spring.

Chart III-13

Exports of goods and services[1]

Q1/2010 - Q2/2021

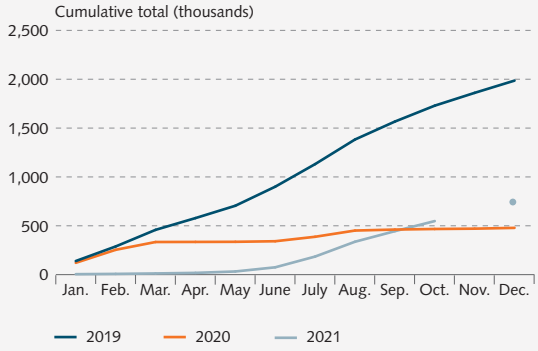


1. Seasonally adjusted volume indices.

Source: Statistics Iceland.

Chart III-14

Foreign nationals' departures via Keflavík Airport 2019-2021[1]



1. Cumulative total for each year. The dot indicates the 2021 total according to the Central Bank's baseline forecast.

Sources: Icelandic Tourist Board, Central Bank of Iceland.

Stronger goods exports in 2022 due to increased capelin quota

The outlook for goods exports in 2021 and 2022 has improved since the last forecast, with year-on-year growth in 2021 expected to measure 7.6% instead of the previously projected 6.1%. For marine product exports, the outlook has improved because of this the increased capelin quota for this fishing year, which offsets the reduction in the cod quota. Furthermore, aluminium exports look set to be stronger than was forecast in August.

The impact of the increased capelin quota will show more clearly in 2022, although it will be offset by the reduced quotas for blue whiting, mackerel, and Norwegian summer-spawning herring. The Bank's August forecast had assumed an increase in the capelin quota, but based on the quota recently issued, the value of capelin exports is expected to be some 30 b.kr. more than in that forecast. As a result, marine product exports are estimated to increase by 4.5% year-on-year instead of contracting by that amount, as was projected in August. The outlook is also for total goods exports to grow by 4.5% in 2022, as opposed to 1.2% in the August forecast. The improved outlook is due almost entirely to increased exports of capelin products.

Recovery of tourism set to continue

Despite this summer's swift rise in infection rates following the spread of the Delta variant of COVID-19, and Iceland's inclusion in the European and American public health authorities' red list, tourist numbers rose faster over the course of Q3 than had been assumed in the August forecast. It is now estimated that some 720,000 tourists will visit Iceland in 2021 as a whole, instead of the 680,000 forecast in August. This means that Q4 arrivals will be about 65% of the Q4/2019 total, about the same percentage as in the latter half of Q3 (Chart 2 in Appendix 1). Other leading indicators also imply that the sector will recover faster than previously anticipated. For instance, the number of Google searches for flights to Iceland and hotels in the country has risen since the summer and is approaching the pre-pandemic level. Furthermore, now that vaccinated foreigners are authorised to travel to the US – for the first time since March 2020 – the outlook is for international air travel to pick up in coming quarters. Thus the outlook is for the number of transit passenger numbers to rise again over the coming winter. The outlook for 2022 is also slightly better than was assumed in August, with tourist arrivals estimated at 1.5 million, which is more than in the August forecast but in line with the May forecast.

Prospects for tourism are still highly uncertain worldwide, and a setback in the fight against the pandemic could upend these projections. Furthermore, a rise in oil prices could push airfares upwards in the coming term and put a damper on appetite for travel.

Even though the outlook for tourism is brighter in H2/2021, growth was more sluggish in Q2; therefore, services exports are now projected to grow by about one-fourth in 2021 as a whole instead of the 29% forecast in August. Prospects for 2022 have improved, however, and growth is forecast at just over 42%, up from the scant 40% assumed in August.

Export outlook broadly unchanged for 2021 but more favourable for 2022

Total exports are estimated to increase this year by 14.1%, similar to the August forecast, with weaker services exports in Q2 offsetting stronger goods exports in H2 (Chart III-15). The outlook for 2022 has improved, and total exports are projected to grow by nearly 20%, as compared with the 16.7% forecast in August. The substantially increased capelin quota is a major driver of the improvement, although the brighter outlook for services exports is also a factor. If the forecast materialises, total export volumes will have returned to their 2017 level by the end of the forecast horizon, which is broadly in line with the August forecast.

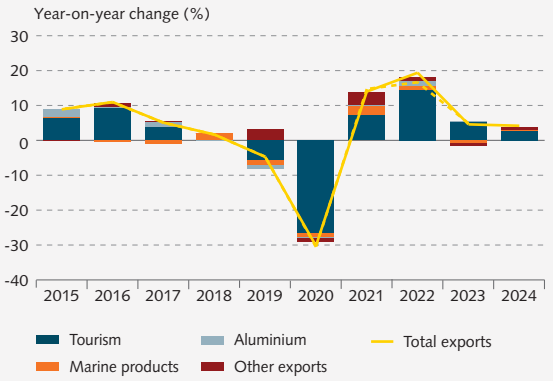
Continued growth in imports

Imports of goods and services grew by 10.4% quarter-on-quarter in Q2 (Chart III-16), led by imports of aircraft, although services imports and other goods imports grew as well. Imports were up by a third year-on-year, outpacing the August forecast of one-fourth. The difference is due mostly to stronger-than-expected aircraft imports, which in turn are due to the change in Statistics Iceland's treatment of aircraft leasing agreements.

Leading indicators imply that imports continued to grow in Q3, as Icelanders travelled abroad in far greater numbers and goods imports were stronger than previously anticipated. Icelanders' overseas travel is expected to increase still further in Q4, and more rapidly than was assumed in August. The outlook is also for considerably stronger growth in goods imports during the quarter. Aircraft imports are expected to increase, and there are signs of strong imports in many key goods categories as well. Total imports are therefore projected to increase by just over 18% this year, or 6 percentage points above the August forecast, and by 12% in 2022.

Chart III-15

Exports and contribution of subcomponents 2015-2024[1]



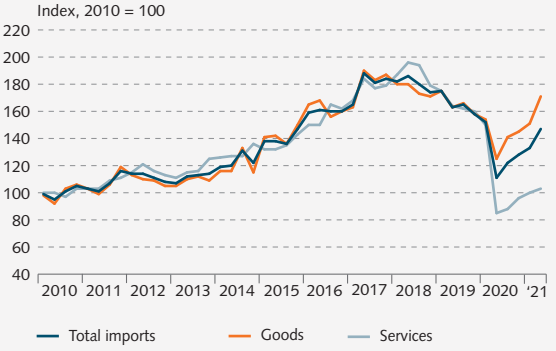
1. Because of chain-volume linking, the sum of components may not equal total exports. Tourism is the sum of "travel" and "passenger transport by air". Aluminium exports as defined in the national accounts. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-16

Imports of goods and services[1]

Q1/2010 - Q2/2021

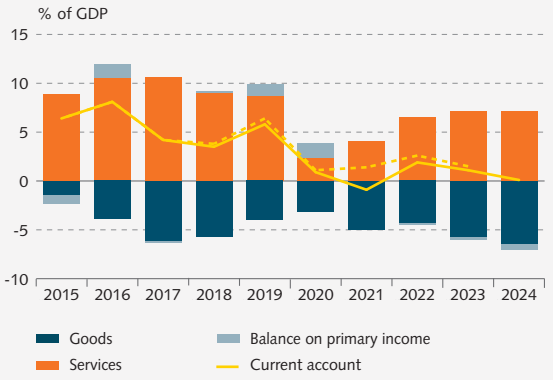


1. Seasonally adjusted volume indices.

Source: Statistics Iceland.

Chart III-17

Current account balance 2015-2024[1]



1. Current account excluding the effects of failed financial institutions in 2015. The balance on secondary income is included in the balance on primary income. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Current account to show a small deficit in 2021

Iceland recorded a current account deficit of 3.9% of GDP in Q2/2021, whereas the August forecast assumed a 1% surplus. The difference was due mainly to weaker services exports and increased goods imports, the latter of which stems from the aforementioned methodology change made by Statistics Iceland. In addition, the surplus on primary income was smaller than previously forecast. A current account surplus is still expected in Q3, followed by a larger one in Q4. The main drivers of the improvement are tourism-related services exports and more favourable terms of trade. Even so, a deficit measuring 0.9% of GDP is expected for 2021 as a whole (Chart III-17). If this materialises, it will be Iceland's first full-year current account deficit since 2008. The current account balance is projected to turn positive again in 2022, fuelled by increased growth in services exports and improved terms of trade. The surplus for the year as a whole is forecast at 1.9% of GDP, ½ a percentage point below the August forecast. As in August, the surplus is expected to narrow again in the latter half of the forecast horizon.

GDP growth

H1 GDP growth weaker than was forecast in August

GDP grew by 4.2% quarter-on-quarter in Q2/2021, compared to the almost 9% growth expected in August (Chart III-18). The weaker growth rate is due in large part to unfavourable developments in private consumption and exports, as is discussed earlier in this chapter. GDP grew by 7.3% year-on-year during the quarter, with 9.4% growth in domestic demand offset by a negative contribution from net trade in the amount of 2.3 percentage points (Chart III-19). In Q2, GDP grew somewhat less year-on-year than had been assumed in August, in part because of Statistics Iceland's revision of Q1 GDP growth figures. The difference for H1 is therefore smaller, with Statistics Iceland's preliminary numbers indicating a 3.5% growth rate for H1 as compared with 4.7% in the August forecast. As is discussed above, the change in Statistics Iceland's treatment of aircraft leasing contracts affects the comparison of GDP growth subcomponents: investment increases as a result, albeit offset by stronger imports.

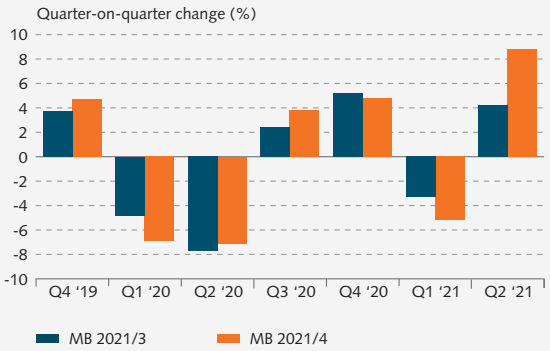
GDP growth set to outpace the August forecast in H2/2021 ...

To a large extent, strong growth in private consumption and investment explains why Q3/2021 GDP growth appears to have exceeded the August forecast. A more

Chart III-18

Quarterly changes in GDP growth[1]

Q4/2019 - Q2/2021



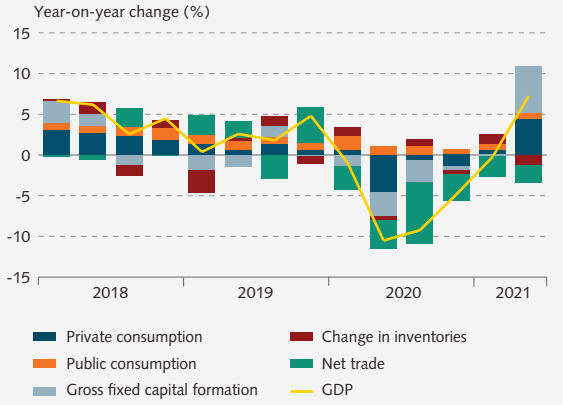
1. Seasonally adjusted figures. Data for the series MB 2021/4 show Statistics Iceland's measurement from August 2021, but data for the series MB 2021/3 show Statistics Iceland's measurement from May 2021, with the exception of Q2/2020 data, which are taken from the baseline forecast in MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-19

GDP growth and contribution of underlying components[1]

Q1/2018 - Q2/2021

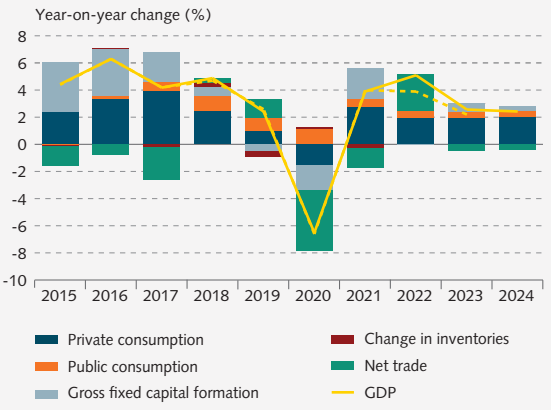


1. Because of chain-volume linking, the sum of expenditure components may not equal GDP growth.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-20

GDP growth and contribution of underlying components 2015-2024[1]



1. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

favourable contribution from net trade pulls in the same direction. The outlook is for a 6½% year-on-year increase in GDP in Q3. For 2021 as a whole, GDP growth is projected at 3.9%, some 0.1 percentage points below the August forecast (Chart III-20). The poorer outlook for 2021 reflects more sluggish growth in H1, although it will be offset in part by stronger GDP growth in H2.

… and in 2022 …

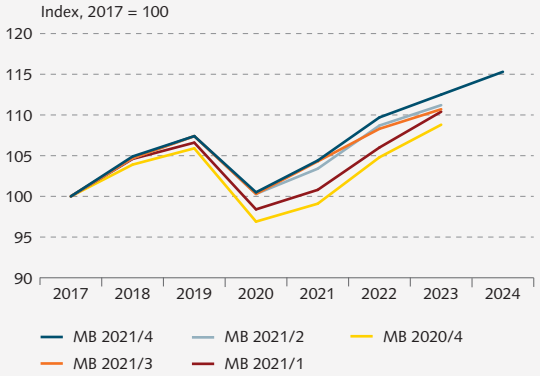
GDP growth is expected to accelerate still further in 2022, owing mainly to strong growth in exports as a result of increased revenues from tourism and a more favourable capelin season. The contribution of net trade to output growth will therefore be positive by 2.7 percentage points – the first positive contribution since 2019. The contribution of private consumption growth to GDP growth will also be positive, but less so than in 2021. GDP growth is projected to measure 5.1% in 2022, some 1.2 percentage points above the August forecast. About half of this revision is attributable to the expectation of an increased capelin catch.

… whereas the outlook further ahead is broadly unchanged

The GDP growth outlook for the long term is more or less unchanged. Growth is set to ease to 2.6% in 2023 and remain around that level in 2024. If this forecast materialises, GDP will return to its 2019 level slightly earlier in 2022 than was assumed in August. It will also remain higher over the entire period than in the Bank's previous forecasts (Chart III-21). As before, the outlook is subject to considerable uncertainty. Key uncertainties in the forecast are discussed in Box 1.

Chart III-21

Gross domestic product 2017-2024[1]



1. Central Bank baseline forecasts from November 2020 onwards.

Sources: Statistics Iceland, Central Bank of Iceland.

Labour market and factor utilisation

IV

Labour market

Jobs numbers rise swiftly, but average hours worked have fallen

According to the Statistics Iceland labour force survey (LFS), total hours worked increased by 3.5% year-on-year in Q3/2021, as the number of employed persons rose 4.3%, while the average work week was shorter by 0.8% (Chart 3 in Appendix 1). The number of employed persons has increased sharply since the beginning of 2021 and, in Q3, was a full 2% above the year-2019 average (Chart IV-1). Offsetting this is a more than 3% shorter work week. The shortening of the work week provided for in current wage agreements is estimated to account for nearly half of the change, according to estimates from Statistics Iceland of the impact the measure has had on the wage index. As a result, the rise in total hours worked has not kept pace with job growth, and in Q3/2021 total hours were 1% fewer than in 2019. However, total hours are somewhat greater than in 2019 once they are adjusted for Statistics Iceland's estimate of the effects of the contractual shortening of the work week.

The number of wage earners has also risen rapidly in 2021 to date. Data from the pay-as-you-earn (PAYE) register indicate that some 18,000 jobs were lost during the pandemic, but that around 16,700 jobs had been created by August 2021. Most of these jobs were in tourism, and the sector has reclaimed about half of those lost during the pandemic. Furthermore, in sectors that mainly reflect public services, there were nearly 7,000 more jobs than in 2019 (Chart IV-2).

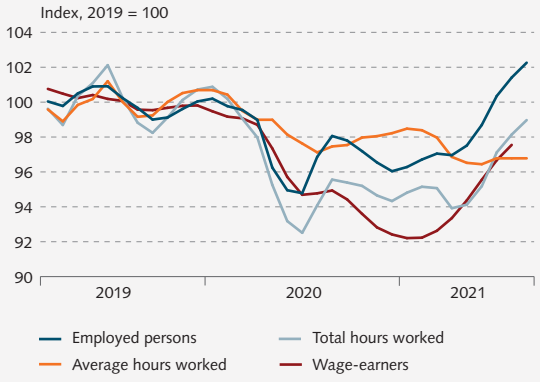
Unemployment approaches its pre-pandemic level

Seasonally adjusted LFS findings show that the labour participation rate was slightly higher in Q3/2021 than

Chart IV-1

Employment and hours worked[1]

January 2019 - September 2021

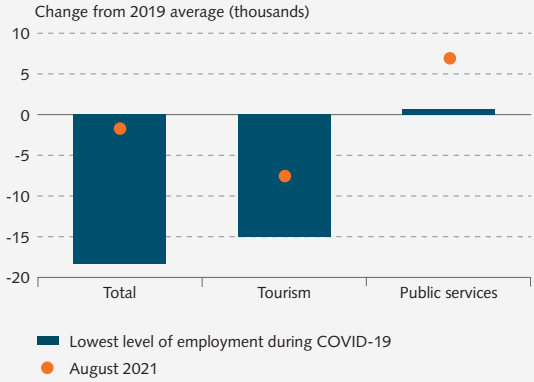


1. Wage-earners according to the Iceland Revenue and Customs' pay-as-you-earn (PAYE) register. Other figures are from the Statistics Iceland labour force survey. Persons aged 16-74 years old. Three-month moving average of seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-2

Change in job numbers during the pandemic[1]



1. Based on monthly number of wage-earners aged 16-74 years old according to the Iceland Revenue and Customs pay-as-you-earn (PAYE) register. Persons holding multiple jobs in different sectors are counted multiple times in the term "Total". As a result, the figures reflect the number of jobs more accurately than the number of employees. Public services includes public administration and defence, education, and human health and social services. Seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

in 2019, after rising for three consecutive quarters. The employment rate rose considerably more, although it was still nearly 1 percentage point below its 2019 level (Chart 3 in Appendix 1). The unemployment rate therefore declined by about 2 percentage points quarter-on-quarter in Q3, measuring 4.6%. For comparison, it measured nearly 4% in 2019. According to the LFS, labour market slack also shrank during the quarter, albeit less than unemployment did.

The difference between LFS-based unemployment and registered unemployment has continued to narrow. Adjusted for seasonality, the latter measured 5.1% in October and was nearly ½ a percentage point higher than in February 2020. Long-term unemployment has also fallen rapidly, but it is still relatively high in historical terms.

Government measures provide considerable support to the labour market

The recovery of the labour market has been supported in part by Government measures, particularly this past summer, when over 2,600 jobs were offered to students and a number of people benefited from hiring subsidies. It is estimated that if deregistration in connection with hiring subsidies is included, registered unemployment would have been roughly 2½ percentage points higher in October (Chart IV-3). This is probably the peak impact of the subsidies, however, as some of these workers would presumably have found jobs even without them. The level of Government support also declines as unemployment falls because the special job creation initiative will automatically expire when unemployment nationwide or in a given region falls to 6% or less. The initiative provides greater financial support and imposes more lenient requirements than conventional hiring subsidies do. In October, only the Suðurnes peninsula was above the 6% limit, whereas the capital area, where most jobseekers are located, fell below it last September.

Firms' recruitment plans reflect strong demand

Firms' recruitment plans turned sharply upwards in Q2 and remained strong in Q3. According to Statistics Iceland's corporate survey, there were nearly 8,400 job vacancies in Q3 – about 5,400 more than in Q3/2020 and over 3,700 more than in Q3/2019 (Chart IV-4). Furthermore, according to the seasonally adjusted results of the Gallup survey carried out this autumn among Iceland's 400 largest firms, the balance of opinion on staffing plans (i.e., firms planning to recruit net of those planning redundancies) was positive by 28 percentage points. Both surveys therefore indicate that job numbers

Chart IV-3

Registered unemployment[1]

January 2020 - October 2021

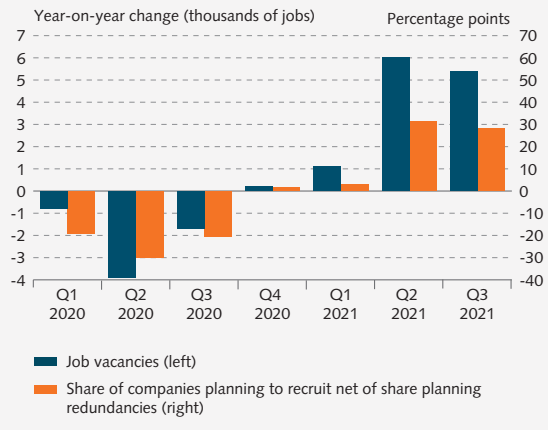
1. "Deregistered due to hiring subsidies" is an estimate based on the number of approved subsidies and other information from the Directorate of Labour. Because applicants may submit their forms at the end of the application period, older figures may be revised.

Sources: Directorate of Labour, Central Bank of Iceland.

Chart IV-4

Firms' staffing plans[1]

Q1/2020 - Q3/2021



1. Job vacancies according to Statistics Iceland company survey. Firms' recruiting plans in the coming 6 months according to Gallup survey of Iceland's 400 largest companies. The data are seasonally adjusted by the Central Bank of Iceland.

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

will continue rising in the coming term. It is uncertain, however, to what extent businesses' appetite for recruitment reflects hiring subsidies rather than an actual recovery of labour demand.

Labour importation on the rise

Iceland's population grew by 1.9% year-on-year in Q3, considerably more than in Q2 (Chart IV-5). The uptick in population growth is due mostly to immigration. It appears that importation of foreign workers will continue in tandem with the recovery of the domestic economy, owing to the large number of job vacancies that have not yet been filled.

Employment outlook ambiguous in the near term but set to improve over time

A large number of hiring subsidies will expire in Q4/2021, creating uncertainty about the short-term unemployment outlook. It is unclear how many subsidised employment relationships will remain intact thereafter, although the uncertainty is offset somewhat by firms' strong desire to add on staff and the overall shortage of workers. That said, the decline in unemployment could slow down or even reverse temporarily if a large number of people re-apply for unemployment benefits, as it can take some time to match job-seekers to vacancies. In the long run, however, the unemployment outlook is more favourable than in the Bank's August forecast. This is due to two factors: activity in the domestic economy has picked up more than was projected then, and estimates of the equilibrium unemployment rate have been updated. The baseline forecast assumes that job creation will continue and that LFS-based unemployment will measure 6% this year, falling to around 4% towards the end of the forecast horizon (Chart IV-6). Registered unemployment is estimated to be higher this year, at nearly 8%, but is also expected to fall to 4% by the end of the forecast horizon.

Indicators of factor utilisation

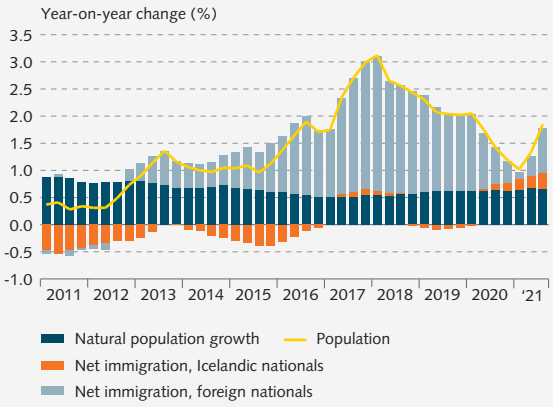
Labour productivity picks up again

Labour productivity declined markedly in 2020. In terms of GDP per total hours worked according to the LFS, it fell by 1.7% year-on-year. Another measure published by Statistics Iceland, this one based on total hours worked according to the national accounts, showed a year-on-year increase of nearly 1%, however. In both instances, productivity growth declined by roughly the same amount between years, just over 3 percentage points. The latter measure indicates that because of dif-

Chart IV-5

Population

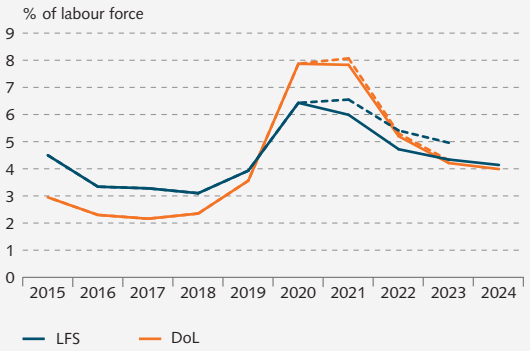
Q1/2011-Q3/2021



Source: Statistics Iceland.

Chart IV-6

Unemployment 2015-2024[1]



1. Unemployment according to Statistics Iceland labour force survey (LFS) and registered unemployment, excluding part-time benefits, according to the Directorate of Labour (DoL). Central Bank baseline forecast 2021-2024. The broken lines show the forecast from MB 2021/3.

Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

ferences in composition, labour productivity fell less in 2020 than it would have otherwise, as low-productivity sectors fared particularly poorly during the pandemic. To some extent, this reverses in 2021, but labour productivity is nevertheless expected to recover.

Output gap expected to turn positive in mid-2022

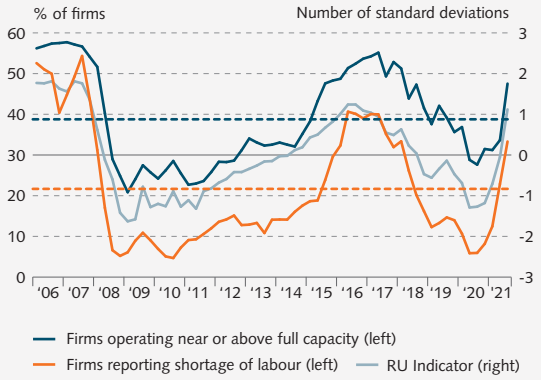
According to the seasonally adjusted results of Gallup's autumn survey of Iceland's 400 largest firms, a third of executives considered themselves short-staffed, and nearly half reported that their firm would have difficulty responding to an unexpected increase in demand (Chart IV-7). Both of these ratios are well above their historical average, and they are unusually high given the number of people on the unemployment register. Furthermore, the resource utilisation (RU) indicator, which combines various indicators of factor utilisation, rose steeply in Q3 and is now above its historical average for the first time since mid-2018.

It therefore appears that the slack in output is narrowing quickly and may even have closed already. On the other hand, revised national accounts figures indicate that, for much of this year, the output slack was slightly larger than previously estimated. There is also considerable uncertainty about potential output, which could be overestimated, given the severe disruptions in production currently affecting the global economy. As a result, it is extremely difficult to estimate how much slack remains in the domestic economy or whether a positive output gap has already opened up. According to the Bank's baseline forecast, some slack still remains, but it is expected to disappear in H2/2022 and a positive output gap to open up thereafter, peaking in early 2023. Owing to stronger GDP growth in 2022, the output gap will be somewhat wider than was assumed in the August forecast (Chart IV-8).

Chart IV-7

Capacity utilisation[1]

Q1/2006 - Q3/2021

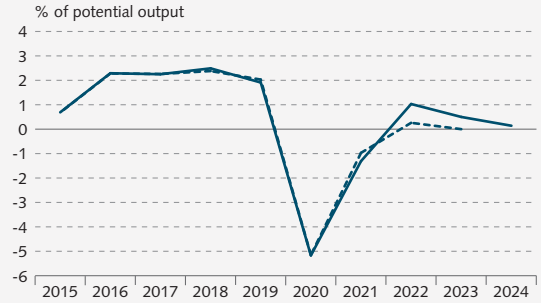


1. Indicators of capacity utilisation are based on the Gallup Sentiment Survey conducted among Iceland's 400 largest companies. The resource utilisation indicator (RU indicator) is the first principal component of selected indicators of capacity utilisation; it is scaled so that its mean value is 0 and the standard deviation is 1. A more detailed description can be found in Box 3 in MB 2018/2. Seasonally adjusted figures. Broken lines show period averages.

Sources: Gallup, Central Bank of Iceland.

Chart IV-8

Output gap 2015-2024[1]



1. Central Bank baseline forecast 2021-2024. The broken line shows the forecast from MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Inflation

V

Recent developments in inflation

Headline inflation has been persistent …

Inflation has been consistently above 4% since the beginning of this year. In Q3 it measured 4.3%, marginally above the August forecast. House prices were the main driver of inflation during the quarter, as they were in Q2. Fuel prices also had some impact, as global oil prices are higher now than before the pandemic and at their highest since late 2014 (see Chapter I).

Headline inflation measured 4.5% in October, and housing and petrol prices continued to be the main drivers of the month-on-month rise in the CPI (Chart V-1). Inflation excluding housing measured 3% and has fallen markedly in recent months. The difference between headline inflation and inflation excluding housing is the largest in over three years. Inflation according to the HICP, which also excludes owner-occupied housing costs, was higher, however, measuring 3.8% in September, slightly above the August reading.

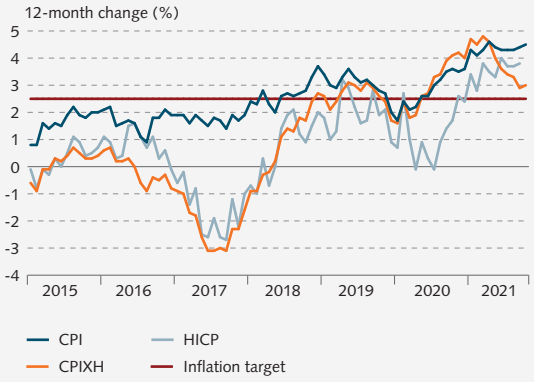
… but underlying inflation has eased since the last *Monetary Bulletin*

Underlying inflation has continued to fall. It measured 3.7% in October, according to the average of various measures (Chart V-2). According to all measures, inflationary pressures have eased in 2021 to date, but in other respects, they give divergent views of the situation. For example, underlying inflation is considerably lower in terms of the trimmed mean (which excludes subcomponents that show the most pronounced changes) and the weighted median (which is determined from the median price change of all CPI subcomponents). By both of these measures, underlying inflation was close to 3% in October. Since the pandemic struck, they have

Chart V-1

Various measures of inflation

January 2015 - October 2021

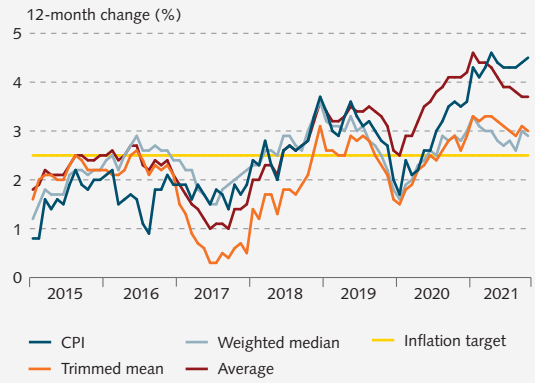


Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-2

Headline and underlying inflation[1]

January 2015 - October 2021



1. The calculation of the trimmed mean omits the subcomponents that change the most in any given month, while the weighted median is the median change of all CPI subcomponents. The average shows the average of five different measures of underlying inflation.

Sources: Statistics Iceland, Central Bank of Iceland.

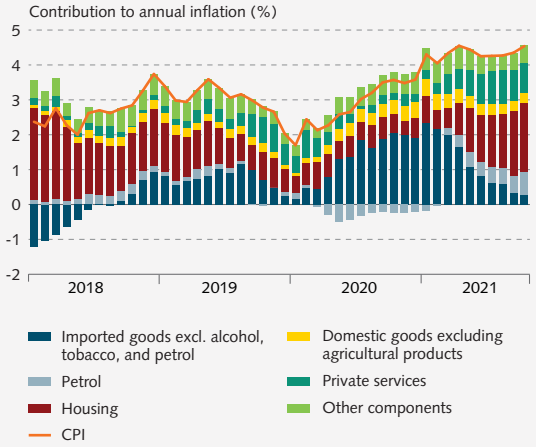
indicated a smaller rise in underlying inflation than is suggested by conventional core indices (which always exclude the same subcomponents, such as petrol). This accords better with the significant slack that opened up in the economy at the height of the pandemic.

House prices have weighed heavily in inflation over the past year, and in October, nearly half of twelve-month inflation stemmed from the housing component of the CPI (Chart V-3). The cost of owner-occupied housing has risen by about 11.8% in the past twelve months, up from 8.5% in July. As is discussed in Chapter II, there are signs that house prices have risen more than can be attributed to developments in the macroeconomic fundamentals that generally determine long-term house price movements.

Chart V-3

Components of CPI inflation

January 2018 - October 2021



Sources: Statistics Iceland, Central Bank of Iceland.

Indicators of inflationary pressures

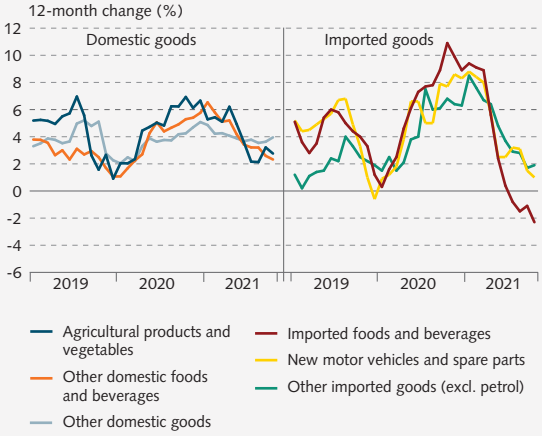
Imported inflation has eased …

The króna depreciated markedly after the onset of the pandemic early in 2020. The impact of the depreciation on imported goods prices has tapered off in recent months, and imported inflation has subsided. As of October, imported goods prices had risen 2.9% over the previous twelve months. In particular, imported food price inflation has eased; indeed, prices have fallen by 2.3% year-on-year (Chart V-4). Furthermore, the twelve-month rise in the price of various imported goods – such as clothing, electronic equipment, and furniture – has lost pace in recent months, measuring 1.9% as of October.

Chart V-4

Domestic and imported goods prices

January 2019 - October 2021



Source: Statistics Iceland.

… but the outlook is cloudy due to turbulence abroad …

Global inflation has risen in recent months, in part due to steep rises in energy and commodity prices, increased demand following the relaxation of public health measures, and the impact of worldwide supply-chain bottlenecks (see Chapter I). The pandemic led to disruptions in production around the world and obstructed cross-border distribution of goods, which in turn caused a spike in shipping costs. The spread of the Delta variant of the virus then caused further disruption – for instance, in factories and harbours. Because of the spread of the variant, together with growing demand, it has taken longer to unwind these supply-chain disruptions. The problem has escalated still further in recent months because of peak activity during the run-up to the holiday season. The effects could therefore persist well into 2022.

The results of Gallup's autumn survey of corporate executives' expectations suggest the risk of continued

increases in product prices. About 58% of executives expect to raise the price of their own goods and services in the next six months, and about 78% expect the price of intermediate inputs to rise. This is a substantial increase relative to the spring survey (Chart V-5). Furthermore, a larger number of survey participants cited input prices as the main driver of their own price increases in the coming term.

… and private services prices have begun to rise

Once a large share of Iceland's population had been vaccinated and public health measures eased, private services prices began to rise, and by October they were up 3.7% year-on-year. The subcomponents that have risen most in price are accommodation and maintenance services. Airfares have also risen in the past year (Chart V-6).

Wages up sharply in the recent term

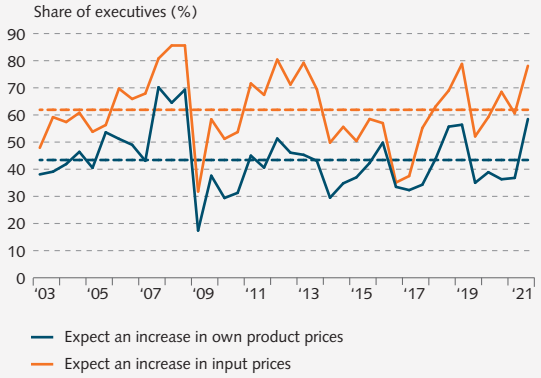
Historical figures for wages and related expenses were revised slightly in the national accounts published in August. The largest revisions were for 2018. The wage share – i.e., the ratio of wages and related expenses to gross factor income – is now estimated to have measured 61.3% in 2020, some 0.3 percentage points higher than in the previous national accounts figures and 1.7 percentage points above its twenty-year average.

The general wage index rose in line with expectations in Q3, or by 0.7% between quarters and 7.8% year-on-year (Chart V-7). In H1/2021, the total wage index was up 9.6% year-on-year, or 0.6 percentage points more than the general wage index. This indicates that the changed composition of wages or labour volume was conducive to higher wages per hour, and it is somewhat surprising that a similar trend could not be seen in 2020, when low-paying jobs declined markedly in number. The estimates of wages and labour volume in the national accounts suggest, however, that hourly labour compensation increased in 2020, owing to changes in sectoral composition. This made little impact on unit labour costs, however, as there was a comparable effect on labour productivity (see Chapter IV). According to the Bank's baseline forecast, unit labour costs are assumed to rise by just over 4% in 2021 and by an average of just under 6% per year throughout the forecast horizon. This is a larger increase than was assumed in the August forecast, mainly because it now appears that the contractual provision allowing for a so-called GDP growth supplement will indeed be triggered, which will cause even greater wage increases over the next two years.

Chart V-5

Corporate expectations of input and product prices 6 months ahead[1]

March 2003 - September 2021

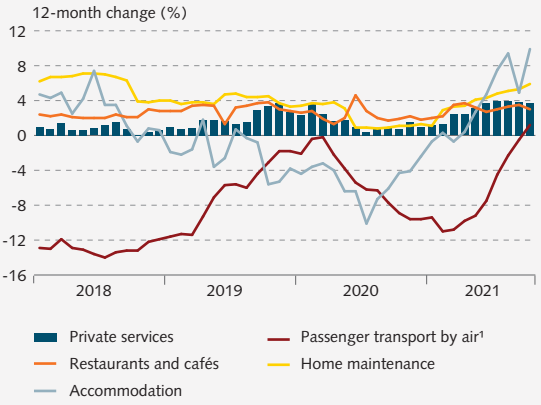


1. Broken lines show averages from 2003.
Sources: Gallup, Central Bank of Iceland.

Chart V-6

Private services and selected subcomponents of the CPI

January 2018 - October 2021

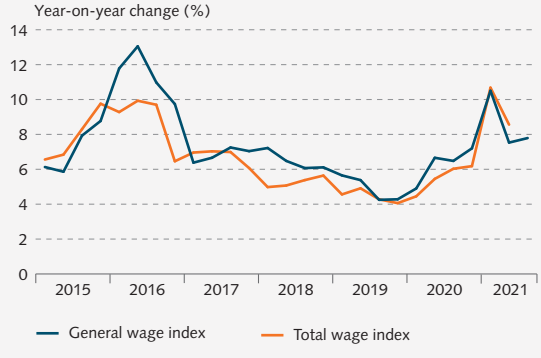


1. Twelve-month moving average.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-7

Wages

Q1/2015 - Q3/2021



Source: Statistics Iceland.

Inflation expectations

Developments in short-term inflation expectations have diverged in the recent term …

Developments in short-term inflation expectations have to some extent been affected by the fact that inflation has been more persistent than was anticipated. Market agents expect inflation to measure 3.3% one year ahead, which is higher than in the August survey, whereas they still expect it to be at target in two years' time (Chart V-8). According to Gallup's autumn survey, corporate executives expect inflation to average 3%, both one and two years ahead. Their one-year expectations were lower than in the summer survey. Thus they appear to expect inflation to start easing in the near future, even though the survey shows that a larger number of executives expect to raise their own product prices, as is mentioned above. Households, on the other hand, expect inflation to remain high, and their expectations two years ahead rose to 3.5% in the autumn survey.

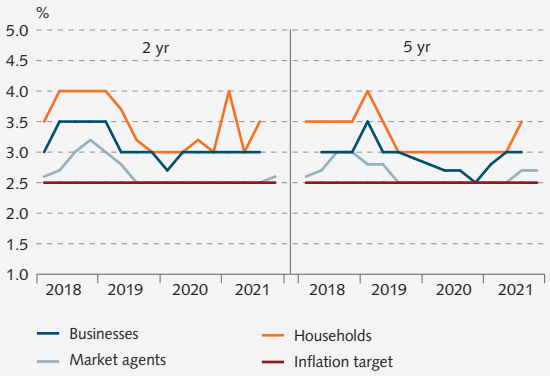
… but long-term inflation expectations have risen by some measures

This autumn, there were signs that long-term inflation expectations had begun to ease after having risen temporarily early in the year. The breakeven inflation rate in the bond market has risen again in recent months, however. The five-year breakeven rate five years ahead was just over 3% in mid-November, as compared with 2.6% at the end of August (Chart V-9). Households' long-term inflation expectations had also risen according to the autumn survey, to 3.5%. Corporate executives, on the other hand, still expect inflation to measure 3% over the next five years. Furthermore, market agents' five- and ten-year expectations were unchanged since the August survey, and market participants still expect average inflation to be close to the target in the long run.

Chart V-8

Two- and five-year inflation expectations[1]

Q1/2018 - Q4/2021



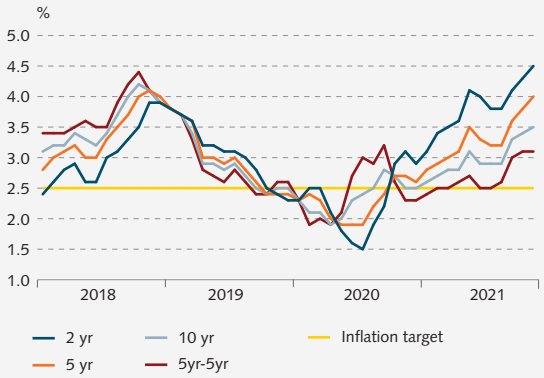
1. Gallup surveys of households' and businesses' inflation expectations and Cental Bank survey of market agents' inflation expectations. Median responses.

Sources: Gallup, Central Bank of Iceland.

Chart V-9

Breakeven inflation rate[1]

January 2018 - November 2021



1. Monthly averages.

Source: Central Bank of Iceland.

The inflation outlook

Inflation to ease more slowly than previously forecast

In Q3/2021, inflation was marginally above the August forecast, and the near-term outlook has deteriorated significantly. Inflation is forecast at 4.7% in Q4/2021 and 4.4% in Q1/2022, or 0.7 percentage points above the August forecast (Chart V-10). It therefore looks set to remain above 4% for longer than previously anticipated, and not to fall below 3% until Q4/2022.

The bleaker inflation outlook is due in particular to a poorer initial position and higher imported inflation than was assumed in August. Global inflation has

gained pace considerably, oil prices have risen more than previously expected, and the effects of supply-chain bottlenecks and disruptions in production appear likely to persist longer than previously assumed. Furthermore, in Iceland, a larger output gap is expected in the next two years, wages and house prices are projected to rise more than previously forecast, and the exchange rate of the króna is expected to be slightly lower over the forecast horizon than was projected in August. Moreover, because of the recent rise in long-term inflation expectations, it will take longer for the inflationary impact of cost increases to subside. According to the baseline forecast, inflation will be close to target by the end of 2022 and then rise slightly in the latter half of the forecast horizon, averaging 2.9% in 2023. It is expected to ease back towards the target thereafter.

Inflation risk still concentrated on the upside

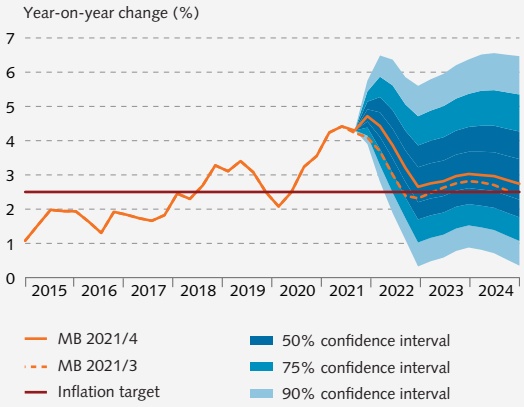
As is discussed in Box 1, the inflation outlook is highly uncertain at present. In the short run, it will be driven mainly by the exchange rate of the króna and house prices, but also by how quickly the supply-chain disruptions brought on by the pandemic can be unwound and by energy prices, which have risen steeply in the recent term. Further ahead, inflation will depend largely on inflation expectations – how they develop and whether they become unmoored from the target – given that inflation looks set to be relatively persistent.

The risk profile is considered tilted to the upside; i.e., near-term inflation is likelier to be underestimated in the baseline forecast than it is to be overestimated. The confidence interval is also wider than in August. There is a 50% probability that inflation will be in the 1¾-4% range in one year and in the 1¾%-4¼% range by the end of the forecast horizon (Chart V-10).

Chart V-10

Inflation forecast and confidence intervals

Q1/2015 - Q4/2024



Sources: Statistics Iceland, Central Bank of Iceland.

Box 1

Alternative scenarios and uncertainties

The baseline forecast reflects the most likely economic developments during the forecast horizon. The economic outlook is uncertain, however, and could change in response to changes in key assumptions underlying the forecast. While uncertainty about developments in the COVID-19 pandemic and its direct and indirect impact is still a major factor, there are other uncertainties as well. This Box discusses the most prominent of them and presents two different alternative scenarios. One scenario shows how economic developments could change if it takes longer to unwind global supply-chain problems and if imported inflation turns out higher than in the baseline forecast. The other scenario describes how economic developments could play out if Icelandic households are quicker to tap the savings they accumulated during the pandemic than is assumed in the baseline.

Alternative scenario: Global price hikes prove more persistent

Global inflation has risen markedly in the recent term, owing to surging demand concurrent with bottlenecks in international supply chains, which in turn are due to the pandemic and the various supply shocks that have hit the global economy in the past year. The price of commodities and various intermediate inputs has therefore increased rapidly, and shipping costs have risen at an unprecedented rate (see Chapter I). For example, commodity prices were almost 90% higher in May 2021 than in the same month of 2020, and the price of advanced economies' exported goods was up nearly one-fifth (Chart 1). These price hikes have been far in excess of those projected by the Central Bank and other forecasters. As can be seen in Chart 2, the current baseline forecast assumes that commodity prices will rise this year by just under one-third between annual averages, whereas the Bank's forecasts from 2020 assumed an increase of just 2-2½%. As a result, the outlook is for the price of trading partners' goods and services exports to increase by a full 6% this year instead of the 1% forecast in 2020. The outlook for Iceland's foreign currency import prices has changed similarly.

As Chart 1 indicates, the year-on-year increase in commodity and exported goods prices appears to have peaked, and the baseline forecast assumes that price increases will lose pace as progress is made in addressing supply-chain problems and a portion of household demand shifts from

Chart 1

Export and commodity prices[1]

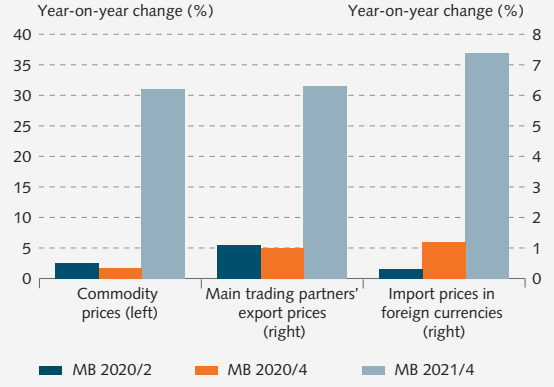
January 2014 – August 2021

1. Export and commodity prices in US dollars. Export prices is the weighted average of export prices in advanced economies.

Source: CPB World Trade Monitor.

Chart 2

Monetary Bulletin forecasts of developments in global prices in 2021[1]



1. Commodity prices excluding oil in US dollars. Export prices are the weighted average of key trading partners' goods and services exports. Iceland's import prices are in foreign currencies (based on the trade-weighted exchange rate index).

Source: Central Bank of Iceland.

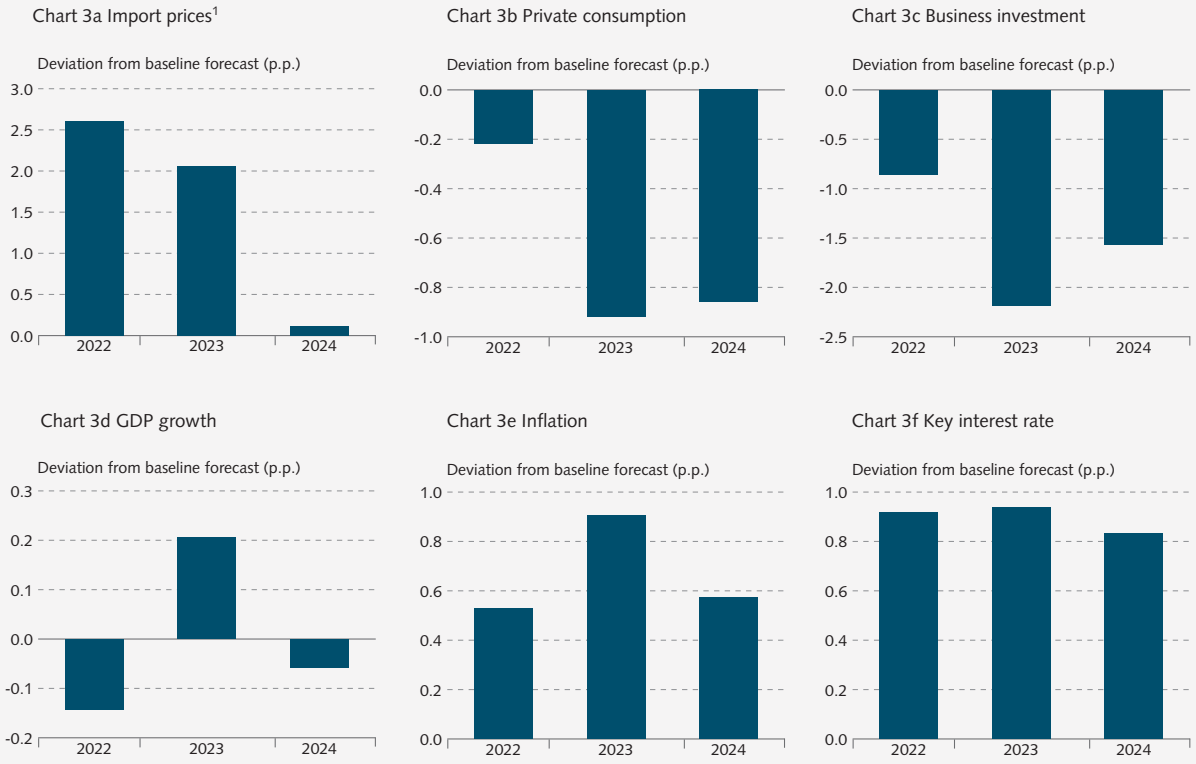
goods to services. This assumption is quite uncertain, however. It could take longer to smooth out the problems in the supply chain, and a further setback in the fight against the pandemic could exacerbate those problems even further. In that instance, global inflationary pressures could prove more persistent than is currently expected. Furthermore, under such conditions, workers could demand even larger pay hikes in anticipation of continued rises in consumer prices, and firms could be forced to push a larger share of the increased cost through to output prices. Medium-term inflation expectations could therefore start to rise, making inflation harder to contain and calling for an aggressive monetary policy response to bring it into line.

In order to show the potential impact of such a scenario on the domestic economic outlook, this alternative scenario assumes that global oil prices will remain broadly at the current level throughout the forecast horizon instead of declining in tandem with futures prices, as is provided for in the baseline forecast. In addition to this, it is assumed that other commodity prices and trading partners' export prices will increase by a total of nearly 8 percentage points more than in the baseline forecast over the next two years and then develop as in the baseline from 2024 onwards. Consumer price inflation in trading partner countries will also be more persistent: instead of easing as soon as 2022 and falling below 2% in 2023, it is assumed to remain at the current level next year and not fall below 2% until 2024. Protracted supply-chain disruptions will also lower GDP growth among Iceland's main trading partners by about 0.3 percentage points per year over the forecast horizon. Moreover, it is assumed that persistent domestic inflation above 4%, together with imported inflationary pressures, will cause inflation to become less firmly anchored to the Bank's inflation target. As a result, long-term inflation expectations are ½ a percentage point higher than in the baseline forecast over the next five years. It is assumed as well that increased fear of inflation will cause a rise in term premia on domestic long-term interest rates and risk premia on the Icelandic króna.

As Chart 3a shows, this would cause the foreign currency price of imports to rise by a full 2 percentage points more per year in 2022 and 2023. The króna is also weaker than in the baseline, and the domestic currency price of imports therefore rises about 3 percentage points more per year in 2022 and 2023, and just over 1 percentage point more in 2024. Imported goods and services will therefore be more expensive than in the baseline forecast, reducing households' real incomes. Added to this are higher domestic interest rates (see below), which will dampen domestic demand. Consequently, private consumption grows by a total of 2 percentage points less than in the baseline forecast

Chart 3

Alternative scenario: Global supply-chain problems persist longer and imported inflation proves more persistent



1. Deviation of year-on-year increase in import prices in foreign currencies (based on the trade-weighted exchange rate index).
Source: Central Bank of Iceland.

over the next three years, and business investment by nearly 5 percentage points less (Charts 3b and 3c). Export growth is also more sluggish because of a weaker economic recovery abroad, although this is offset to an extent by a lower real exchange rate. The impact on GDP growth is limited, however, as the contraction in domestic demand shows largely in a contraction in imports, according to this scenario (Chart 3d). The extent to which the adjustment of households' and businesses' spending shifts out of the domestic economy is uncertain, however, although the experience gained from the negative shocks of the past two years certainly supports this model conclusion (see Box 3).

As Chart 3e indicates, larger global price hikes and the depreciation of the króna cause inflation to be 0.5 percentage points above the baseline forecast in 2022, and as much as 1 percentage point above the baseline in 2023. From then on, the effects start to subside gradually, partly reflecting higher interest rates (Chart 3f). In 2022, the Central Bank's key interest rate is nearly 1 percentage point above the baseline, and this difference is maintained throughout the forecast horizon so as to ensure that inflation eases back to the target over time. The monetary policy response does not need to

be this strong, however, if long-term inflation expectations remain anchored, as inflation will then rise less and taper off faster than is shown in this scenario.

Finally, Chart 4 shows a comparison between the inflation outlook in the alternative scenario and the probability distribution in the baseline forecast. As can be seen, the inflation forecast in the alternative scenario is about 1 percentage point above the baseline from late 2022 through end-2023, and inflation measures over 4% well into 2022 and 3% for the forecast horizon as a whole. The forecast in the alternative scenario lies within the 50% confidence interval of the baseline forecast for the entire forecast horizon.

Alternative scenario: Households tap their savings more rapidly

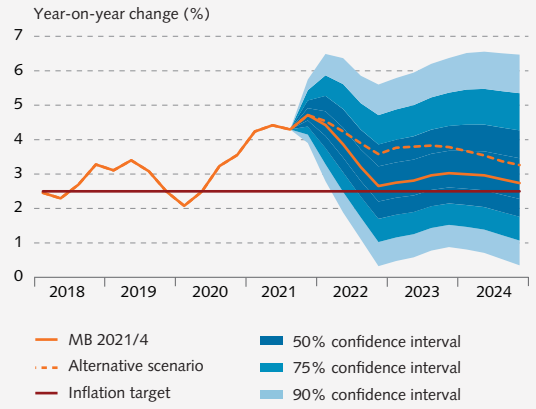
Household saving increased significantly after the pandemic reached Iceland early in 2020 (Chart III-1 in Chapter III). Uncertainty about the economic and employment outlook surged, and broad-based public health measures hindered households' access to various types of services they would otherwise have purchased. In addition, border closures made a large dent in international travel. Consumption spending contracted sharply as a result, and much more than household incomes did, despite a worsening employment situation, which reflects, among other things, Government support measures to preserve jobs and incomes during the pandemic. Because of this, the ratio of savings to disposable income soared in Q2/2020, to more than double the average for the preceding five years.

As has been discussed previously in *Monetary Bulletin*, uncertainty about how much and how quickly households decide to tap their extra savings creates greater uncertainty about the economic outlook in the wake of the pandemic. Various issues relating to developments in saving patterns are explored in Box 1 of *Monetary Bulletin* 2020/4. The baseline forecast published at that time assumed that the saving ratio would have fallen to its pre-pandemic level by H2/2021. But as Chart III-1 shows, this projection has not materialised. *Monetary Bulletin* 2020/4 also included an alternative scenario in which the saving ratio falls more slowly, and closer to the pace provided for in the current baseline forecast (Chart 5). On the other hand, the possibility cannot be excluded that the saving ratio will fall even further now, with the end of the pandemic possibly in sight, reaching its pre-pandemic level during the forecast horizon, as was projected in the baseline forecast in *Monetary Bulletin* 2020/4, even though it does so later than was assumed there.

Chart 4

Inflation forecast based on baseline forecast and alternative scenario

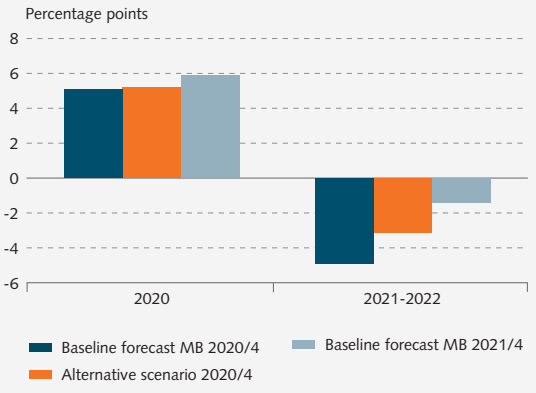
Q1/2018 - Q4/2024



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 5

Change in household saving ratio[1]

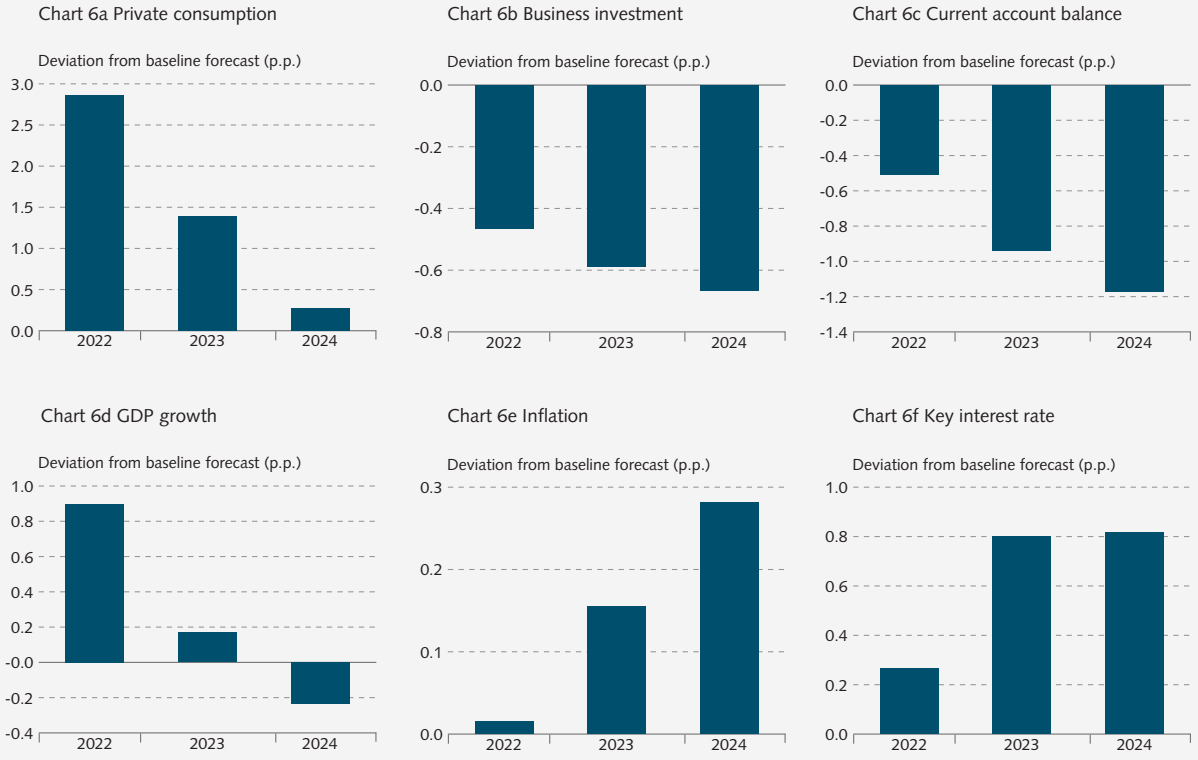


1. Change in saving ratio from 2019-2020 and from 2020-2022. The ratio is calculated based on Central Bank estimates of disposable income.

Source: Central Bank of Iceland.

Chart 6

Alternative scenario: Household tap accumulated savings more quickly



Source: Central Bank of Iceland.

Chart 6 shows how the economic outlook could be affected if the saving ratio falls more rapidly than in the baseline forecast. According to the alternative scenario, the saving ratio is 2 percentage points below the baseline forecast in 2022, and 3 percentage points below it at the end of the forecast horizon. Household demand therefore grows considerably faster than in the baseline: private consumption growth is around 3 percentage points stronger in 2022 and 1½ percentage points stronger in 2023 (Chart 6a). Increased household spending crowds out business investment, however, owing to greater strain on domestic factors of production, which leads to higher domestic interest rates (see below). As a result, business investment grows more slowly than in the baseline forecast by ½ a percentage point per year over the forecast horizon (Chart 6b). On the whole, domestic demand grows more quickly than in the baseline, however, and declining national saving causes the current account balance to deteriorate by 1¼ percentage points of GDP by the end of the forecast horizon (Chart 6c). Although GDP growth is offset by increased demand for imported goods and services, it will be about 1 percentage point stronger in 2022 and ¼ a percentage point stronger in 2023 (Chart 6d). As a result, it will measure just over 6% in 2022 instead of

the 5% assumed in the baseline forecast, and the GDP level will be nearly 1% higher by the end of the forecast horizon. Increased domestic economic activity will cause an output gap to open up earlier, and even though the króna will be a full 1% stronger in 2022 than in the baseline forecast, headline inflation will be 0.2-0.3 percentage points higher over the forecast horizon (Chart 6e). In order to ensure that inflation ultimately realigns with the target, the Bank's interest rates will be about 0.8 percentage points higher over the next two years (Chart 6f).

Other uncertainties

The economic outlook depends on success in containing the pandemic

The medium-term economic outlook is subject to a number of other uncertainties. An important one is the level of success in bringing the COVID-19 pandemic to an end. Although a large share of Icelanders have now been vaccinated and most public health restrictions have been lifted, the efficacy of the vaccines – particularly against new variants of the virus – is still uncertain. As a consequence, the possibility of a setback in the fight against the pandemic and the reinstatement of at least some public health restrictions – which could impede GDP growth once again – cannot be ruled out (see, for instance, the alternative scenario to this effect in Box 1 of *Monetary Bulletin* 2021/2).

The economic outlook could change if fiscal policy deviates from the current fiscal plan

Another key uncertainty lies in fiscal policy in the wake of the recent Parliamentary elections, as well as the fact that many local governments' operating environment has grown more challenging in the recent past. Because the fiscal budget proposal for 2022 has not yet been published, the current baseline forecast is based largely on the expenditure framework proposed in the fiscal plan from March 2021 (see Chapter III). Although continued collaboration among the previous Government coalition parties enhances the likelihood that the 2022 budget will be broadly in line with the fiscal plan, it is possible that fiscal policy will be more accommodative than is assumed in the baseline forecast. If so, both domestic demand growth and inflationary pressures will be stronger than in the baseline forecast, all else being equal. In that instance, monetary policy may need to be tighter than currently assumed, as described in the alternative scenario in Chapter I of *Monetary Bulletin* 2019/4.

Increased global economic uncertainty could push risk premia higher than in the baseline forecast

Among other uncertainties is the global economic outlook, particularly to include the risk that the disruption of global supply chains will have an even more deleterious impact on world trade, causing global economic activity to soften once again. Global economic uncertainty could also increase still further, leading to abrupt changes in financial conditions worldwide, a repricing of risk, and a rise in risk premia on domestic financial assets.

The pandemic has radically changed spending patterns, complicating the assessment of the economic outlook

Business practices and household spending patterns have changed substantially in the wake of the pandemic, and it is highly uncertain whether, or how quickly, these changes will reverse. Some of them, such as increased e-commerce and remote working, are likely to prove permanent, but others – the impact on the housing market, for example – are less predictable. Furthermore, the GDP growth outlook will depend on the extent to which households' and businesses' increased proclivity to spend is directed at domestic production rather than imported goods and services.

The inflation outlook is highly uncertain

All of the points listed above make assessing the inflation outlook more difficult than it would be otherwise, as is explained in the two alternative scenarios presented at the beginning of this Box. Uncertainty about the global inflation outlook is a major complicating factor. Added to this is the recent surge in energy prices, which stems in part from the effects of the ongoing switch to green energy, and it is uncertain how long these effects will persist.

There is also significant uncertainty about the outcome of the wage negotiations slated for next year, but if they result in continued pay rises well in excess of productivity, inflation over the forecast horizon could be underestimated. Underlying inflationary pressures could also prove stronger if the rise in house prices does not abate as is assumed in the baseline forecast.

The economic repercussions of the pandemic have had a profound effect on potential output, making it more difficult to estimate the slack in output and project how quickly it will narrow. As a result, it is harder than usual to estimate underlying inflationary pressures, particularly in view of rapid changes in relative prices.

As before, the exchange rate of the króna will also be a major determinant of inflation in the coming term. According to the baseline forecast, the effective exchange rate will hold

relatively stable over the forecast horizon; however, further appreciation would cause inflation to subside faster, other things being equal – both by reducing imported inflation and by directing a larger share of domestic spending out of the local economy, thereby easing pressure on domestic factors of production. On the other hand, if the króna depreciates again, inflation will decline more slowly than is currently forecast, all else being equal, or it could even rise further.

As is discussed in the alternative scenario earlier in this Box, developments in inflation expectations will play a key role in how strong and persistent an impact global price hikes will have on the domestic price level. The same is true of the effects of wage rises or a depreciation of the króna. Inflation has now been above 4% for yearly a year, and the risk that inflation expectations will become unmoored is growing. If that happens, inflation could prove more stubborn than is currently forecast.

Consequently, the inflation outlook is unusually uncertain at present, and although inflation has been more persistent recently than was forecast in August, the risk profile is still considered to be tilted to the upside and the risk to the inflation outlook has been revised upwards.

Box 2

A new version of the Central Bank's DYNIMO model

Monetary policy decisions must be grounded in an assessment of the economic situation and outlook, and such an assessment needs to rely on economic models. As a result, Central Bank staff devote considerable work to the development of various macroeconomic models. Although its main macroeconomic model is QMM (Quarterly Macroeconomic Model; see Daníelsson *et al*., 2019), in recent years the Bank has been developing a dynamic stochastic general equilibrium (DSGE) model for use in forecast preparation, for example as a cross-check for the baseline forecasts obtained with QMM. The Bank's DSGE model, called DYNIMO (Dynamic Icelandic Model), was recently released in its third version, together with a supporting handbook. Version III represents a comprehensive review and update of the model (Thórarinsson, 2020). This Box presents a brief discussion of DYNIMO and the principal modifications made since the previous version. It also compares DYNIMO forecasts with the baseline forecasts published in *Monetary Bulletin*.

The main characteristics of DYNIMO

DYNIMO is a DSGE (dynamic stochastic general equilibrium) model. Its principal characteristics are as follows:

1. The model is *dynamic* in that the value of economic variables and decisions made at any given time by individuals, firms, and economic policy makers have intertemporal effects.
2. It is *stochastic*, in that deviations of variables from the steady-state can be attributed to stochastic shocks hitting the economy. The assumption is that households and businesses are familiar with the probability distribution of these shocks and make decisions accordingly.
3. It is a *general equilibrium* model, in that economic relationships are derived from the optimisation of businesses' profits and households' consumption. Attempts are made to explain developments in the economy as a whole where equilibrium is determined in all markets simultaneously.

Like most other DSGE models, DYNIMO is New Keynesian; i.e., it assumes that key markets are monopolistically competitive and that nominal variables such as wages and prices are rigid.

In recent years, DSGE models have gained in popularity. The Central Bank of Iceland began developing a DSGE model in 2008 and published the first version in Seneca (2010). Since then, the model has been in constant develop-

ment, and its importance in the Bank's analysis and forecasting has increased.

Key changes in DYNIMO Version III

Macroeconomic models are revised regularly to reflect changed economic conditions, new data that affect parameter estimation, and advances within the field of economics. The following is a summary of key changes made to DYNIMO since previous versions were published. A detailed description of the updated version of the model can be found in the new handbook (Thórarinsson, 2020).

Model estimation period

In previous versions of DYNIMO, the model was estimated using data for the period 1991-2015, whereas the most recent version uses data for 2011-2019. This prevents the economic impact of the financial crisis from affecting the underlying equilibrium of the model to an excessive degree.

The monetary policy rule in the model

Previous iterations of DYNIMO used a monetary policy rule that reflected changes in the Central Bank's monetary policy objectives over the estimation period. The Bank formally adopted its inflation target in 2001, and in order to reflect the pegged exchange rate regime in place until that time, it was considered appropriate to allow the Bank's interest rates to be determined not only by inflation and the output gap, as in the standard Taylor rule, but by the exchange rate of the króna as well. The new version of DYNIMO uses data from the period after the adoption of the inflation target, however, and therefore applies the standard Taylor rule, in which the Bank's key rate is determined by the deviation of inflation from target and the output gap.

More detailed export sector classification

Iceland is a small open economy that relies on a small number of dissimilar export sectors, particularly tourism, aluminium exports, and fisheries. Aluminium companies' potential output is subject to medium-term constraints, and fisheries' supplies are limited by fishing quotas. In general, aluminium companies utilise all of their potential and therefore respond little, if at all, to short-term fluctuations in product prices and demand. This is also true of fisheries, whose catches are aligned with the quotas issued each year. Because of this, a category called specialised export firms producing non-differentiated goods was included in the most recent version of DYNIMO, so as to generate a more realistic view of an important aspect of the domestic economy. QMM uses a similar classification of export firms.

Selection of parameter values

The Icelandic economy has changed markedly since the time covered by the data used for previous versions of DYNIMO. This can be seen, for instance, in a comparison of the output share of various export sectors, as tourism's share has grown markedly, while the fishing sector's share has shrunk. Furthermore, the past few years have been characterised by relatively low and stable inflation and low interest rates, both in Iceland and elsewhere. The parameters of DYNIMO are "deep" in the sense that they reflect the properties of households' utility functions and firms' production functions. Given the magnitude of the structural changes in the domestic economy, it was necessary to revise these parameters for the new version of the model.

Comparison with QMM

DYNIMO is fundamentally different from QMM, the Bank's main forecasting model. First of all, DYNIMO is a general equilibrium model, where equilibrium is determined for all markets simultaneously, while supply and demand in these markets are derived from the optimisation of households' and businesses' profits and consumption. QMM, on the other hand, is based on statistically estimated behavioural relationships and accounting equations that are not subject to the constraints that general equilibrium imposes on the economic relationships in DYNIMO.

Second, individual equations in DYNIMO are estimated simultaneously, while individual equations in QMM are estimated separately. Furthermore, the parameter values in DYNIMO are either estimated using Bayesian statistical methods or obtained directly from research findings on the behavioural relationships in question.

Third, convergence is guaranteed in DYNIMO; i.e., all variables converge with long-run equilibrium. In QMM, this is not necessarily guaranteed, although the model usually converges with equilibrium when GDP growth is in line with potential output growth and inflation is at target.

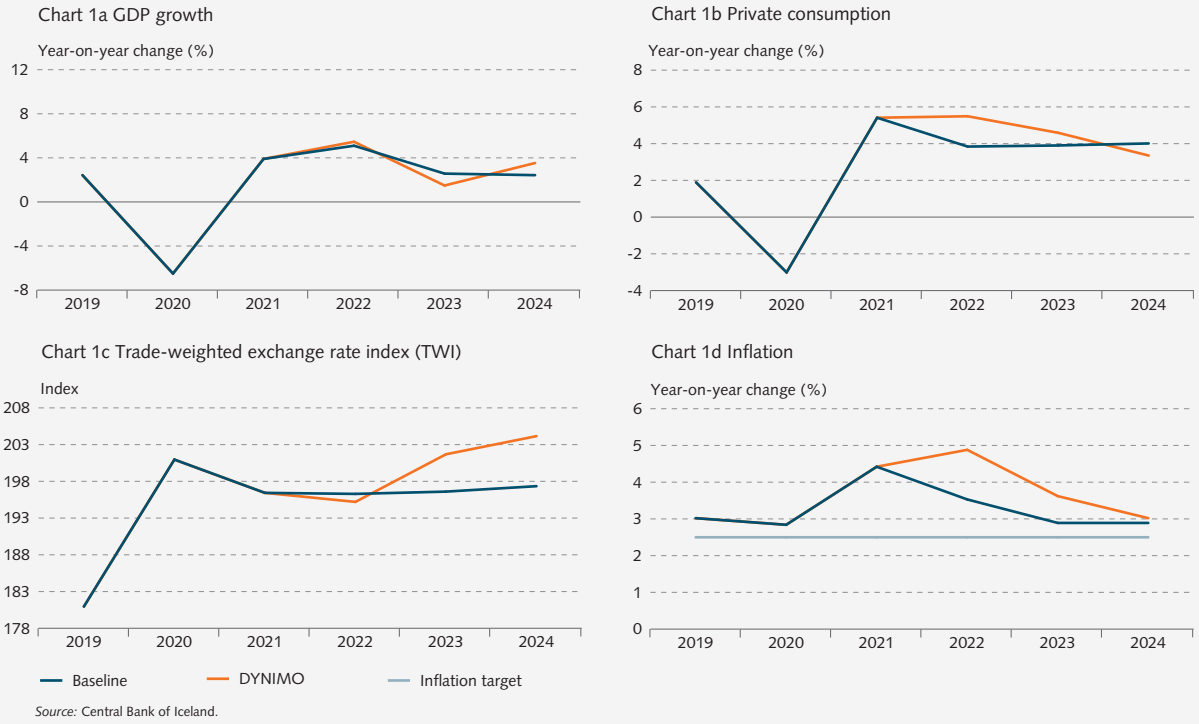
Comparison of forecasts

When forecasts are prepared for publication in *Monetary Bulletin*, both DYNIMO and QMM are run, and the resulting forecasts are then compared. For the comparison, DYNIMO uses the same basic information from the Bank's sector experts on the near-term outlook for both individual economic sectors and the global economy as QMM uses to prepare baseline forecasts for *Monetary Bulletin*.

Chart 1 compares the most recent baseline forecast with the DYNIMO forecast through 2024 (a corresponding comparison can also be found in Box 3 in *Monetary Bulletin*

Chart 1

Comparison of the baseline forecast and the forecast obtained from the Bank's DYNIMO model



Source: Central Bank of Iceland.

2017/4). As the chart shows, DYNIMO forecasts slightly stronger GDP growth in 2022 than is assumed in the baseline forecast, reflecting greater optimism about growth in private consumption and business investment, albeit partially offset by a bleaker outlook for exports. The more pessimistic outlook for exports can be attributed in part to the fact that DYNIMO forecasts a larger rise in the real exchange rate during the year. This reverses, however, as the forecast horizon advances.

Although DYNIMO forecasts a higher exchange rate in 2022 and a smaller rise in wages than are assumed in the baseline forecast, the outlook for stronger activity causes DYNIMO to forecast higher inflation than in the baseline forecast in 2022 and 2023. By the end of the forecast horizon, inflation is broadly similar according to both models.

References

Daníelsson, A., Elíasson, L., Gudmundsson, M., Haraldsdóttir, S., Kro, L., Pétursson, Th., and Sveinsson, Th. (2019). QMM: A quarterly macroeconomic model of the Icelandic economy. Version 4.0. Central Bank of Iceland, *Working Papers,* no. 82.

Seneca, M. (2010). A DSGE model for Iceland. Central Bank of Iceland, *Working Papers,* no. 50.

Thórarinsson, S. (2020). DYNIMO – Version III. A DSGE model of the Icelandic economy. Central Bank of Iceland, *Working Papers,* no. 84.

Box 3

The Central Bank's macroeconomic forecasts for 2020

As in previous years, the November issue of *Monetary Bulletin* includes a summary of the Bank's macroeconomic forecasts and its forecasting record over the previous calendar year. This helps the Bank to shed light on the main causes of forecasting errors, so that it can learn from them and use them to improve its models and forecast preparation.

The year 2020 was characterised by economic turmoil in Iceland and abroad, following the global spread of the COVID-19 pandemic early in the year. The economic impact of the pandemic was virtually without precedent, and the same can be said of the public health and economic measures taken in an effort to contain the disease and support global economic demand.

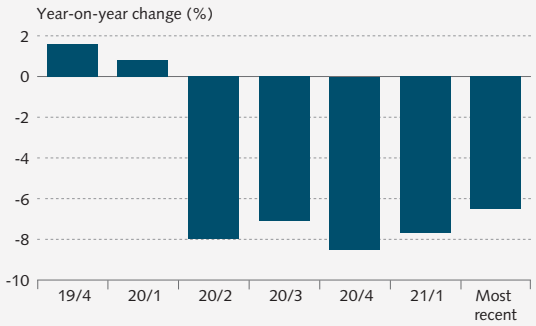
The forecasts prepared by the Bank before the pandemic proved overly optimistic, but as soon as the pandemic struck, the assessment of the economic outlook was revised, and the contraction forecast at that time has largely materialised. Inflation forecasts during the year proved overly optimistic, however, as the slack in the economy turned out smaller than originally projected and the pandemic disrupted global supply chains much more than had been expected.

The GDP growth outlook changed radically after the pandemic struck

The Central Bank's forecast from February 2020 assumed that GDP growth would measure 0.8% for the year as a whole (Chart 1). At that time, the outlook had deteriorated relative to the Bank's November 2019 forecast, as it appeared that the tourism sector would recover more slowly than previously expected after the March 2019 collapse of airline WOW Air, and exports looked set to be weaker because of the failed capelin catch and production difficulties in the aluminium industry. Furthermore, at the time the February forecast was prepared, reports of a new viral infection in China had begun to surface, and the February *Monetary Bulletin* mentioned that there were growing concerns about the impact the virus would have on the global economy if it spread. Few suspected what lay ahead, however.

The COVID-19 pandemic reached Iceland in late February. Governmental authorities in Iceland and elsewhere introduced broad-based measures in a bid to curb the spread of the disease. Restrictions were imposed on public gatherings, contact-intensive services, and cross-border travel. These measures had a profound impact on the global econ-

Monetary Bulletin GDP forecasts for 2020[1]



1. Forecasts of year-2020 GDP growth as published in MB 2019/4 and 2020/1-2020/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2021/1, the Bank's last forecast before SI published its first estimate of year-2020 GDP growth.

Sources: Statistics Iceland, Central Bank of Iceland.

omy, and it soon became clear that a deep contraction lay ahead. However, there was considerable uncertainty about how deep it would be, when and how the pandemic would be brought under control, and how long it would take for economic activity to recover. Under these conditions, preparing forecasts was unusually challenging, as there are no examples from modern economic history on which to base them.

As a result, by May 2020, the economic outlook both in Iceland and globally had changed radically relative to the period before the pandemic. According to the Bank's May forecast, GDP was expected to contract by 8% in 2020 as a whole. This would have been Iceland's largest single-year contraction in a century if the forecast had been borne out. A major factor in the forecast was the prospect of a more than 80% year-on-year reduction in the number of tourists visiting the country. Exports of goods and services were forecast to contract by over one-third from the prior year – a projection that has largely materialised (Chart 2).

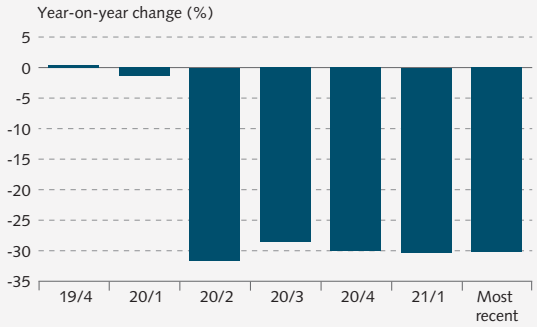
As the summer approached, however, the pandemic appeared to be tapering off, and public health measures were eased. The economic outlook improved marginally as a result, and the contraction projected for 2020 was revised to 7.1% in the Bank's August forecast. But the pandemic gained momentum again over the course of the autumn, prompting a re-tightening of public health measures in Iceland and abroad. Therefore, the Bank revised its GDP growth forecast even further downwards in the November forecast, to -8.5%. As is discussed below, a major factor in this revision was Statistics Iceland's preliminary figures indicating a deep contraction in Q2/2020. After Statistics Iceland revised its estimate of the Q2 contraction (which turned out smaller than previously assumed), and in response to indicators of stronger economic activity in Q3, the Bank revised its projection of the 2020 contraction to 7.7% in its February 2021 forecast. Since then, Statistics Iceland has revised its Q3/2020 GDP growth estimate upwards again, and the most recent figures show even stronger growth in Q4. Statistics Iceland's most recent assessment indicates that the contraction in 2020 was smaller than previously feared, or 6.5%.

Private sector demand contracted sharply in the wake of the pandemic …

The Bank's forecast of developments in domestic private sector demand also changed markedly with the spread of the pandemic (Chart 3). In the May forecast, the outlook for private consumption growth in 2020 was revised downwards from +2.4% to -5%. In the end, that forecast proved overly pessimistic, as Statistics Iceland's most recent figures indicate that private consumption contracted by 3% during the year.

Chart 2

Monetary Bulletin export forecasts for 2020[1]

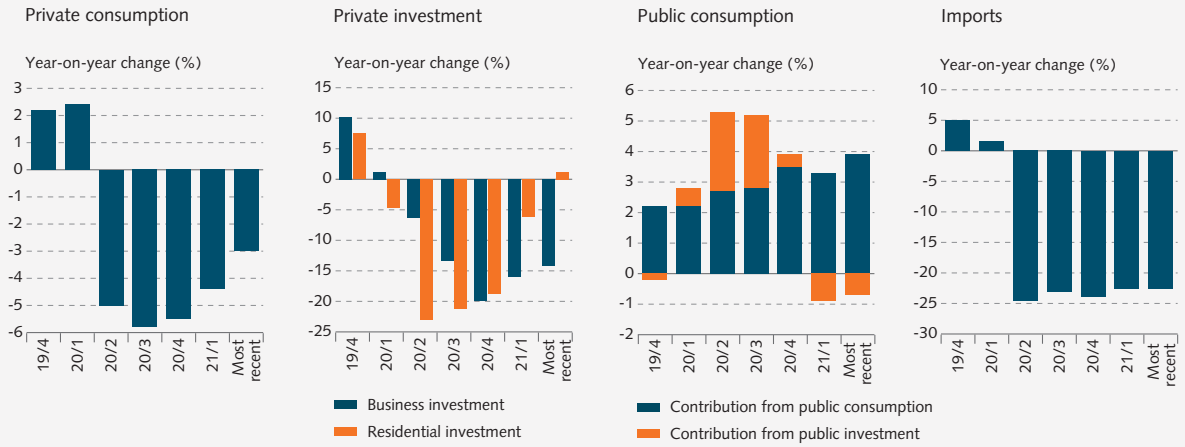


1. Forecasts of year-2020 growth in goods and services exports as published in MB 2019/4 and 2020/1-2020/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2021/1, the Bank's last forecast before SI published its first estimate of year-2020 export growth.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 3

Monetary Bulletin forecasts of developments in selected macroeconomic variables 2020[1]



1. Forecasts of year-2020 developments in selected macroeconomic variables as published in MB 2019/4 and 2020/1-2020/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2021/1, the Bank's last forecast before SI published its first estimate for 2020 as a whole. Public sector demand is the sum of public consumption and public investment.

Sources: Statistics Iceland, Central Bank of Iceland.

The outlook for investment changed as well. In February, the Bank forecast that business investment would grow by slightly more than 1% over the year as a whole. The outlook was considered to have deteriorated relative to the forecast in *Monetary Bulletin* 2019/4, as economic uncertainty had increased and corporate credit spreads had risen. The outlook deteriorated still further in the wake of the pandemic, and the Bank's May forecast assumed a contraction of just over 6% for the year as a whole, a smaller contraction than is indicated by Statistics Iceland's most recent figures. Residential investment was also revised downwards in the Bank's May forecast, in line with key high-frequency indicators and the Federation of Icelandic Industries' tally of new housing starts, which showed a steep contraction. The forecast assumed that residential investment would contract by nearly one-fourth during the year and that the ratio of residential investment to GDP would start to fall once again, moving towards its long-term average. However, over the course of the year, it became clear that this forecast was too pessimistic: residential investment actually grew marginally between years, and as a share of GDP it continued to rise, reaching its highest level since 2007.

... albeit offset by increased public sector activity

The worsening outlook for private sector demand was partly offset by significant revisions of public sector demand forecasts, which reflected the Government's proposed measures to mitigate the blow suffered by the households and businesses hit hardest by the pandemic. Forecasts of public consumption spending were revised upwards; however,

Statistics Iceland's most recent figures indicate that those forecasts had underestimated how much public consumption actually increased in the wake of the pandemic. But forecasting growth in public investment proved more problematic. The Bank's May forecast took into account large-scale investments that had recently been announced by the Government. These included expediting large projects and significantly increasing public investment during the year. Based on this, the Bank forecast in May that public investment would grow by about one-fifth in 2020. These investment plans ended up being significantly delayed, however, and Statistics Iceland's most recent figures suggest that public investment actually contracted by more than 5% last year.

The Central Bank's initial assessment of the impact of COVID-19 turned out broadly accurate …

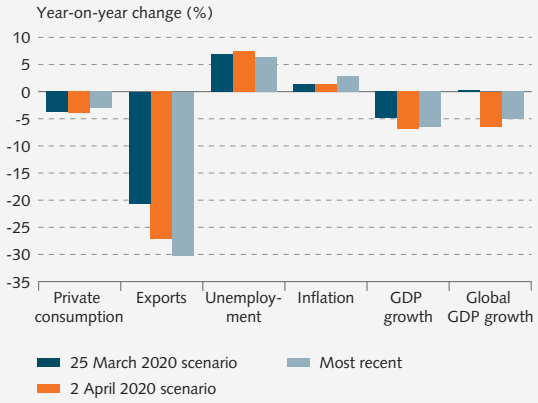
Soon after the pandemic reached Iceland, the Central Bank published two special scenario analyses of possible economic repercussions of the pandemic – the first one in late March 2020 and the second in early April.[1]

The Bank's late March 2020 assessment of the pandemic's effects was less pessimistic than the forecasts subsequently published in *Monetary Bulletin*. It assumed that GDP would contract by 4.8% in 2020 as a whole, or 1.7 percentage points less than the actual outcome (Chart 4). The most pronounced difference was in the outlook for exports, which turned out overly optimistic, as it was based on the initial assessment of the global impact of the pandemic as presented in the OECD's then-recent forecast, which assumed that the global effects of the pandemic would be relatively limited. It quickly became clear that the OECD's initial assessment was too optimistic and that the contraction in Iceland would be deeper than projected – and indeed, cross-border travel was virtually shut down shortly thereafter. Consequently, the Bank published a revised assessment of the economic impact of the pandemic in early April, assuming a 6.4% contraction among Iceland's main trading partners. This turned out closer to the contraction of just over 5% that ultimately materialised. This April 2020 scenario assumed that exports would contract by 27% and private consumption by 4%. It also assumed that GDP would contract by 6.9%, which is very close to the 6.5% contraction currently estimated by Statistics Iceland. This more severe scenario overestimated the rise in unemployment during the year, however, as the full range of measures proposed by the Government to preserve employ-

1. Although the Bank published two pairs of possible scenarios (a milder one and a more severe one in each instance), the discussion in the analysis emphasised the more severe scenario as the more realistic of the two. The discussion in this Box is based on the two more severe scenarios.

Chart 4

The Central Bank's initial assessment of the impact of the COVID-19 pandemic on economic activity in 2020[1]



1. The chart shows the Central Bank's two assessments of the impact of COVID-19 on the domestic economy, the first published in late March 2020 and the updated version published shortly thereafter. The chart also shows the most recent estimate of the final outcome for the year.

Sources: Refinitiv Datastream, Statistics Iceland, Central Bank of Iceland.

ment had not yet been announced. On the other hand, the scenario underestimated how high inflation would rise and how long it would persist, both of which reflect a larger-than-projected depreciation of the króna and unexpectedly high global inflation (for further discussion, see below).

… but preliminary figures from Statistics Iceland suggested that the contraction was underestimated …

The Bank's early April 2020 assessment of the economic impact of the pandemic appears to have materialised in large part. However, at the time that assessment was prepared, there were few available statistics on which it could reliably be based.[2] When new data began to appear and the pandemic intensified, the Bank's forecasts grew more pessimistic, moving away from the actual outcome for the year. In part, this can be attributed to the fact that Statistics Iceland's preliminary estimates of quarterly GDP growth in 2020 suggested a larger contraction at the beginning of the pandemic than later materialised (Chart 5). This is particularly the case for Statistics Iceland's initial Q2 estimates, which were published in August 2020 and used as a basis for the Bank's November forecast. The initial estimate was for a contraction of 9.1% between Q1 and Q2, but this was subsequently revised downwards to just over 7%.

… and the underlying pre-pandemic resilience of the economy was greater than the first figures implied

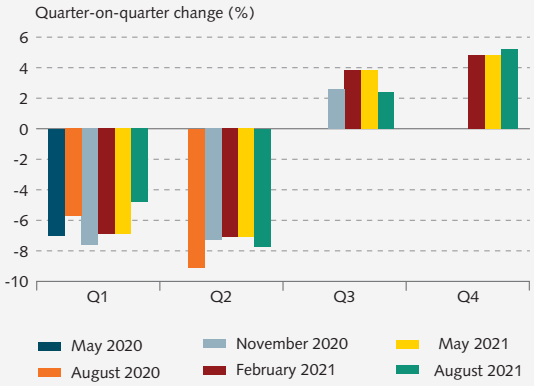
In addition to Statistics Iceland's revision of quarterly GDP growth data for 2020, the revision of data for 2019 also affected estimates of economic activity in 2020. Statistics Iceland initially estimated year-2019 GDP growth at 1.9%, whereas the most recent estimate puts it at 2.4% (Chart 6). The most pronounced difference between the two lies in the revision of business investment, which is typically the item that is revised most. As a result, the underlying resilience of the economy in the run-up to the pandemic was greater than originally estimated, and this was one of the reasons forecasts for 2020 turned out overly pessimistic.

Strong shift of demand into the domestic economy, in line with forecasts

As is described in Box 4 in *Monetary Bulletin* 2020/4, the economic contraction in the wake of WOW Air's failure

Chart 5

Statistics Iceland's assessments of quarterly GDP growth in 2020[1]

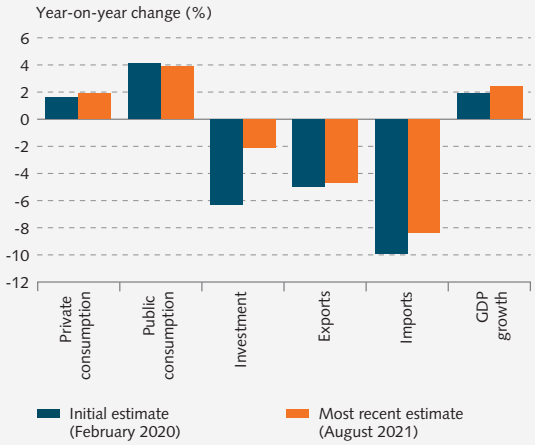


1. The chart shows various Statistics Iceland estimates of quarterly changes in GDP in 2020, from the first publication of Q1/2020 data in May 2020 until the most recent publication in August 2021.

Source: Statistics Iceland.

Chart 6

Statistics Iceland's initial and most recent estimates of developments in selected macroeconomic variables 2019[1]



1. The chart shows a comparison between Statistics Iceland's initial estimate and most recent estimate of developments in selected macroeconomic variables in 2019.

Source: Statistics Iceland.

2. Statistics Iceland's preliminary national accounts data for each quarter are published with a roughly two-month lag. For example, the initial GDP estimate for Q1/2020 was published in late May and was used as a basis for the forecast in *Monetary Bulletin* 2020/3, published in August 2020. Accordingly, the estimate for Q2/2020 was published in late August and used as a basis for the forecast in *Monetary Bulletin* 2020/4, published in November 2020.

was overestimated largely because the degree to which the associated contraction in private sector demand would be directed at imported goods and services was underestimated. This does not apply to the Bank's forecasts for 2020, however. Before the pandemic, it was assumed that import penetration would remain unchanged year-on-year. It was around 37% in 2019 (Chart 7), but the estimate was revised when the pandemic reached Iceland. In the Bank's May forecast it was assumed that imports would contract by a fourth in 2020 as a whole (Chart 3) and that import penetration would fall to 29%, its lowest since 1995. This forecast has largely been borne out. Clearly, this shift of demand into the domestic economy was an important reason the 2020 contraction in output was not larger than it turned out to be. It could also explain to some extent the difference between the Bank's forecast and those prepared by other forecasters who projected a larger contraction in the wake of the pandemic.

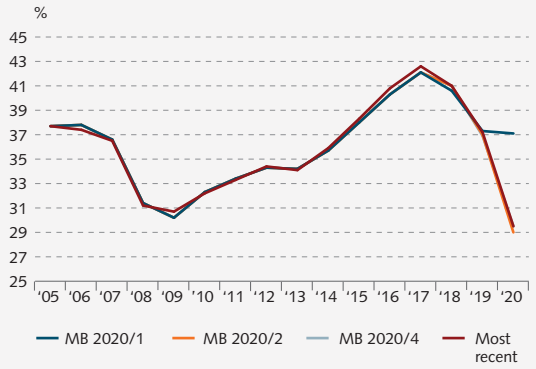
The pandemic led to higher and more persistent inflation than was originally forecast

In the forecast from the November 2019 issue of *Monetary Bulletin*, it was assumed that inflation would be close to target, on average, in 2020, but as soon as the pandemic hit Iceland, that forecast was revised significantly downwards, owing to the prospect of a sizeable contraction in economic activity and a growing slack in the domestic economy. Furthermore, international forecasts suggested that global food and commodity prices would fall steeply during the year. As can be seen in Chart 4, the Bank's scenarios from March and April 2020 assumed that inflation would measure only 1.4% for the year. That estimate was revised upwards to 2.3% in the May forecast, the Bank's first official forecast after the pandemic reached Iceland (Chart 8), as the effects of the pandemic on the exchange rate of the króna were coming increasingly to the fore. It was estimated that the króna would depreciate by about 11% year-on-year, a forecast that has largely materialised (Chart 9). But because of the overly pessimistic GDP growth outlook in the Bank's forecasts over the course of the year, the increase in unemployment was overestimated, and the slack in the economy was forecast to be larger than is now estimated.

When it became clear that the slack in the economy was actually smaller than originally projected, the Bank's inflation forecasts were gradually revised upwards. Furthermore, it soon came to light that the pandemic had disrupted global supply chains and cross-border shipping far more than had originally been anticipated (see Box 2 in *Monetary Bulletin* 2020/4). At the same time, it was clear that demand for consumer durables recovered more rapidly

Chart 7

Import penetration ratio 2005-2020[1]

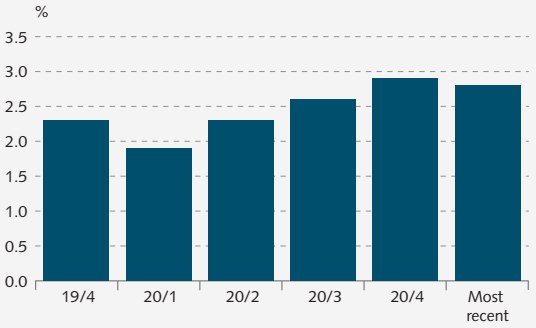


1. Import penetration ratio at constant prices according to the forecasts in MB 2020/1, 2020/2, and 2020/4, and according to Statistics Iceland's most recent estimate.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 8

Monetary Bulletin inflation forecasts for 2020[1]

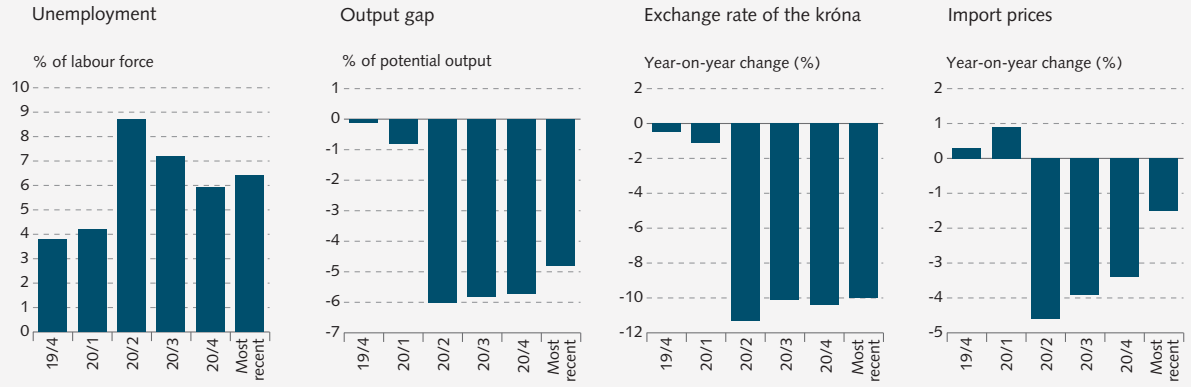


1. Forecasts of year-2020 inflation as published in MB 2019/4 and 2020/1-2020/4, together with the final outcome for the year.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 9

Monetary Bulletin forecasts of drivers of year-2020 inflation[1]



1. Forecasts of developments in selected macroeconomic variables in 2020, as published in MB 2019/4 and 2020/1-2020/4, together with the final outcome for the year. The chart shows unemployment according to the Statistics Iceland labour force survey. Import prices are in foreign currencies (based on the trade-weighted exchange rate index).

Sources: Statistics Iceland, Central Bank of Iceland.

than domestic and international forecasts had assumed. The strong rebound in demand for consumer durables coupled with goods shortages pushed the price of food and non-oil commodities far higher than had been forecast. In addition, the decline in oil prices turned out smaller than had been projected in the Bank's May forecast, which was based on futures prices (Chart 10). The same is true of other commodity prices that fell early in the pandemic and then rose continuously from spring 2020 onwards, overtaking year-end 2019 prices by the end of 2020. The Bank's May forecast therefore assumed that commodity prices would fall 5% in 2020, whereas they actually rose by 3% year-on-year. Thus the decline in the foreign currency price of imports proved smaller than originally forecast: the May forecast assumed a drop of nearly 5% during the year, while the actual decline was only 1½% (Chart 9).

Chart 10

Monetary Bulletin forecasts of oil and commodity prices 2020[1]

1. Forecasts of global oil and commodity prices as published in MB 2019/4 and 2020/1-2020/4, together with the final outcome for the year.

Sources: Refinitiv Datastream, Central Bank of Iceland.

Summary

The COVID-19 pandemic is an economic shock that is all but unprecedented in terms of its impact on both domestic and foreign economic activity. As a result, the nature of the shock and the responses to it greatly complicated all forecasting of its implications for economic activity. In spite of this, the Central Bank's GDP growth forecasts can be said to have been broadly accurate. The contraction projected in the immediate wake of the pandemic was close to the ultimate outcome, but as 2020 progressed, the Bank's forecasts became overly pessimistic, reflecting both the setback in efforts to control the pandemic and the fact that the Q2/2020 contraction was overestimated in Statistics Iceland's first figures.

Projecting developments in inflation during the year proved more difficult, however, and the Bank's forecasts

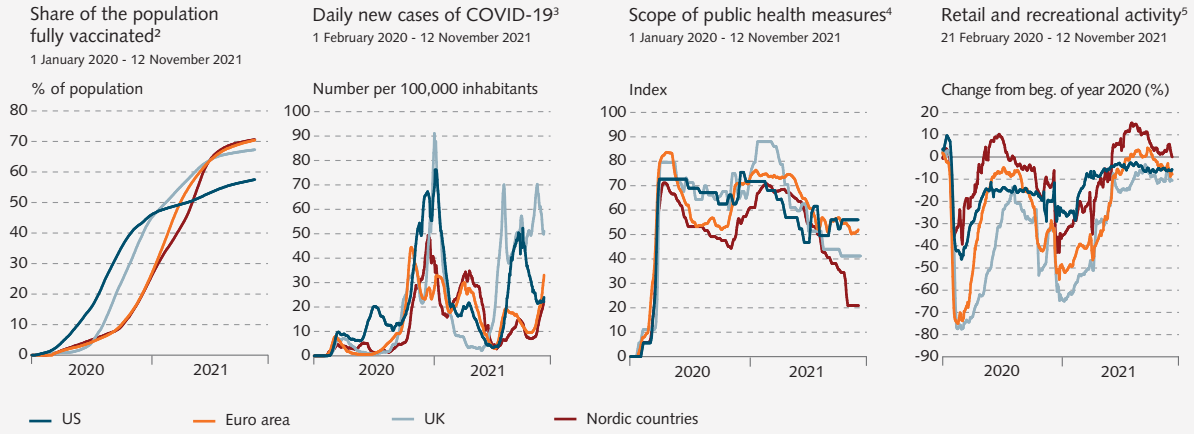
were overly optimistic, for two main reasons: the slack in the economy proved smaller than previously estimated, and import prices fell less than had been forecast. The latter is attributable in large part to pandemic-generated disruptions in global supply chains. Even though inflation was higher and more persistent in 2020 than was projected in the wake of the pandemic, inflation expectations held broadly steady over the course of the year. As in 2019, they remained anchored to the Bank's inflation target despite a depreciation of the króna and a turbulent economic environment. This was of vital importance in providing monetary policy with the scope to respond to the contraction by significantly easing the monetary stance.

Appendix

1 Snapshots of domestic and foreign economic activity in the midst of a global pandemic

Chart 1

Indicators of global economic activity[1]

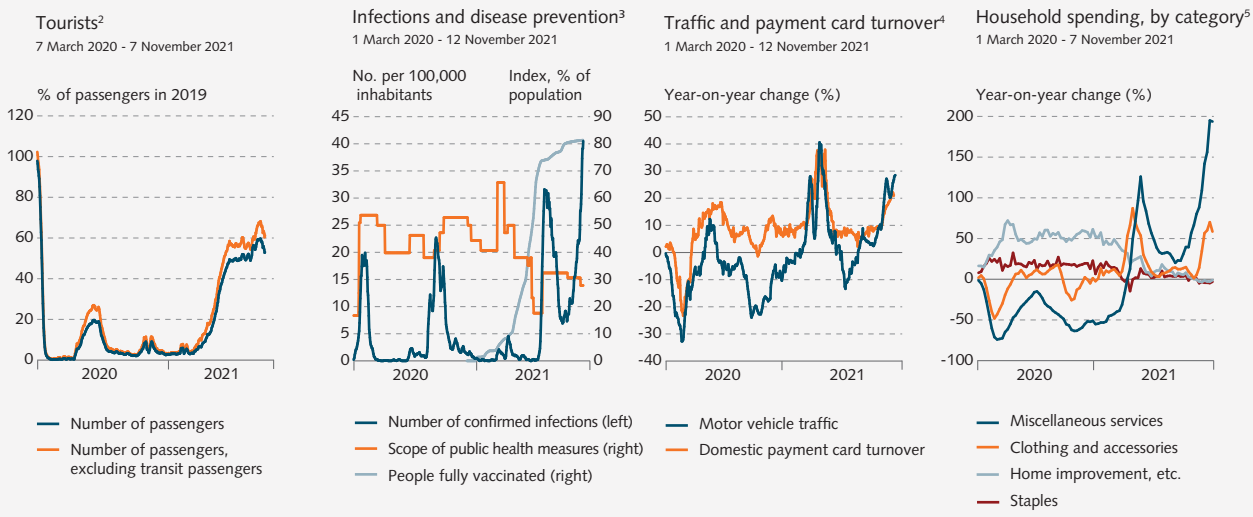


1. Seven-day moving average. Nordic countries include Denmark, Norway, and Sweden. 2. Share of total population that have received all vaccine doses prescribed by the vaccination protocol. 3. Confirmed new infections. 4. Scope of public health measures weights together various measures of the extent of government restrictions in order to curb the spread of COVID-19. 5. Number of visits to restaurants, cafés, shopping centres, amusement parks, museums, and cinemas, according to Google. Change from the period 3 January - 6 February 2020.

Sources: Google, Johns Hopkins University, OECD, Our World in Data, Oxford COVID-19 Government Response Tracker, World Health Organization.

Chart 2

Indicators of domestic economic activity[1]



1. All data are seven-day moving averages except scope of public health measures (primary data), motor vehicle traffic (14-day), and domestic payment card turnover and household spending, by category (28-day). 2. Daily number of passengers travelling through Keflavík Airport. Figures for 2019 excluding WOW Air. 3. Scope of public health measures weights together various measures of the extent of government restrictions in order to curb the spread of COVID-19. Share of total population that have received all vaccine doses prescribed by the vaccination protocol. 4. Daily motor vehicle traffic along three main routes in the capital area. Payment card figures are the sum of domestic-issued debit and credit cards. 5. Miscellaneous services includes restaurants, theatres, fitness centres, travel expenses, etc. Household spending includes electrical equipment, furnitures, and purchases in home improvement stores.

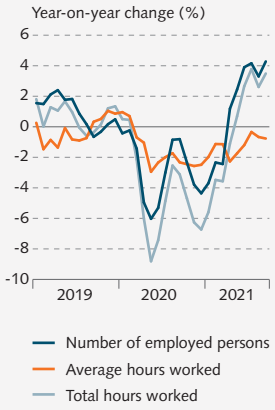
Sources: Covid.is, Iceland Road Administration, Isavia, Meniga MarketWatch, Our World in Data, Oxford COVID-19 Government Response Tracker, Statistics Iceland, Central Bank of Iceland.

Chart 3

Indicators from the domestic labour market[1]

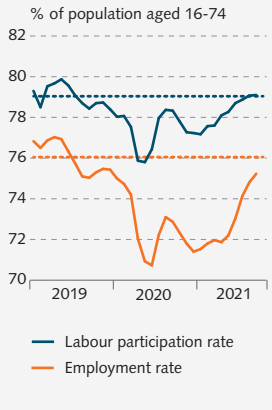
Employment and hours worked

January 2019 - September 2021



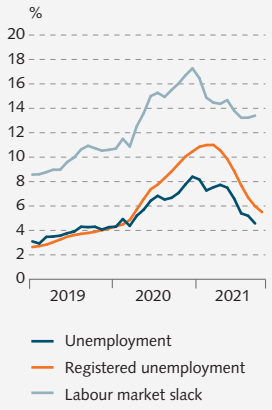
Labour participation rate and employment rate[2]

January 2019 - September 2021



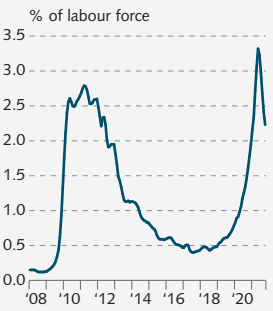
Unemployment and labour market slack[3]

January 2019 - October 2021



Long-term unemployment[4]

January 2008 - October 2021



1. Figures from Statistics Iceland's labour force survey except registered unemployment (excl. part-time benefits) and long-term unemployment, which are from the Directorate of Labour. Three-month moving average. 2. Seasonally adjusted figures. Broken lines show the 2019 average. 3. Unemployment shown as a share of the labour force and labour market slack as a share of the extended labour force. Seasonally adjusted figures. 4. Number of persons on the unemployment register for more than 12 months.

Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

2 Forecast tables

Table 1 Key economic variables[1]

	2020	*2021*	*2022*	*2023*	*2024*
Private consumption	-3.0 (-3.3)	5.4 (4.2)	3.8 (4.5)	3.9 (3.0)	4.0
Public consumption	4.5 (3.1)	2.1 (1.6)	1.6 (1.4)	1.5 (1.3)	1.6
Gross capital formation	-8.7 (-6.8)	10.5 (4.5)	-0.3 (1.4)	3.3 (4.3)	1.7
Business investment	-14.1 (-8.7)	17.6 (4.5)	-6.0 (-1.4)	1.5 (6.0)	2.5
Residential investment	1.2 (-1.2)	-8.1 (-7.7)	9.2 (4.7)	14.3 (10.6)	4.3
Public investment	-5.2 (-9.3)	17.0 (24.6)	5.7 (5.1)	-6.6 (-7.8)	-4.8
National expenditure	-2.2 (-1.9)	5.4 (3.1)	2.4 (2.8)	3.1 (2.8)	2.9
Exports of goods and services	-30.2 (-30.5)	14.1 (14.7)	19.3 (16.7)	4.6 (4.9)	4.2
Imports of goods and services	-22.5 (-22.0)	18.1 (11.9)	12.0 (14.1)	5.9 (6.6)	5.2
Gross domestic product (GDP)	-6.5 (-6.6)	3.9 (4.0)	5.1 (3.9)	2.6 (2.2)	2.4
Contribution of net trade to GDP growth (percentage points)	-4.4 (-4.9)	-1.5 (0.9)	2.7 (1.1)	-0.5 (-0.5)	-0.4
Unemployment (LFS, % of labour force)[2]	6.4 (6.4)	5.9 (6.5)	4.7 (5.4)	4.3 (5.0)	4.1
Registered unemployment (% of labour force)[3]	7.9 (7.9)	7.7 (8.1)	5.2 (5.3)	4.2 (4.3)	4.0
Output gap (% of potential output)	-5.2 (-5.2)	-1.2 (-1.0)	1.0 (0.3)	0.5 (0.0)	0.1
Current account balance (% of GDP)	0.9 (1.1)	-0.9 (1.4)	1.9 (2.6)	1.1 (1.5)	0.1
Trade-weighted exchange rate index[4]	201.0 (201.0)	196.4 (195.0)	196.3 (193.6)	196.6 (196.1)	197.3
Inflation (consumer price index, CPI)	2.8 (2.8)	4.4 (4.2)	3.5 (2.8)	2.9 (2.6)	2.9
Inflation in main trading partners[5]	0.7 (0.7)	2.7 (2.3)	2.4 (1.8)	1.8 (1.7)	1.9
GDP growth in main trading partners[5]	-5.0 (-5.1)	5.5 (5.3)	4.3 (4.5)	2.2 (2.1)	1.8

1. Year-on-year change (%) unless otherwise specified (figures in parentheses are from the forecast in MB 2021/3).
2. Unemployment according to the Statistics Iceland Labour Force Survey (LFS).
3. Registered unemployment is from the Directorate of Labour and excludes persons on the partial unemployment benefit programme.
4. Narrow trade-weighted basket. 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.
5. Forecast based on Consensus Forecasts, IHS Markit, IMF and OECD.

Sources: Consensus Forecasts, Directorate of Labour, IHS Markit, International Monetary Fund, OECD, Refinitiv Datastream, Statistics Iceland, Central Bank of Iceland.

Table 2 Quarterly inflation forecast (%)[1]

Quarter	*Inflation (year-on-year change)*	*Inflation (annualised quarter-on-quarter change)*
	Measured value	
2020:4	3.6 (3.6)	3.8 (3.8)
2021:1	4.2 (4.2)	2.9 (2.9)
2021:2	4.4 (4.4)	6.7 (6.7)
2021:3	4.3 (4.2)	3.8 (3.5)
	Forecasted value	
2021:4	4.7 (4.1)	5.5 (3.3)
2022:1	4.4 (3.7)	1.8 (1.2)
2022:2	3.9 (3.0)	4.4 (3.9)
2022:3	3.2 (2.4)	1.2 (1.1)
2022:4	2.7 (2.3)	3.3 (2.9)
2023:1	2.8 (2.5)	2.1 (2.0)
2023:2	2.8 (2.6)	4.7 (4.5)
2023:3	3.0 (2.7)	1.8 (1.5)
2023:4	3.0 (2.8)	3.5 (3.2)
2024:1	3.0 (2.7)	2.0 (1.8)
2024:2	3.0 (2.6)	4.5 (4.2)
2024:3	2.8 (2.5)	1.3 (1.0)
2024:4	2.7	3.1

1. Figures in parentheses are from the forecast in MB 2021/3.

Sources: Statistics Iceland, Central Bank of Iceland.

MONETARY BULLETIN

2021 | 4