CENTRAL BANK OF ICELAND

MONETARY BULLETIN

2022|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 one of its main objectives. In the joint declaration made by the Government of Iceland and Central Bank of Iceland on 27 March 2001, this is defined as aiming at an average rate of inflation, measured as the 12-month increase in the CPI, of as close to 2½% as possible.

Professional analysis and transparency are prerequisites for credible monetary policy. In publishing *Monetary Bulletin* four times a year, the Central Bank aims to fulfil these principles.

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

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Statement of the Monetary Policy Committee 23 November 2022

The Monetary Policy Committee (MPC) of the Central Bank of Iceland has decided to raise the Bank's interest rates by 0.25 percentage points. The Bank's key interest rate – the rate on seven-day term deposits – will therefore be 6%.

Inflation picked up again slightly in October, to 9.4%. Price increases are widespread, and underlying inflation has continued to rise. Inflation is expected to average 9.4% in Q4/2022 and then begin to ease gradually, measuring about 4½% in Q4/2023.

The króna has depreciated since the MPC's October meeting, and the long-term breakeven inflation rate in the bond market has risen somewhat. Furthermore, indicators imply that inflation expectations have become less firmly anchored to the target, and it could therefore take longer than it would otherwise to bring inflation back to target.

According to the Central Bank's new macroeconomic forecast, GDP growth is projected to measure 5.6% in 2022. The outlook for 2023 has improved, and growth is now projected at 2.8%, up from the August forecast of 1.9%. This is due to the prospect of more rapid growth of domestic demand than was previously assumed. The labour market is still quite tight, although tension has eased somewhat.

The MPC will continue to ensure that the monetary stance is tight enough to bring inflation back to target within an acceptable time frame. Near-term monetary policy decisions will depend on developments in economic activity, inflation, and inflation expectations. Decisions taken at the corporate level, in the labour market, and in public sector finances will be a major determinant of developments in interest rates in the coming term.

Symbols:

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

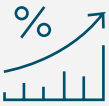
Icelandic letters:

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

Although global GDP growth somewhat outpaced forecasts in H1/2022, indicators imply that it softened more than projected in H2. The outlook for 2023 has deteriorated as well. The energy crisis that struck Europe in the wake of Russia's invasion of Ukraine continues to deepen, and global inflation has surged. Households' cost of living and firms' operating costs have therefore risen sharply and financial conditions have worsened. For Iceland's main trading partners, GDP growth prospects have therefore deteriorated still further, with year-2023 growth set to be the weakest since 2009, apart from the pandemic-related contraction in 2020.



Preliminary national accounts data suggest that GDP growth in Iceland measured 6.8% in H1, somewhat below the Bank's August forecast. GDP growth for 2022 as a whole is estimated at 5.6%, or 0.3 percentage points less than previously forecast. The outlook for 2023 has improved, however, and growth is now projected at 2.8%, up from the August forecast of 1.9%. This is due largely to the prospect of more rapid growth in domestic demand, which in turn is due in part to revised disposable income data indicating that households are better able to support their expenses than was previously assumed. As in August, GDP growth is expected to average 2½% per year in the latter half of the forecast horizon.

Job numbers are still rising year-on-year, although the pace has eased in recent months, and quarterly job growth was actually negative in Q3. The labour participation rate fell as well, and unemployment as measured by the Statistics Iceland labour force survey rose quarter-on-quarter. Other indicators from the labour market point in the same direction, although unemployment is still low, significant labour shortages remain, and job openings are numerous. As a result, there is still considerable strain on resources.

Headline inflation measured 9.4% in October after ticking upwards month-on-month, but has fallen by 0.5 percentage points from its July 2022 peak. Underlying inflation is high as well, and inflation has grown ever more widespread, with a majority of CPI subcomponents up sharply in price in the past year. Inflation has risen less than was feared in August, however, reflecting a more rapid shift in the housing market and larger-than-expected declines in petrol prices and airfares this autumn. The short-term inflation outlook has therefore improved, although prospects further ahead are broadly unchanged. Inflation is now expected to measure 9.4% in Q4 and then gradually start easing at roughly the pace forecast in August.

The economic situation is highly uncertain. The war in Ukraine has upended global commodity markets and thrown trade relationships and supply chains into disarray. It has caused an energy crisis in Europe, with no end yet in sight. A severe energy shortage could ensue, requiring widespread energy rationing and causing major economic hardship on the Continent. If this happens, GDP growth in Iceland will probably be weaker and inflation higher than in the Bank's baseline forecast. The inflation outlook could also prove overly optimistic if the current wage negotiations lead to larger pay rises than are assumed in the baseline. This would also exacerbate the risk of a wage-price spiral, as indicators imply that inflation expectations are less firmly anchored to the target than before.

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

Global GDP growth proved stronger in H1/2022 than was forecast in August …

GDP growth among Iceland's main trading partners measured 0.5% quarter-on-quarter in Q2/2022 (Chart I-1). It was far weaker than in most of 2021 but stronger than was forecast in the August *Monetary Bulletin*. Economic activity grew particularly in the eurozone, propelled by the largely tourism-driven recovery in Southern Europe. There was also a marked turnaround in the Nordic region and Japan, after virtually flat or negative growth in Q1. Growth slowed in the UK, however, and the US recorded a contraction for the second quarter in a row. There was also a significant contraction in China, owing to tighter public health measures and weaknesses in the real estate market.

Trading partner GDP growth measured 4.6% year-on-year in H1/2022, or 0.3 percentage points above the August forecast.

… but the outlook for H2 has deteriorated

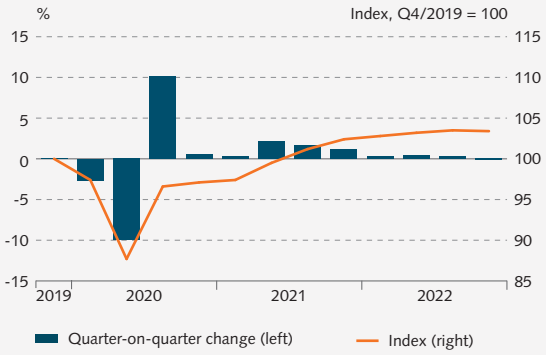
GDP in the UK contracted by 0.2% between Q2 and Q3. Growth slowed to 0.2% in the euro area and 0.5% in Denmark, whereas it picked up to 0.6% in the US and measured 0.7% in Sweden. Trading partner GDP is estimated to have grown by an average of 0.3% between quarters, in line with the Bank's August forecast (Chart I-1).

Leading indicators and international forecasts suggest a worsening output growth outlook for Q4, however. PMI indices have fallen still further, implying that economic activity has all but stagnated or even contracted in the recent term (Chart I-2). Retail sales are down as well, and industrial manufacturing has softened,

Chart I-1

GDP growth in Iceland's main trading partners[1]

Q4/2019 - Q4/2022



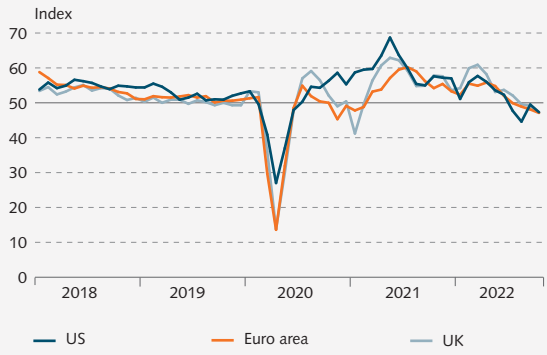
1. Seasonally adjusted data. Central Bank baseline forecast Q3/2022 and Q4/2022.

Sources: Refinitiv Datastream, Central Bank of Iceland.

Chart I-2

Composite PMI[1]

January 2018 - October 2022



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.

particularly in the UK (Chart I-3). Moreover, consumer sentiment about the economic outlook has remained at or near all-time lows in major advanced economies, and pessimism among corporate executives has been on the rise. On average, a marginal contraction is now forecast for Iceland's trading partners in Q4 instead of the slightly positive growth projected in August.

The cost of living has risen worldwide …

Both the recent setback in the economic recovery and the poorer outlook are due largely to the effects of inflation, which has risen worldwide, hitting four-decade highs in many advanced economies. In addition, financial conditions have deteriorated alongside central bank interest rate hikes in many parts of the world. Households' living costs have therefore surged in a short period of time, and real disposable income has shrunk, cutting into domestic demand (Chart I-4). Higher financing costs, elevated uncertainty, and high input prices also have a dampening effect on firms' investment plans. This cost-of-living crisis is due in large part to the impact of the war in Ukraine, which has pushed energy and food prices sharply upwards and exacerbated economic uncertainty.

… and the European energy crisis has deepened …

The economic outlook in Europe has been affected in particular by growing concerns about energy supplies on the Continent following the invasion of Ukraine, as natural gas imports from Russia have weighed heavily in Europeans' energy consumption. Natural gas imports plunged this summer, alongside escalating tensions caused by the war and the tightening of Western sanctions on Russia, and are now down to only a fifth of the 2021 average, after Russia's closure of the Nord Stream 1 pipeline in late August. European natural gas prices soared thereafter, and concerns about this winter's energy supplies have mounted. Even though prices have fallen again – owing to the recent spell of unusually warm weather, increased natural gas imports from other countries, more favourable inventory levels than previously expected, and increased energy saving – there is pronounced uncertainty about Europe's energy supplies this winter and in the next few years (see also Box 1).

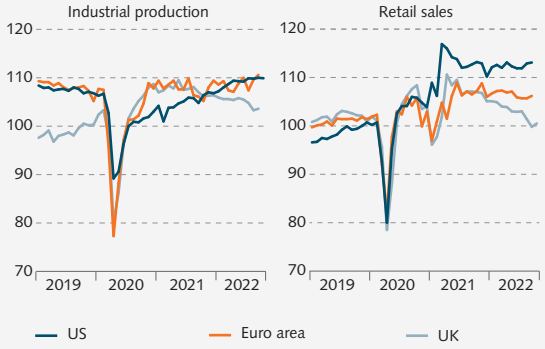
… albeit offset by a favourable employment situation, sizeable accumulated savings, and fiscal support

Labour demand has been strong despite a slowdown in economic activity and a worsening outlook for demand. In major advanced economies, unemployment is at or near its lowest in decades, job availability is strong, and nominal wages have been rising (Chart I-5). Fiscal

Chart I-3

Industrial production and retail sales[1]

January 2019 - October 2022

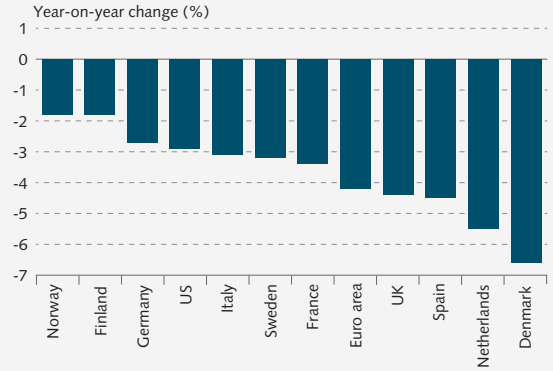


1. Seasonally adjusted volume indices (2020 = 100).

Source: Refinitiv Datastream.

Chart I-4

Real wages in Q2/2022[1]



1. Employee compensation per hour worked, deflated with the CPI. Seasonally adjusted data.

Sources: OECD, US Bureau of Labor Statistics.

authorities have widely adopted discretionary measures to mitigate the impact of rising living costs on households' disposable income. The savings accumulated by households during the pandemic have also cushioned against the dampening effects of higher costs on domestic demand. The saving ratio has fallen perhaps the most in the US, where private consumption has been strong in comparison with other major advanced economies (Chart I-6). It has fallen less in the eurozone and the UK, where it is above its pre-pandemic average. As a result, households in these economies are still setting aside a larger share of their disposable income than they did before the pandemic.

Global GDP growth projected to weaken in 2023 …

According to the International Monetary Fund's (IMF) mid-October forecast, global GDP growth is projected to fall from last year's 6% to 3.2% this year and 2.7% in 2023. The IMF's GDP growth projection for 2022 is unchanged from its July forecast, whereas its 2023 forecast has been revised downwards by 0.2 percentage points. Both projections are considerably below the Fund's April forecast, however, particularly those for advanced economies. The bleaker outlook reflects the detrimental effect of the war in Ukraine on the global economy – especially the European economy – following cutbacks in energy supply from Russia. The Chinese economy has also weakened more than expected. Furthermore, financial conditions have worsened in many parts of the world, in line with expectations of further interest rate hikes by leading central banks, which will curb demand.

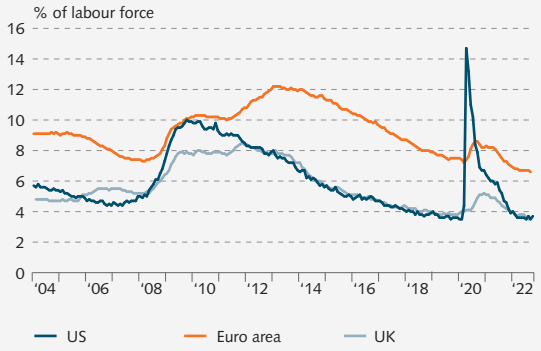
… and the GDP growth outlook for Iceland's trading partners has generally worsened

According to the Bank's baseline forecast, GDP growth among Iceland's main trading partners will measure 3.1% this year (Chart I-7), or 0.2 percentage points above the August forecast. The increase is due to stronger growth in H1 following revisions of previously published GDP data, particularly in the UK and Sweden. Prospects for H2 have deteriorated, however, as is mentioned above. A quarter-on-quarter contraction is forecast in Q1/2023 as well as Q4/2022, and trading partner GDP growth is projected at only 0.6% for 2023 as a whole. This is 0.6 percentage points below the Bank's August forecast and 1.7 percentage points below the May forecast. Trading partner GDP growth is also projected to be somewhat weaker in 2024. The outlook for trading partner imports has worsened as well, in line with the poorer GDP growth outlook.

Chart I-5

Unemployment rate[1]

January 2004 - October 2022

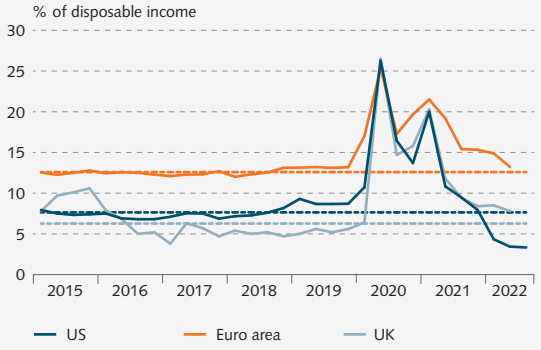


1. Seasonally adjusted data.
Source: Refinitiv Datastream.

Chart I-6

Household saving[1]

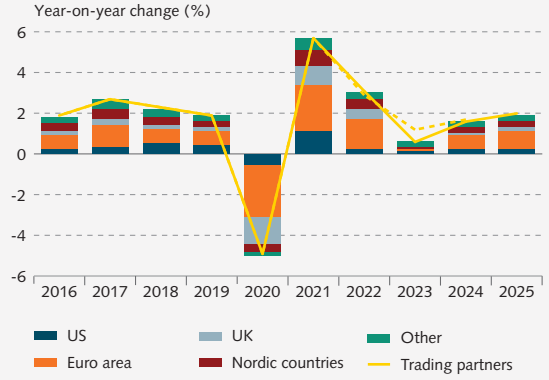
Q1/2015 - Q3/2022



1. Broken lines show 2015-2019 average.
Source: Refinitiv Datastream.

Chart I-7

GDP growth in Iceland's trading partners and contribution from selected countries 2016-2025[1]



1. Trade-weighted contribution from selected countries. Central Bank baseline forecast 2022-2025. The broken line shows the forecast in MB 2022/3. "Nordic countries" is the average for Denmark, Norway, and Sweden.
Sources: Refinitiv Datastream, Central Bank of Iceland.

The economic outlook remains highly uncertain. Developments will depend in large part on the repercussions of the war in Ukraine and how long they persist. The outlook could deteriorate if the effects of the war are amplified still further. Furthermore, the European energy crisis could deepen, necessitating widespread energy rationing on the Continent. Inflation could prove more persistent in advanced economies, and financial conditions could erode further. Economic developments will also depend to a large extent on how the pandemic plays out, how the Chinese economy develops, and whether attempts to unwind persistent supply chain problems continue to be successful (see the discussion of key uncertainties in Box 1).

Global inflation has risen further, outstripping previous expectations …

Global inflation has surged since mid-2021, rising much higher than generally expected. Trading partner inflation averaged 8.4% in Q3, its highest in four decades (Chart I-8). This is 0.5 percentage points above the Bank's August forecast and 2.5 percentage points above the May forecast. Inflation among trading partner countries climbed still higher in October, to an average of 9.3%.

Developments in global inflation are still strongly affected by steeply rising energy prices, although food prices are also up sharply year-to-date (Chart I-9). The increase, particularly the surge in European natural gas prices, is due largely to the war in Ukraine. It is offset in part by the recent decline in oil and petrol prices, in accordance with developments in global market prices. The price of other important expenditure items has also continued rising apace, and inflation is growing more and more widespread. In October, goods prices excluding energy and food had risen by an average of 6% year-on-year in trading partner countries (Chart I-10). As has been discussed previously in *Monetary Bulletin*, a large share of the rise in goods prices stems from strong demand and a robust economic recovery from mid-2021 onwards, together with persistent pandemic-related supply chain disruptions and shipping problems. Services prices, too, have risen steeply this year in tandem with the relaxation of public health measures, as pent-up demand is significant.

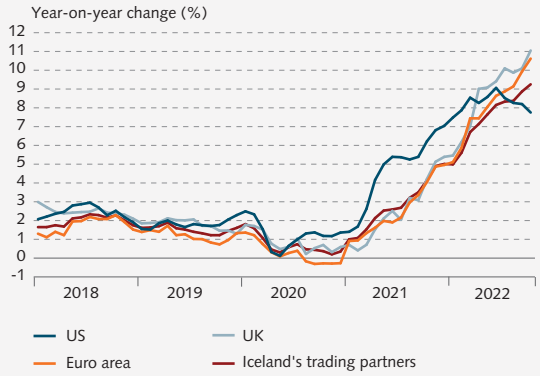
… and the inflation outlook for trading partners has worsened

Oil and commodity prices have fallen more in the recent term than was forecast in August, shipping costs have kept falling, and supply chain pressures have eased, yet the global inflation outlook has worsened. The deteriora-

Chart I-8

Global inflation

January 2018 - October 2022

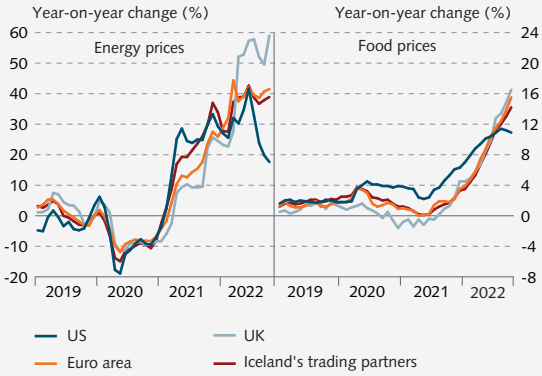


Sources: Refinitiv Datastream, Central Bank of Iceland.

Chart I-9

Global energy and food prices

January 2019 - October 2022

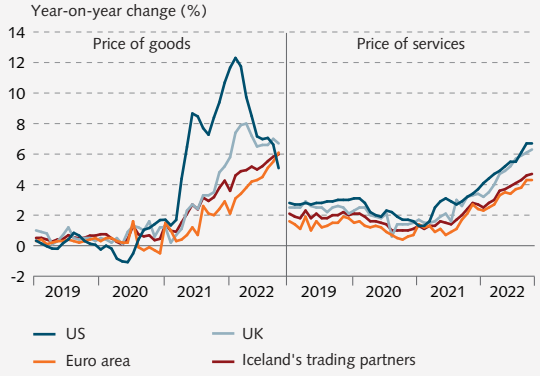


Source: Refinitiv Datastream.

Chart I-10

Global goods and services prices[1]

January 2019 - October 2022



1. Price of goods other than energy and food.

Source: Refinitiv Datastream.

tion is due primarily to larger-than-expected energy price hikes in Europe and the prospect of higher prices this winter. Furthermore, the rise in food prices and underlying inflation has proven more persistent in trading partner countries than was assumed in August. The US dollar has surged against many other currencies, pushing other countries' import prices higher, partly because the dollar is used so widely as an invoicing currency in world trade. Trading partner inflation is projected to average 7.7% in 2022, about 0.6 percentage points above the August forecast. It is forecast at 5% in 2023, or 1.2 percentage points higher than was assumed in August, and is expected to be somewhat higher in 2024 as well.

Central banks in major advanced economies have kept raising interest rates …

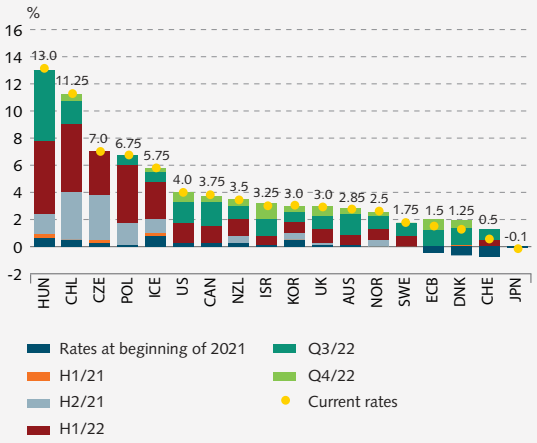
In spite of a weaker GDP growth outlook and elevated uncertainty, central banks in major advanced economies have tightened their monetary stance still further, in line with the deteriorating inflation outlook and a tight labour market. The European Central Bank (ECB) raised its key rate by 0.75 percentage points to 1.5% in late October and has raised it by a total of 2 percentage points since July (Chart I-11). In early November, the US Federal Reserve also raised rates by 0.75 percentage points, to 3.75-4%, its fourth 0.75-point hike in a row. The Federal Reserve's interest rates have now risen 3.75 percentage points year-to-date and are at their highest since early 2008. The Bank of England (BoE) raised its key rate by 0.75 percentage points in early November as well, to 3%. A number of central banks in other advanced economies have hiked interest rates in recent months, in most cases to levels not seen since 2008. Even so, real rates in advanced economies are still generally negative, and far lower than before the pandemic.

… and bond yields are at their highest in more than a decade

Advanced economies' government bond yields rose sharply in H1/2022 and have more or less continued to climb in H2 (Chart I-12). In many cases, bond yields are at their highest in a decade or more. The rise in yields reflects the surge in leading central banks' interest rates and expectations of higher rates in the future than were previously anticipated (Chart I-13). The rise in the breakeven inflation rate in some countries also suggests that inflation expectations have inched upwards recently. Higher breakeven rates could also be due to a rise in uncertainty risk premia, owing to elevated economic uncertainty. This is reflected, for instance, in term premia on US government bonds, which have risen recently. Term premia on short-

Chart I-11

Central bank interest rates in OECD countries and changes since beginning of 2021[1]



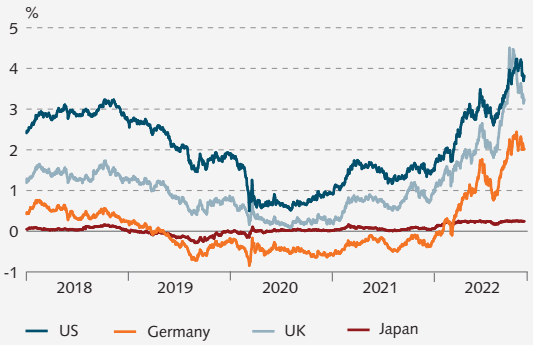
1. US interest rates are the upper bound of the US Federal Reserve Bank's interest rate corridor, and rates for the euro area are the European Central Bank's deposit facility rate.

Source: Refinitiv Datastream.

Chart I-12

10-year government bond yields

1 January 2018 - 18 November 2022

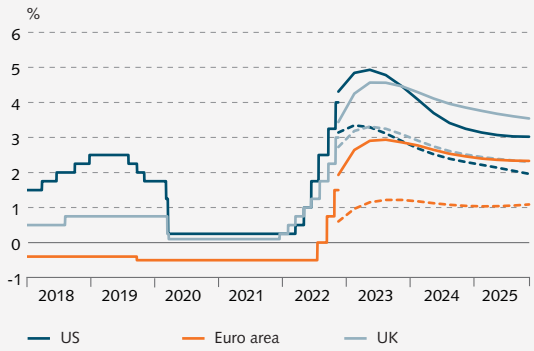


Source: Refinitiv Datastream.

Chart I-13

Central bank policy rates[1]

January 2018 - December 2025



1. Daily data 1 January 2018 through 18 November 2022, and quarterly data Q4/2022 through Q4/2025. 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 2022, and broken lines as of mid-August 2022.

Sources: Bloomberg, Refinitiv Datastream.

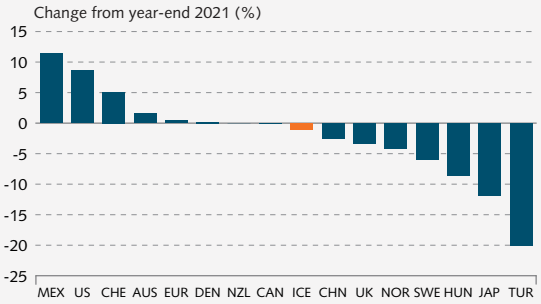
term government bonds have risen even more and are now higher than those on long bonds. It is likely, though, that the downward slope of the US yield curve mainly reflects market expectations that central bank interest rates will peak soon and then start falling again as growth in economic activity eases and inflation tapers off.

Larger rate hikes in the US and increased uncertainty have caused the dollar to appreciate strongly

The US Federal Reserve has raised interest rates more and faster in 2022 than most other central banks in advanced economies have. To a degree, this reflects higher and more rapidly rising underlying inflation in the US. Furthermore, the post-pandemic economic recovery was stronger in the US, partly because of the large fiscal stimulus, and the labour market has been tighter. The energy situation is also more favourable in the US than, for instance, in Europe, although prices have certainly risen west of the Atlantic. Larger interest rate hikes and a stronger economy in the US than in many other advanced economies are reflected in the dollar, which has appreciated against many other currencies (Chart I-14). Increased global uncertainty and flight to safe assets because of the poorer global outlook have reinforced this trend. In terms of the average exchange rate vis-à-vis other currencies, the dollar has recently been at its strongest in more than two decades.

Chart I-14

Change in exchange rate of selected OECD currencies in 2022[1]



1. Change in trade-weighted exchange rate in 2022 through 18 November.
Sources: Refinitiv Datastream, Central Bank of Iceland.

Financial conditions have deteriorated and uncertainty has mounted

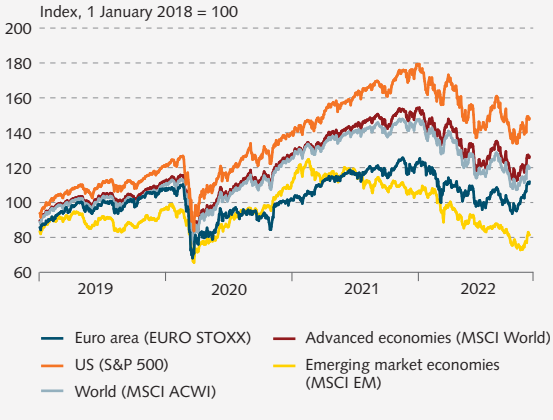
Global asset prices have softened markedly this year and grown more volatile (Chart I-15). Credit spreads on riskier financial asset have widened, particularly in Europe, and financing costs have risen. This is probably due in particular to a poorer economic outlook, elevated uncertainty, and larger-than-expected interest rate hikes by leading central banks.

As a result, financial conditions have worsened in many parts of the world and are now tighter in most advanced economies than they have been on average in the past decade. They have deteriorated perhaps most in the eurozone and are now broadly back to their pandemic-era low. Financial conditions have eroded commensurably in a large number of emerging economies, many of which are fragile. Interest rate hikes in the US and the surge in the US dollar year-to-date have made a bad situation even worse for many of them, especially those with substantial dollar-denominated debt and fragile economic fundamentals.

Chart I-15

Global share prices

1 January 2019 - 18 November 2022



Source: Refinitiv Datastream.

Export prices and terms of trade

Outlook for a larger rise in marine product prices in 2022

The price of Icelandic marine products has risen continuously since Q2/2021, in tandem with improving market conditions as the effects of the pandemic tapered off (Chart I-16). Elevated uncertainty about marine product supplies in the wake of the Western sanctions on Russia also stimulated demand for Icelandic products and fostered further price increases.

Foreign-currency prices of Icelandic marine product exports rose by nearly a fourth year-on-year in Q2/2022, to roughly a fifth above the 2019 average. Contrary to the Bank's August forecast and indications of declining demand in foreign markets this summer, the price of Icelandic exports kept rising in Q3. Mainly because of this, they are now forecast to rise by nearly 20% this year instead of the 13% assumed in August. On the other hand, prices are expected to fall further in 2023, in line with the poorer economic outlook for trading partner countries and increased global economic uncertainty. This will be offset by reduced quotas for cod and capelin, which will lead to smaller declines in prices than could otherwise be expected.

Aluminium prices set to fall further in 2023

Global aluminium prices rose virtually unimpeded from mid-2020 through Q1/2022, partly because of production cuts in China, increased demand in line with the global economic recovery, and greater uncertainty about supplies in the wake of the war in Ukraine. The trend reversed abruptly in Q2, however, and prices fell further in Q3 as the global economic outlook deteriorated. However, in line with the Bank's August forecast, the price of Icelandic aluminium exports continued to rise in Q2, to more than 60% above the Q2/2021 level (Chart I-16). Prices sagged again in Q3, though, and are expected to fall farther in Q4. Aluminium export prices are forecast to average nearly a third higher in 2022 than in 2021, which is a slightly smaller increase than was assumed in August. The outlook for 2023 has deteriorated further, however, as prices are forecast to fall by nearly 18% instead of the previously projected 8%.

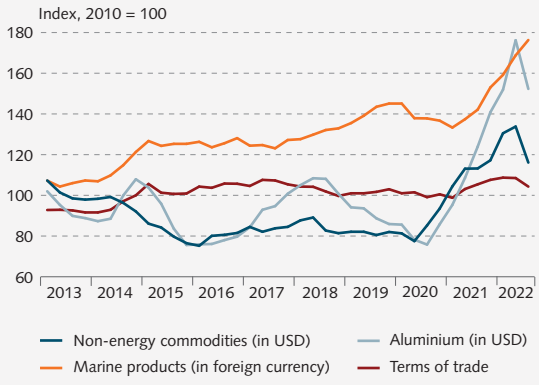
Oil prices have declined since June …

Global crude oil prices skyrocketed early this year, during the lead-up to and aftermath of Russia's invasion of Ukraine. They peaked at nearly 130 US dollars per barrel after the invasion and averaged 112 dollars per barrel in Q2 (Chart I-17), some 60% higher than in Q2/2021. Both the surge and substantial price volatility reflect

Chart I-16

Commodity prices and terms of trade[1]

Q1/2013 - Q3/2022



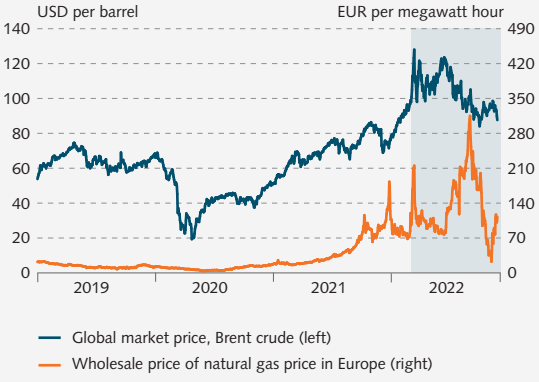
1. Central Bank baseline forecast Q3/2022 for terms of trade.

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

Chart I-17

Oil and natural gas prices[1]

1 January 2019 - 18 November 2022



1. The shaded are shows the period following the onset of war in Ukraine.

Source: Refinitiv Datastream.

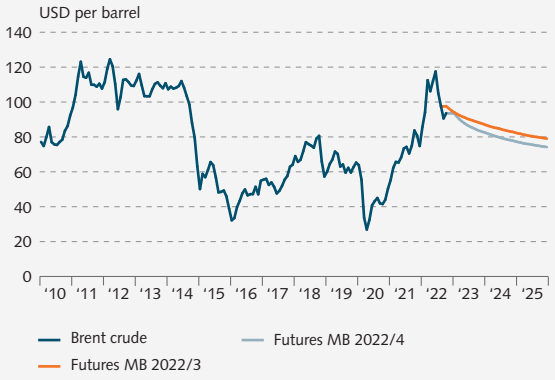
elevated uncertainty about oil supplies because of the war and the sanctions on Russia, the world's second-largest oil exporter.

Oil prices started to fall again in mid-year, however, in tandem with increased concerns about the global economic outlook, and the International Energy Agency (IEA) now expects demand for oil to rise less than previously forecast. This is offset, however, by reduced production from the OPEC+ countries, announced in early October. The surge in natural gas prices has also mitigated the contraction in demand for oil, therefore impeding the fall in oil prices. Furthermore, prices have been supported by the European Union's (EU) proposed ban on oil imports from Russia. The price of Brent crude averaged 94 US dollars in October, about 20% lower than in June. Even so, it was up nearly a fifth year-to-date and 12% higher than in October 2021 (Chart I-18). Although futures prices suggest that oil prices will fall during the forecast horizon and will be lower over the horizon as a whole than was assumed in August, the situation is highly uncertain. The proposed Western sanctions on Russian oil exports – which are set to take effect in the next few months and entail a ban on imports, a cap on prices, and restrictions on shipping by sea, among other things – could disrupt production in the oil market, for instance, with the associated price hikes. On the other hand, US production could turn out stronger than expected, or exports from Iran could increase if the US government eases its sanctions on the country.

Chart I-18

Global oil prices

January 2010 - December 2025



Sources: Refinitiv, Central Bank of Iceland.

… and European natural gas prices have fallen after the surge this summer

Concerns about energy supplies in Europe have escalated in the wake of the invasion of Ukraine, as is discussed above. Natural gas prices began climbing this summer, alongside reduced flow of gas from Russia and increased uncertainty about supplies this winter. They hit a historical high of 315 euros per megawatt hour in late August (Chart I-17). Increased demand for natural gas this summer also contributed to price hikes, owing both to reduced production of other forms of energy and to inventory stockpiling by European countries in anticipation of the winter. At the same time, energy consumption on the Continent increased because of unusually warm weather this summer. Global coal prices have surged as well in the recent term, boosted by increased demand due to shortages of other energy sources, disruptions in production, and the EU and G7 countries' ban on importation of Russian coal.

On the other hand, European natural gas prices have fallen rapidly since August and, by October, were

back to the level seen in early June. The decline is due in part to reduced energy consumption during a mild autumn and early winter, increased energy saving, a favourable inventory position, and more imports from other countries, particularly liquid natural gas from the US. Even so, the outlook for European natural gas prices is extremely uncertain at present, and it depends on a number of factors, particularly to include this winter's weather and supplies from other countries (see Box 1). Futures prices suggest that natural gas prices will trend upwards this winter and remain high in the next few years (Chart I-19).

Non-energy commodity prices fell again this summer

Non-energy commodity prices mushroomed after the war began, as Russia and Ukraine are important manufacturers of a wide range of commodities such as metals, agricultural products, and fertiliser (see also Box 2 in *Monetary Bulletin* 2022/2). The spike in prices reversed this summer, however, as concerns mounted about the bleaker global economic outlook (Charts I-16 and I-20). Metals prices fell the most and are now a fourth below the pre-invasion level.

Agricultural products also fell steeply in price, owing to expectations of better harvests than previously assumed. In addition, exports of grains and other agricultural products from Ukraine increased after an agreement was reached with the Russians and shipping via the Black Sea was permitted again. Supply chain pressures have continued to ease recently, and shipping costs have fallen after surging in 2021 (Chart I-21). These pressures remain more pronounced than they were before the pandemic, however, and shipping costs and non-energy commodity prices (particularly fertiliser prices) are still above the pre-pandemic level. The outlook is for non-energy commodity prices to rise by an average of 10.4% year-on-year in 2022, whereas the August forecast assumed an increase of 12.1%. They are also expected to fall more in 2023, or by just over 8% instead of the scant 7% forecast in August.

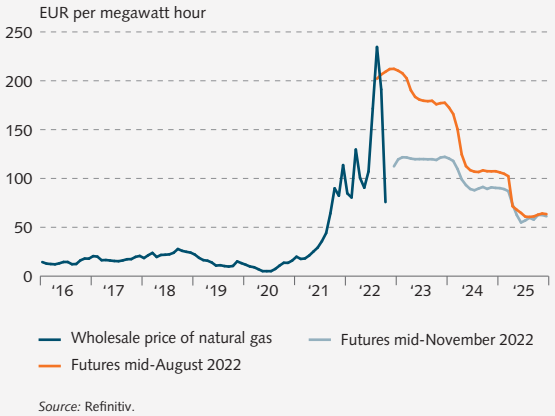
Terms of trade set to improve more in 2022, but the outlook for 2023 has deteriorated

Terms of trade for goods and services improved by 7.5% year-on-year in H1/2022, as was forecast in August (Chart I-16). The improvement is due largely to the continued rise in aluminium and marine product prices. The price of other goods exports also rose markedly between years, particularly silicon products and farmed fish. Export prices overall were up 24% year-on-year in H1, albeit offset by an increase of just over 15% in import prices.

Chart I-19

Natural gas prices in Europe

January 2016 - December 2025

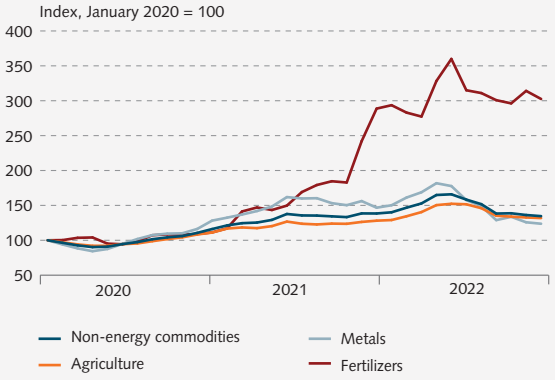


Source: Refinitiv.

Chart I-20

Global commodity prices[1]

January 2020 – October 2022



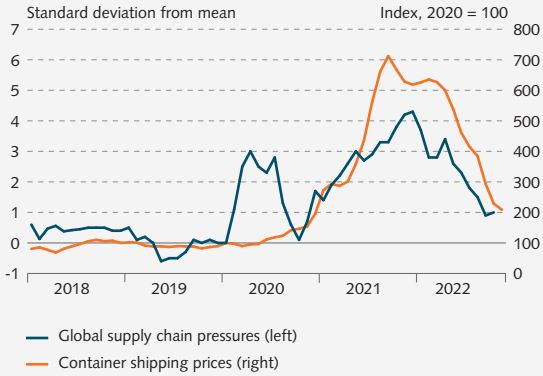
1. Agricultural products are classified as food (62%), beverages (13%), and raw materials (25%).

Source: World Bank.

Chart I-21

Indicators of supply-side pressures[1]

January 2018 – November 2022



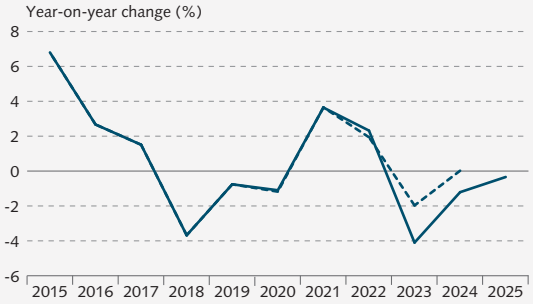
1. The Global Supply Chain Pressure Index (GSCPI) combines the effects of 27 different measures of shipping costs and delivery times, adjusted for demand-side effects. Container shipping based on the Freightos Global Container Index. Data through 18 November 2022.

Source: Refinitiv Datastream.

Owing to the prospect of more favourable prices for marine products, terms of trade are now forecast to improve more in H2 than was projected in August. Thus, the outlook for the year as a whole is for a 2.3% improvement instead of the previously forecast 1.9% (Chart I-22). This comes in the wake of a 3.6% improvement in 2021. The outlook for 2023 has deteriorated, however: terms of trade are forecast to deteriorate by 4.1% during the year, twice as much as was forecast in August. A major factor in this downturn is the expectation of larger declines in the price of aluminium and marine product exports, as is discussed earlier in this chapter. Import prices are also expected to rise further, owing to a bleaker global inflation outlook.

Chart I-22

Terms of trade for goods and services 2015-2025[1]



1. Central Bank baseline forecast 2022-2025. The broken line shows the forecast from MB 2022/3.

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 steeply this year ...
Prior to the publication of this *Monetary Bulletin*, the Bank's key interest rate – the rate on seven-day term deposits – was 5.75% (Chart II-1). As of this writing, it has been raised by 3.75 percentage points in 2022 to date and is 5 percentage points higher than it was two years ago, when it bottomed out after the onset of the COVID-19 pandemic. Short-term market rates have risen correspondingly.

The Bank's real rate has risen as well in the recent past, in line with the increase in the key rate and the decline in inflation. The real rate (as calculated using an average of various measures of inflation and one-year inflation expectations) is currently -0.4%. It has risen by 1.1 percentage points since the August *Monetary Bulletin* and by 2.9 percentage points from its May 2022 trough. The interest rate differential with abroad widened earlier this year but has narrowed again since August.

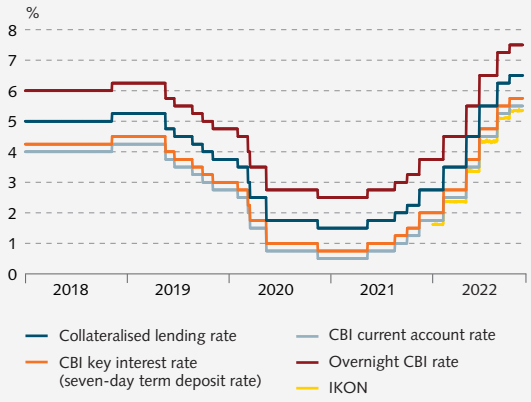
The baseline forecast assumes that the key rate will develop in line with the monetary policy rule in the Bank's macroeconomic model, which ensures that forecasted inflation will be broadly at the Bank's inflation target over the medium term.

According to the survey taken by the Bank in early november, market agents expect that the key rate has peaked and will fall to 5.5% in late 2023 and reach 4.5% two years from now (Chart II-2). This is lower than in the previous survey, where respondents expected the key rate to peak at 6% early in 2023. Forward rates suggest, however, that interest rates will peak at 6½% in late 2023.

Chart II-1

Central Bank of Iceland interest rates and short-term market rates[1]

2 January 2018 - 18 November 2022



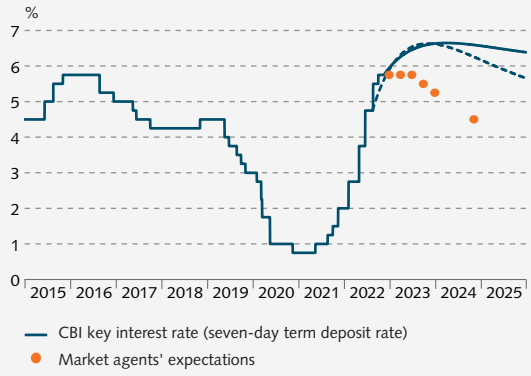
1. IKON is the interest rate on unsecured overnight deposits denominated in Icelandic krónur and held by the commercial banks.

Source: Central Bank of Iceland.

Chart II-2

Central Bank of Iceland key interest rate[1]

1 January 2015 - 31 December 2025



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 2022/3. Market agents' expectations from Central Bank's survey. Estimated from the median response on expectations concerning the collateralised lending rate. The survey was carried out during the period 7-9 November 2022.

Source: Central Bank of Iceland.

… and long-term rates keep rising

The yield on ten-year nominal Treasury bonds has risen by 2.2 percentage points year-to-date. Just before this *Monetary Bulletin* was published, it was 6.4%, its highest since mid-2016 (Chart II-3). Most of the rise in long-term nominal rates took place in H1, but the pace of the increase has eased somewhat since the summer. Long-term real rates have also been rising alongside the increase in the Bank's real rate. The yield on ten-year indexed Treasury bonds was 2% just before this *Monetary Bulletin* was published and has risen by 1.3 percentage points year-to-date.

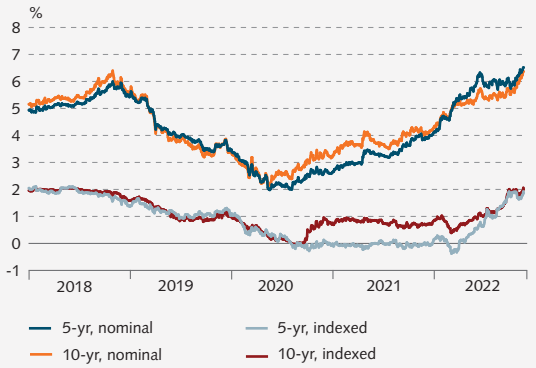
The rapid rise in short-term rates has inverted the nominal yield curve, and two-year yields are now higher than ten-year yields. This reflects investors' expectations that short-term interest rates will fall once again, as is discussed above, and could suggest increased pessimism about the domestic economic outlook.

As can be seen in Chart II-4, the majority of the rise in nominal bond yields in H1 was due to an uptick in breakeven inflation rates. Breakeven inflation declined over the autumn as the bond market became more optimistic about the inflation outlook. This changed, however, with the publication of an unexpectedly high October inflation measurement, and the breakeven rate has been on the rise since. By mid-November, the ten-year breakeven rate was broadly as it was in mid-year (for further discussion of inflation expectations, see Chapter V).

Chart II-3

Government-guaranteed bond yields[1]

2 January 2018 - 18 November 2022

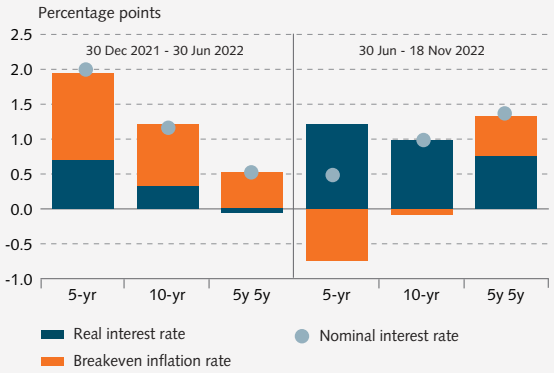


1. Based on the zero-coupon yield curve, estimated with the Nelson-Siegel method, using money market interest rates and Government-guaranteed bonds.

Source: Central Bank of Iceland.

Chart II-4

Breakdown of change in nominal bond interest rates[1]



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

Source: Central Bank of Iceland.

Exchange rate of the króna

The króna appreciated well into this year …

The exchange rate of the króna rose by over 5% in trade-weighted terms in H1 (Chart II-5). It rose against the euro and the pound sterling, but this was offset by a fall against the US dollar. The dollar has risen against most currencies, as often happens during heightened global economic uncertainty (see Chapter I).

The domestic economic outlook gave cause for optimism after the relaxation of public health measures, and the tourism industry was expected to rebound over the summer. Yet the króna held broadly unchanged over the summer in spite of a surge in tourist arrivals. Probably because a large share of the appreciation expected over the summer had already been priced into the exchange rate, as forward currency sales grew strongly during the months beforehand, reflecting both increased speculation-driven trade with the króna and the probability that exporters had sold a portion of their expected foreign exchange revenues via forward contracts. It can be assumed, then, that broader authorisa-

Chart II-5

Exchange rate of the króna[1]

2 January 2015 - 18 November 2022

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

Source: Central Bank of Iceland.

tions for derivatives trading strengthened the effect of expectations on the exchange rate.

… but reversed as the year progressed …

Foreign exchange market turnover was strong this autumn, owing to foreign direct investment in domestic technology and telecommunications companies, together with inflows into the domestic stock market following Iceland's promotion to secondary emerging market status by FTSE Russell. Furthermore, pension funds stepped up their foreign currency purchases, thereby offsetting inflows into the market to some extent, as their scope for foreign investment has increased with the steep drop in foreign asset prices. Forward currency sales have eased since mid-year, however, and in September there was an increase in forward purchases.

… and the króna has depreciated lately

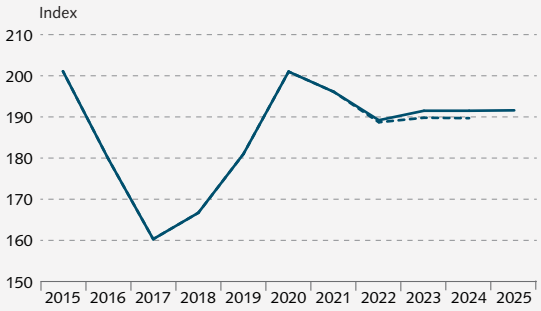
The króna has come under increased downward pressure recently. In trade-weighted terms, it is now over 6% weaker than at mid-year, 4% below its October 2022 average, and broadly at the level seen in November 2021. Recent developments probably reflect increased pressure on the currency due to a strong pick-up in imports and a widening current account deficit. The interest rate differential with abroad has also narrowed following recent interest rate hikes overseas (see Chapter I). The Bank sold foreign currency in the market on a few occasions during this period.

Króna assumed to be weaker than was assumed in August

The exchange rate index stood at 188 points in Q3, in line with the Bank's August forecast. The króna has weakened more in Q4 to date, however, then was expected. In the baseline forecast it is assumed to follow a lower exchange rate path than was provided for in the Bank's August forecast (Chart II-6).

Chart II-6

Exchange rate of the króna 2015-2025[1]



1. Price of foreign currency in krónur. Narrow trade index. Central Bank baseline forecast 2022-2025. The broken line shows MB 2022/3 forecast.

Source: Central Bank of Iceland.

Money holdings and lending

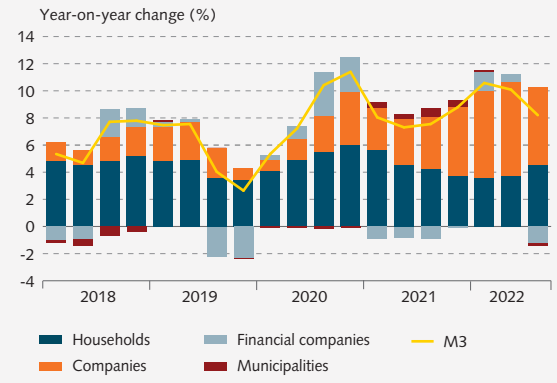
Broad money growth has eased …

Year-on-year growth in M3 measured 8.9% in Q3/2022, somewhat less than in H1 (Chart II-7). Growth is driven mainly by an increase in corporate deposits, particularly those held by services and manufacturing companies. This aligns well with the rebound in tourism and growth in revenues from exports of marine and manufacturing products, which stems in part from sharply higher product prices. Year-on-year growth in household deposits measured 9% in Q3, picking up from the previous quar-

Chart II-7

Money holdings[1]

Q1/2018 - Q3/2022



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.

ter after having been on the decline since the beginning of 2021.

… and mortgage lending growth should start easing soon

Annual growth in credit system lending has gained momentum, measuring 8½% in Q3/2022 (Chart II-8). Lending to households was up 10% year-on-year in Q3 and has held broadly stable throughout 2022 despite the recent weakening of the principal drivers of credit growth: interest rates are up sharply, borrower-based measures have tightened, and real wages have begun to shrink.

Mortgage lending growth should start easing soon, however, given the slowdown in housing market activity. This is consistent with the Central Bank's October lending survey, which suggests that the commercial banks expect demand for mortgages to ease in the near future. Offsetting this, however, is the recent increase in pension funds' mortgage lending activity.

Corporate lending up strongly in 2022

Credit system lending to businesses has grown since March, after contracting uninterrupted since the beginning of 2021. Year-on-year growth measured 7½% in Q3/2022 but was just over 8% after adjusting for the effects of exchange rate movements on foreign-denominated corporate loans. Lending to nearly all sectors has grown, although the increase is greatest in lending to companies in construction and services. It is likely that companies have pent-up need to invest after last year's contraction in corporate lending, and the Central Bank's investment survey indicates that investment spending will continue to rise (see Chapter III). Nevertheless, the commercial banks expect supply and demand for corporate credit to remain broadly unchanged in coming months.

Credit system lending was sluggish starting with the onset of the pandemic but then contracted in 2021. The corporate sector offset this by funding through bond issues and borrowing from institutional investment funds, although not all companies have access to these sources of financing (Chart II-9). Financing from outside the credit system has been on the wane recently, while credit system lending has increased accordingly.

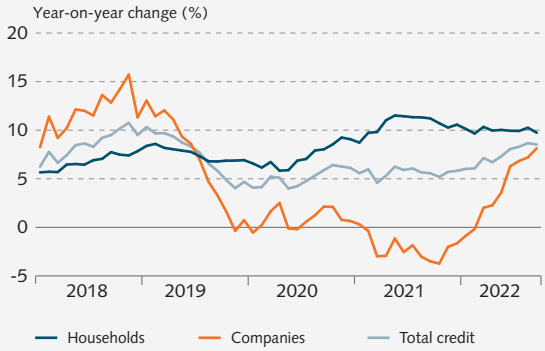
Households are generally well positioned, but their financial conditions have worsened …

Household indebtedness has been largely unchanged in recent years (Chart II-10). Households' arrears are limited and have not increased despite large interest

Chart II-8

Credit system lending[1]

January 2018 - September 2022



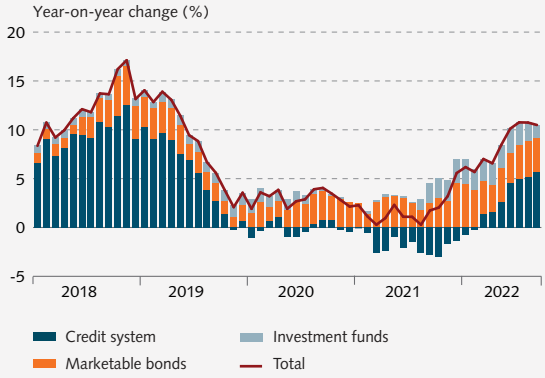
1. Credit stock adjusted for reclassification and effect of Government debt relief measures. Excluding loans to deposit institutions, failed financial institutions, and the Government. Companies include non-financial companies and non-profit institutions serving households.

Source: Central Bank of Iceland.

Chart II-9

Lending to non-financial companies

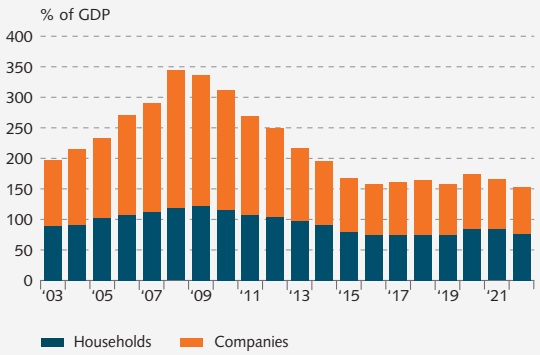
January 2018 - September 2022



Source: Central Bank of Iceland.

Chart II-10

Household and non-financial corporate debt 2003-2022[1]



1. Debt owed to financial undertakings and marketable bonds issued. Excluding financial institutions (which includes holding companies). Debt based on H1/2022. GDP for 2022 based on Central Bank baseline forecast.

Sources: Statistics Iceland, Central Bank of Iceland.

rate hikes. Their asset position has also improved with rising asset prices, and their saving ratio is relatively high in historical terms (see Chapter III). The ratio of household interest expense to disposable income has risen since 2021, however, after falling steeply in the wake of pandemic-era interest rate cuts (Chart II-11). It is still below its historical average, though, despite this year's jump in interest rates, reflecting the large increase in disposable income.

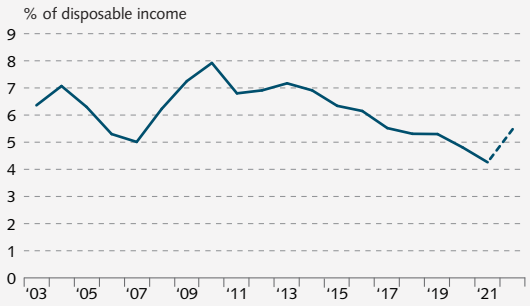
For the most part, the increase in the Central Bank's key interest rate has passed through to household rates, and the spread between rates on new non-indexed mortgage loans and the deposit rates offered to households has remained broadly stable (Chart II-12). Increased competition for household deposits probably plays a role, as the banks' market funding did not increase in line with the lending growth of the past few years. Furthermore, interest rate hikes now have a more immediate effect on leveraged households' debt service burden than they did previously, as just over a fourth of household mortgages are variable-rate non-indexed loans, and most fixed-rate non-indexed loans have a fixed interest period of only three years. Borrowers who locked in historically low mortgage rates will therefore see their debt service burden rise when the fixed period expires, all else being equal. The share of indexed loans among new mortgages has increased in recent months, although indexed interest rates have begun to rise since H1, in line with a generally rising real rate.

… and a similar trend can be seen with businesses

Firms' position has improved during the year, and economic activity was strong in H1. Export prices have risen considerably, and the tourism industry has rebounded. Corporate debt has held steady as a share of GDP despite stronger credit growth during the year (Chart II-10). In addition, the banks' corporate loan losses have been less than was projected early in the pandemic, and arrears have been limited. Interest rates on new corporate loans have risen concurrent with the rise in the key rate, and credit spreads over and above deposit rates available to firms have widened since 2021. The commercial banks' liquidity has been constrained by recent interest rate hikes, and conditions in international funding markets have been challenging for them. In coming months, firms' access to credit will probably depend in part on how well these liquidity constraints can be unwound. It is also unknown how much impact the uncertain global economic outlook will have, as firms' demand for credit financing appeared to contract markedly when pandemic-related uncertainty was high.

Chart II-11

Household mortgage interest expense 2003-2022[1]



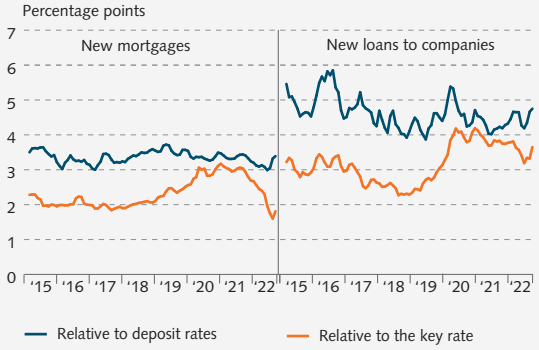
1. Mortgage interest expense for 2022 estimated using interest rates and household mortgage loan stock. Disposable income for 2022 based on Central Bank baseline forecast.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart II-12

Credit spreads[1]

March 2015 - September 2022



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.

Asset prices

Imbalances between supply and demand have pushed house prices sharply upwards …

As is widely the case abroad, house prices in Iceland surged in the wake of the pandemic. Lower interest rates, significant accumulated savings, and growth in disposable income made it easier to buy a home, and both turnover and transaction numbers grew markedly, particularly among first-time buyers (Chart II-13). The number of homes for sale plummeted, however, and severe mismatches developed between supply and demand early in 2021. It appears that the number of homes built during the pre-pandemic years did not satisfy increased demand for housing.

Housing market activity began to ease somewhat mid-2021. Although demand was slowed by rising interest rates, it still outpaced supply, maintaining price pressures and pushing twelve-month house price inflation in greater Reykjavík to 25.5% by July 2022, its highest since December 2005.

… far outstripping the rise in rent prices

Rent prices have picked up in 2022 to date, measuring 8.4% year-on-year in October (Chart II-14). To an extent, this goes hand-in-hand with the rise in interest rates and the general price level, the increase in tourist numbers, and the decline in the percentage of first-time buyers, which is now nearly 5 percentage points below its 2021 peak. Another factor is that the Central Bank lowered maximum loan-to-value ratios and capped debt service-to-income ratios on new mortgages. House prices have therefore declined marginally relative to rent prices and wages in the past three months, although both ratios are still far above their historical averages. This chimes in with developments in many other advanced economies, where capital flowed into the housing market because of low interest rates and fiscal support in the wake of the pandemic (Chart II-15).

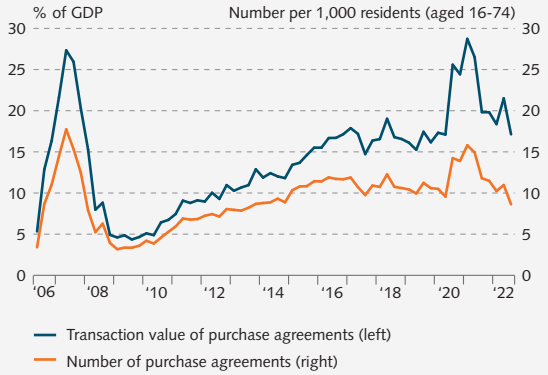
The housing market is apparently starting to cool

Signs of a changed housing market climate are growing ever clearer, though. House price inflation has eased month by month since June, even though prices were still 21.5% higher in October than they were a year earlier (Chart II-14). The number of properties for sale has risen again and is now more than double that in April, when only about 1,000 homes were on the market. The share of newly constructed homes for sale has also risen in recent months, reflecting strong construction sector activity (see Chapter III), and housing supply is now

Chart II-13

Number and transaction value of house purchase agreements nationwide[1]

Q2/2006 – Q3/2022



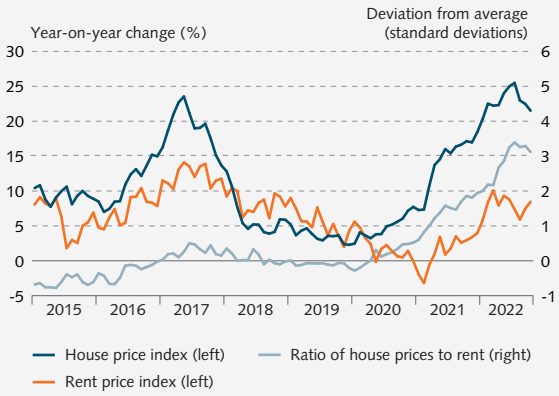
1. Number and transaction value of purchase agreements on date of purchase, seasonally adjusted by the Central Bank. GDP data from Statistics Iceland. Central Bank baseline forecast for GDP in Q3/2022.

Sources: Housing and Construction Authority, Statistics Iceland, Central Bank of Iceland.

Chart II-14

House prices and rent[1]

January 2015 - October 2022

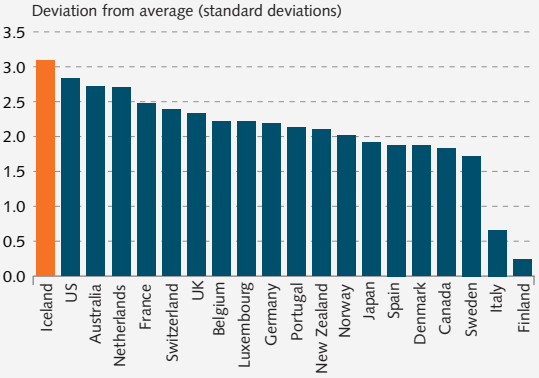


1. House prices and rent in the greater Reykjavík area. Deviation of the house price-to-rent ratio from the 2011-2022 average, measured in standard deviations.

Sources: Housing and Construction Authority, Central Bank of Iceland.

Chart II-15

House price-to-rent ratios in selected OECD-countries[1]



1. Figures for Canada, Iceland, Norway, Switzerland, and UK in Q3/2022, and for New Zealand in Q1/2022, Australia in Q4/2021, and Japan in Q2/2021. Data for other countries in Q2/2022.

Sources: Housing and Construction Authority, Refinitiv Datastream, Central Bank of Iceland.

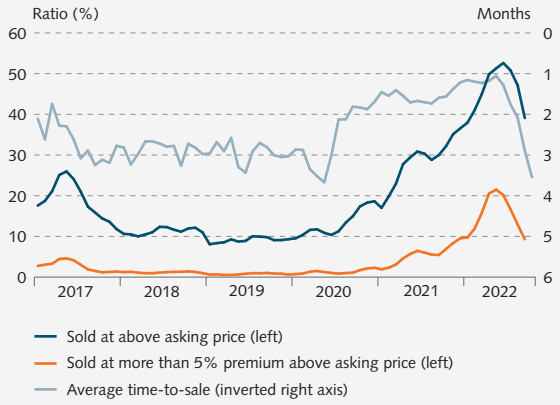
expected to grow more strongly in 2022 and 2023 than was estimated in this past spring. The average time-to-sale has therefore risen in the recent term, concurrent with a decline in the number of purchase agreements (Chart II-16). By the same token, the share of properties selling at a premium on the asking price has fallen in recent months. Furthermore, as is noted above, there are signs that demand for mortgage loans is easing. Construction company executives also expect demand for residential housing to weaken in the next six months, and they consider this a major driver of an anticipated slide in prices.

House prices have softened more rapidly than was assumed in August, and according to the current baseline forecast, year-on-year house price inflation looks set to ease significantly from Q4 well into next year. There are uncertainties in play that could slow down this trend, however, mainly the war in Ukraine and the resulting surge in commodity prices. The uncertainty that developed earlier this year about deliveries of inputs has eased, but it is unclear how strongly the energy crisis will affect the price of construction sector inputs this winter and whether the war will exacerbate delivery problems. There is also considerable uncertainty about the impact of this season's wage negotiations. Moreover, an influx of immigrants could put more pressure on house prices than is currently envisioned.

Chart II-16

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

January 2017 - September 2022



1. Properties sold at a premium on the asking price as a percentage of sold properties. 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), Central Bank of Iceland.

Share prices falling

The OMXI10 index has fallen by roughly one-fifth in 2022 to date. The drop in share prices, which accords with developments seen widely abroad, reflects the bleaker global economic outlook, higher interest rates, and increased global economic uncertainty.

As is mentioned above, the Icelandic equity market was promoted to secondary emerging market status by index provider FTSE Russell on 19 September. It had previously been classified as a frontier market, which excluded it from the investment mandates of many international investment funds. Investors appear to have bought sizeable shareholdings during the run-up to the reclassification, but contrary to many observers' expectations, Icelandic share prices fell in the wake of the change, suggesting that demand from foreign investors may have been weaker than previously assumed. It is nevertheless hoped that the reclassification will attract foreign capital to the Icelandic equity market over time, as far more funds invest according to secondary emerging market indices than frontier market indices.

Demand and GDP growth

III

Domestic private sector demand

Private consumption growth was strong in H1/2022 … Seasonally adjusted household consumption spending grew by 4% quarter-on-quarter in Q2 (Chart III-1). Private consumption increased 13.5% between years, the strongest year-on-year growth rate in a single quarter since Q2/2005. These developments were well in line with the forecast in the August *Monetary Bulletin*, which provided for 14% growth.

In the first half of the year, private consumption grew 11.4% year-on-year, reflecting households' generally strong position, which was driven by a significant increase in real disposable income and growing net household wealth. Households have also stepped up their purchases of various services, travel in particular, ever since the pandemic-related public health measures were lifted. This can be seen, for instance, in the surge in Icelanders' payment card turnover abroad (Chart III-2).

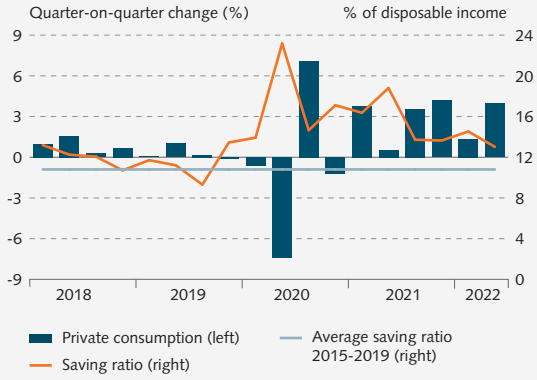
… but looks set to ease in H2

Leading indicators imply that household demand continued to grow in Q3. The outlook is for slower growth for the remainder of the year, however, as households have probably satisfied some of their pent-up desire to travel after pandemic-era restrictions were eased. Year-on-year growth in payment card turnover has tapered off (Chart III-3). Furthermore, new motor vehicle registrations (excluding car rental agencies) declined by 4½% year-on-year in July and August, after increasing steadily in the twelve months beforehand. The slowdown is probably due for the most part to market saturation following the surge in electric car purchases in H1/2022. Moreover, the most recent Gallup survey of major purchase plans indicates that households will

Chart III-1

Private consumption and household saving[1]

Q1/2018 - Q2/2022



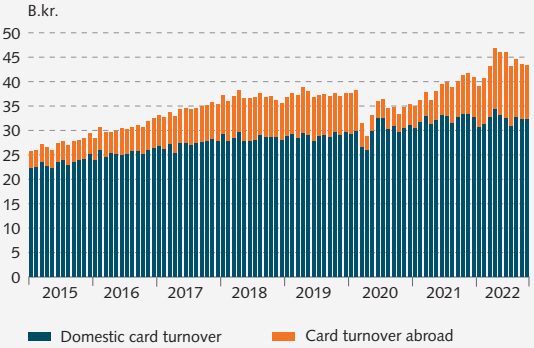
1. The saving ratio is calculated based on the Central Bank's disposable income estimates. Seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-2

Household payment card turnover[1]

January 2015 - October 2022



1. Debit and credit cards issued in Iceland. Domestic card turnover is deflated with the CPI excluding housing. Foreign turnover is deflated with the import-weighted exchange rate index. Seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

pull back on buying cars and travelling overseas in the near future.

The Gallup Consumer Confidence Index suggests, too, that consumers have grown more pessimistic (Chart III-3). This probably reflects not only the impact of higher inflation and declining real wages, but also tighter financial conditions in the wake of rapid interest rate hikes (see Chapter II).

The Central Bank's baseline forecast assumes that private consumption growth eased in Q3. It is estimated to have measured 5.7% year-on-year, which is broadly in line with the August forecast. The outlook for private consumption growth in 2022 as a whole is also largely unchanged since August. As was the case then, private consumption is forecast to grow by just over 7% for the second year in a row (Chart III-4).

Stronger private consumption projected for the next three years

According to preliminary figures published recently by Statistics Iceland, disposable income grew more strongly in 2021 and H1/2022 than previous estimates had indicated. The household saving ratio therefore declined less than was assumed in August and is still above its pre-pandemic average (Chart III-1).

Although households are more downbeat about the economic outlook, the higher saving ratio implies that households have more room for manoeuvre and can therefore maintain a higher level of spending than previously thought. As a result, the Bank has revised its year-2023 private consumption growth forecast upwards to 2.6% from the 2% assumed in August. As in August, private consumption is forecast to grow by nearly 3% in 2024 and then ease back to just over 2% in 2025. The household saving ratio therefore holds steady at around 10% of disposable income for the entire period, which is broadly in line with the pre-pandemic average.

Business investment grew strongly in H1 ...

Business investment grew by 12.1% year-on-year in H1/2022, slightly outpacing the Bank's August forecast. General business investment (excluding ships, aircraft, and energy-intensive industry) grew by a fifth between years, but the contribution from investment in ships and aircraft was negative (Chart III-5).

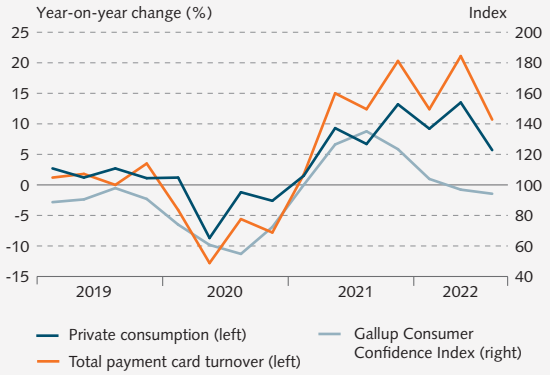
... and the outlook for 2022 as a whole has improved since August

Indicators imply that business investment remained strong in Q3. Imports of general investment goods were up nearly a third year-on-year at constant exchange

Chart III-3

Private consumption and its indicators[1]

Q1/2019 - Q3/2022

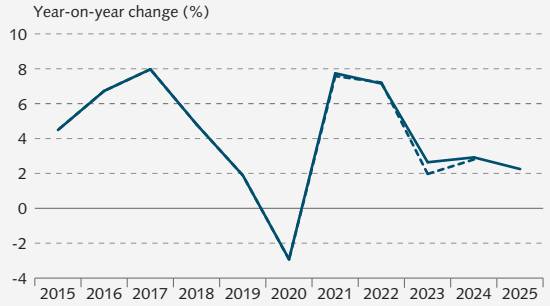


1. Payment card turnover at constant prices. The Gallup Consumer Confidence Index is seasonally adjusted. Central Bank baseline forecast Q3/2022 for private consumption.

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

Chart III-4

Private consumption 2015-2025[1]



1. Central Bank baseline forecast 2022-2025. The broken line shows the forecast from MB 2022/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-5

Business investment and contribution of underlying components

Q1/2018 - Q2/2022

Sources: Statistics Iceland, Central Bank of Iceland.

rates, falling short of the growth rate from Q1 and Q2 (Chart III-6). The continuing increase in construction industry turnover and job growth in the sector since this summer also suggest stronger investment in building and construction.

This growth in investment activity is also in line with the results of the Central Bank's investment survey, carried out in September. According to that survey, firms plan to increase investment in 2022 by approximately 43% year-on-year in nominal terms (Chart III-7). This is a considerably larger increase in investment spending than was indicated by a corresponding survey taken in February and March. The survey results suggest that growth will extend to all sectors, although it will be strongest in tourism and transport.

The results of Gallup's August/September survey of Iceland's 400 largest firms imply as well that executives are optimistic about year-2022 investment, although they have scaled down their investment plans slightly since the March survey. About a third of executives expect to invest more this year than in 2021, while only half as many expect to invest less this year. The survey also indicates that executives in transport, transit, and tourism are the most optimistic about investment in 2022.

Indicators therefore imply that business investment will be stronger this year than was forecast in August. General business investment is estimated to have grown by just under 16% year-on-year in Q3 and, for 2022 as a whole, is projected to be 19% stronger than in 2021, instead of just over 15%, as was forecast in August. Total business investment is therefore revised upwards by 2 percentage points, to 14%. Part of this increase is due to positive base effects from an accounting adjustment in which business sector financial assets were recognised as public sector assets (for further discussion, see the section on public sector finances later in this chapter), although it also reflects indications that investment will be stronger in 2022 than was forecast in August. In addition to this, investment in energy-intensive industry is expected to grow more than was assumed in August.

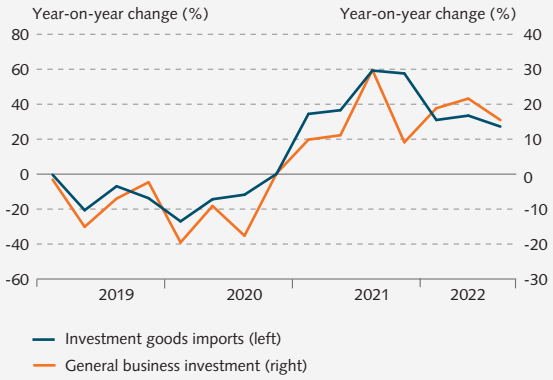
Residential investment set to contract in 2022 despite signs of increased construction activity

According to preliminary figures from Statistics Iceland, residential investment contracted by 7.2% year-on-year in H1/2022. Furthermore, the figures for 2021 and Q1/2022 were revised downwards. This weak investment activity came as a surprise, as it does not accord with other indicators of residential investment, leading to an overprediction of residential investment in the Bank's August forecast (Chart III-8). According to the corporate

Chart III-6

Investment goods imports and investment[1]

Q1/2019 – Q3/2022

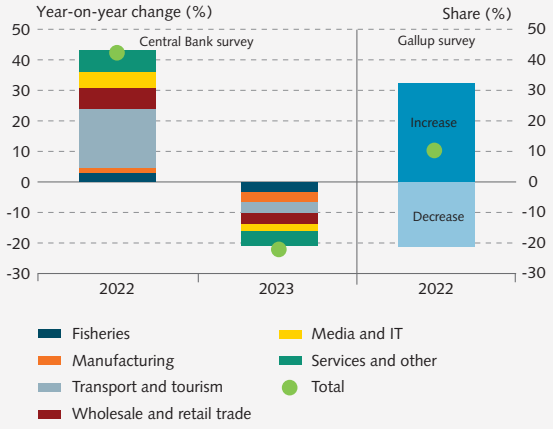


1. Imported investment goods and transport equipment for commercial use (excluding ships and aircraft). Business investment excluding energy-intensive industry and ships and aircraft. Figures for Q3 are estimated.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-7

Indicators of investment plans in 2022 and 2023[1]



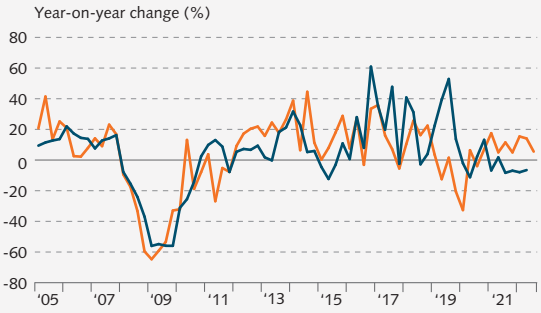
1. Central Bank survey of firms' investment plans (excluding investments in ships and aircraft). Gallup survey of Iceland's 400 largest firms' investment plans. The chart shows the share of firms intending to increase investment and the share intending to decrease it.

Sources: Gallup, Central Bank of Iceland.

Chart III-8

Indicators of residential investment[1]

Q1/2010 - Q3/2022



1. The first principal component of selected indicators of residential investment, which is scaled so that its mean value is 0 and the standard deviation is 1. The data used are: imports of building materials, cement sales excluding energy-intensive industry, and consumer sentiment towards expected real estate purchases.

Sources: Aalborg Portland Iceland, Gallup, Sementsverksmiðjan ehf., Statistics Iceland, Central Bank of Iceland.

survey taken by Gallup in September, executives in the construction sector report that their firms are operating at full capacity, and that they expect to invest more in 2022 than in 2021. A new survey conducted by the Housing and Construction Authority and the Federation of Icelandic Industries also suggests that the number of homes under construction in greater Reykjavík has risen marginally in comparison with a similar survey taken in the spring (Chart III-9). The survey results indicate as well that a larger number of homes will be completed this year and next year than was assumed this spring.

There are signs of ongoing growth in residential investment, but because of Statistics Iceland's figures on construction sector investment in H1, residential investment is now projected to contract by 1½% this year instead of growing by nearly 6%, as was forecast in August.[1]

Investment growth set to ease in 2022 but remain broadly unchanged over the forecast horizon as a whole

According to the baseline forecast, total investment will be 5.6% stronger this year than in 2021 (Chart III-10). This is a weaker growth rate than was forecast in August, owing largely to a poorer outlook for residential investment. On the other hand, the outlook is for stronger growth in business investment.

Year-2022 investment is driven mainly by stronger investment spending in the general business and energy-intensive sectors. Pulling in the other direction is a contraction in investment in ships and aircraft, which is due to base effects stemming from strong imports in 2021. Base effects from weaker investment in 2022 largely explain the outlook for stronger investment in 2023, whereas prospects for the forecast horizon as a whole are broadly unchanged since August. As in August, the investment-to-GDP ratio is expected to reach just over 23% by the end of the period. This is about 1 percentage point above the twenty-five-year average.

Public sector

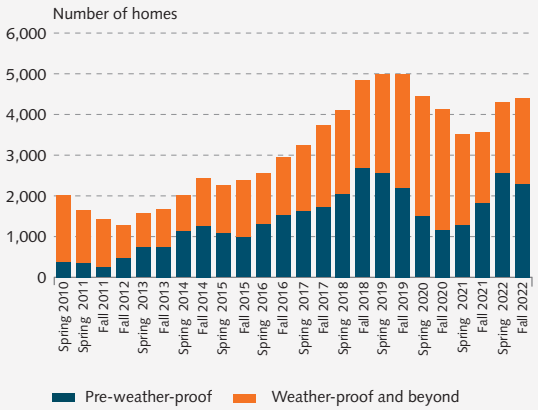
Modest growth in public sector demand over the forecast horizon

Compared to last year, public sector demand in H1/2022 eased somewhat as it grew by roughly 2% year-on-year. As in August, public consumption is forecast to grow by

1 As Statistics Iceland points out, the most recent national accounts estimates of residential investment are unusually uncertain, in view of the underlying baseline data, and the final result for the year could well be revised upwards once more complete data are received.

Chart III-9

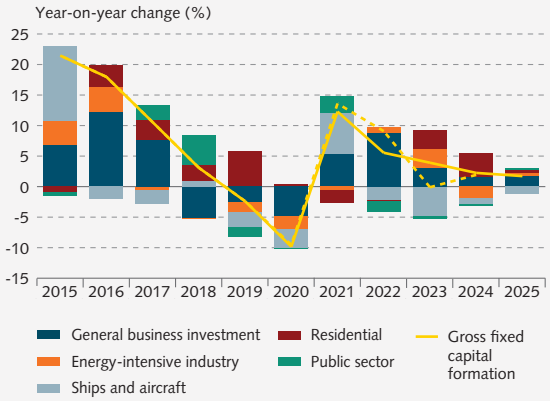
Residential housing under construction in the capital area[1]



1. According to residential construction surveys conducted each spring and fall.
Sources: Federation of Icelandic Industries, The Housing and Construction Authority.

Chart III-10

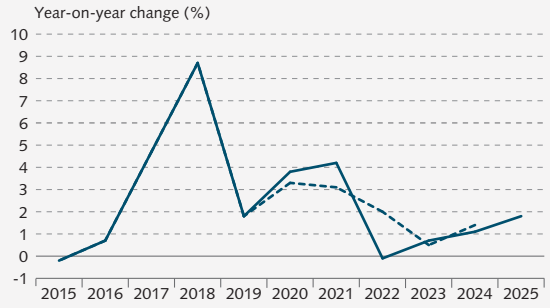
Gross fixed capital formation and contribution of main components 2015-2025[1]



1. General business investment excludes ships, aircraft, and energy-intensive industry. Central Bank baseline forecast 2022-2025. The broken line shows the forecast from MB 2022/3.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-11

Public sector final demand 2015-2025[1]



1. Public sector final demand in the national expenditure accounts is the sum of government consumption and public investment. Central Bank baseline forecast 2022-2025. Broken line shows forecast from MB 2022/3.
Sources: Statistics Iceland, Central Bank of Iceland.

1½% in 2022 as a whole, but now public investment is projected to contract by nearly 11% instead of growing by a full 4%, as was assumed in August. This is due largely to base effects from the transfer of real estate from Part B to Part A of the Reykjanesbær accounts. With this transfer, the assets fall under the public sector in the national accounts instead of being classified as business sector assets, and as a result, they are recognised as public investment in 2021, causing the aforementioned negative base effects in 2022. Furthermore, central government investment is projected to slow down more than was forecast in August.

Because of this measured contraction in year-2022 public investment, overall public sector demand will contract marginally in 2022 instead of growing by 2%, as in the August forecast (Chart III-11). The outlook is for growth to gain pace again in 2023 and average just over 1% per year as the forecast horizon progresses, which is broadly in line with the August forecast.

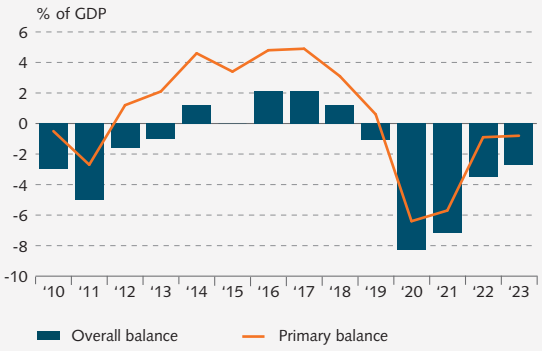
Turnaround in Treasury outcome due to economic rebound and expiry of pandemic response measures. Treasury operations generated sizeable deficits in the past two years, owing to the effects of the pandemic and associated mitigating measures. The combined deficit for the two years was 477 b.kr., or 7.7% of GDP for the period (Chart III-12). The deficit is projected to narrow significantly this year, to 3.5% of GDP (in terms of Treasury Part A). This reflects a marked improvement in the primary balance, albeit offset by a weaker interest balance, which is due to higher interest rates and the effects of inflation on inflation-indexed Treasury debt.[2] The projected deficit is smaller than was provided for in the Bank's last assessment of the fiscal stance, published in the May 2022 *Monetary Bulletin*. It is due mainly to a larger-than-expected increase in Treasury revenues, which in turn stems from stronger economic activity than was forecast in May.

The Treasury deficit is expected to keep shrinking in 2023. The change will be considerably smaller then than in 2022, however, but as before, the improvement in performance is due to stronger economic activity and the expiry of the Government's pandemic response measures. According to the new fiscal budget proposal, new measures on the revenues side will deliver increased revenues equivalent to 0.3% of GDP, but the expiry of temporary expenditures will be offset by scope for new and expanded projects (for further information, see Box

2 Adjustments have been made for the revenue revisions in the proposed budget supplement for 2022, reflecting new information on the levy and collection of certain taxes.

Chart III-12

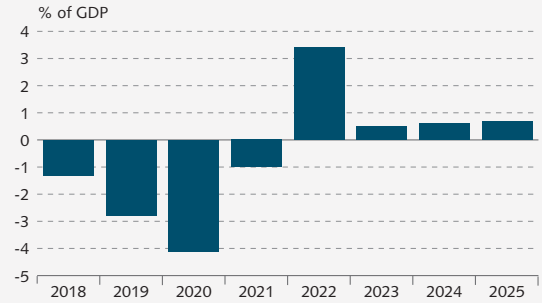
Treasury outcome 2010-2023[1]



1. Adjusted for irregular and one-off items. Central Bank baseline forecast 2022-2023.
Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

Chart III-13

Change in central government cyclically adjusted primary balance 2018-2025[1]



1. Adjusted for irregular and one-off items. Central Bank baseline forecast 2022-2025.
Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

3). The Treasury outcome is expected to be negative by 2.7% of GDP in 2023, and the deficit on the primary balance is projected at 0.8% of GDP. This is broadly in line with the provisions of the 2023 fiscal budget proposal.

Underlying Treasury performance to improve gradually in coming years

One manifestation of the past two years of broad-based Government support measures can be seen in the Treasury primary balance, which deteriorated by over 5% of GDP in cyclically adjusted terms. Most of the measures expired in late 2021, and this, coupled with robust GDP growth, has caused the Treasury's primary expenditures to decline as a share of GDP. For 2022, the cyclically adjusted Treasury outcome is expected to improve by 3.4% of GDP, representing a slightly tighter fiscal stance than was forecast in May (Chart III-13).

In 2023, the factors affecting the primary balance will be similar to those in play this year, although they will be considerably smaller in scope than in 2022. Treasury investment will be weaker than previously assumed, and measures on the revenues side in 2023 will generate more additional income than would otherwise have been forthcoming. The fiscal stance is therefore projected to tighten further, by ½% of GDP, which is less than was forecast this spring, owing in part to the base effects from this year's consolidation. Total fiscal easing for the period 2020-2023 – i.e., beginning with the onset of the pandemic – equals 1.2% of GDP, which is in line with the May forecast. Discretionary measures in 2022 and 2023 therefore do not fully offset the easing in the wake of the pandemic. The fiscal stance is set to tighten further in 2024-2025.

External trade and the current account balance

Robust export growth driven by a rebound in tourism …

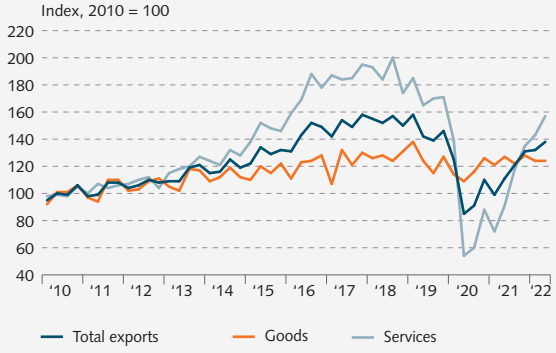
Exports of goods and services grew by 4.4% quarter-on-quarter in Q2 (Chart III-14) and by 23.3% year-on-year in H1, slightly outpacing the Bank's August forecast. This more favourable outcome can be attributed in large part to services exports, which grew more than expected, or more than 73%, partly because of a revision of previous figures for Q1/2022.

This surge in services exports reflects the continuing recovery of tourism, which picked up strongly in Q2, driven by increased flight offerings to and from Iceland and a decline in COVID-19 case numbers following an earlier spike with the spread of the Omicron variant at the beginning of the year. Furthermore, the US authori-

Chart III-14

Exports of goods and services[1]

Q1/2010 - Q2/2022



1. Seasonally adjusted volume indices.

Source: Statistics Iceland.

ties stopped requiring COVID test results at the border, and the number of transit passengers therefore rose swiftly during the quarter. Domestic airlines' passenger transport revenues therefore surged in Q2, and total revenues from tourism rose to 94% of the 2019 level (at constant exchange rates). Spending per tourist was also well above the pre-pandemic average, and tourists generally stayed longer in the country.

Cargo transport continued to increase as well, and in addition, historical data were revised upwards. The year-on-year increase measured 27% in H1, albeit offset by a 9.4% contraction in other services exports. This was due primarily to a 69% contraction in exports relating to intellectual property leasing in the pharmaceuticals industry, plus a contraction of nearly a half in research and development services.

… which remained strong in Q3

Tourist numbers continued to rise alongside increased flight offerings in Q3. Broadly as was forecast in August, almost 654,000 foreign nationals departed via Keflavík Airport during the quarter, almost as many as in Q3/2019. Indicators of tourists' spending while in Iceland suggest that average spending declined marginally between Q2 and Q3 and moved closer to the pre-pandemic level. Part of the recent increase in spending stems from longer stays in Iceland than during the pre-pandemic period, as the number of overnight stays in Q3 was well above the total for the same period in 2018 and 2019 (Chart III-15). Furthermore, the nationality distribution remained different from that in the pre-pandemic period, with a larger number of European travellers offsetting the small number of visitors from Asia. The outlook is for domestic airlines' export revenues from passenger transport to be stronger in Q3 than was forecast in August, however. The passenger load factor was high, as were airfares, and revenues were considerably stronger than the rise in passenger numbers would indicate. Passenger transport still accounts for a smaller share of services exports than it did before the pandemic, however, as domestic airlines' activities remain smaller in scope than they were then. Moreover, revenues from cargo transit appear to have continued rising, and to a higher level than previously anticipated.

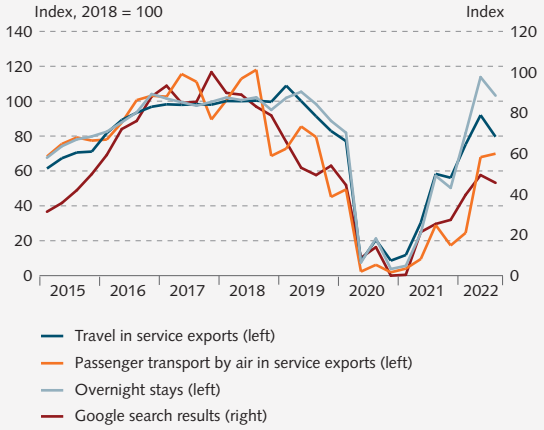
The outlook for tourism is broadly as in August

The global inflation and GDP growth outlook has continued to deteriorate since August, and uncertainty has mounted (see Chapter I). Nevertheless, the economic situation abroad does not appear as yet to have adversely affected tourist arrivals, tourists' spending while in

Chart III-15

Google searches and travel to Iceland[1]

Q1/2015-Q3/2022

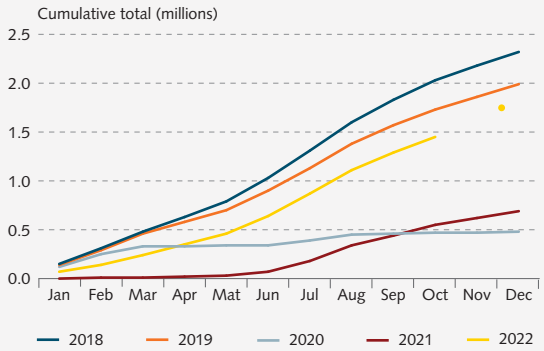


1. Travel and transport by air in service exports at constant prices, Central Bank baseline forecast Q3/2022. Overnight stays in all types of registered accommodation. Search results according to a principal component model combining the frequency of five different Google search strings relating to travel to Iceland. Seasonally adjusted figures.

Sources: Google Trends, Statistics Iceland, Central Bank of Iceland.

Chart III-16

Foreign nationals' departures via Keflavík Airport 2018-2022[1]



1. Cumulative total for each year. The dot indicates the 2022 total according to the Central Bank's baseline forecast.

Sources: Icelandic Tourist Board, Isavia, Central Bank of Iceland.

Iceland, or airline flight schedules for the coming winter. Flight offerings to and from Iceland are expected to keep increasing in 2023. Furthermore, the number of Google searches for flights to Iceland and accommodation in the country has been about the same in H2/2022 as it was in Q2/2022 (Chart III-15). Moreover, international airline bookings have continued to improve, according to data from the International Air Transport Association (IATA), although Q4 bookings within Europe declined somewhat.[3]

As in August, 1.7 million foreign tourists are expected to visit Iceland in 2022, followed by over 1.9 million in 2023 (Chart III-16). Visitor numbers are expected to keep rising over the forecast horizon, exceeding 2 million in 2024. These projections are highly uncertain, particularly as regards 2023, owing to the European energy crisis and its potential impact on Europeans' ability and willingness to travel. As is discussed in Box 1, the number of tourists could turn out lower and airlines' flight schedules could change if the energy crisis deepens still further. On the other hand, tourist numbers could rise faster than is currently projected if appetite for travel remains strong and the impact of reduced purchasing power proves weaker than expected.

In spite of an unchanged estimate of tourist arrivals, the outlook is for stronger growth in services exports this year, or 46% instead of the 41% forecast in August. This is due to stronger growth in services exports in H1 and the prospect of increased growth in transport and transit in H2. Because of base effects, the growth rate will be lower in 2023, or just over 8% instead of the 13% forecast in August.

Growth in goods exports weaker in H1, owing to revisions of previously published data …

Goods exports contracted by 0.1% quarter-on-quarter in Q2/2022 (Chart III-14) but grew by 0.4% in H1, whereas the August forecast assumed a growth rate of 1.8%. The difference is due in large part to a revision of previously published figures for H1/2021, although Q1/2022 figures were also adjusted downwards.

Marine product exports contracted by 2.3% year-on-year in H1, mainly because of a smaller quota for cod and a contraction in other demersal product exports. This was offset, however, by increased exports of capelin and herring. Aluminium exports increased 3% between years, and exports of silicon products grew as well, although they were offset by a contraction in aquacul-

3 See The International Air Transport Association, *Air Passenger Market Analysis*, September 2022.

ture exports, which was caused mainly by a viral infection affecting farmed fish in Q2.

… but the outlook for H2 and 2023 is broadly unchanged

The outlook for goods exports in H2 is broadly as depicted in the August forecast. Marine product exports are expected to grow modestly, owing to a historically large capelin quota offset by reduced exports of cod. However, exports of aluminium products grew strongly in Q3, and as a result, stronger growth is expected for 2022 as a whole. Growth in other goods exports is weaker, however, owing in particular to corrections of previously published figures for 2021 and H1/2022. As a result, total goods exports are forecast to grow by 1.2% this year instead of the 1.5% projected in August.

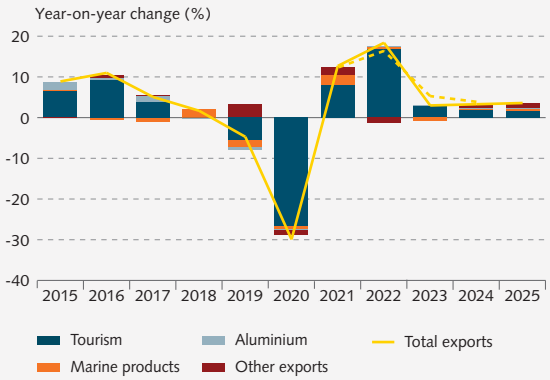
As was provided for in the August forecast, marine product exports are expected to contract in 2023, primarily because of a continued contraction in cod quotas. In addition to this, the outlook is for next year's capelin quota to be smaller than previously anticipated. As a result, marine product exports are now projected to contract by 3.9% in 2023, instead of the 2.7% assumed in August. Prospects for aluminium exports are largely unchanged, however, and a small increase is still expected next year. Yet the possibility of an energy shortage in Europe exacerbates uncertainty and could cut into demand for Icelandic aluminium products if manufacturing output in trading partner countries is reduced (see Box 1). Despite the poorer outlook for marine product exports in 2023, the forecast for goods exports as a whole is unchanged. A small contraction is expected, with stronger growth in other goods exports offsetting the bleaker outlook for the fishing sector.

Stronger growth in total exports forecast for 2022, but the outlook for the forecast horizon is broadly unchanged

Total exports are expected to grow by 18.4% this year, about 2 percentage points more than was assumed in August. The deviation from the August forecast stems from stronger growth in service exports, partially offset by a marginally poorer outlook for goods exports (Chart III-17). The outlook for the forecast period as a whole is broadly the same as in August, however. As was assumed then, total export volumes are projected to be more or less at the 2019 level by 2024.

Chart III-17

Exports and contribution of underlying components 2015-2025[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 2022-2025. Broken line shows forecast MB 2022/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Imports set to grow strongly this year but more modestly in 2023

Imports of goods and services grew by 17.6% year-on-year in Q2, and by 24.5% in H1, as was assumed in August (Chart III-18). Import growth had therefore risen above the 2018 peak in Q2. Goods imports grew by 7.7% in H1/2022, owing to strong growth in all key categories falling under "other goods imports". Imports of alumina, ships, and aircraft contracted between years, however. Leading indicators suggest that goods imports will remain strong in Q3, as was assumed in August, but because of revisions of previously published data, they are expected to grow by 6.6% in 2022 as a whole rather than the 6.9% forecast in August.

Services imports increased by 73.3% in H1, as was projected in August. The surge is due largely to increased spending by Icelanders travelling abroad, as overseas travel by Icelandic nationals in Q2 was back to the Q2/2019 level. Other subcomponents of services imports also grew markedly, with imports of other services up 39% year-on-year in H1/2022. Indicators imply that services imports grew in line with the August forecast in Q3, and for 2022 as a whole the outlook is for Icelanders' overseas travel to develop largely as was projected then. Total imports are expected to grow by 16.5% in 2022, which accords well with the August forecast. As was the case in August, import growth is expected to ease slightly in 2023 and average 3% per year throughout the forecast horizon.

Current account deficit expected throughout forecast horizon

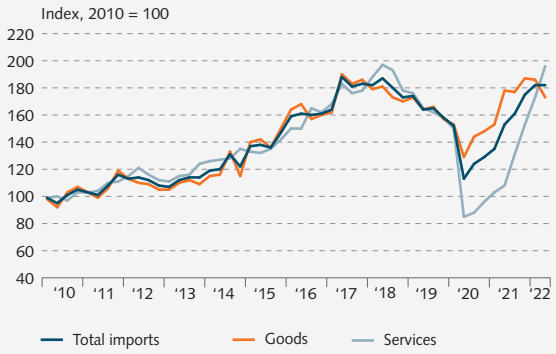
Iceland recorded a current account deficit of 4.3% of GDP in Q2/2022, broadly as was forecast in August. Because Q1 figures were revised, however, the H1 deficit was smaller by nearly 15 b.kr., or 0.8% of GDP. Figures for previous years were revised as well, reflecting, among other things, that gross national saving is now estimated to be stronger than previously assumed. The current account deficit measured 1.6% of GDP in 2021 instead of the previously estimated 2.9%, and the year-2020 surplus was also a full 1 percentage point larger.

The composition of the current account has changed markedly since the primary income balance turned negative in Q4/2020. The turnaround is due primarily to stronger profits earned by foreign-owned Icelandic companies, mainly increased aluminium company profits, which stem from higher prices. The outlook is for the effects to taper off over the course of the year after the past few months' steep drop in global aluminium prices. Pulling in the same direction is the expecta-

Chart III-18

Imports of goods and services[1]

Q1/2010 - Q2/2022

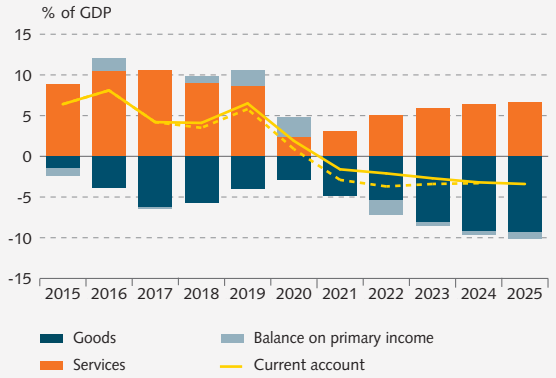


1. Seasonally adjusted volume indices.

Source: Statistics Iceland.

Chart III-19

Current account balance 2015-2025[1]



1. Current account excluding the effects of the failed financial institutions in 2015. Balance on secondary income included in the balance on primary income. Central Bank baseline forecast 2022-2025. The broken line shows the forecast from MB 2022/3.

Sources: Statistics Iceland, Central Bank of Iceland.

tion of a larger surplus on services trade in H2 than was projected in August. Thus the outlook is for the current account to show a deficit of 2.1% of GDP this year, and not 3.7%, as in the August forecast (Chart III-19).

The deficit also looks set to be smaller next year despite a more pronounced deterioration in terms of trade than previously expected. This in turn is due to more favourable developments in primary income because of the aforementioned revision of historical data. The deficit for 2023 is projected at 2.7% of GDP, or 0.7 percentage points less than was forecast in August. As was assumed then, the deficit is expected to measure just over 3% per year in the latter half of the forecast horizon.

GDP growth

GDP above the pre-pandemic level

GDP grew by 3.9% quarter-on-quarter in Q2 and has therefore risen by nearly 17% from its Q2/2020 trough. It was 2% above the level from Q4/2019, just before the pandemic struck (Chart III-20). In nominal terms, however, it was nearly 15% above the end-2019 level by Q2/2022.

Year-on-year GDP growth was slightly weaker in H1 than was forecast in August ...

GDP grew by 6.1% year-on-year in Q2, below the August forecast of 7.7%. Year-on-year GDP growth therefore softened relative to the previous quarter, when it had measured 7.6%, reflecting the contraction in investment and a negative contribution from inventories, which outweighed the surge in private consumption and the contribution from net trade (Chart III-21).

GDP growth averaged 6.8% in H1/2022, nearly 1 percentage point lower than had been assumed in the August forecast (Chart III-22). The increase in consumption and investment spending was well in line with the forecast, but the contribution from inventories turned out weaker, with the result that growth in domestic demand was 1 percentage point below the forecast.

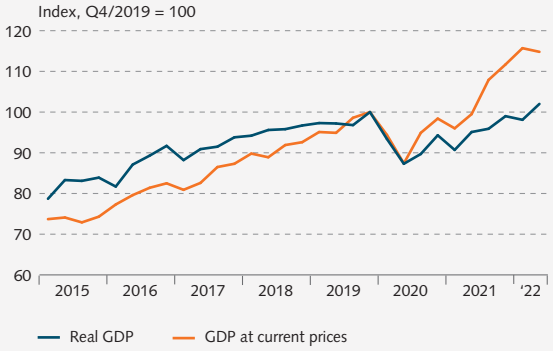
... but the GDP growth outlook is largely unchanged for the latter half of the forecast horizon

GDP is estimated to have increased by 5.2% year-on-year in Q3, and GDP growth for 2022 as a whole is projected at 5.6%, some 0.3 percentage points below the August forecast. This is due to the offsetting effects of a more favourable outlook for net trade, whose contribution to GDP growth is now expected to be positive for the first time since the pandemic, and weaker growth in

Chart III-20

Gross domestic product[1]

Q1/2015 - Q2/2022



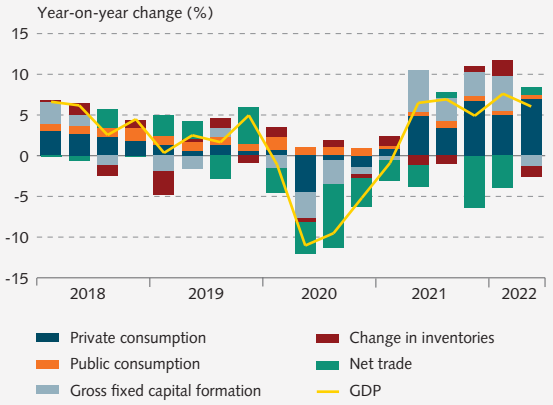
1. Real GDP is based on chain-volume measures. Seasonally adjusted figures.

Source: Statistics Iceland.

Chart III-21

GDP growth and contribution of underlying components[1]

Q1/2018 - Q2/2022

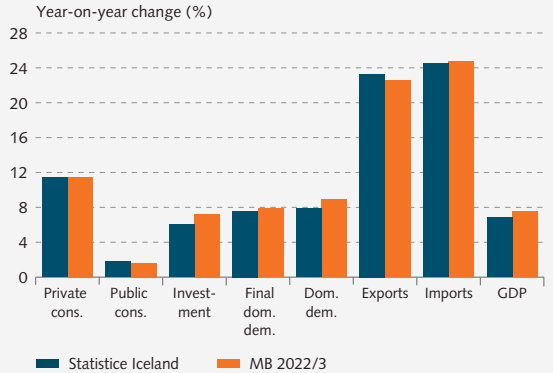


1. Because of chain-volume linking, the sum of expenditure components may not equal GDP growth.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-22

National accounts for H1/2022



Sources: Statistics Iceland, Central Bank of Iceland.

domestic demand, which mainly reflects a bleaker outlook for residential investment.

Year-2023 GDP growth set to exceed the August forecast

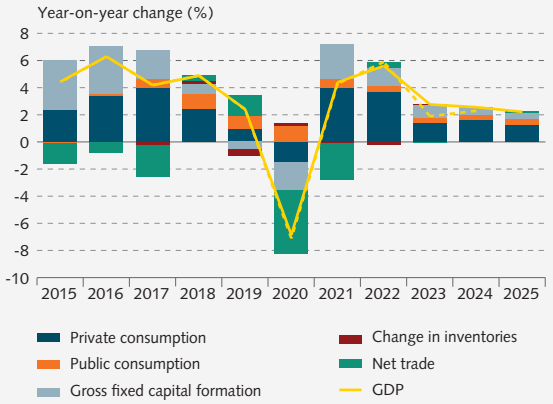
GDP growth is expected to ease in 2023, but at a slower rate than was forecast in August. This is due largely to more favourable prospects for private consumption, but also to base effects from more sluggish investment growth in 2022. Next year's GDP growth is estimated at 2.8%, nearly 1 percentage point above the August forecast (Chart III-23).

As in August, growth is expected to continue easing over the forecast horizon, averaging 2½% per year in 2024 and 2025.

The outlook is highly uncertain, and the output growth forecast could turn out overly optimistic if, for instance, the ongoing wage negotiations result in larger pay rises than are provided for in the baseline forecast, or if the European energy crisis deepens even further (see Box 1).

Chart III-23

GDP growth and contribution of underlying components 2015-2025[1]



1. Central Bank baseline forecast 2022-2025. The broken line shows the forecast from MB 2022/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Labour market and factor utilisation

IV

Labour market

Total hours worked fell slightly quarter-on-quarter in Q3

According to the Statistics Iceland labour force survey (LFS), total hours worked were up by 3.2% year-on-year in Q3/2022, a marginally smaller increase than was forecast in August. Job growth measured 3.7% but was offset by a 0.4% reduction in average hours worked. Although job numbers are still rising between years, the pace of growth has eased in recent months, and seasonally adjusted job numbers actually declined slightly between quarters.

The average work week has grown shorter since the pandemic reached Iceland, partly because of a contractual provision included in the most recent centralised collective bargaining agreement, and this trend continued in Q3. Total hours worked therefore declined by 1.2% quarter-on-quarter in Q3, although they were still 2.7% above the 2019 average during the quarter (Chart IV-1). The number of wage-earners on the pay-as-you-earn (PAYE) register has also grown more slowly, and remained flat between quarters in Q3.

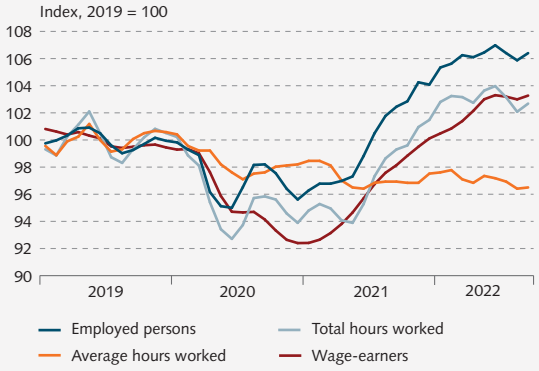
Unemployment is low, but the labour participation rate is falling

Seasonally adjusted LFS results for Q3 suggest that the labour participation rate has begun to decline again. It measured 79.3% during the quarter, or 0.7 percentage points lower than in Q2. The employment rate fell by a slightly larger margin (Chart IV-2). Unemployment therefore rose by 0.5 percentage points between quarters, to 4% (Chart IV-3), which is similar to the pre-pandemic level and still low in historical terms. The LFS measure of slack in the labour market rose more

Chart IV-1

Employment and hours worked[1]

January 2019 - September 2022



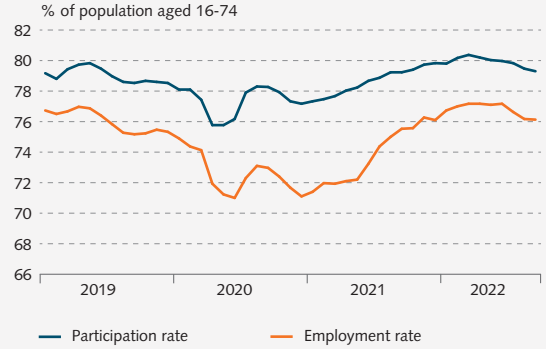
1. Wage-earners according to the Iceland Revenue and Customs pay-as-you-earn (PAYE) register. Other data are from the Statistics Iceland labour force survey (LFS). Persons aged 16-74 years old. Three-month moving average of seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-2

Labour participation and employment rate[1]

January 2019 - September 2022



1. Three-month moving average of seasonally adjusted figures.

Sources: Statistics Iceland, Central Bank of Iceland.

strongly, or 1.4 percentage points between quarters. In addition to capturing unemployment, this measure takes into account the underemployed and those outside the labour market who could join the labour force at short notice. Registered unemployment was unchanged quarter-on-quarter, however, at a seasonally adjusted 3.7% in Q3, which is 0.5 percentage points less than in Q4/2019, before the pandemic struck. In October it declined further to 3.3%.

Long-term unemployment surged in the wake of the pandemic but then began to fall rapidly from mid-2021 onwards, in part because of special hiring subsidies. Since June 2022, 1.2% of the labour force have been on the unemployment register for more than twelve months, roughly the same as before the pandemic.

Firms are still planning to add jobs in the near future …

According to the seasonally adjusted results of Gallup's autumn survey among executives from Iceland's 400 largest firms, one-third of respondents were planning to recruit staff in the next six months, and only 7% were planning to downsize. The balance of opinion is therefore positive by 27 points, after narrowing by 4 percentage points between surveys. Furthermore, there were nearly 8,800 job vacancies in Q3, according to Statistics Iceland's corporate survey. Vacancies therefore declined in number between quarters but were broadly unchanged year-on-year. The ratio of job openings to unemployed persons, a measure of labour market tightness, measured 1.2, after declining marginally between quarters. It is still high, however, and if Q3 is excluded, it is at its highest since the beginning of 2019, when Statistics Iceland started collecting the data (Chart IV-4).

… jobs that are increasingly filled with imported labour

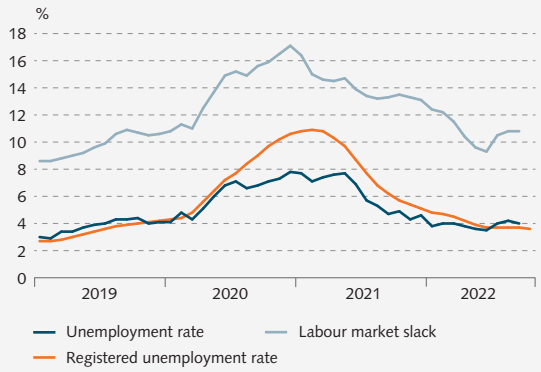
Iceland's population grew by 2.8% year-on-year in Q3 (Chart IV-5), and net migration of foreign nationals was positive by 3,410 during the quarter. This comes on top of just over 3,500 foreign nationals who migrated to Iceland in Q2, in the largest single-quarter influx in the history of Statistics Iceland's quarterly population data. It was marginally offset by net outward migration of Icelandic nationals.

A relatively large share of population growth is due to the influx of refugees in the wake of Russia's invasion of Ukraine. Ukrainian nationals accounted for just over one-fifth of the increase in the foreign population in the first three quarters of 2022, according to monthly data from Registers Iceland. The composition of the immigrant group is different from that in previous waves of

Chart IV-3

Unemployment and labour market slack[1]

January 2019 - October 2022



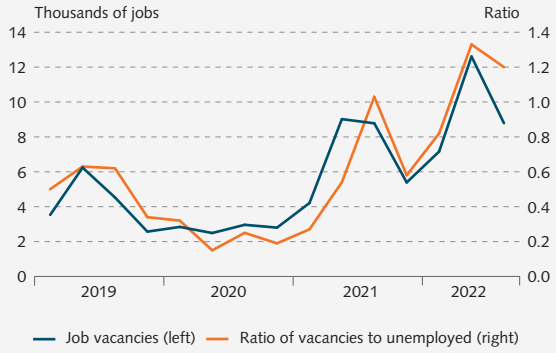
1. The labour market slack is the sum of unemployed persons, underemployed part-time workers, and the potential addition to the labour market (persons seeking work but not ready to work within two weeks and persons available but not seeking work), expressed as a percentage of the extended labour force (labour force plus the potential addition to the labour market). Registered unemployment excludes persons receiving part-time unemployment benefits from March 2020 onwards. Three-month moving average of seasonally adjusted figures.

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

Chart IV-4

Job vacancies[1]

Q1/2019 - Q3/2022



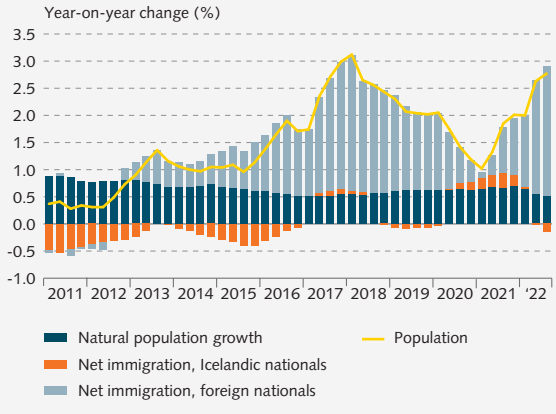
1. Job vacancies according to Statistics Iceland's company survey and number of unemployed persons according to the Statistics Iceland labour force survey.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-5

Population

Q1/2011 - Q3/2022



Source: Statistics Iceland.

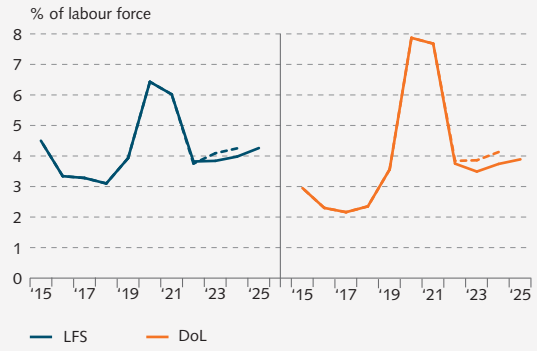
labour importation, and it is therefore uncertain how the participation rate will be affected. Furthermore, it is highly uncertain how many more people will come to Iceland and how many will return home once the war ends.

Labour market is tight but set to ease over the forecast horizon

The labour market is still quite tight, even though there are signs that it is easing. The baseline forecast assumes that growth in total hours worked will measure just over 5% in 2022 and then lose pace in the next few years. The LFS-based unemployment rate is projected to measure 3.8% in 2022 and then rise gradually to 4.3% at the end of the forecast horizon (Chart IV-6). This only tells part of the story, however, as tension in the labour market will also abate due to a decline in the equilibrium unemployment rate over the period. The outlook for registered unemployment is similar, although the jobless rate is expected to fall marginally in 2023 and be slightly lower, or 3.9%, at the end of the forecast horizon.

Chart IV-6

Unemployment 2015-2025[1]



1. Unemployment according to Statistics Iceland labour force survey (LFS); registered unemployment, excluding part-time benefits, according to the Directorate of Labour (DoL). Central Bank baseline forecast 2022-2025. The broken lines show the forecast from MB 2022/3.

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

Indicators of factor utilisation

Modest productivity growth expected over the forecast horizon

In terms of GDP per hour worked according to the LFS, labour productivity grew by 1.7% year-on-year in 2021, after contracting by 2% in 2020. The outlook is for slower growth this year, as productivity contracted by 2% year-on-year in H1/2022 by this measure. Substituting hours worked with the hourly labour input measure from the national accounts, the contraction was slightly smaller, or 1½%. The Bank's baseline forecast assumes that developments will be more favourable in H2 and that GDP per hour worked according to the LFS will increase in 2022 by ½% between annual averages. It is then expected to grow by an average of 1% per year over the next three years.

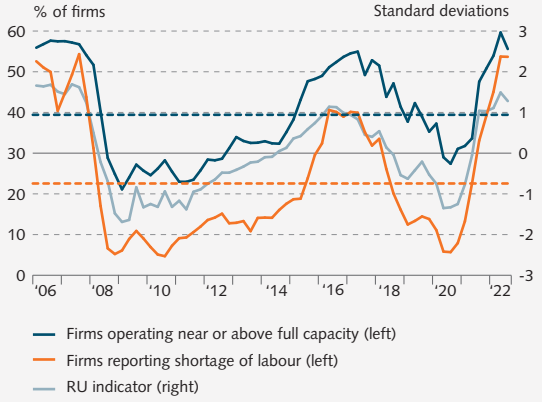
Continued strain on production factors

According to the seasonally adjusted results of Gallup's autumn survey, 54% of executives considered themselves understaffed, about the same as in the previous survey. Furthermore, 56% of executives – fewer than in the previous survey – reported that their firm would have difficulty responding to an unexpected increase in demand (Chart IV-7). This is the first quarter-on-quarter decline in this ratio since autumn 2020. The resource utilisation (RU) indicator, which combines various indicators of factor utilisation, suggests that significant strain on resources remains, although it eased marginally in Q3.

Chart IV-7

Capacity utilisation[1]

Q1/2006 - Q3/2022



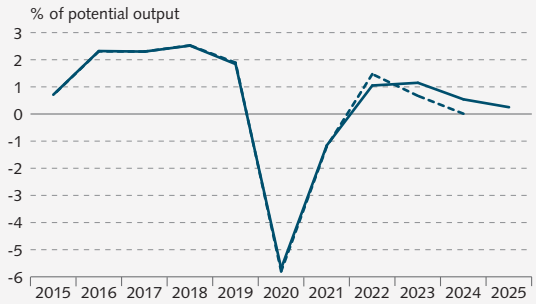
1. Indicators of capacity utilisation are based on the Gallup corporate sentiment survey conducted among Iceland's 400 largest firms. The resource utilisation indicator (RU indicator) is the first principal component of selected indicators of capacity utilisation; it is scaled so that its mean value 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.

Based on the most recent national accounts figures, the output gap appears to have been slightly narrower in H1 than was previously estimated. The baseline forecast therefore assumes that the output gap will be somewhat smaller in 2022 than was forecast in August, or 1% of potential output instead of 1.5%. It is now expected to peak in 2023 and narrow more slowly than previously assumed. Furthermore, there will still be a small output gap in the last year of the forecast horizon (Chart IV-8). This assessment is highly uncertain, however. Further discussion of the uncertainties in the forecast, together with alternative scenarios, can be found in Box 1.

Chart IV-8

Output gap 2015-2025[1]



1. Central Bank baseline forecast 2022-2025. The broken line shows the forecast from MB 2022/3.

Sources: Statistics Iceland, Central Bank of Iceland.

Inflation

V

Recent developments in inflation

Headline inflation remains high …

Inflation measured 9.7% in Q3, somewhat below the August forecast of 10.4%. The housing component remained the principal driver of the rise in the CPI during the quarter, owing to a rapid increase in house prices in July, although the price of miscellaneous services and food rose as well.

Inflation has been above the Bank's inflation target for more than two years. It measured 9.4% in October, after peaking at 9.9% in July (Chart V-1). An abrupt turnaround in the housing market has played a large role in the past few months' slowdown in inflation (see Chapter II). Inflation has also fallen since last summer in terms of measures that exclude the cost of owner-occupied housing. Inflation according to the CPI excluding housing measured 7.2% in October, while HICP inflation was 6.4%, and the difference between these two measures and the CPI has narrowed in the recent past.

… and underlying inflation keeps rising

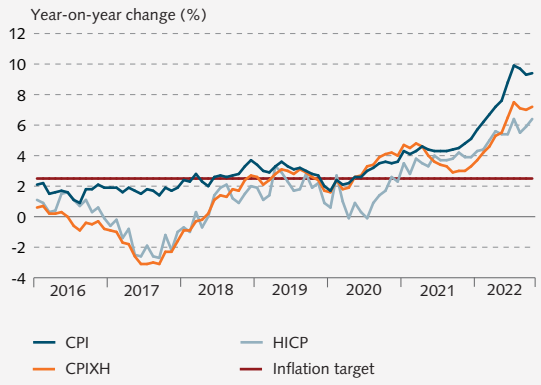
Underlying inflation in terms of the average of various measures was 6.9% in October and had risen since July (Chart V-2). One measure of underlying inflation that has fallen in the recent term is core inflation, which excludes the effects of petrol and volatile food items. By other measures, however, underlying inflation has continued to rise. Inflation is therefore widespread, and significant inflationary pressures remain. This can also be seen in Chart V-3, which shows that over half of CPI subcomponents had risen more than 6% year-on-year in October, and this share has increased swiftly in the past year.

Given the recent slowdown in housing market activity, the composition of inflation is likely to continue

Chart V-1

Various measures of inflation

January 2016 - October 2022

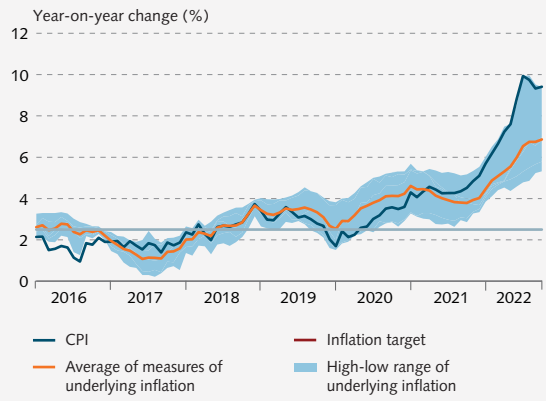


Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-2

Headline and underlying inflation[1]

January 2016 - October 2022



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

Sources: Statistics Iceland, Central Bank of Iceland.

changing in the near future. The contribution of the housing component to headline inflation has declined since July, after having increased virtually without interruption since the beginning of 2021 (Chart V-4). This is offset by a growing contribution from goods price increases.

Indicators of inflationary pressures

Imported inflation has held stable overall in the recent term …

Imported goods prices rose markedly in H1/2022, in the wake of the surge in global oil and commodity prices following the onset of war in Ukraine. Furthermore, it has taken quite some time to unwind the supply chain bottlenecks that developed during the pandemic. On the other hand, oil and commodity prices have fallen since the summer, although they remain high. As a result, domestic petrol prices fell somewhat in Q3 but are still more than a fourth higher than in Q3/2021. The price of imported foods and beverages and other imported goods has continued to rise in recent months, however. On the whole, imported goods prices have increased by 6.6% over the past twelve months, the same rate as in July (Chart V-5).

… but the inflation outlook has deteriorated …

As is discussed in Chapter I, inflation has increased still further among Iceland's trading partner countries in recent months, albeit at a reduced pace. The inflation outlook has also deteriorated further in many countries. The outlook is for continued upward pressure on imported goods prices. Pulling in the same direction is the exchange rate of the króna, which rose in H1 but has depreciated recently. The trade-weighted exchange rate is broadly the same as it was a year ago.

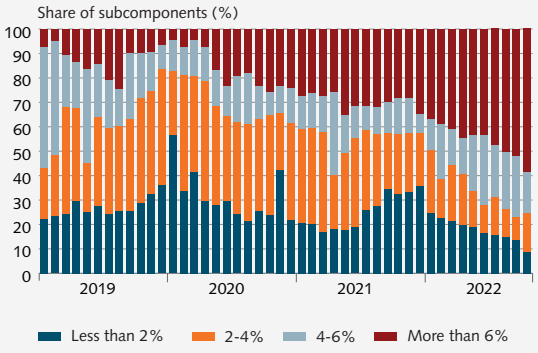
Recent developments in inflation are unusual not only because of how steeply inflation has risen all over the world, but also because of how similar developments have been. This indicates that an important part of inflation is attributable to common underlying factors. These include the rise in global oil and commodity prices, disruptions in supply chains, and rapid changes in consumption patterns in the wake of the pandemic. Added to all this is the surge in global demand in the wake of broad-based fiscal and monetary support measures aimed at counteracting the economic contraction.

Attempts to analyse the degree to which domestic inflation is coloured by these common factors reveal this pattern clearly (Chart V-6). As can be seen, the share of inflation stemming from them started to increase when

Chart V-3

Price increases[1]

January 2019 - October 2022

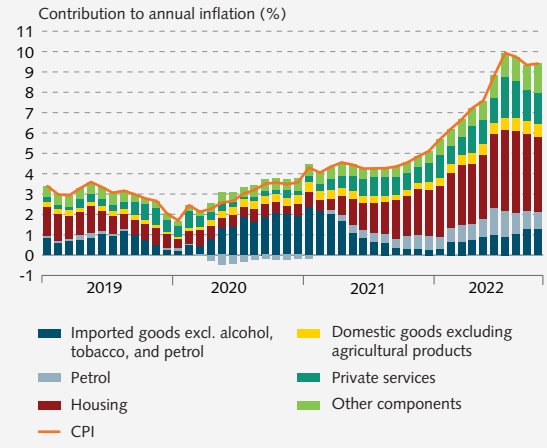


1. The share of CPI subcomponents categorised by their annual increase.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-4

Components of CPI inflation

January 2019 - October 2022

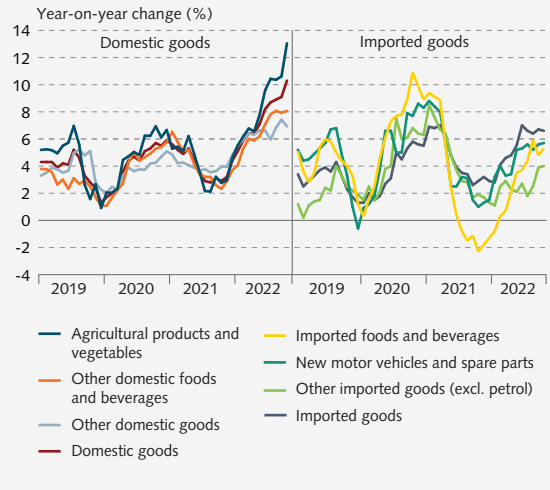


Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-5

Domestic and imported goods prices

January 2019 - October 2022



Source: Statistics Iceland.

the impact of the pandemic and public health measures on consumption patterns, housing markets, global supply chains, and commodity markets began to intensify. Furthermore, the war in Ukraine has made a widespread impact: since it started, as much as ⅔ of domestic inflation has been attributable to this global inflation cycle.

… and a large share of corporate executives expect further price hikes

The price of domestic goods, food in particular, has also continued to rise in recent months – by 10.3% year-on-year as of October (Chart V-5). On the other hand, the twelve-month rise in private services prices – 6.6% in October – has lost pace, partly because of the drop in airfares this autumn. Airfares have been highly volatile since the summer but have averaged more than a fifth higher in 2022 to date than in 2021. Various subcomponents of services – restaurant services and recreation and culture, for instance – have also risen in price recently.

The results of Gallup's autumn survey of corporate expectations show that a large percentage of respondents expect price increases, albeit a smaller share than in the spring survey. Nearly two-thirds of executives expect to raise the price of their own goods and services in the next six months, and nearly 80% expect input prices to rise (Chart V-7). This large share of executives who expect further price increases reflects, among other things, the increase in trading partner inflation and the risk that rising energy prices in Europe, owing to possible shortages this winter, will spread to other input prices.

Persistent inflationary pressures from the labour market

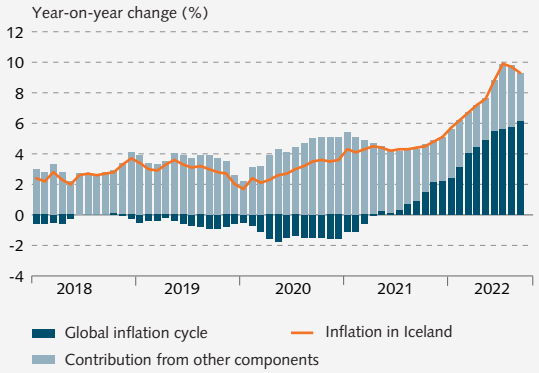
In the national accounts data published in August, the wage share – i.e., the ratio of wages and related expenses to gross factor income – was revised slightly downwards. It is now estimated to have measured 60.4% in 2021, about 0.6 percentage points above its twenty-year average. The wage share held relatively stable throughout the pandemic, while key drivers of the share have changed significantly. For example, wages per hour rose well in excess of productivity in 2021 and look set to do so again in 2022. On the other hand, higher inflation has pulled in the opposite direction, impeding the rise in the wage share (Chart V-8).

The general wage index rose by 0.4% between quarters in Q3, and by 8.1% year-on-year. Ever since the pandemic spread to Iceland, the average annual wage increase has been 7-8%, in terms of either the general wage index or the total wage index (Chart V-9). Wages have therefore risen steeply during the period, although

Chart V-6

Inflation and contribution from global inflation cycle[1]

January 2018 - October 2022



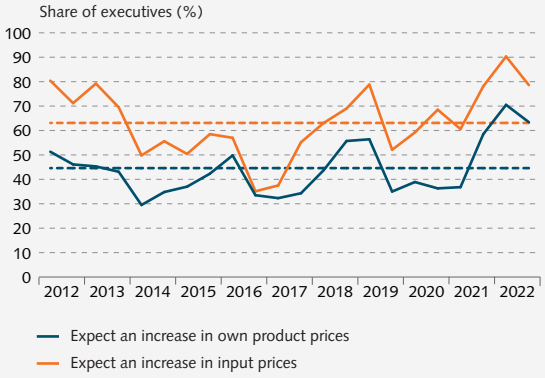
1. The underlying global inflation cycle is estimated as the first principal component in a principal component analysis of inflation in 23 OECD countries from January 2000 through September 2022. The contribution of the global inflation cycle to domestic inflation is then estimated with a regression where domestic inflation is explained by a constant and the global inflation cycle (in addition to 2% average global inflation during the observation period).

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

Chart V-7

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

March 2012 - September 2022

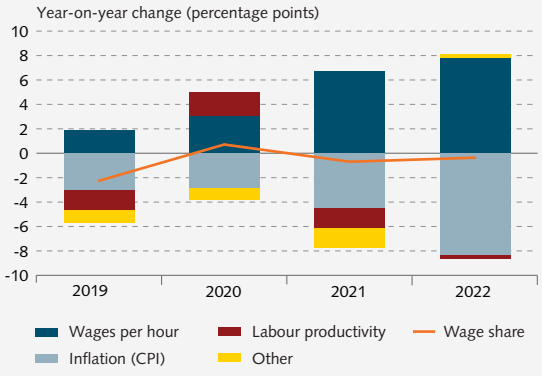


1. Broken lines show averages from 2003.

Sources: Gallup, Central Bank of Iceland.

Chart V-8

Change in the wage share and contribution of subcomponents 2019-2022[1]



1. The wage share is the ratio of labour compensation to gross domestic product; wages per hour is the wage component of labour compensation per LFS total hours; labour productivity is real GDP per LFS total hours; and "Other" shows the contribution of social security benefits and wage-related expenses, as well as the difference between CPI inflation and the GDP deflator. Central Bank baseline forecast for 2022.

Sources: Statistics Iceland, Central Bank of Iceland.

higher inflation is now chipping away at purchasing power. Even so, the benefits gained by lower-paid groups in the last wage agreements are far from lost.

The new round of wage negotiations is beginning under challenging conditions, with high inflation and a tight labour market (see Chapter IV). According to the Bank's baseline forecast, nominal wages will rise by just under 8% between annual averages in 2022, and by an average of just under 6% per year over the next three years. Given the prospect of relatively modest productivity growth, this implies a steep rise in unit labour costs, or roughly 4¾% per year, on average, for the next three years. This is well above the Bank's 2.5% inflation target, therefore entailing strong inflationary pressures from the labour market during the forecast horizon. As is discussed in Box 1, these assumptions could turn out overly optimistic and labour-generated inflationary pressures could be underestimated.

Inflation expectations

Short-term inflation expectations have declined by some measures ...

A recent market expectations survey indicates that respondents' one-year inflation expectations declined, and that survey participants now expect inflation to measure just over 5%. Their inflation expectations two years ahead were unchanged, however, at 4% (Chart V-10). The results of Gallup's autumn survey suggest that corporate executives expect inflation to measure 5% in one year and 4.5% in two years' time, which is lower than in the previous survey. Households' two-year inflation expectations rose, however, to 6%.

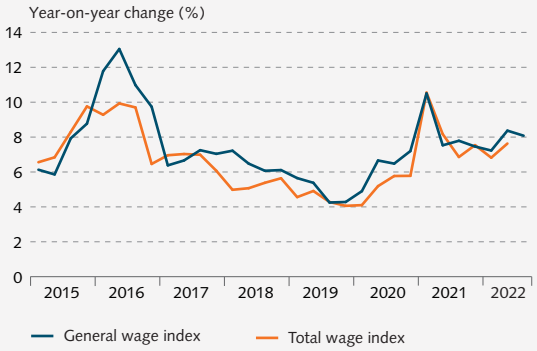
... but long-term inflation expectations are broadly as in August ...

Market agents expect inflation to average about 3½% over the next five and ten years, and overall, their long-term expectations are marginally lower than they indicated in August (Chart V-10). The breakeven inflation rate in the bond market also fell last autumn. It averaged 3.4% in October but has risen again recently (Chart V-11). The five-year breakeven rate five years ahead was about 4% in mid-November, which is somewhat higher than in August. On the other hand, both businesses' and households' long-term inflation expectations were unchanged between Gallup's autumn surveys: businesses expect inflation to average 4% over the next five years, and households expect it to average 5%.

Chart V-9

Wages

Q1/2015 - Q3/2022

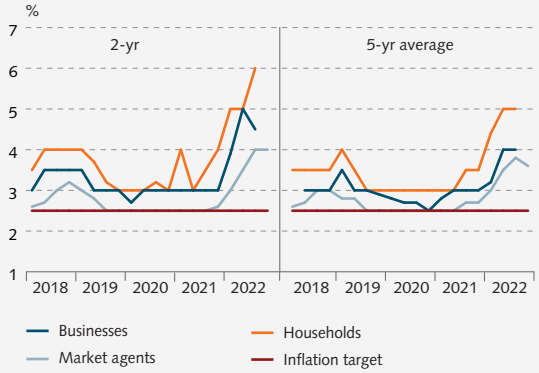


Source: Statistics Iceland.

Chart V-10

Two- and five-year inflation expectations[1]

Q1/2018 - Q4/2022



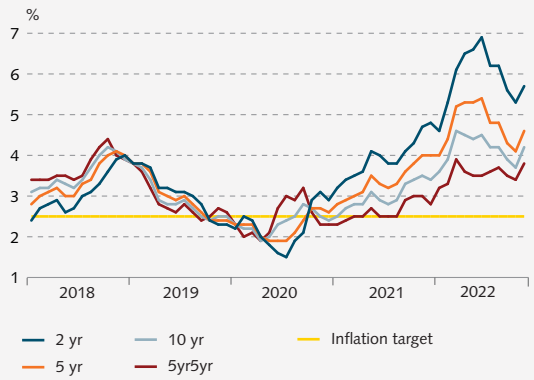
1. Gallup surveys of households' and businesses' inflation expectations and Central Bank survey of market agents' inflation expectations. Median responses.

Sources: Gallup, Central Bank of Iceland.

Chart V-11

Breakeven inflation rate[1]

January 2018 - November 2022



1. Monthly averages. Data through 18 November 2022.

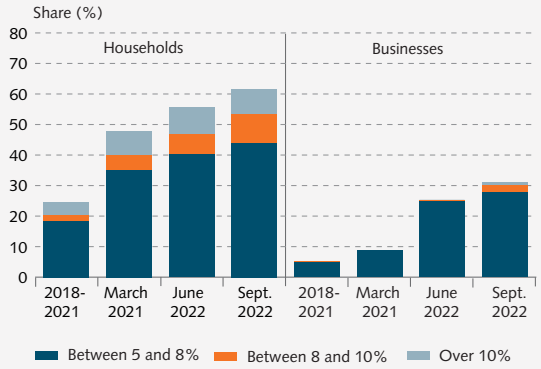
Source: Central Bank of Iceland.

… and appear less firmly anchored to the target

When inflation has been above target for a protracted period of time, there is greater risk that expectations will become less firmly anchored to the target and that bringing them back to target will take longer (see Box 2). Closer scrutiny of household and corporate inflation expectations shows that the share of respondents who expect inflation to be above 5% over the next five years has risen steeply in 2022 (Chart V-12). Apparently, then, fear of high inflation has started to become entrenched.

Chart V-12

Share of households and businesses that expect more than 5% inflation during the next 5 years



Sources: Gallup, Central Bank of Iceland.

The inflation outlook

The short-term inflation outlook has improved …

Inflation was lower in Q3 than was assumed in the August forecast, but at that time it was expected to peak in late 2022. The deviation is due in part to the more abrupt slowdown in activity in the housing market than was expected, leading to slower price rises. Petrol prices and airfares also fell more during the autumn than previously expected. The near-term outlook has therefore improved, owing to a more favourable initial position. Inflation is forecast to measure 9.4% in Q4/2022 and 8.5% in Q1/2023, about 1.2 percentage points below the August forecast. According to the forecast, inflation will average 6% in 2023, down from this year's average of 8.3%.

… but inflation is still expected to fall slowly …

Inflation is still expected to ease gradually, and the long-term outlook is broadly unchanged since August. The inflation outlook for trading partner countries is bleaker than previously assumed, and imported inflation is therefore projected to keep rising. Furthermore, the output gap that opened up in the domestic economy this year is expected to narrow more slowly than was forecast in August, and the króna is now projected to be weaker over the forecast horizon. According to the baseline forecast, inflation will have fallen below 4% in H1/2024 and will be at target by the end of the horizon, provided that interest rates develop in line with the forecast.

… and significant uncertainty remains

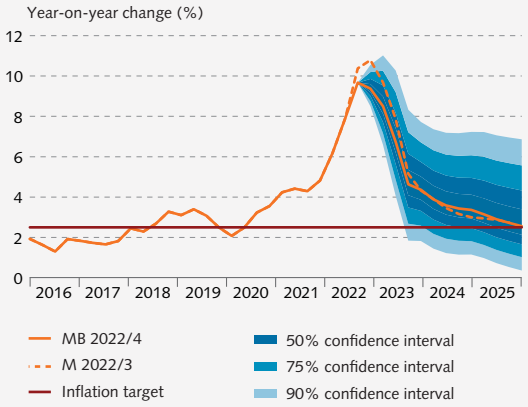
As is discussed in Box 1, the inflation outlook is highly uncertain. For example, the duration of the war in Ukraine and near-term developments in oil and commodity prices are key risks. The results of the contractual wage negotiations currently underway could also strongly affect developments in inflation. Furthermore, inflation will depend in part on whether housing market activity continues to ease and how prices and supply of

housing develop. As before, 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. There is a 50% probability that inflation will be in the 3¼-5¾% range in one year and in the 2½-5% range in two years' time (Chart V-13).

Chart V-13

Inflation forecast and confidence intervals

Q1/2016 - Q4/2025



Sources: Statistics Iceland, Central Bank of Iceland.

Box 1

Alternative scenarios and uncertainties

The Central Bank's baseline forecast reflects the likeliest economic developments over the forecast horizon. The economic outlook is uncertain, however, and could change in response to changes in key assumptions underlying the forecast. Two major uncertainties in the current baseline forecast centre on the upcoming wage negotiations and the global economic outlook.

Given how tight the labour market is, the possibility cannot be excluded that negotiated wage rises will be larger than is assumed in the baseline forecast. The potential implications of this for the domestic economy are described in an alternative scenario.

Global GDP growth forecasts have repeatedly been revised downwards since Russia invaded Ukraine in February. The outlook has deteriorated still further, yet even so, the Bank's baseline forecast could turn out overly optimistic if European countries must resort to widespread energy rationing. The potential impact of this on the domestic economy are described in another alternative scenario.

Finally, this Box discusses a number of other uncertainties that could affect the GDP growth and inflation outlook in Iceland over the coming three years.

Alternative scenario: Wage agreements provide for larger pay rises than is currently assumed

Wages and incomes have risen steeply in recent years

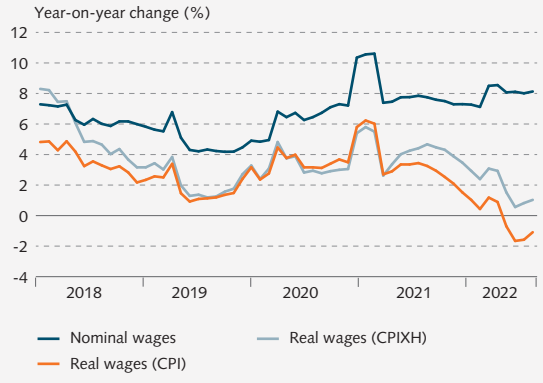
In the past twelve months, nominal wages have risen by 8.1%, according to Statistics Iceland's general wage index, and the year-on-year increase has ranged between 7% and 8½% since early 2021 (Chart 1). Real wages have also risen steeply over this period, albeit at a considerably slower pace in recent months, owing to the surge in inflation. Since this summer, real wages have fallen year-on-year in terms of the CPI, but in terms of the CPI excluding housing they have kept rising between years.

As Chart 2 indicates, real wages have soared in recent years: they increased by an average of nearly 6% per year between 2015 and 2018, and just over 2% in the past four years. As the chart illustrates, real disposable income (which accounts for labour and all after-tax income) has surged as well, although Statistics Iceland's most recent measurement indicates that real per capita disposable income began to contract year-on-year in Q2/2022. But this contraction must

Chart 1

Nominal and real wages[1]

January 2018 - September 2022



1. Year-on-year increase in Statistics Iceland general wage index and real wages in terms of the CPI including and excluding housing (CPIXH).

Sources: Statistics Iceland, Central Bank of Iceland.

be considered in the context of the earlier sharp increase: on average, real per capita disposable income rose by 4.2% per year in 2015-2022 (real wages increased 4.4% over the same period).

This surge far outpaces labour productivity growth, as well as exceeding the wage growth seen in other OECD countries (for further discussion, see Box 1 in *Monetary Bulletin* 2022/2). In part, wage growth in Iceland is due to the strength of the domestic economy throughout much of the period in question. This is reflected in a persistent output gap and an unemployment rate that remained below its natural rate until the pandemic-related economic contraction hit.

Furthermore, improved terms of trade can cause wages to rise temporarily in excess of domestic productivity growth. Iceland's terms of trade improved by 17% from early 2014 through mid-2017, and then by another 10% from mid-2020 through mid-2022. In part, the wage increases of recent years reflect this improvement.

In addition, the labour movement's strong bargaining position can enable it to press for wage rises regardless of the business cycle position. For example, the prevalence of union membership in Iceland is noteworthy, as is the fact that membership has not declined in recent decades, as it has in the Nordic region and in other OECD countries (Chart 3). Centralisation of labour negotiations has also declined significantly in these countries, and government involvement in the process has fallen off steeply. Because of all of these factors, workers' bargaining position is probably stronger in Iceland than is commonly the case in the rest of the OECD.[1]

Inflation could prove more persistent and the economic recovery weaker if wages rise in excess of the baseline forecast

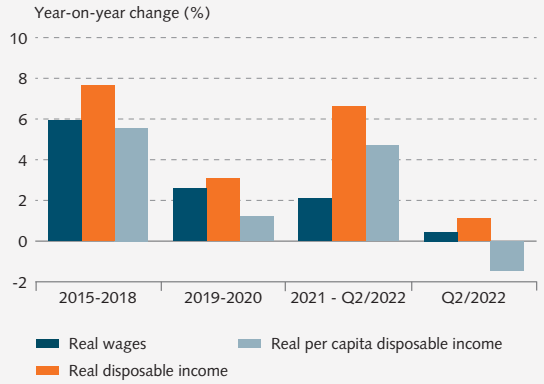
The current wage agreements have delivered significant benefits for workers. Real wages have risen by 7.2% since the contracts were signed in spring 2019 (i.e., from March 2019 through September 2022), and real per capita disposable income is up 13% (from Q1/2019 through Q2/2022).

However, as is noted above, real wages have sagged in the recent term and are likely to have risen less than was anticipated when the contracts were signed, as inflation has far outpaced forecasts. Recent statements made by union leaders appear, among other things, to centre on recouping the shortfall. Against the backdrop of a tight labour market and less firmly anchored inflation expectations (see Box 2),

1 See, for example, Bank for International Settlements (2022), "Inflation: A look under the hood." Bank of International Settlements, *BIS Annual Economic Report*, June 2022.

Chart 2

Real wages and real disposable income[1]

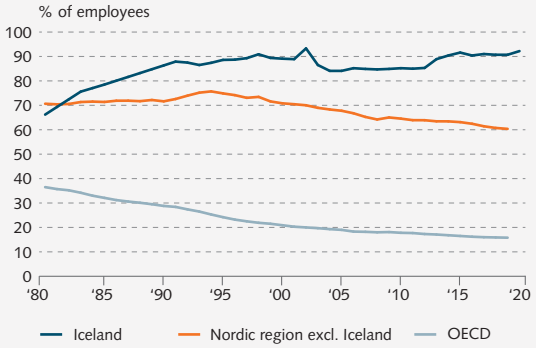


1. The chart shows the average of year-on-year changes in real wages and real disposable income according to Statistics Iceland's Sector accounts (in terms of the CPI) for various periods of time. Statistics Iceland's most recent measurement of disposable income is for Q2/2022.

Source: Statistics Iceland.

Chart 3

Labour union membership 1980-2020[1]



1. A linear interpolation is used for Iceland for several years in the 1980s for which data were unavailable. The Nordic countries excluding Iceland are represented by a simple average of Denmark, Finland, Norway, and Sweden.

Sources: OECD, Central Bank of Iceland.

wages could therefore rise more over the forecast horizon than is reflected in the current baseline forecast.

The Bank's DYNIMO model is used to explore the possible impact of this. Nominal wages are assumed to rise by just over 5 percentage points more in 2023, in an attempt to recover the real wage level seen at the beginning of 2022, before inflation began to erode purchasing power (Chart 4a). This entails an increase of 11% between annual averages in 2023 instead of the 6% provided for in the baseline, and a total of nearly 24% over the next three years instead of the baseline forecast of 18%. Businesses' marginal costs therefore rise considerably more than in the baseline, prompting firms both to absorb the cost increases themselves through lower profit margins and to streamline to compensate, including by cutting employees' working hours or laying off staff. But even this does not suffice according to the model, and firms therefore respond by raising product prices as well.

As can be seen in Chart 4b, total hours worked increase by 2½ percentage points less in 2023 than is depicted in the baseline scenario, and by the end of the forecast horizon they are 3% lower than in the baseline. Larger nominal pay rises are offset by a poorer employment outlook, compounded by the negative impact of higher interest rates and inflation (see

Chart 4

Alternative scenario: Wage agreements provide for larger pay rises than in the baseline forecast

Chart 4a Nominal wages

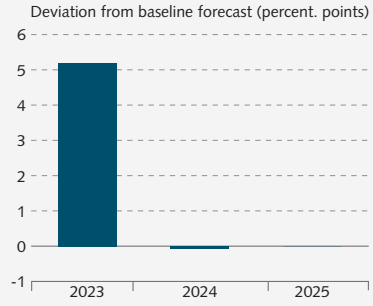


Chart 4b Total hours worked

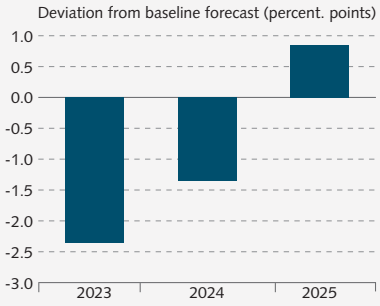


Chart 4c Private consumption

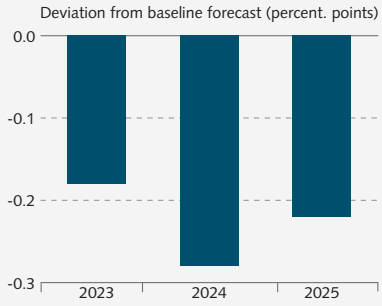


Chart 4d GDP growth

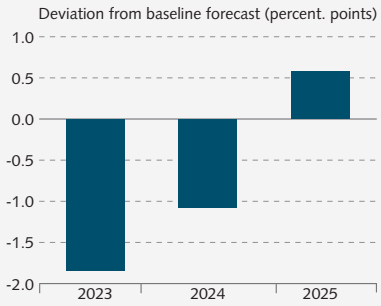


Chart 4e Inflation

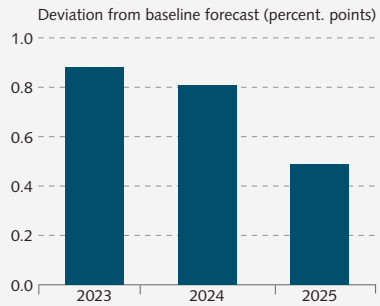
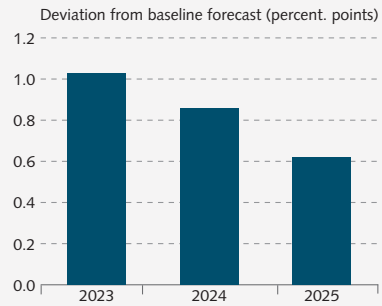


Chart 4f Key interest rate



Source: Central Bank of Iceland.

below). Private consumption therefore grows more slowly over the entire forecast horizon and is ¾% below the baseline by the end of the period (Chart 4c). Furthermore, higher interest rates slow down investment and push the exchange rate of the króna upwards, dampening export growth and shifting a share of domestic demand towards imports. The GDP growth outlook therefore deteriorates relative to the baseline forecast: GDP growth is 1¾ percentage points less in 2023 than in the baseline, which would mean that a large portion of forecasted output growth would disappear (Chart 4d). If that case, GDP growth in Iceland would be its weakest since 2002, excluding the contractions brought on by the financial crisis and the pandemic. The GDP growth outlook for 2024 would deteriorate as well, and GDP would be 2⅓% below the baseline level at the end of the forecast horizon.

Despite the poorer outlook for output growth, inflation is higher over the forecast horizon than is provided for in the baseline forecast. It is nearly 1 percentage point higher in 2023 and ¾ of a percentage point higher in both 2024 and 2025 (Chart 4e). Central Bank interest rates are also higher, in order to ensure that inflation returns to target over the medium term. According to the monetary policy rule in the model, the Bank's key rate will be an average of 1 percentage point higher in 2023 and 2024 and ½ a percentage point higher in 2025 (Chart 4f).

It could be envisaged that monetary policy might respond more slowly to increased inflationary pressures than is assumed in the monetary policy rule in the model. In that case, as Chart 5 shows, the adverse effects of the pay rise on GDP growth would be less pronounced early on. But inflation would be higher and more persistent, calling for higher interest rates over a longer period of time, all else being equal, and this would cut into GDP growth during the latter half of the forecast horizon.

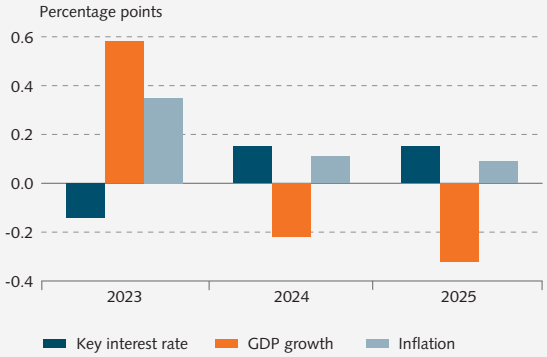
Alternative scenario: The European energy crisis deepens further

The global economic outlook has deteriorated markedly in the wake of the war in Ukraine …

After contracting sharply in the wake of the pandemic, global GDP grew by 6% year-on-year in 2021, and in early 2022 the outlook was for solid growth both in 2022 and in the years thereafter. But the situation reversed after Russia invaded Ukraine in late February. The International Monetary Fund (IMF), for instance, projects that global GDP growth will measure 3.2% this year, well below its January forecast of 4.5%. For 2023, the Fund has revised its GDP growth forecast downwards from 3.8% to only 2.7% (see Chapter I). The outlook has deteriorated especially for Europe, where the impact of the

Chart 5

Impact of delayed monetary policy response to increased inflation[1]

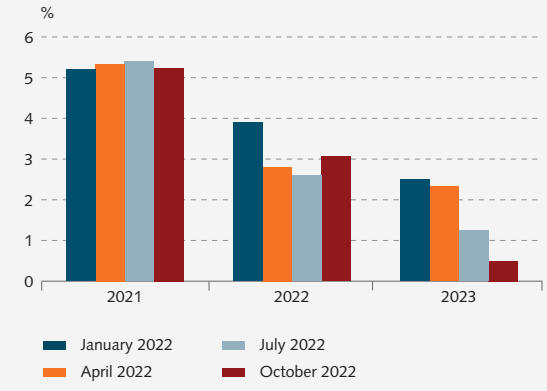


1. The chart shows the impact of a slower monetary policy response to the additional pay rises depicted in the alternative scenario in Chart 4.

Source: Central Bank of Iceland.

Chart 6

IMF forecast of euro area GDP growth



Source: International Monetarey Fund, *World Economic Outlook*, various publications.

energy crisis is most severe. In January, the IMF forecast that eurozone GDP growth would measure 4% this year and 2.5% next year, but now the Fund projects growth rates of 3% and a mere 0.5%, respectively, for 2022 and 2023 (Chart 6).

… and could worsen still further if Europe must resort to widespread energy rationing …

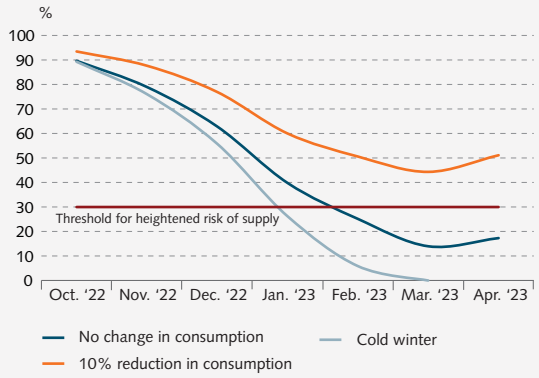
Natural gas imports from Russia to Europe are now only one-fifth of pre-invasion levels and are expected to keep falling as the forecast horizon advances. Nevertheless, it is not assumed that Europeans will be forced to instate widespread energy rationing this winter, as imports from other countries have increased and inventory levels are favourable. Furthermore, use of other energy sources has increased, and European consumers are expected to seek ways to cut back on energy consumption.

Concerns about the months to come and the possibility of energy shortages have mounted, however. It is not impossible that natural gas imports from Russia will cease entirely before the end of this year and that substituting other energy sources will prove more difficult than is assumed in the baseline. Moreover, a cold winter could prompt customers to use more energy than in a normal season. According to an analysis from the Organisation for Economic Co-operation and Development (OECD), if this does happen, inventories could be drawn down very quickly to a point requiring widespread natural gas rationing as early as the turn of the year (Chart 7). This could lead to severe supply chain bottlenecks, particularly in countries with few other energy resources, including Germany and a number of countries in Central Europe. It could prove necessary to halt production in energy-intensive sectors such as heavy industry and pharmaceuticals. The price of natural gas and electricity would then rise even higher, deepening the energy crisis still further. The economic outlook would be more uncertain, and pressures on production factors and prices would be greater than they would otherwise. By the same token, higher inflation would call for further interest rate hikes, which would deepen the economic crisis even more.

In order to assess the economic impact of such a scenario, the OECD assumes that natural gas prices rise by an additional 50% starting in 2023, causing fertiliser prices to rise by another 25%. This would spread to the global oil market, and pushing crude oil prices upwards by an additional 10%. The scenario assumes that the effects taper off over the course of 2023. Energy rationing in key economic sectors is estimated to cause potential output in European countries to contract by 3% in 2023. Furthermore, increased uncertainty about the economic outlook prompts European households

Chart 7

Natural gas inventories in EU and the UK[1]

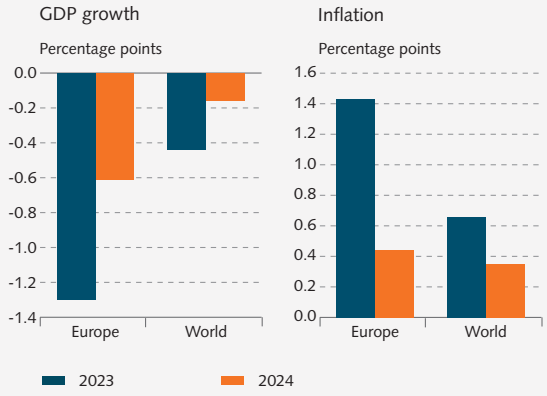


1. The scenarios assume that inventories are at 90% of storage capacity at the end of September. The assumptions are as follows: no more natural gas is imported from Russia, imports from other countries total 30 billion cm³ per month, and domestic production is in line with the 2019-2021 average. "No change" refers to a scenario with natural gas consumption equal to the 2017-2021 average. "10% reduction" refers to a scenario featuring 10% less consumption. "Cold winter" refers to a scenario with average natural gas consumption equal to the 2017-2021 peak.

Source: OECD, *Economic Outlook*, September 2022.

Chart 8

Impact of natural gas shortage in Europe on global GDP growth and inflation[1]



1. Alternative scenario providing for a further increase in global commodity prices and declining production capacity due to energy rationing in Europe. In addition, it is assumed that the energy crisis causes even greater global economic uncertainty and more rapidly rising interest rates due to the worsening inflation outlook. The chart illustrates the impact on OECD countries in Europe and on the global economy as a whole.

Sources: OECD, *Economic Outlook*, September 2022.

to step up their saving, and risk premia on financial assets rise. Finally, interest rates are assumed to rise in response to stronger inflationary pressures.

Chart 8 shows the OECD's estimate of the impact these shocks would have on the global GDP growth and inflation outlook. The deepening of the energy crisis could lower global GDP by ½ a percentage point next year, and push inflation upwards by ¾ of a percentage point. These effects would be somewhat stronger in Europe. GDP growth could turn out weaker by 1⅓ percentage points next year and ½ a percentage point in 2024. The bleaker output growth outlook would then deteriorate still further, probably causing a contraction in many European economies. At the same time, the inflation outlook in Europe would worsen even more: inflation could turn out 1½ percentage points higher in 2023 and ½ a percentage point higher in 2024.

… with repercussions for the domestic economy

The Bank's QMM model is used to analyse the potential impact of this scenario on the domestic economic outlook. Trading partner GDP growth is projected to be an average of 1 percentage point below the baseline forecast in 2023 and ½ a percentage point below it in 2024. Imports from these countries are estimated to decline accordingly. By the same token, trading partner inflation is estimated to be higher by 1¼ percentage points in 2023 and ½ a percentage point in 2024. Moreover, further disruptions in global supply chains are projected, with commodity prices 11½% above the baseline forecast in 2023. The effects taper off gradually, and commodity prices realign with the baseline by the end of the forecast horizon. Trading partners' export prices therefore rise by 1½ percentage points more than in the baseline in 2023, and nearly 1 percentage point more in 2024.

In addition to this, aluminium prices are estimated to rise broadly in line with other commodity prices, yet marine product prices fall in accordance with the poorer economic outlook in trading partner countries. Owing to a larger contraction in real wages and increased precautionary saving among European households, fewer tourists visit Iceland, and demand for aluminium and marine products weakens. Risk premia on domestic financial assets is also pushed higher, as is the case abroad.

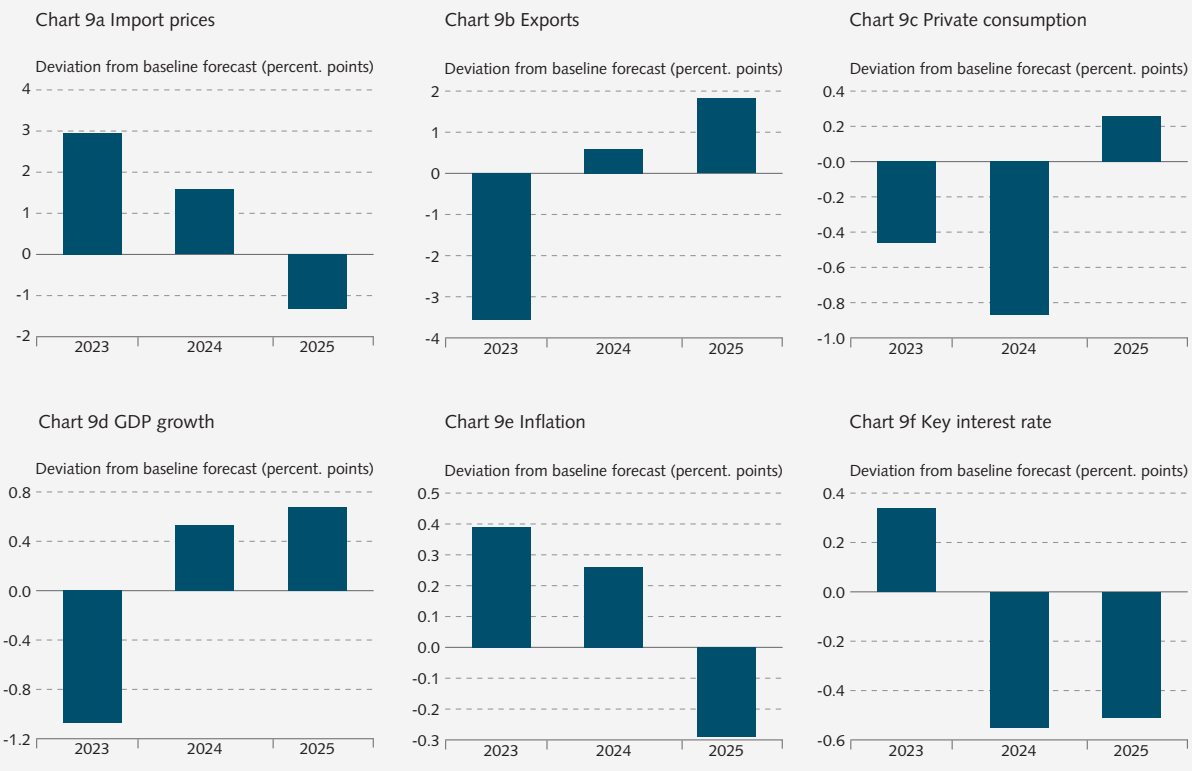
As Chart 9a shows, this would raise import prices upwards relative to the baseline forecast by an additional 3 percentage points in 2023 and 1½ percentage points in 2024. This is due to the combined impact of larger hikes in trading partners' export prices and a weaker króna, as the exchange rate would be a full 3% below the baseline by the end of the forecast horizon.

Weaker economic activity among key trading partners together with the economic contraction in Europe would lower Iceland's export growth by 3½ percentage points relative to the baseline in 2023, although the situation would reverse in part during the two years afterwards (Chart 9b).

Increased uncertainty about the economic outlook and erosion of real wages due to higher imported goods and services prices prompt domestic households to pull back on consumption spending. Added to this is the impact of a higher domestic interest rate (see below). Private consumption thereby grows by ½ a percentage point less in 2023 and is 1% below the baseline by the end of the forecast horizon (Chart 9c). On top of this are the effects of more sluggish investment growth, and GDP growth is therefore 1 percentage point weaker in 2023 (Chart 9d). The situation reverses to a degree in 2024, as the weaker króna contributes to a recovery of exports, and a share of domestic demand shifts back into the local economy. At the end of the forecast horizon, GDP has therefore broadly realigned with the baseline forecast, although domestic demand remains weaker.

Chart 9

Alternative scenario: European energy crisis deepens further



Source: Central Bank of Iceland.

Even though economic activity is weaker, the domestic inflation outlook deteriorates relative to the baseline. Inflation would be ½ a percentage point higher than in the baseline in 2023 and about ⅓ of a percentage point higher in 2024 (Chart 9e). According to the monetary policy rule in the model, the Bank's key interest rate would have to be marginally higher in 2023, but over the course of the forecast horizon, a larger slack in the economy would result in lower inflation and interest rates than in the baseline (Chart 9f).

Other uncertainties

The global outlook is highly uncertain, and the baseline GDP growth forecast could prove overly optimistic

In addition to the uncertainties relating to the energy crisis, the global economic outlook will be determined by how long the war in Ukraine lasts and whether it spreads to other countries, with unforeseeable implications. The war has also profoundly affected global supply chains, and production bottlenecks could build up once again. Furthermore, the war could have a lasting impact on world trade and its structure, including the global allocation of resources that has provided the foundation for a vast improvement in living standards worldwide. However, households in major industrialised countries could scale back their saving more quickly and tap more into the savings they accumulated during the pandemic, and if they did so, it would mitigate the negative impact of other risk factors on demand and output growth.

But there are other factors that make the global economic outlook unusually fragile. Inflation is high worldwide, and rapidly rising interest rates and the surge in the US dollar have exacerbated the strain on the global financial system, not least in areas where dollar-denominated debt levels are high. Furthermore, GDP growth in China could soften significantly, and weaknesses in the Chinese real estate market could escalate, with broad-based repercussions for the global economy. Moreover, China is still dealing with the effects of the pandemic, and the authorities there have continued to impose stringent public health measures in a bid to reduce infection rates.

Inflation outlook highly uncertain, with risk tilted to the upside

The domestic inflation outlook will be determined in part by developments in the war in Ukraine and in global oil and commodity prices. But as is discussed earlier in this Box, it will be shaped no less by the outcome of the ongoing wage negotiations. If negotiated pay rises are larger than is provided for in the baseline forecast, the effects could spread to the housing market and slow down the decline in house price

inflation. On the other hand, the housing market could adjust to higher interest rates and tighter borrower-based measures more quickly than is currently assumed, and house prices could fall faster and farther.

As always, developments in the exchange rate over the forecast horizon are uncertain. If terms of trade are poorer and the current account deficit widens, the exchange rate assumptions in the baseline forecast could prove overly optimistic. The effects of global economic uncertainty on the exchange rate of the króna could also be underestimated. On the other hand, a more rapid economic expansion and a wider interest rate differential with abroad could lead to a higher exchange rate than is provided for in the baseline.

As has previously been discussed in *Monetary Bulletin*, it has been unusually difficult to estimate Iceland's potential output in the wake of the pandemic and the associated production disruptions and fluctuations in relative prices. This is compounded by even further supply shocks following Russia's invasion of Ukraine. As a result, potential output could have deteriorated even more than is assumed in the baseline forecast, and the output gap that has opened up in the domestic economy could therefore be underestimated. Furthermore, the output gap could widen more rapidly than is projected in the baseline if the household saving ratio falls faster than is currently forecast (see the alternative scenario in Box 1 of *Monetary Bulletin* 2021/4). The same applies if the fiscal stance is eased more rapidly than is assumed in the baseline.

As is discussed in Box 2, inflation expectations have become less firmly anchored to the Bank's inflation target in the past year. This exacerbates the risk that it will be more difficult to bring inflation down again; for instance, because of increased risk of a wage-price spiral. The inflation outlook depicted in the baseline forecast could therefore prove overly optimistic.

Although some of these factors could develop more favourably than is provided for in the baseline forecast, inflation appears likelier than not to be higher and more persistent than in the baseline.

Box 2

Has the anchoring of inflation expectations weakened?

Inflation expectations have risen markedly in the past year. It comes as no surprise that the recent surge in inflation should push short-term inflation expectations upwards, but it is a far more serious matter if it causes households, businesses, and market agents to revise their expectations about long-term inflation. Furthermore, there are indications that short-term shocks to inflation have a stronger impact on inflation expectations now than they have in recent years. All of this suggests that inflation expectations have become less firmly anchored to the inflation target in the recent term. This Box examines these developments and their potential implications.

Inflation expectations have risen in tandem with the recent surge in inflation ...

As is discussed in Chapter V, inflation has risen rapidly in the past two years: after being aligned with the Central Bank's 2.5% target in mid-2020 but it had risen above 4% by early 2021 and was just a whisker shy of 10% this summer. As Chart 1 indicates, long-term trend inflation has therefore risen recently and is approaching the level seen at the beginning of the century, when the current monetary policy framework was adopted. As the chart also shows, inflation has grown more volatile, in line with its well-known tendency to fluctuate more widely as it rises higher.[1]

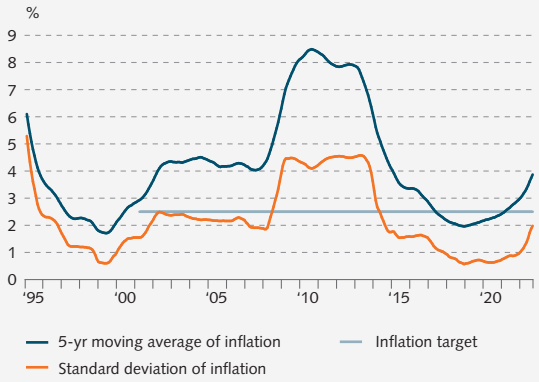
Inflation expectations have risen rapidly as well. This can be seen in Chart 2, which shows short- and long-term inflation expectations from the beginning of 2012 onwards.[2] Short-term inflation expectations remained relatively close to the inflation target starting in 2014, after falling during the years beforehand. But they began to rise swiftly in late 2021 and averaged nearly 6% by Q3/2022.

Long-term inflation expectations have also risen in the recent term, albeit more modestly: they rose above 3% early

Chart 1

Inflation in Iceland – long-term trend and fluctuations[1]

January 1995 - September 2022



1. The chart shows a five-year moving average and standard deviation of twelve-month inflation.

Sources: Statistics Iceland, Central Bank of Iceland.

1 As is noted by the Bank for International Settlements (2022), the main reason lower inflation tends to be more stable is not necessarily that the price of individual product categories fluctuates less. It is rather that the co-movement between price movements in individual product categories grows weaker as inflation declines; i.e., changes in the price of individual product categories are less likely to spread to other categories or other sectors of the economy.

2 Short-term inflation expectations are based on expectations one and two years ahead. They are measured in terms of the median value of household, corporate, and market expectations based on surveys carried out by Gallup and the Central Bank, as well as the breakeven inflation rate in the bond market, which is measured in terms of the spread between indexed and nominal Treasury bond yields. Long-term inflation expectations are measured in the same manner, except they are based on expectations five and ten years ahead, together with the five-year breakeven inflation rate five years ahead.

this year and were closing in on 4% by mid-year, after having long been well in line with the inflation target.[3]

… and seem less firmly anchored to the target

Headline inflation has measured 3% or more since July 2020 and has been over 5% for nearly a year. When inflation rises this high and deviates from target for such an extended period of time, the risk is that expectations will again become unmoored from the target after the protracted fight to anchor them, which finally appeared to bear fruit in the mid-2010s. This is reflected in the aforementioned rise in inflation expectations, as long-term expectations have now been more than ½ a percentage point above target for over a year and currently measure roughly 4%, as is noted above. In general, it appears to be generally expected that inflation will be around 1½ percentage points above the Central Bank's target over an extended period. It therefore appears that the target's *level anchoring* (see Ball and Mazumder, 2011) has deteriorated. This is less clear in the case of short-term expectations, however: although they have risen sharply, they have broadly increased in line with the Central Bank's own forecasts for inflation one year ahead (Chart 3).

The impact of inflation shocks on inflation expectations has risen once again

Another approach to determining whether the anchoring of inflation expectations has weakened is to examine whether they are sensitive to short-term fluctuations in inflation – which Ball and Mazumder refer to as *shock anchoring*. If they are firmly anchored to the target, inflation expectations – at least, expectations over a sufficiently long period of time – can be assumed to remain steady even if current inflation is higher or lower than anticipated. Under these conditions, economic agents trust the Central Bank to bring inflation back to target over time. If they see that the Central Bank does not respond decisively enough to an unexpected surge in inflation, however, this can affect the decisions they make and increase the probability that a transitory rise in inflation will become entrenched.[4]

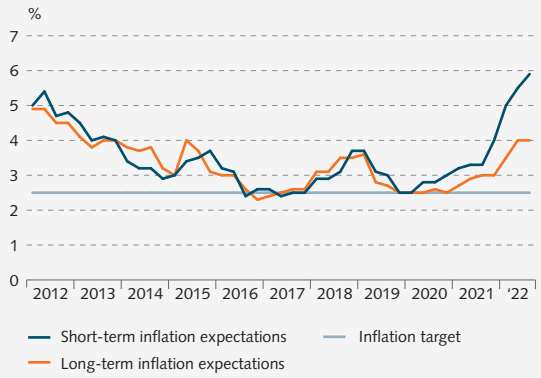
The following regression analysis is used to determine whether inflation expectations are affected by inflation surprises and whether this effect has grown stronger:

$$(1)\quad \Delta\pi^{e}_{t+h} = \beta^{h}\pi_{t}^{news} + \varepsilon_{t+h}$$

Chart 2

Short- and long-term inflation expectations[1]

Q1/2012 - Q3/2022



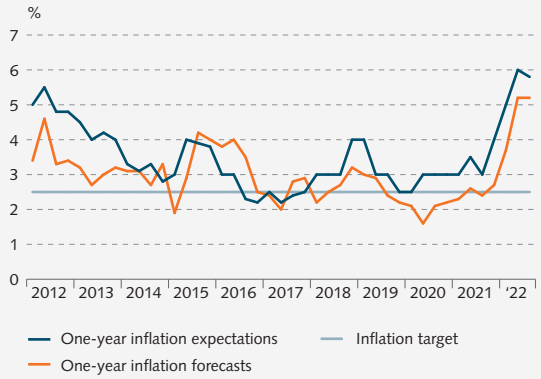
1. Short-term inflation expectations are measured as the median of household, corporate, and market expectations one to two years ahead and the one- to two-year breakeven inflation rate. Long-term inflation expectations are measured as the median of household, corporate, and market expectations five to ten years ahead and the five- to ten-year breakeven inflation rate.

Sources: Gallup, Central Bank of Iceland.

Chart 3

Inflation expectations and inflation forecasts one year ahead[1]

Q1/2012 - 3Q/2022



1. Median of household, corporate, and market inflation expectations one year ahead; and the Central Bank's inflation forecasts one year ahead from various issues of *Monetary Bulletin*.

Sources: Gallup, Central Bank of Iceland.

3 The decline in long-term inflation expectations from 2012 onwards played a key role in the disinflation episode of the 2010s, as is described in Pétursson (2022).

4 This is less likely to happen with very short-term expectations (one-year expectations, for instance), as it is unrealistic to expect monetary policy to be able or willing to tamp down fully on unexpected inflation within such a short period.

where $\Delta\pi^{e}_{t+h}$ is the first difference in inflation expectations h year(s) ahead, π_t^{news} are inflation shocks, and ε_{t+h} is a residual. Inflation expectations are assessed on the basis of surveys conducted among households, businesses, and market agents, and on the basis of the breakeven inflation rate in the bond market. They are estimated over horizons of one, two, five, and ten years (plus the five-year breakeven rate five years ahead).

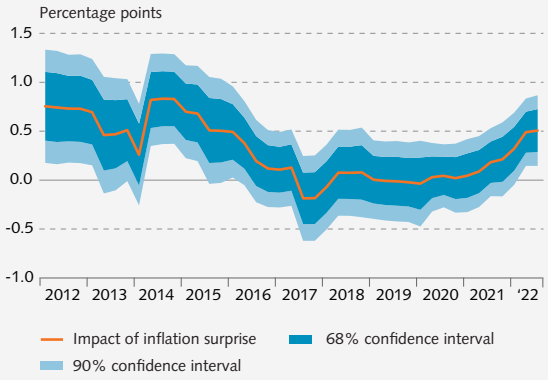
Inflation shocks are measured using the median error of financial market analysts' forecasts of annualised monthly changes in the CPI. The data are available from the beginning of 2006, and the analysis uses quarterly averages.[5] The coefficient β^h measures the response of inflation expectations h year(s) ahead to inflation surprises, thereby giving an estimate of how firmly inflation expectations are anchored. If the anchor is firm enough, it should be statistically insignificant from zero.

Equation (1) is estimated using quarterly data for the period Q1/2006 through Q3/2022 for all measures of inflation expectations over a five-year moving window.[6] Chart 4 shows the estimation for short-term inflation expectations (i.e., up to two years ahead) from the beginning of 2012 onwards. It shows the median estimate for various measures of inflation expectations, but the outcome is the same for them all. As the chart indicates, the effects of inflation shocks are statistically significant early in the period: in 2012, for instance, an unexpected 1 percentage point rise in inflation leads to an increase in short-term inflation expectations by ¾ of a percentage point. The effects taper off gradually, however, and have disappeared by 2016. They start to grow again over the course of 2021, though, and have become statistically significant in 2022.

The same applies to long-term inflation expectations (Chart 5). The effects are statistically significant early on but have disappeared by the beginning of 2014. They begin to strengthen again as the period advances, however, and have become statistically significant at the beginning of 2022, based on the 90% confidence interval in the estimation (or by H2/2021 if based on a confidence interval equivalent

Chart 4

Impact of inflation surprise on short-term inflation expectations[1]

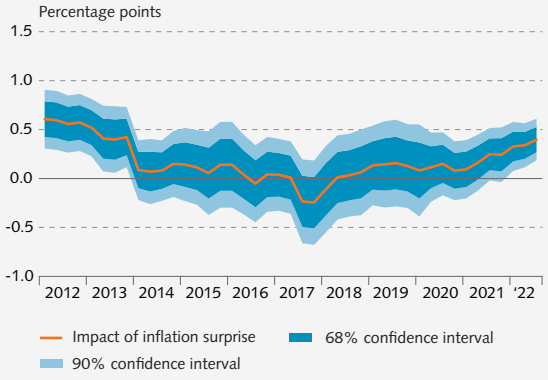


1. Estimated impact of an unexpected 1 percentage point rise in inflation on short-term inflation expectations. The impact is estimated from Equation (1) using a five-year moving window. The chart shows the median of the estimation of market expectations one to two years ahead and the one- to two-year breakeven inflation rate.

Source: Central Bank of Iceland.

Chart 5

Impact of inflation surprise on long-term inflation expectations[1]



1. Estimated impact of an unexpected 1 percentage point rise in inflation on long-term inflation expectations. The impact is estimated from Equation (1) using a five-year moving window. The chart shows the median of the estimation of household, corporate, and market expectations five to ten years ahead and the five- to ten-year breakeven inflation rate.

Source: Central Bank of Iceland.

5 In evaluating the anchor for inflation expectations using quarterly data, as is done here, it is preferable to use inflation forecast errors as an explanatory variable rather than using, for instance, changes in inflation itself or deviations in inflation from target, as they are less subject to reverse causality (see, for instance, International Monetary Fund, 2016).

6 The breakeven inflation rate and data on households' and businesses' one-year inflation expectations are available from Q1/2006, whereas survey data on two-year expectations extend back to Q3/2008. Data on market agents' inflation expectations extend back to the beginning of 2012. Household and corporate expectations five years ahead cannot be used in the regression analysis, however, as the data only go as far back as 2018.

to one standard deviation). Based on the most recent estimation, an unexpected 1 percentage point rise in inflation results in an upward revision of long-term inflation expectations by 0.4 percentage points.

On the whole, the effects of inflation shocks on inflation expectations appear to have grown weaker as the 2010s progressed, in line with improved monetary policy performance in keeping inflation close to the Bank's inflation target. This is consistent with the findings from a similar analysis conducted by the Central Bank in 2017, which shows that the effect of inflation shocks on inflation expectations was strong during the period 2003-2007 but had become statistically insignificant by the 2012-2016 period (see Chart 4.12 on page 20 of Central Bank of Iceland, 2017). The results of the regression analysis that are shown in Charts 4 and 5 indicate, however, that these effects started to increase again in late 2021 or early 2022.

Why does this matter?

In the recent term, inflation expectations in Iceland appear to have become less firmly anchored to the target as inflation has risen. Expectations have risen, and both inflation and inflation expectations have grown more volatile. This has widespread implications. Greater fluctuations in inflation and inflation expectations lead, for instance, to wider swings in nominal and real interest rates, which in turn lead to greater volatility in real economic activity and the exchange rate of the króna (for further discussion, see Central Bank of Iceland, 2017).

When inflation expectations are more poorly anchored, it also becomes more difficult to bring inflation down again, and the impact of supply shocks and relative price changes on inflation becomes stronger and more persistent than when the anchor holds firmly. This can be seen, for example, in the interaction between wage inflation and price inflation, which has generally grown weaker as inflation expectations have become better anchored. For example, the findings of Bobeica *et al.* (2021) indicate that better anchored inflation expectations play a key role in explaining the weakening of the link between wage inflation and price inflation in the US over the past three decades. The findings of the Bank for International Settlements (2022) tell the same story: the impact of wage increases on inflation is less pronounced in countries that have achieved price stability than in countries with generally higher inflation.

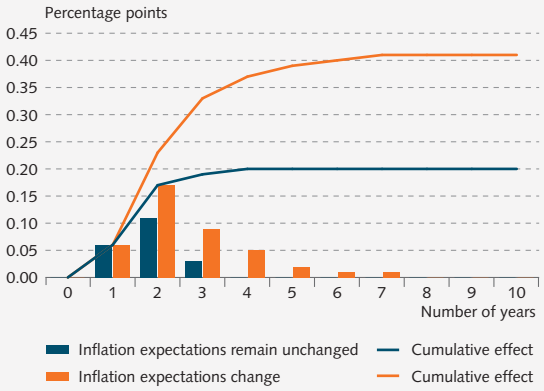
A firmer anchor dilutes not only the effect of pay rises on inflation, but also the overall effect of supply shocks on inflation. The findings of the International Monetary Fund (2022) suggest, for instance, that supply shocks have a stronger and more persistent impact on inflation if expecta-

tions are poorly anchored, and Baba and Lee (2022) find that an increase in oil prices affects wages and prices less when inflation is low at the outset than when it is high (see also Bank for International Settlements, 2022). This is in line with the findings of Bems *et al.* (2021), which indicate that the inflationary impact of a terms of trade shocks is weaker and more transitory when inflation is low and inflation expectations firmly anchored. In part, Bems *et al.* attribute this partly to the impact on the exchange rate, which falls less when expectations are firmly anchored, but also to a decline in exchange rate pass-through. This accords with a number of studies showing that exchange rate pass-through grows weaker as the anchor for inflation expectations is firmer (see, for instance, Gagnon and Ihrig, 2004). It is also consistent with the findings of Edwards and Cabezas (2022), who concluded that exchange rate pass-through in Iceland had weakened significantly as monetary policy gained credibility following the monetary policy reforms undertaken just over a decade ago.

To give an idea of how much firmly anchored inflation expectations matter, Chart 6 compares the effects of a 1% permanent increase in import prices on domestic inflation, depending on whether long-term inflation expectations react to the shock or not. The inflation equation in the Central Bank's QMM model is used, and this 1% rise in import prices is generated through an increase in oil prices and global inflation (see also Chapter I of *Monetary Bulletin* 2018/2). Two scenarios are shown. The former assumes that long-term inflation expectations remain firmly anchored, while the latter assumes that the anchor gives way and long-term expectations rise in line with recent inflation. As can be seen, the impact is much weaker and tapers off far more rapidly if the anchor holds. If the anchor gives way, this 1% rise in import prices leads to a permanent 0.4% increase in consumer prices, whereas the long-term increase is half that size if the anchor holds firm.

Chart 6

Impact of a 1% increase in import prices on inflation[1]



1.The chart shows the stylised effect of a permanent 1% rise in import prices on annual inflation and the cumulative impact on the price level. Two scenarios are shown. In the former, inflation expectations remain unchanged at the Bank's inflation target, while in the latter, the rise affects long-term inflation expectations.

Source: Central Bank of Iceland.

Summary

Inflation expectations appear to have become less firmly anchored to the Central Bank's inflation target in the past year, in tandem with rapidly rising inflation and a persistent overshooting of the target. Less firmly anchored inflation expectations exacerbate the risk that high inflation will become entrenched, and as the anchor grows weaker, the task of bringing inflation down again grows more difficult. This underscores the importance of the recent swift monetary policy response in ensuring that expectations are brought back to target and anchored there.

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Box 3

Fiscal budget proposal for 2023

The fiscal budget proposal for 2023 was introduced before Parliament in September. Treasury revenues will increase next year by just over 163 b.kr. relative to the 2022 National Budget, while expenditures will rise by just under 68 b.kr. The fiscal deficit will be 89 b.kr., or 97.4 b.kr. less than in the National Budget for 2022. The deficit on the interest balance increases by nearly 9 b.kr. year-on-year, to 63½ b.kr., whereas the deficit on the primary balance shrinks by 106 b.kr. relative to his year's National Budget, to 25½ b.kr. The fiscal deficit for the year is equivalent to 2.3% of GDP, according to the budget proposal, or 2.9 percentage points less than in the 2022 Budget (Table 1).

Table 1 Summary of fiscal outcome: 2022 Budget and 2023 budget proposal

		B.kr.	
National accounts basis	*Budget 2022*	*Budget proposal 2023*	*Change in b.kr.*
Primary income	939.5	1,099.8	160.2
Primary expenditures	1,071	1,125.2	54.1
Primary balance	-131.5	-25.4	106.1
Interest income	12.4	17.5	5.0
Interest expense	67.3	81.1	13.8
Interest balance	-54.9	-63.6	-8.7
Total revenues	952.0	1,117.2	165.3
Total expenditures	1,138.3	1,206.2	67.9
Overall balance	-186.4	-89.0	97.4

		% of GDP	
National accounts basis	*Budget 2022*	*Budget proposal 2023*	*Change in %*
Primary income	26.4	28.5	2.1
Primary expenditures	30.0	29.1	-0.9
Primary balance	-3.7	-0.7	3.0
Interest income	0.3	0.5	0.1
Interest expense	1.9	2.1	0.2
Interest balance	-1.5	-1.6	-0.1
Total revenues	26.7	28.9	2.2
Total expenditures	31.9	31.2	-0.7
Overall balance	-5.2	-2.3	2.9

Source: Fiscal budget proposal 2023.

The macroeconomic assumptions in the budget proposal are based on Statistics Iceland's June 2022 forecast. Table 2 compares the Statistics Iceland's forecast and the estimates in the budget proposal to the Central Bank forecast from roughly the same time (*Monetary Bulletin* 2022/2, published in May). The macroeconomic outlook has changed

somewhat since then, and according to the Bank's new baseline forecast, GDP growth will be stronger and inflation higher in 2023 than was forecast in May (see Chapters III and V).

Table 2 Macroeconomic assumptions in the 2023 fiscal budget proposal

	Statistics Iceland forecast (%)	*MB 2022/2 (%)*
Private consumption	2.6	3.0
Public consumption	1.1	1.7
Investment	-0.3	-0.5
Exports	6.2	5.2
Imports	3.8	3.5
Gross domestic product	2.7	2.6
Consumer price index	4.9	5.0
Unemployment	3.7	4.2
Trade-weighted exchange rate index	-1.5	1.4
General wage index	5.2	5.7

The table shows year-on-year changes except for unemployment, which is expressed as a share of the labour force.

Sources: Fiscal budget proposal 2023, Statistics Iceland, Central Bank of Iceland.

Various assumptions in the 2023 fiscal budget proposal

- *Wage assumptions:* Typically, wage assumptions are based on current wage agreements. Because wage agreements for next year are not yet in place, the assumptions are based instead of those in the fiscal plan concerning real wage growth for public employees. Budgetary costs stemming from wage increases are estimated at 19.1 b.kr., including 5.1 b.kr. due to a revision of previous years' wage assumptions.*Price assumptions:* The general rise in operating expenditures is based on Statistics Iceland's inflation forecast. Inflation is estimated at 7.5% for 2022, an increase of 4.2 percentage points relative to the assumptions underlying the 2022 fiscal budget, but it is projected to decline to 4.9% in 2023. Because of higher inflation, expenditures will be 9.6 b.kr. higher in 2022 and over 11 b.kr. higher in 2023. On the whole, increased expenditures in the amount of 20.7 b.kr. can be attributed to assumptions about price movements.
- *Exchange rate assumptions:* The fiscal budget proposal assumes an exchange rate equal to the July 2022 average, which entails a 5.8% year-on-year appreciation of the króna. This leads to a 3 b.kr. reduction in expenditures, owing mainly to foreign policy expenses and drug costs.
- *Unemployment and social security benefits:* Social security benefits rise by 6% in 2023, in addition to the 3% increase in June 2022. Unemployment benefits rise in line with inflation, or 4.9%. The cost of this increase in benefits is estimated at 19.1 b.kr.

In all, the above-specified changes to budgetary authorisations in the 2023 budget proposal – changes in wages, benefits, prices, and exchange rates – amount to 52.6 b.kr. (Table 3).

Table 3 Changes in wages, benefits, prices, and exchange rate in 2023

Accrual basis
Effect on expenditures b.kr.

Wage assumptions	
Wage increases in 2022 in excess of budgetary assumptions	5.1
Estimated wage increases 2023	14
Total wage increases	19.1
Unemployment and social security benefits	19.1
General price level assumptions	20.1
Exchange rate assumptions	-3.0
Changes in wages, benefits, prices, and exchange rate	52.6

Source: Fiscal budget proposal 2023.

Several tax system changes will be introduced next year. It is assumed that statutory changes in the tax system will reduce Treasury revenues by 3.6 b.kr. in 2023, owing to the increased number of fully electric motor vehicles benefiting from value-added tax concessions. On the other hand are changes not yet passed into law, which deliver additional revenues of just over 14 b.kr., mainly including increased fees based on assumed changes in the price level and changes in motor vehicle excise taxes and motor vehicle taxes. In all, the changes will deliver 10.5 b.kr. in additional revenues in 2023 (Table 4).

Table 4 Impact of tax changes on Treasury revenues in 2023

Accrual basis	*Revenues b.kr.*
Statutory changes	
Increased number of electric cars enjoying VAT concessions	-3.6
Non-statutory changes	
Changes in motor vehicle excise taxes	2.7
Changes in motor vehicle tax	2.2
Alternate airport fee	1.4
Change in value fee for sea-farmed fish	0.5
Increase in fees due to inflation	6.4
Other changes	0.8
Total changes, statutory and non-statutory	10.5

Source: Fiscal budget proposal 2023.

In addition to the above-specified changes, next year's Treasury revenues will be affected by previous tax changes. These include measures that will be partially implemented this year and temporary measures that will expire this year, such as the increased VAT reimbursement scheme under the "Back to Work" initiative in H2/2022. These effects will

boost Treasury revenues will increase by 13.4 b.kr. in 2023. Total tax revenues will therefore rise by a combined 23.9 b.kr. in 2023 because of tax changes (Chart 1).

Revision of 2022 revenue estimates

The revenue estimates for the current year have changed considerably relative to the National Budget, owing both to increased income tax revenues totalling just over 50 b.kr. (reflecting stronger-than-expected economic activity) and to increased dividend payments totalling just over 14 b.kr. Furthermore, payroll taxes will be 11 b.kr. higher than was provided for in the Budget. On the whole, revenues for the year are projected to be 78.6 b.kr. more than in the National Budget.

Changes on the revenues side for 2023

According to the budget proposal, Treasury revenues in 2023 will total 1,117 b.kr. and are virtually unchanged relative to the fiscal plan. There are several changes in individual sub-components, but these largely offset one another. The main changes are in estimated consumption taxes, which are 4.6 b.kr. higher in the budget proposal than in the fiscal plan, and income taxes, which generate 3.2 b.kr. less in revenues.

As can be seen in Chart 1, year-2023 revenues will rise by nearly 87 b.kr. over and above the estimate for 2022. This is due in large part to stronger economic activity and its effect on the Treasury's tax revenues.

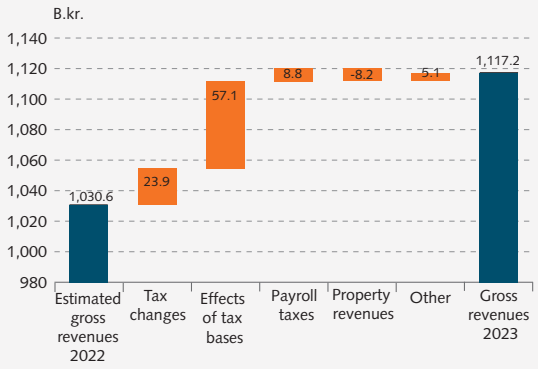
Changes on the expenditures side for 2023

In 2023, expenditures will increase by nearly 68 b.kr. compared to the 2022 National Budget and will amount to 1,206 b.kr. Increases on the expenditures side stem from the effects of wage and price level adjustments and committed expenditures – due to growth in the elderly and disabled population, higher interest expense, and other factors – in addition to increased scope for new projects. Temporary budgetary allocations, particularly those related to the COVID-19 pandemic, will be discontinued, however, and consolidation targets are also expected to reduce expenditures.

Substantial changes in economic developments affected Treasury expenditures in 2022, which are estimated to be 34 b.kr. over the 2022 Budget, owing in particular to increased interest expenditures. According to the budget proposal, expenditures will increase by nearly 34 b.kr. next year relative to the estimated 2022 level. Chart 2 shows that reduced interest expenditure only partly offsets the increase in other expenditures in 2023.

Chart 1

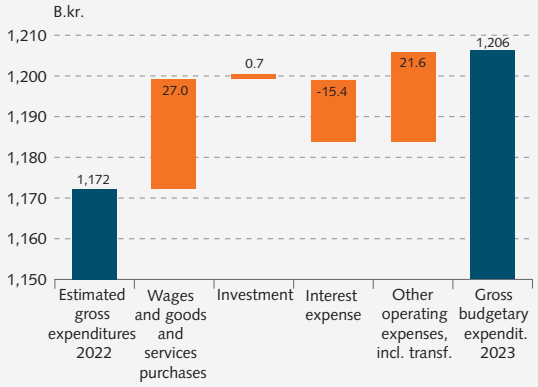
Revenue changes relative to 2022 estimates



Sources: Fiscal budget proposal for 2023, Ministry of Finance and Economic Affairs.

Chart 2

Expenditure changes relative to 2022 estimates



Source: Fiscal budget proposal for 2023.

Year-2022 deficit smaller than was assumed in the fiscal plan

In the fiscal plan approved last summer, it was assumed that the Treasury outcome would be negative by nearly 158 b.kr. in 2022, whereas the updated plan estimates the deficit at 142 b.kr. The difference stems mainly from higher projected tax revenues and dividend payments during the year. Offsetting this, interest expense and wage costs are higher in the new plan, but when all factors are accounted for, the primary deficit will be 25 b.kr. smaller and the overall deficit nearly 16 b.kr. smaller than in the original fiscal plan.

Fiscal deficit below fiscal policy benchmark

The income balance in the 2023 fiscal budget proposal is negative by 89 b.kr., or 6.5 b.kr. more than the deficit provided for in the fiscal plan this summer. As was the case for 2022, the change is due mainly to higher interest expense and wage costs.

The interest balance weighs heavily in the Treasury outcome, as it has in recent years, and according to the budget proposal, it is negative by 63.6 b.kr. The deficit on the primary balance will be 25.4 b.kr. in 2023, or just under a third of the overall deficit for the year. As a share of projected year-2023 GDP, the overall deficit on Treasury revenues will be 2.3%, while the deficit on the primary balance will be 0.7%. The deficit has therefore shrunk from its 2021 peak of 8.1%.

As is noted above, the deficit on Treasury revenues according to the budget proposal is larger than was provided for in the fiscal plan. However, next year's deficit will be considerably below the benchmark according to the Fiscal Policy Statement for 2022-2026, which was approved by Parliament in February 2022. Chapter III contains a more detailed discussion of the cyclically adjusted Treasury outcome.

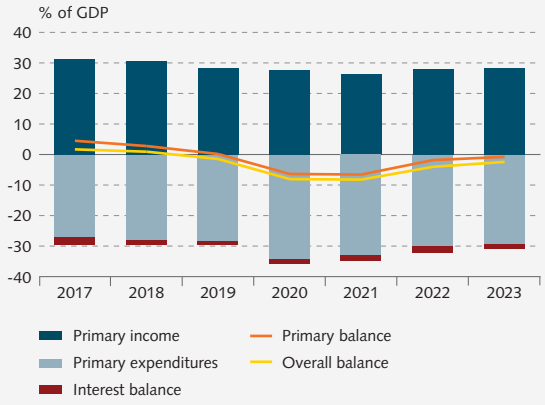
Fiscal deficit larger than before the pandemic

According to the plan for 2022, Part A1 Treasury revenues will amount to 28.5% of GDP and primary income will total 28%. In 2023, overall revenues will come to 28.9% of GDP and primary income 28.5%. The ratios for 2022 and 2023 are slightly lower than before the pandemic struck.

Overall expenditures will amount to 32.4% of GDP this year and primary expenditures 29.7%, but in 2023 these ratios will decline to 31.2% and 29.1%, respectively, according to the budget proposal. These are somewhat higher ratios than during the years immediately preceding the pandemic. The Treasury performance will therefore be considerably more negative than during the pre-pandemic period. As

Chart 3

Part A1 Treasury outcome 2017-2023



Sources: Fiscal budget proposal for 2023, Ministry of Finance and Economic Affairs.

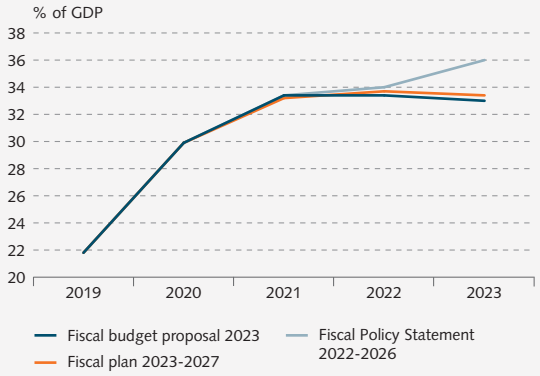
Chart 3 shows, this is due mainly to a larger deficit on the primary balance. Even though Treasury debt has increased in recent years, it is not assumed that the deficit on the interest balance will be larger in 2023 than before the onset of the pandemic.

Debt-to-GDP ratio projected to stop rising earlier than previously assumed

Treasury debt has increased because of deficit operations during the pandemic. In terms of the debt rule provided for in the Act on Public Finances, the debt-to-GDP ratio is estimated to have risen from 21.8% in 2019 to 33.4% in 2021 (Chart 4). According to the estimate in the budget proposal, the ratio will remain unchanged between 2021 and 2022 but then fall to 33% in 2023. For next year, this represents a marginal change relative to the fiscal plan for 2023-2027, which assumed that the debt ratio would fall in 2023 and then rise again until 2025, peaking at 34.5% of GDP. By the same token, the debt ratio for 2023 is about 3 percentage points lower than in the Fiscal Policy Statement for 2022-2026. This is also considerably below the post-crisis peak of 58½% of GDP, reached in 2009.

Chart 4

Treasury debt according to debt rule[1]



1. Part A1 Treasury debt according to the debt rule is total debt less pension obligations, accounts payable, cash balances, and bank deposits.

Sources: Fiscal budget proposal for 2023, Fiscal Policy Statement 2022-2026, Ministry of Finance and Economic Affairs.

Box 4

The Central Bank's macroeconomic forecasts for 2021

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 it can be learned from and used to improve its models and forecast preparation.

The two years between the arrival of COVID-19 in Iceland and the publication of Statistics Iceland's first estimates of year-2021 GDP growth were turbulent ones. A new world view emerged when it was announced that a dangerous and highly contagious disease had broken out, and previous forecasts gave way to scenarios dominated by projections of the path the pandemic would take. At first, the Bank's forecasts were coloured by reports of new variants of the virus and developments in case numbers and public health measures in Iceland and trading partner countries. As the pandemic continued, forecasts began to reflect news of supply chain bottlenecks, problems with shipping of goods, and whiplash in international markets, which escalated as the economic recovery progressed.

The year-2021 GDP growth forecast prepared by the Bank just after the pandemic struck was well in line with Statistics Iceland's most recent estimates (see Box 3 in *Monetary Bulletin* 2021/4). Nevertheless, very few of the assumptions underlying the forecast actually materialised. Chief among these were forecasts about the duration of the pandemic and its impact on global supply chains. Furthermore, assumptions about the post-pandemic recovery turned out too pessimistic. These factors combined led to underestimations of global commodity prices, which in turn generated excessively low domestic inflation forecasts.

The pandemic lasted longer than was first envisioned, but its impact on economic activity tapered off over time

By the time COVID-19 reached Iceland in February 2020, prospects for Iceland's key export sectors had deteriorated relative to the Bank's November 2019 forecast, and the outlook was for modest GDP growth in 2020 and 2021. After governmental authorities the world over took action in a bid to stem the spread of the disease, however, it was clear that the global economy would be profoundly affected and that GDP would contract markedly, in Iceland and elsewhere. On the other hand, there was considerable uncertainty about how aggressively governments would have to respond in

order to keep the pandemic at bay, how long the measures would have to remain in place, and how strongly they would affect various sectors of the economy. It was also highly uncertain when vaccines would become available and how effective they would be in controlling the spread of the disease. As time passed, GDP growth forecasts were revised significantly, mainly to accord with developments in the pandemic and in the progress made or setbacks suffered at any given time in the fight against it.

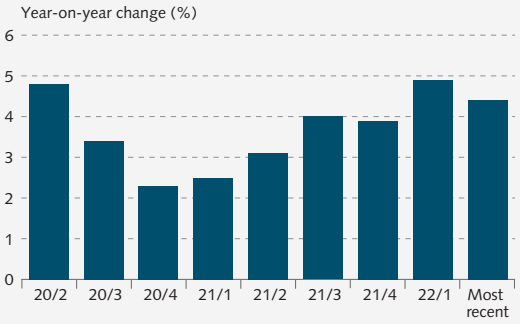
The Bank's first economic forecast for 2021 issued after the pandemic struck appeared in the May 2020 issue of *Monetary Bulletin*. The extraordinary circumstances then prevailing and the uncertainty that predominated made all forecasting profoundly difficult, as there were few precedents on which forecasts could be based. The forecast assumed that the pandemic would peak in Q2/2020 and that economic activity would gradually normalise thereafter. As 2020 progressed, however, it grew clear that it would take longer than originally assumed to bring the pandemic to a close, and its effects would be felt more strongly in 2021 than previously anticipated. As it turned out, the pandemic continued to dominate in Iceland in 2021, although public health measures became less stringent, particularly in H2, than they had been in 2020. More and more people were vaccinated as the year progressed, and households and businesses were better able to adapt their activities and operations to changed circumstances. As a result, the Bank's forecasts grew more optimistic as 2021 progressed.

Initial forecasts about exports proved overly optimistic, affecting GDP growth forecasts for 2021

It was clear when the pandemic struck early in 2020 that people's willingness and ability to travel would be strongly affected, and the number of tourists visiting Iceland was expected to drop sharply. In the May 2020 issue of *Monetary Bulletin*, the Bank forecast an 80% decline in tourist arrivals that year, but because it was assumed that the pandemic would come to a close the year after, tourist numbers were projected to rebound strongly in 2021. Even so, the number of visitors to Iceland would be half the 2019 total. The prospect of a collapse in tourist numbers was a major factor in the forecast that the year-2021 GDP level would be 6.1% below what had been projected in February. Nonetheless, GDP was expected to increase by 4.8% instead of the February forecast of 2.4%, owing to base effects from the 2020 contraction (Chart 1). In spite of the significant uncertainty prevailing at the time, this first Central Bank forecast after the onset of the pandemic proved well in line with Statistics Iceland's most recent 2021 GDP growth figure of 4.4%. The

Chart 1

Central Bank GDP growth forecasts for 2021[1]



1. Forecasts of year-2021 GDP growth as presented in *Monetary Bulletin* 2020/2-2020/4 and 2021/1-2021/4, plus the most recent estimate from Statistics Iceland. The chart also shows the forecast from Monetary Bulletin 2022/1, which is the Bank's last forecast before the publication of Statistics Iceland's first estimates of year-2021 GDP growth.

Sources: Statistics Iceland, Central Bank of Iceland.

Bank's subsequent forecasts would turn out too pessimistic, however.

When the Bank's forecast was updated in August 2020 (*Monetary Bulletin* 2020/3), the pandemic had been on the wane over the summer, giving cause to assume that the contraction in 2020 as a whole would be smaller than previously thought. Although the outlook for 2021 was broadly unchanged, the GDP growth forecast was revised marginally downwards because of base effects from a higher-than-expected GDP level in 2020. Over the course of autumn 2020, the pandemic gained steam again, and it became clear that previous expectations would prove overly optimistic. Therefore, in its November forecast (*Monetary Bulletin* 2020/4), the Bank projected that tourism would recover much more slowly in 2021 and that exports would grow by only a scant 12% during the year instead of the previous forecast of 20% (Chart 2). Alongside this bleaker forecast for exports, the GDP growth forecast for 2021 was revised further downwards to 2.3%.

In the Bank's February 2021 forecast, the outlook for exports had deteriorated further, owing to poorer demersal fish catches, the prospect of a reduction in the total allowable catch for pelagics, and increased pessimism about market conditions for both marine and aluminium products. This was compounded by a surge in COVID-19 case numbers in trading partner countries, which led to a further downward revision of the forecast of tourist arrivals during the year. It was offset by a brighter outlook for domestic demand – stronger business investment, residential investment, and private consumption in particular – with the result that the GDP growth forecast was broadly unchanged relative to its predecessor, at 2.5%.

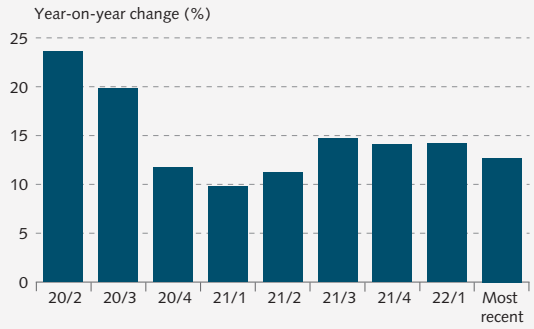
The February 2021 forecast of year-2021 tourist arrivals proved to be well in line with actual developments. The outlook for goods exports, on the other hand, turned out overly pessimistic. Demand for both aluminium and marine products picked up over the course of the year, and fish catches – capelin and demersal catches in particular – turned out stronger than projected. As a result, the GDP growth outlook had improved markedly by the time of the August 2021 forecast, which provided for 4% GDP growth and proved close to the final figure for the year.

Disposable income projections were too pessimistic, derailing private consumption forecasts …

To an extent, the reasons for excessively pessimistic GDP growth forecasts in late 2020 and early 2021 can be traced to developments in the outlook for private consumption over the period. It was initially assumed that the pandemic would

Chart 2

Monetary Bulletin export forecasts for 2021[1]



1. Forecasts of year-2021 growth in goods and services exports as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2022/1, the Bank's last forecast before Statistics Iceland published its first estimate of year-2021 export growth.

Sources: Statistics Iceland, Central Bank of Iceland.

have a stronger impact on private consumption than it actually did. The forecast in the May 2020 *Monetary Bulletin* assumed that private consumption would contract by 7% that year and then rebound by 6.4% in 2021 (Chart 3). By summer 2020, the pandemic appeared to be receding. Public health measures were eased, and household consumption exceeded expectations. In the autumn, the pandemic intensified again, and it also appeared likely that controlling it would take longer. Thus the Bank's August forecast assumed that private consumption would be stronger in 2020 and weaker in 2021, and the private consumption growth forecast was therefore revised downwards to 3.8%. By the time of the November forecast, the outlook for unemployment and disposable income growth in 2021 had deteriorated, and private consumption growth was again forecast to be weaker, or 2.7%.

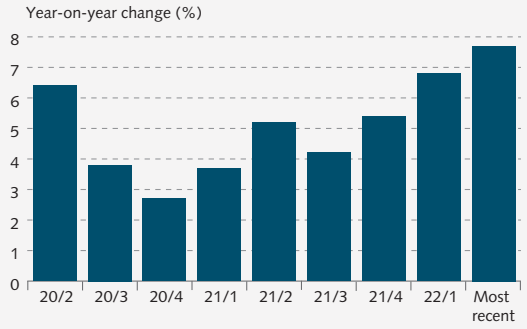
The pessimism in the Bank's November 2020 forecast proved exaggerated, however. The first signs of this came to the fore as soon as the February 2021 forecast. At that time, surveys suggested that executives' attitudes on staff recruitment had improved, partly because of positive news about expected vaccines. As a result, the forecast provided for a lower unemployment rate, a smaller contraction in disposable income, and stronger growth in private consumption in 2021. By May, the outlook had changed radically and, instead of contracting, disposable income was actually projected to grow by nearly 3% year-on-year (Chart 4), as the previously depicted employment outlook had proven overly bleak. It emerged that jobs had been preserved more than expected through the pandemic. Moreover, wage rises were larger than anticipated, and disposable income was further supported by interest rate cuts and Government measures.

… although the changed outlook for developments in the pandemic played an important role as well …

The Bank's downbeat private consumption forecasts were not due solely to underestimations of disposable income growth; they also stemmed from developments in public health measures (Chart 5). As the pandemic progressed, it came to light that households had tapped accumulated savings more than had been assumed. Consumption habits changed as well: while purchases of contact-intensive services declined, purchases of cars and other consumer durables increased. As Chart 5 indicates, public health measures also affected consumption behaviour less during subsequent waves of the pandemic than in the first one. More widespread vaccination played an important role, as did the experience firms had gained in adapting their operations to public health meas-

Chart 3

Monetary Bulletin private consumption forecasts for 2021[1]

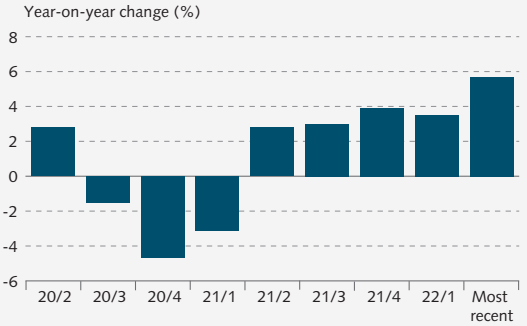


1. Forecasts of year-2021 growth in private consumption as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2022/1, the Bank's last forecast before Statistics Iceland published its first estimate of year-2021 private consumption growth.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4

Monetary Bulletin disposable income forecasts for 2021[1]

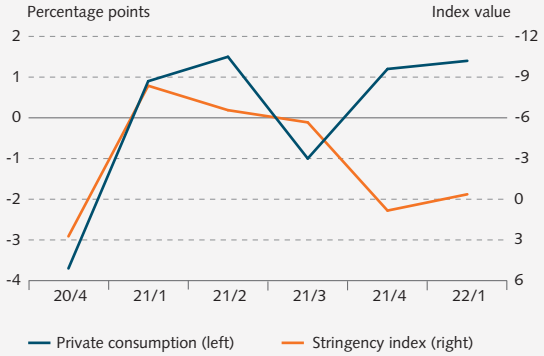


1. Forecasts of year-2021 growth in disposable income as published in MB 2020/2-2020/4 and 2021/1-2022/1, together with the most recent estimate.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 5

Private consumption forecasts and scope of public health measures 2021[1]



1. Changes in private consumption forecasts and the scope of the Government's public health measures between issues of *Monetary Bulletin*, based on the Oxford COVID-19 Stringency Index.

Sources: Oxford COVID-19 Government Response Tracker, Statistics Iceland, Central Bank of Iceland.

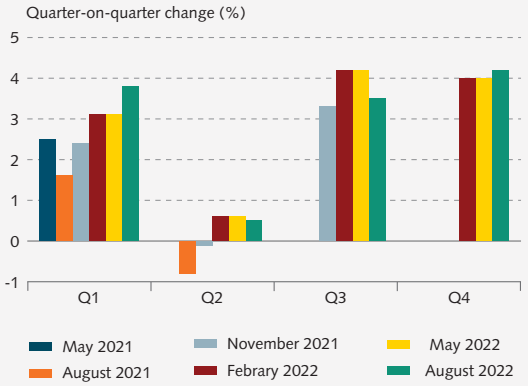
ures. Because of this, over time there was less and less reason to assume that public health measures would dampen private consumption to the degree originally expected.

… and Statistics Iceland's first figures indicated slower private consumption growth

Statistics Iceland's revision of quarterly national accounts figures published while the pandemic was ongoing also show how difficult it was to assess developments in the economy under such unprecedented circumstances. For example, Statistics Iceland's first figures suggested weaker private consumption growth in Q1/2021 than was revealed by revised figures (Chart 6). In addition, the first private consumption figures for Q2 implied that it had contracted between quarters, whereas newer vintages indicate that it grew by ½%. Statistics Iceland's repeated upward revisions of private consumption numbers also explain in part the changes in the outlook for private consumption in the Bank's forecasts from autumn 2021 through spring 2022.

Chart 6

Estimates of quarterly private consumption growth 2021[1]



1. The chart shows various Statistics Iceland estimates of quarterly changes in seasonally adjusted private consumption in 2021, from the first publication of Q1/2021 data in May 2021 until the most recent publication in August 2022.
Source: Statistics Iceland.

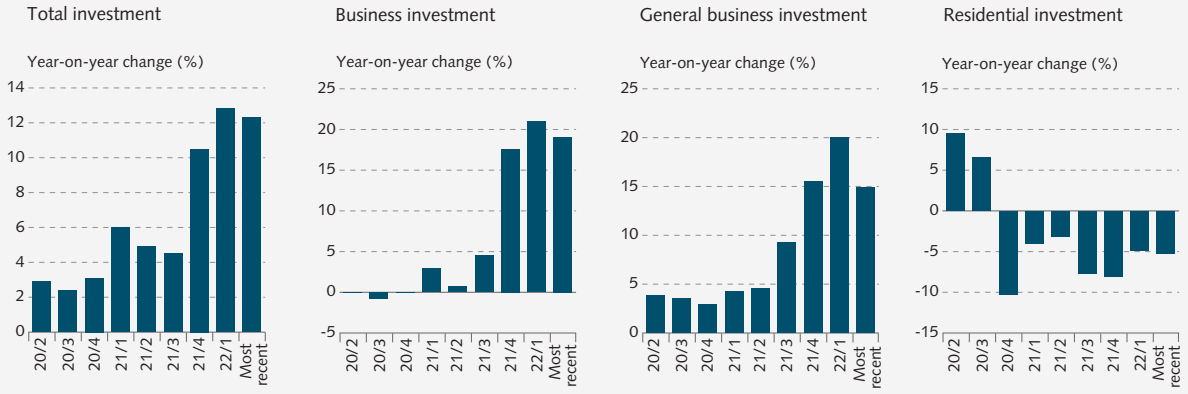
Forecasts of private investment were revised upwards as the economic outlook improved …

The investment outlook deteriorated markedly in the wake of the pandemic, owing to elevated economic uncertainty. It was thought that mandatory business closures would cut into firms' appetite and capacity for investment and that less new investment would be needed to meet declining domestic and foreign demand. This sentiment could also be seen in the results of the Central Bank's March 2020 survey of firms' investment plans. In May of that year, the Bank forecast that total investment would contract by just over 6% in 2020 and then rebound by nearly 3% in 2021. For 2021, it was projected that growth would be driven by general business investment and residential investment, although public investment would increase as well. In order to offset the anticipated pandemic-generated contraction, the Government decided in spring 2020 to expedite major investment projects and expand plans for total public investment. Chief among these were planned investments in traffic structures and other infrastructure, although it was decided as well to expediate investment by several Government-owned companies.

In the end, investment during the pandemic turned out much stronger than was initially forecast (Chart 7). The forecast had been particularly gloomy for residential investment, which ultimately turned out 14% stronger in 2021 than had been projected in May 2020. Yet this represented a year-on-year contraction of more than 5%, indicating how strong residential investment had been in 2020. In the May 2020

Chart 7

Monetary Bulletin investment forecasts for 2021[1]



1. Forecasts of year-2021 growth in investment as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2022/1, the Bank's last forecast before Statistics Iceland published its first estimate of year-2021 investment growth.

Sources: Statistics Iceland, Central Bank of Iceland.

Monetary Bulletin, high-frequency indicators and tallies of housing starts suggested that a major contraction in residential investment lay ahead. Tallies also indicated that contractors had large numbers of homes in later stages of construction. These properties were expected to prove difficult to sell in the market climate of that time, potentially exacerbating contractors' difficulties in financing new projects. These concerns affected forecasts of residential investment throughout 2020. But the resulting forecasts proved too downbeat, and by the time of the February 2021 *Monetary Bulletin,* it was clear that residential investment was more robust than previously thought. Households' increased disposable income boosted housing market activity, and house prices rose, in defiance of initial expectations. The buoyant market made it easier for contractors to sell finished properties and obtain financing for new projects. Thereafter, residential investment in 2021 was revised upwards – in spite of expectations of a year-on-year contraction, as the investment level was also higher in 2020 than was originally projected.

As the pandemic wore on, business investment forecasts grew more optimistic as well, in line with the improved outlook for economic activity more generally. Central Bank surveys of firms' investment plans, carried out in 2021, showed signs that planned investment was picking up as the year progressed, as growing demand and low interest rates provided ideal conditions for investment. Over time, however, it became obvious that implementing many of the Government's announced plans would be more challenging than previously anticipated, and public investment was therefore weaker than expected.

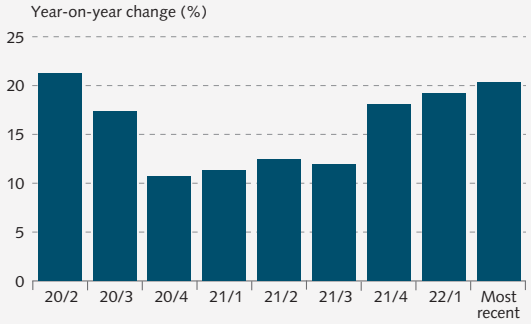
… but a change in methodology for measuring investments also played a role in the underestimation for 2021

One important cause of the underestimation of year-2021 investment was the change in methodology introduced by Statistics Iceland when it published the national accounts in August 2021. Following that change, leased operational assets are classified in some instances as the lessees' investments. As a result, business investment increased markedly relative to previous estimates, although it did not have a discernible impact on estimated GDP growth, as goods imports changed commensurably.

The effects of these changes in methodology can also be seen in the revision made to the forecast for imports in the November 2021 *Monetary Bulletin* (Chart 8). However, that revision also reflected indications of a more rapid turnaround in domestic demand, particularly private consumption and investment. According to the figures released most recently, import growth was broadly in line with the forecast published in spring 2020.

Chart 8

Monetary Bulletin import forecasts for 2021[1]



1. Forecasts of year-2021 growth in imports as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2022/1, the Bank's last forecast before SI published its first estimate of year-2021 import growth.

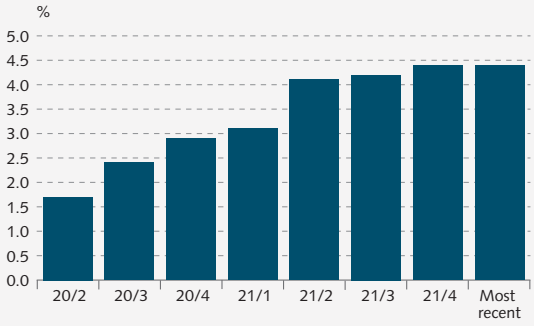
Sources: Statistics Iceland, Central Bank of Iceland.

Inflation rose much higher than initially forecast

The forecast in the May 2020 issue of *Monetary Bulletin* assumed that inflation would be below the Bank's inflation target in 2021, averaging 1.7% for the year (Chart 9). This was a lower inflation rate than had been forecast before the pandemic, as it appeared that there would be a sizeable slack in the economy while the pandemic was ongoing. Furthermore, commodity prices had fallen significantly after the onset of the pandemic, and international forecasts assumed that both global food prices and trading partner inflation would remain low. The fall in global market prices proved in the end to be short-lived, however.

Chart 9

Monetary Bulletin inflation forecasts for 2021[1]



1. Forecasts of year-2021 inflation as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the final outcome for the year.

Sources: Statistics Iceland, Central Bank of Iceland.

In November 2020, global crude oil prices started rising again on the heels of positive news about progress made in the development of COVID-19 vaccines. This prompted expectations that demand for oil would pick up more rapidly than previously assumed, and to top things off, the OPEC+ producers cut back on oil supplies. The price hikes were far larger than had been indicated by futures prices and global forecasts at the time the November *Monetary Bulletin* was published. The same was true of the Bank's forecasts in 2021 (Chart 10). Although futures prices indicated each time that oil prices would start to fall, they turned out consistently higher by the time of the next forecast. Other commodity prices rose over and above expectations as well, driven variously by stronger demand, supply chain bottlenecks, or increased global shipping costs. Therefore, import prices repeatedly rose in excess of forecasts as time passed, which explains in part why year-2021 inflation was systematically underforecast (Chart 11).

In addition, the more rapid rebound in domestic economic activity late that year generated stronger inflationary pressures than had previously been expected. The turnaround can be seen, among other things, in lower unemployment in 2021 and a smaller slack in the economy than had been forecast initially (Chart 11).

The more rapid economic rebound resulted in a stronger króna than originally projected, mitigating the impact of rising import prices. The revised outlook for the exchange rate in 2021 also appeared to have been affected by developments in the pandemic at the time each forecast was prepared, and the exchange rate forecast grew more optimistic each time public health measures were eased (Chart 12).

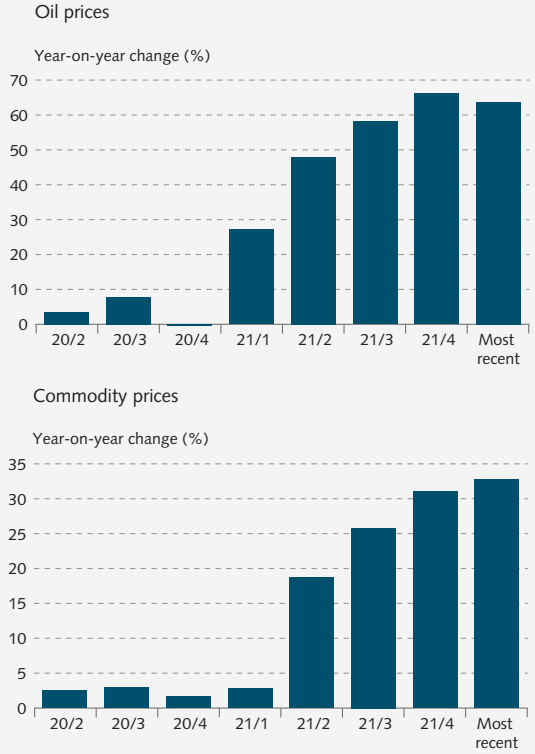
Summary

The errors in the Bank's forecasts during the pandemic were proportionally large in historical context. The main reason for this was the profound uncertainty about the path the pandemic would take and the repercussions it would have. It took most observers by surprise how rapidly the economy bounced back once the pandemic eased. Early on, forecasts grew steadily bleaker as the disease spread, both in Iceland and elsewhere. As time passed, the situation grew clearer, and the impact in Iceland proved more modest than originally feared, particularly the effect on domestic demand, which turned out far more robust than previously forecast.

The uncertainty about economic developments in 2020 and the unusually large data revisions for that year make it more difficult to identify the origins of the errors in forecasts for 2021. When concentrating on year-on-year changes, it is therefore especially important to distinguish between changes in the outlook for 2021 and base effects

Chart 10

Monetary Bulletin forecasts of oil and commodity prices for 2021[1]

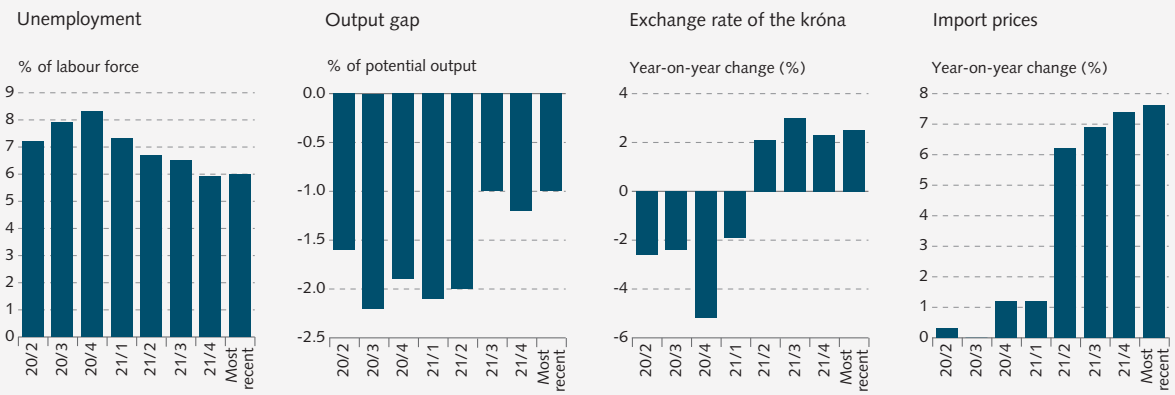


1. Forecasts of global oil and commodity prices as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the final outcome for the year.

Sources: Refinitiv Datastream, Central Bank of Iceland.

Chart 11

Monetary Bulletin forecasts of drivers of year-2021 inflation[1]



1. Forecasts of developments in selected macroeconomic variables in 2021, as published in MB 2020/2-2020/4 and 2021/1-2021/4, 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).

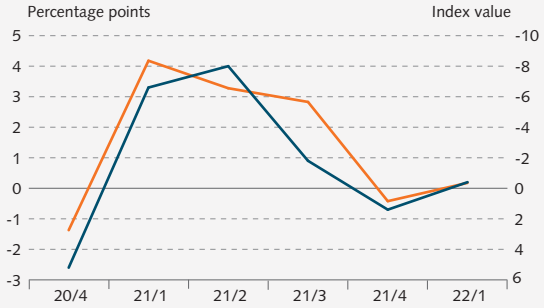
Sources: Statistics Iceland, Central Bank of Iceland.

stemming from the revision of figures for 2020. Furthermore, revisions of 2020 numbers also affected expectations of developments in 2021.

Inflation turned out higher in 2021 than was expected, largely because factor input prices, shipping costs, and commodity prices consistently rose in excess of forecasts. One of the main reasons for this was that demand, both domestic and global, turned out very strong at a time when manufacturing output contracted, contrary to what was expected when the pandemic first emerged.

Chart 12

Exchange rate forecast and scope of public health measures 2021[1]



1. Changes in exchange rate forecasts and the scope of the Government's public health measures between issues of Monetary Bulletin, based on the Oxford COVID-19 Stringency Index.

Sources: Oxford COVID-19 Government Response Tracker, Central Bank of Iceland.

Appendix

Forecast tables

Table 1 Key economic variables[1]

	2021	*2022*	*2023*	*2024*	*2025*
Private consumption	7.7 (7.6)	7.1 (7.2)	2.6 (2.0)	2.9 (2.8)	2.3
Public consumption	2.2 (1.8)	1.6 (1.7)	1.6 (1.5)	1.7 (1.6)	1.8
Gross capital formation	12.3 (13.6)	5.6 (9.1)	3.9 (-0.1)	2.3 (1.9)	1.7
Business investment	19.1 (23.1)	14.0 (11.9)	3.0 (-4.1)	-2.4 (-0.3)	1.5
Residential investment	-5.2 (-4.4)	-1.6 (5.9)	13.2 (14.3)	16.5 (7.8)	2.4
Public investment	18.7 (12.4)	-10.8 (4.2)	-5.4 (-6.0)	-3.3 (-0.3)	1.4
National expenditure	7.1 (7.2)	5.1 (6.3)	2.8 (1.2)	2.5 (2.3)	2.0
Exports of goods and services	12.7 (12.3)	18.4 (16.4)	3.0 (5.3)	3.3 (3.9)	3.6
Imports of goods and services	20.3 (20.3)	16.5 (16.8)	3.1 (3.6)	3.0 (3.8)	3.1
Gross domestic product (GDP)	4.4 (4.3)	5.6 (5.9)	2.8 (1.9)	2.6 (2.3)	2.2
GDP at current prices (ISK billion)	3,251 (3,233)	3,713 (3,706)	3,962 (3,972)	4,198 (4,209)	4,425
Contribution of net trade to GDP growth (percentage points)	-2.7 (-2.9)	0.5 (-0.5)	0.0 (0.7)	0.1 (0.0)	0.1
Exports of goods	7.3 (7.6)	1.2 (1.5)	-0.7 (-0.7)	1.8 (2.1)	2.5
Exports of services	21.7 (20.3)	46.3 (40.6)	8.0 (13.5)	4.8 (5.8)	4.8
Unemployment (LFS, % of labour force)[2]	6.0 (6.0)	3.8 (3.8)	3.8 (4.1)	4.0 (4.2)	4.3
Registered unemployment (% of labour force)[3]	7.7 (7.7)	3.8 (3.8)	3.5 (3.9)	3.7 (4.1)	3.9
Output gap (% of potential output)	-1.2 (-1.2)	1.1 (1.5)	1.1 (0.7)	0.5 (0.0)	0.3
Current account balance (% of GDP)	-1.6 (-2.9)	-2.1 (-3.7)	-2.7 (-3.4)	-3.2 (-3.3)	-3.4
Trade-weighted exchange rate index[4]	196.1 (196.1)	189.2 (188.7)	191.5 (189.8)	191.5 (189.7)	191.6
Inflation (consumer price index, CPI)	4.4 (4.4)	8.3 (8.8)	6.0 (6.7)	3.6 (3.4)	2.8
Inflation in main trading partners[5]	2.8 (2.8)	7.7 (7.1)	5.0 (3.8)	2.2 (1.9)	2.1
GDP growth in main trading partners[5]	5.7 (5.7)	3.1 (2.9)	0.6 (1.2)	1.6 (1.7)	2.0

1. Year-on-year change (%) unless otherwise specified (figures in parentheses are from the forecast in MB 2022/3).
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	
2021:4	4.8 (4.8)	5.9 (5.9)
2022:1	6.2 (6.2)	8.3 (8.3)
2022:2	7.9 (7.9)	13.7 (13.7)
2022:3	9.7 (10.4)	10.8 (13.7)
	Forecasted value	
2022:4	9.4 (10.8)	4.8 (7.5)
2023:1	8.5 (9.7)	4.9 (4.1)
2023:2	6.7 (7.9)	6.5 (6.4)
2023:3	4.6 (5.2)	2.3 (2.7)
2023:4	4.4 (4.3)	3.7 (4.2)
2024:1	3.9 (3.9)	3.0 (2.4)
2024:2	3.6 (3.5)	5.3 (4.6)
2024:3	3.4 (3.2)	1.7 (1.5)
2024:4	3.4 (3.0)	3.4 (3.5)
2025:1	3.1 (2.9)	2.1 (2.2)
2025:2	2.9 (2.9)	4.3 (4.4)
2025:3	2.7 (2.7)	1.0 (0.9)
2025:4	2.6	2.8

1. Figures in parentheses are from the forecast in MB 2022/3.

Sources: Statistics Iceland, Central Bank of Iceland.

MONETARY BULLETIN

2022 | 4