Box 3

The Central Bank's macroeconomic forecasts for 2020

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

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

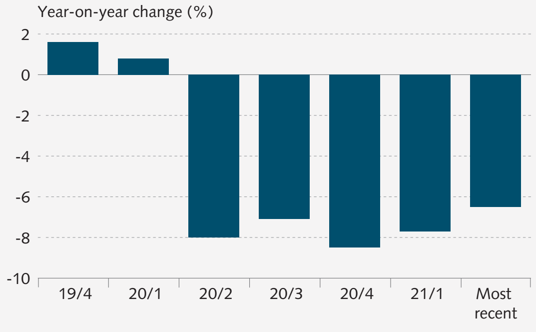
The forecasts prepared by the Bank before the pandemic proved overly optimistic, but as soon as the pandemic struck, the assessment of the economic outlook was revised, and the contraction forecast at that time has largely materialised. Inflation forecasts during the year proved overly optimistic, however,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

The GDP growth outlook changed radically after the pandemic struck

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

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

Monetary Bulletin GDP forecasts for 2020[1]



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

Sources: Statistics Iceland, Central Bank of Iceland.

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

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

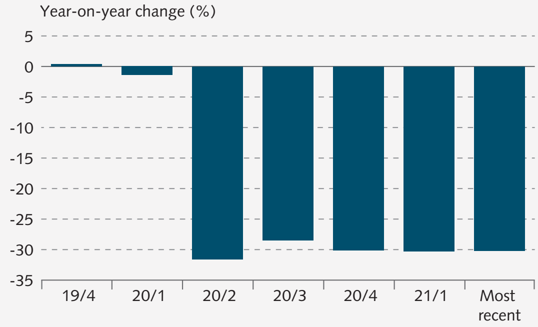
As the summer approached, however, the pandemic appeared to be tapering off, and public health measures were eased. The economic outlook improved marginally as a result, and the contraction projected for 2020 was revised to 7.1% in the Bank's August forecast. But the pandemic gained momentum again over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

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

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

Chart 2

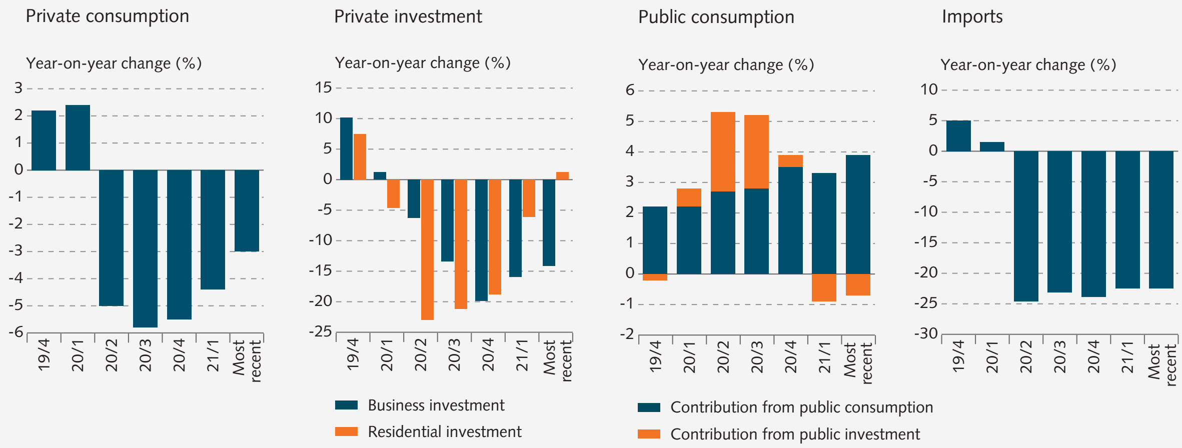
Monetary Bulletin export forecasts for 2020[1]



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

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 3
Monetary Bulletin forecasts of developments in selected macroeconomic variables 2020[1]



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

Sources: Statistics Iceland, Central Bank of Iceland.

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

… albeit offset by increased public sector activity

The worsening outlook for private sector demand was partly offset by significant revisions of public sector demand forecasts, which reflected the Government's proposed measures to mitigate the blow suffered by the households and businesses hit hardest by the pandemic. Forecasts of public consumption spending were revised upwards; however, Statistics Iceland's most recent figures indicate that those forecasts had underestimated how much public consumption actually increased in the wake of the pandemic. But forecasting growth in public investment proved more problematic. The Bank's May forecast took into account large-scale investments that had recently been announced by the Government. These included expediting large projects and significantly increasing public investment during the year. Based on this, the Bank forecast in May that public investment would grow by about one-fifth in 2020. These investment plans ended up being significantly delayed, however, and Statistics Iceland's most recent figures suggest that public investment actually contracted by more than 5% last year.

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

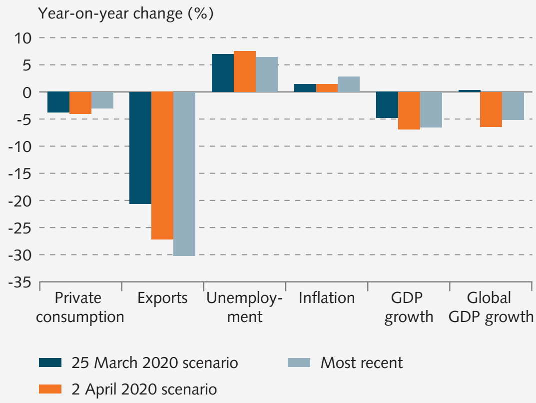
Soon after the pandemic reached Iceland, the Central Bank published two special scenario analyses of possible economic repercussions of the pandemic – the first one in late March 2020 and the second in early April.[1]

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

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

Chart 4

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



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

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

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

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

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

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

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

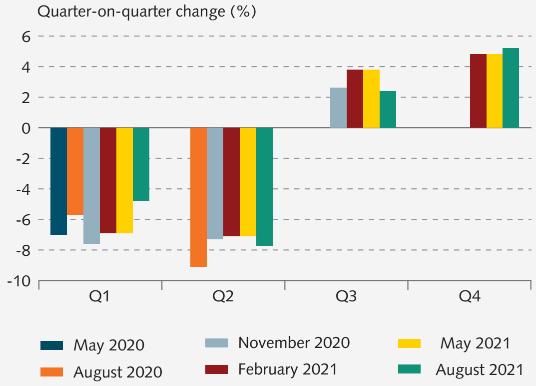
Strong shift of demand into the domestic economy, in line with forecasts

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

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

Chart 5

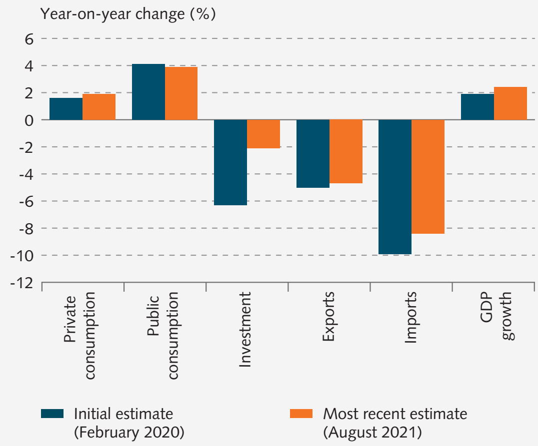
Statistics Iceland's assessments of quarterly GDP growth in 2020[1]



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

Chart 6

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

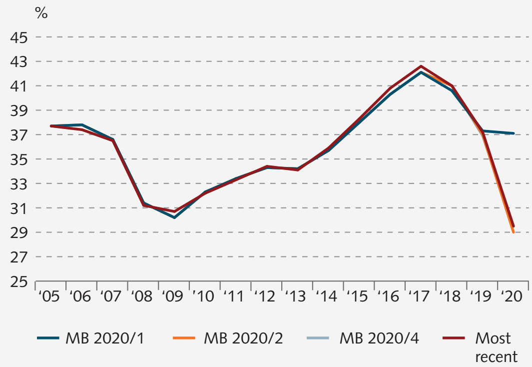


1. The chart shows a comparison between Statistics Iceland's initial estimate and most recent estimate of developments in selected macroeconomic variables in 2019.
Source: Statistics Iceland.

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

Chart 7

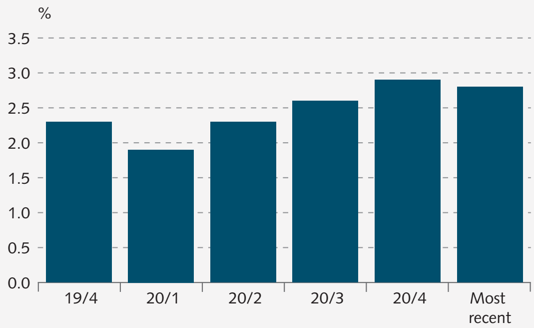
Import penetration ratio 2005-2020[1]



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

Chart 8

Monetary Bulletin inflation forecasts for 2020[1]



1. Forecasts of year-2020 inflation as published in MB 2019/4 and 2020/1-2020/4, together with the final outcome for the year.
Sources: Statistics Iceland, Central Bank of Iceland.

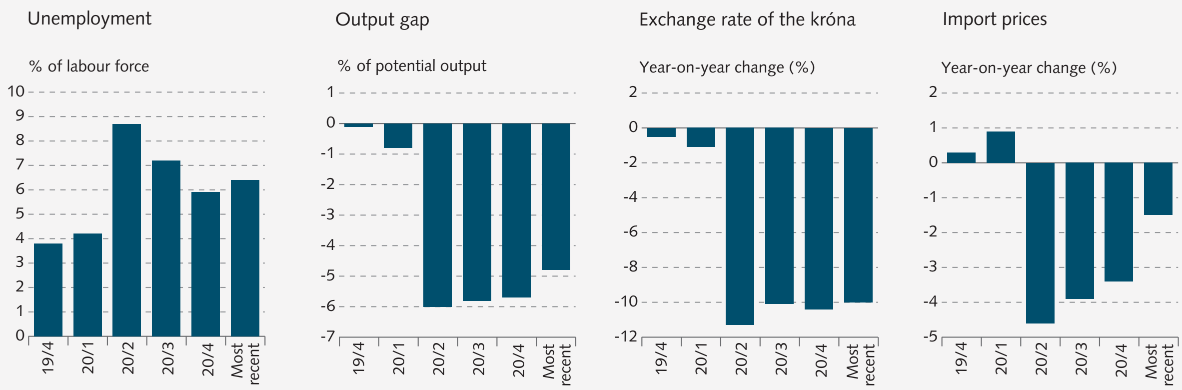
The pandemic led to higher and more persistent inflation than was originally forecast

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

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

Chart 9

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



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

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

Summary

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

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

Chart 10

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

1. Forecasts of global oil and commodity prices as published in MB 2019/4 and 2020/1-2020/4, together with the final outcome for the year.
Sources: Refinitiv Datastream, Central Bank of Iceland.

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