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.

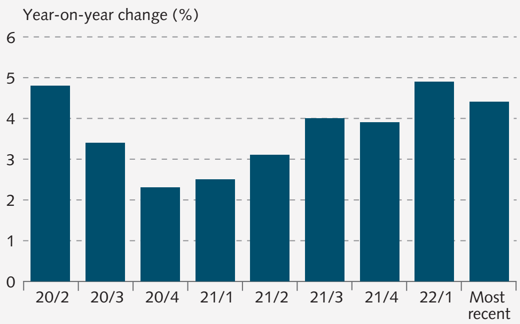
The Bank's first economic forecast for 2021 issued after the pandemic struck appeared in the May 2020 issue of *Monetary Bulletin*. The extraordinary circumstances then prevailing and the uncertainty that predominated made all forecasting profoundly difficult, as there were few precedents on which forecasts 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%.

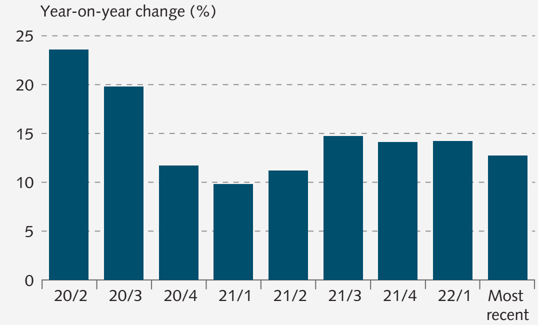
The February 2021 forecast of year-2021 tourist arrivals proved to be well in line with actual developments. The outlook for goods exports, on the other hand, turned out overly pessimistic. Demand for both aluminium and marine products picked up over the course of the year, and fish catches – capelin 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%.

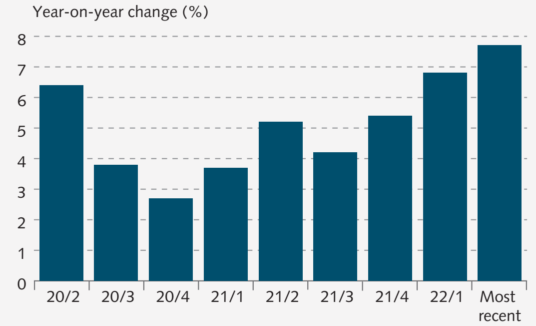
The pessimism in the Bank's November 2020 forecast proved exaggerated, however. The first signs of this came to the fore as soon as the February 2021 forecast. At that time, surveys suggested that executives' attitudes on staff recruitment had improved, partly because of positive news about expected 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]

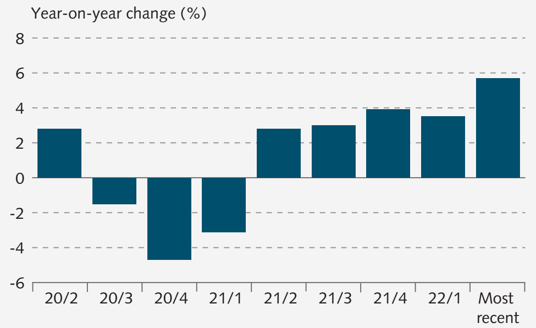


1. Forecasts of year-2021 growth in private consumption as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the most recent estimate from Statistics Iceland. The chart also shows the forecast from MB 2022/1, the Bank's last forecast before Statistics Iceland published its first estimate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

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4

Monetary Bulletin disposable income forecasts for 2021[1]

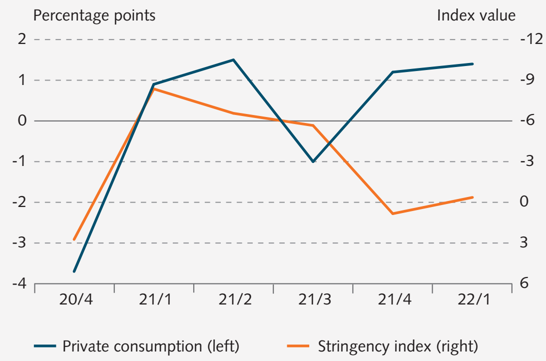


1. Forecasts of year-2021 growth in disposable income as published in MB 2020/2-2020/4 and 2021/1-2022/1, together with the most recent estimate.

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.

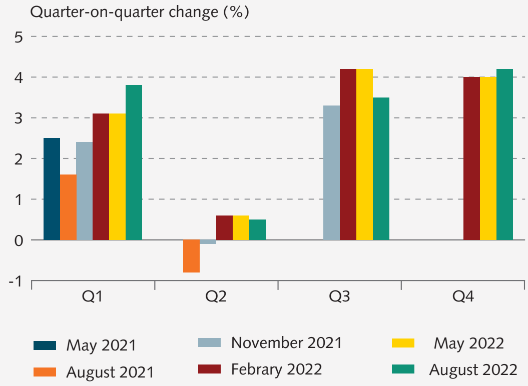
Forecasts of private investment were revised upwards as the economic outlook improved …

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 expedite 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 6

Estimates of quarterly private consumption growth 2021[1]

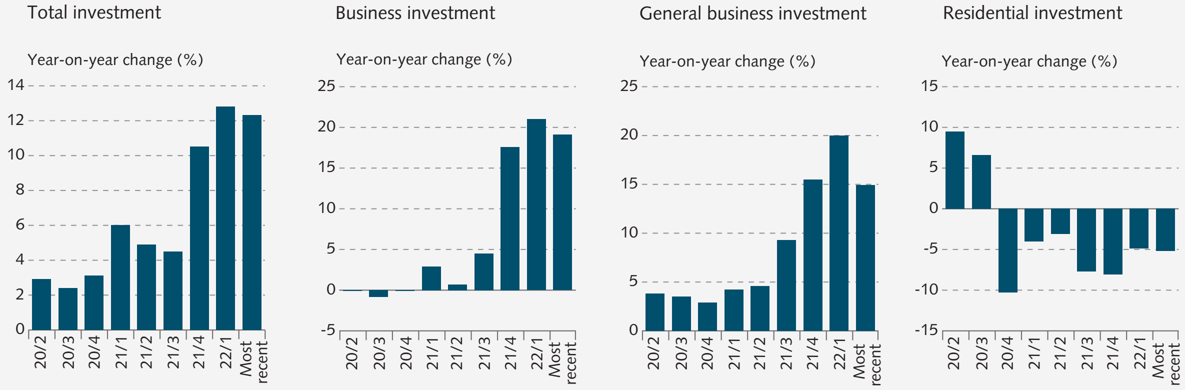


1. The chart shows various Statistics Iceland estimates of quarterly changes in seasonally adjusted private consumption in 2021, from the first publication of Q1/2021 data in May 2021 until the most recent publication in August 2022.

Source: Statistics Iceland.

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.

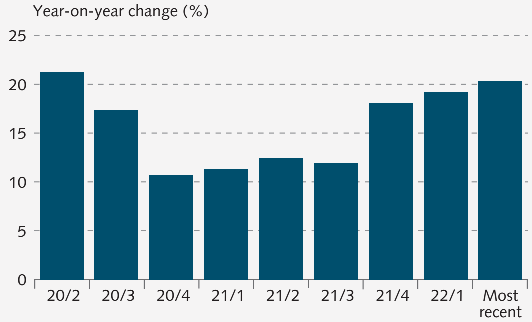
... but a change in methodology for measuring investments also played a role in the underestimation for 2021

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.

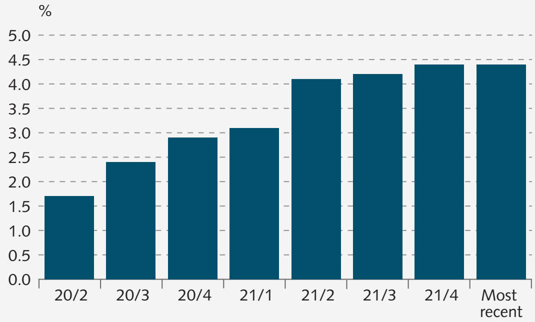
Inflation rose much higher than initially forecast

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.

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).

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 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

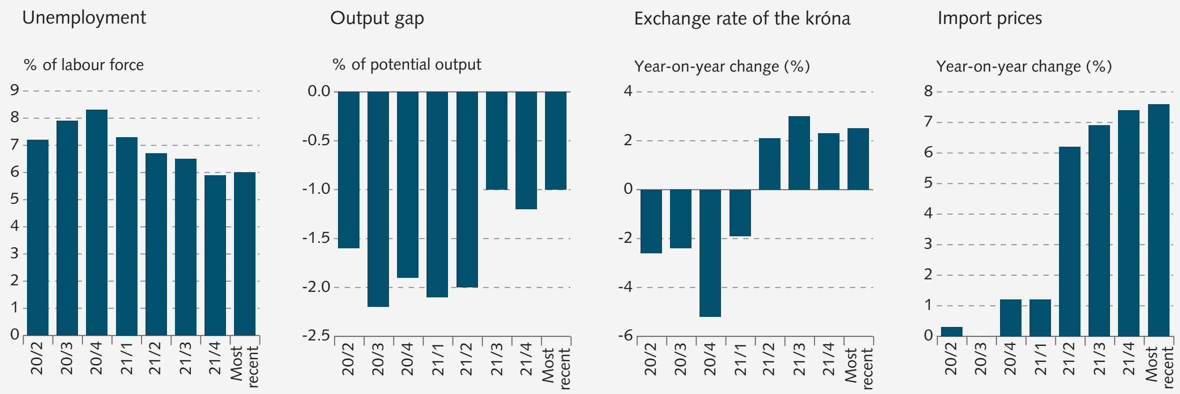
Chart 10

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]



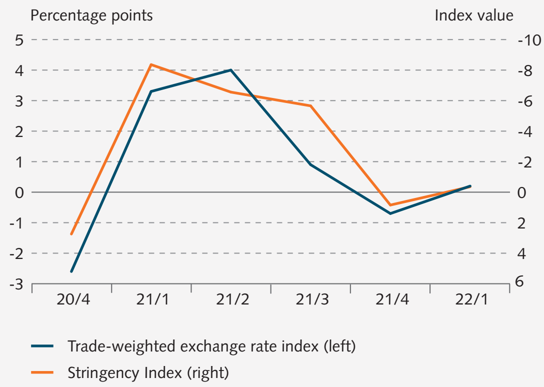
1. Forecasts of developments in selected macroeconomic variables in 2021, as published in MB 2020/2-2020/4 and 2021/1-2021/4, together with the final outcome for the year. The chart shows unemployment according to the Statistics Iceland labour force survey. Import prices are in foreign currencies (based 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.