

Box 4

The Central Bank's macroeconomic forecasts for 2019

As in previous years, the November issue of *Monetary Bulletin* includes a summary of the Bank's macroeconomic forecasting performance 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 2019 was characterised by significant economic turmoil, and the economic outlook changed markedly with the insolvency of airline WOW Air in March. The forecasts prepared by the Bank prior to the airline's collapse therefore turned out too optimistic. The forecasts prepared immediately thereafter proved overly pessimistic, however, mainly because the contraction in private sector spending was concentrated more on imported goods and services than had been assumed. Early in the year, the Bank's inflation forecasts were also somewhat too pessimistic, apparently because of an overestimation of the exchange rate pass-through from the depreciation of the króna to inflation and inflation expectations.

Major change in the GDP growth outlook post-WOW Air

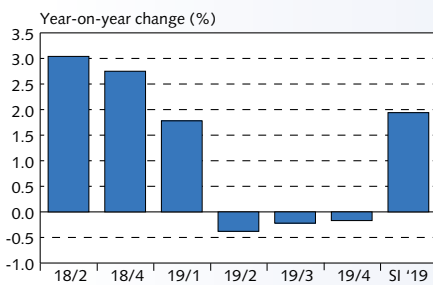
As Chart 1 shows, the Bank's forecasts well into 2018 assumed a GDP growth rate of 2¾-3% in 2019. The Bank grew gradually more pessimistic about the outlook, however, and by the February 2019 *Monetary Bulletin*, the GDP growth forecast had been revised down to 1.8%.¹ A major factor in the shift was the growing realisation that WOW Air was facing financial difficulties. By late 2018, the airline had already begun to scale down its activities and sell aircraft from its operations. It was still assumed that the company would manage to right itself and remain in operation, however. But as March 2019 advanced, it became ever clearer that it would not survive. Added to this were Icelandair's difficulties due to the grounding of its new Boeing 737 MAX jets, which were to have been used for nearly a third of the airline's summer 2019 flights. Projections for exports in 2019 as a whole were therefore revised downwards in the Bank's February forecast, and again in May, which was the Bank's first forecast after WOW Air's insolvency in late March. Instead of continuing to grow, exports were expected to contract by nearly 4% during the year. In the main, this forecast has been borne out (Chart 2).

As a result, the Bank revised its GDP growth forecast even further downwards in its May forecast, to -0.4%. In the last forecast of the year, a contraction was still expected for 2019 as a whole, but by that time national accounts data for H1/2019 were available. In February 2020, however, when Statistics Iceland published its first estimate of 2019 GDP growth, it became apparent that the Bank's forecasts just after the collapse of WOW Air were overly pessimistic, as GDP growth for the year had actually measured 1.9%, broadly in line with the Bank's February forecast.

The outlook for domestic demand growth deteriorated sharply ...

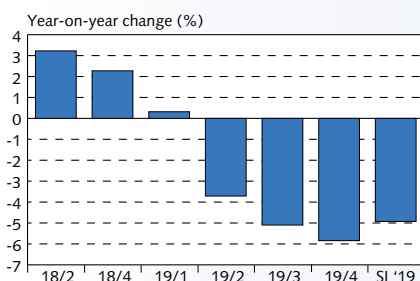
The worsening outlook for exports also significantly affected the Bank's forecasts of developments in domestic demand (Chart 3). The outlook for private consumption growth was revised sharply downwards, and beginning with the May 2019 forecast the growth rate was projected at 1½% instead of 4%, as in the February forecast. This revised forecast has broadly materialised. In May it was assumed that business investment would contract by nearly 7% in 2019, but as the year progressed, it became clear that this was an

Chart 1
Monetary Bulletin GDP growth forecasts for 2019¹



1. MB 2018/2, 2018/4, and 2019/1-2019/4 forecasts for 2019 GDP growth, together with Statistics Iceland's most recent estimate of 2019 GDP growth.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2
Monetary Bulletin export forecasts for 2019¹

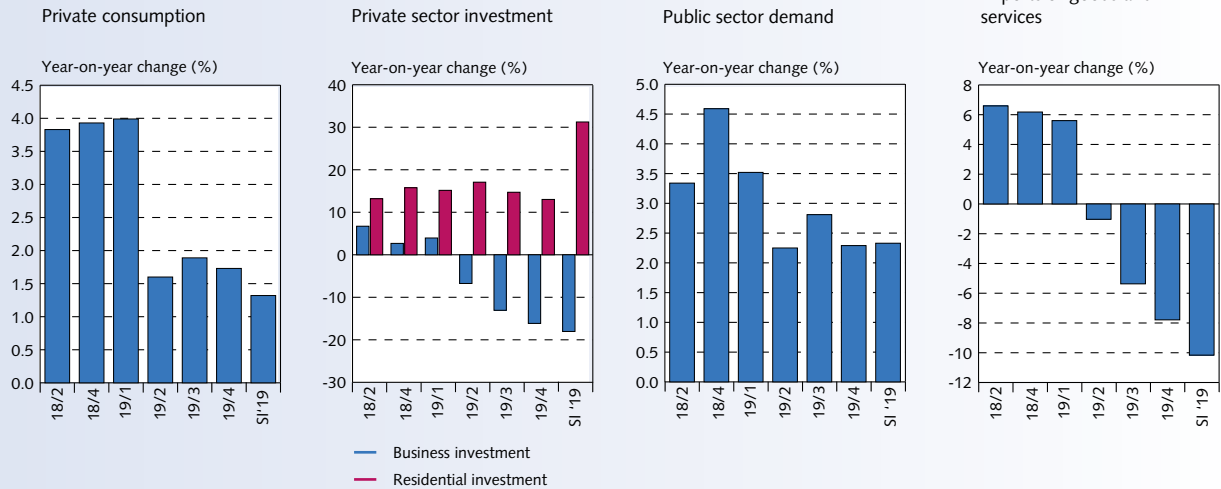


1. MB 2018/2, 2018/4, and 2019/1-2019/4 forecasts for 2019 GDP growth, together with Statistics Iceland's most recent estimate of 2019 export growth.
Sources: Statistics Iceland, Central Bank of Iceland.

1. In February 2019, when the Bank's forecast for *Monetary Bulletin* 2019/1 was prepared, national accounts data from Statistics Iceland were available only through Q3/2018.

Chart 3

Monetary Bulletin forecasts of selected macroeconomic variables for 2019¹



1. MB 2018/2, 2018/4, and 2019/1-2019/4 forecasts for 2019 selected macroeconomic variables, together with Statistics Iceland's most recent estimate for 2019. Public sector demand is the sum of public consumption and public investment.
Sources: Statistics Iceland, Central Bank of Iceland.

underestimation. The actual contraction turned out much larger, or 18%. In addition, forecasts of public sector demand were revised downwards in May, to just over 2% growth during the year, which has been borne out

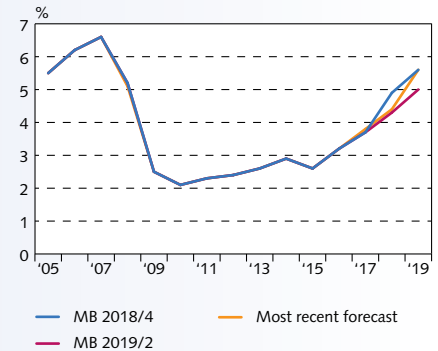
... but owing mainly to the shift in demand towards domestic production, GDP growth turned out stronger than initially forecast

As is mentioned above, the Bank's forecast of the post-WOW Air contraction in GDP proved overly pessimistic. In the end, GDP growth for the year measured 1.9%, close to the Bank's February forecast. The deviation is due in part to Statistics Iceland's revision of 2018 GDP growth figures. In February 2020, Statistics Iceland revised year-2018 GDP growth downwards by 1 percentage point, which inevitably affected measured 2019 GDP growth by a similar amount. Furthermore, growth in residential investment turned out considerably stronger than forecast: In May, the Bank forecast an increase of 17%, but growth turned out nearly twice as strong, according to Statistics Iceland's final figures (Chart 3). As Chart 4 indicates, the May forecast assumed that the residential investment-to-GDP ratio would rise marginally during the year but remain below the level that had been forecast before the economic outlook deteriorated. Ultimately, the ratio rose more than expected, to 5½%, as had been forecast in *Monetary Bulletin* 2018/4.

However, the main reason the Bank's forecasts proved too pessimistic after WOW Air failed is that the Bank underestimated how much impact the shock would have on goods and services imports. Before WOW Air failed, imports were expected to grow by just over 5% during the year, but afterwards, the forecast was revised to provide for a contraction of 1% (Chart 3). The forecast was repeatedly lowered as the year progressed, and the contraction ended up measuring over 10%. The expenditure shift of demand towards domestic production was therefore significantly underestimated. This can be seen clearly in Chart 5, which shows that according to the forecast in *Monetary Bulletin* 2018/4, the ratio of imports to domestic demand would rise slightly in 2019, but after WOW Air collapsed the projection was revised to a year-on-year decline of just under 1 percentage

Chart 4

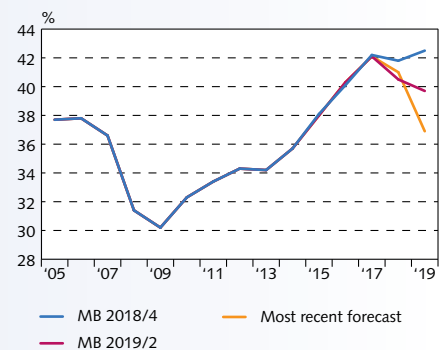
Monetary Bulletin forecasts of the residential investment-to-GDP ratio for 2019¹



1. MB 2018/4 and 2019/2 forecasts of the 2019 residential investment-to-GDP ratio, together with Statistics Iceland's most recent estimate.
Sources: Statistics Iceland, Central Bank of Iceland.

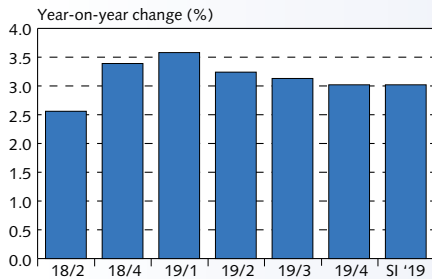
Chart 5

Monetary Bulletin forecasts of import penetration for 2019¹



1. MB 2018/4 and 2019/2 forecasts of import penetration for 2019 (at 2005 prices), together with Statistics Iceland's most recent estimate.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 6
Monetary Bulletin inflation forecasts for 2019¹



1. MB 2018/2, 2018/4, and 2019/1-2019/4 forecasts of year-2019 inflation, together with observed inflation for the year.
Sources: Statistics Iceland, Central Bank of Iceland.

point. In fact, imports contracted considerably more than domestic demand, and import penetration fell by 4 percentage points. The Bank's forecasts following the collapse of the airline therefore underestimated the extent to which the contraction in private sector spending would affect imports, and this underestimation contributed significantly to the overly pessimistic GDP growth forecast.

Inflation rose less in 2019 than was expected following the depreciation of the króna

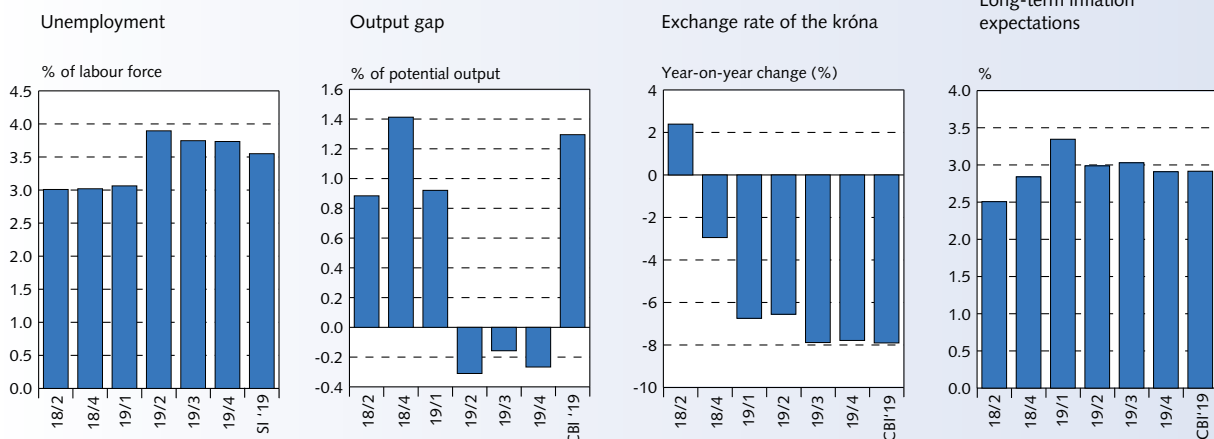
Chart 6 shows how the Bank's forecasts of 2019 inflation evolved over time. In mid-2018, the Bank forecast that inflation would average 2.5% during 2019, but by November the inflation outlook had deteriorated, as the króna had depreciated during the autumn, driven by growing concerns about both WOW Air's position and the outcome of the round of wage negotiations that was just beginning. As 2019 progressed, however, the Bank's forecasts of average inflation for the year were gradually revised downwards, to close to 3%, which proved to be the actual measurement.

The Bank's exchange rate forecast from May was largely borne out, as can be seen in Chart 7. Unemployment rose somewhat less, however, and the economic slack forecast in spring 2019 never materialised, as GDP growth proved more robust than expected, as is discussed above. In spite of this, the Bank's forecast of average inflation for the year was slightly too pessimistic, and the exchange rate pass-through from the depreciation of the króna proved to have been overestimated. One possible reason for this may be that long-term inflation expectations rose less than feared in the wake of the depreciation (Chart 7). The February forecast assumed that the ten-year breakeven inflation rate in the bond market would average 3.4% during the year, therefore rising by ½ a percentage point relative to the November forecast; however, the breakeven rate remained unchanged. Inflation expectations proved to be more firmly anchored to the target than the Bank dared hope.

Tourism shocks the main reason for the economic setback in 2019

The discussion above shows clearly how the economic outlook for 2019 changed when WOW Air's difficulties escalated, and particularly after the company failed in late March of that year. To estimate the magnitude of that impact, it is possible to use simulations with

Chart 7
Monetary Bulletin forecasts of determinants of inflation for 2019¹



1. MB 2018/2, 2018/4, and 2019/1-2019/4 forecasts of selected macroeconomic variables for 2019, together with the final results for the year.
Sources: Statistics Iceland, Central Bank of Iceland.

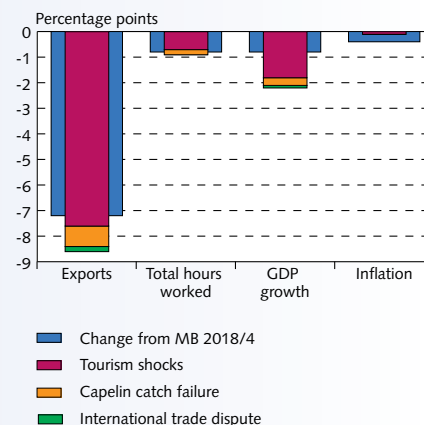
the Bank's macroeconomic model and compare forecasts based on various assumptions about the airline's activities. The forecast from November 2018, which appeared in *Monetary Bulletin* 2018/4, is used, as it was prepared before any significant revisions were made to assumptions about the company's position and activities. The November forecast assumed that exports would increase by 2.3% year-on-year in 2019, and that GDP growth would measure 2.7%. In fact, exports contracted by 4.9%, which represents a 7.2 percentage point deviation from the November forecast. By the same token, GDP growth turned out 0.8 percentage points weaker than forecast, or 1.9%. As Chart 8 illustrates, the recasting of the November forecast with changed assumptions about the airline's activities and the impact its collapse had on tourism leads to a 7.6 percentage point revision of growth in goods and services exports and a 1.8 percentage point revision of GDP growth for the year. The impact of WOW Air's collapse on export growth was therefore similar to the deviation in the Bank's November 2018 export forecast, whereas the impact on GDP growth was somewhat stronger. The revision of developments in total hours worked during the year stems mostly from the shock to the tourism industry, but the adjustment of demand and the exchange rate due to the export shock appears to explain only to a limited extent why inflation turned out lower than forecast.

WOW Air's failure and the shocks to the tourism industry were not the only negative shocks hitting the domestic economy in 2019, however. To compound matters, no capelin quota was issued for the year (for further discussion, see Chapter I in *Monetary Bulletin* 2019/2), and the trade dispute between the US and China cut into international trade and GDP growth worldwide (for further discussion, see Chapter I in *Monetary Bulletin* 2019/4). As Chart 8 indicates, these two shocks exacerbated the contraction in exports, increasing it by a further 1 percentage point, and lowering GDP growth for the year by ½ a percentage point. On the whole, these two simulations indicate a setback of just over 2 percentage points in year-2019 GDP growth. The actual reduction was less than half that amount, however, or 0.8 percentage points.

Summary

Although export shocks, particularly in the tourism sector, explain the lion's share of the errors in the Bank's forecasts for 2019, they ultimately affected the economy less than could have been expected given the size of the shocks themselves and the economy's historical adjustment to shocks of this type. The factor that appears to go furthest in explaining why the contraction was less pronounced than could have been expected was the shift in demand towards domestic goods and services, which was stronger than historical evidence had suggested it would be. The rise in inflation also turned out smaller than had been forecast following the depreciation of the króna, even though the slack in the economy was initially overestimated. It appears that this can be attributed to the fact that long-term inflation expectations did not rise as much as was initially feared, which indicates that expectations are more firmly anchored to the Bank's inflation target than before.

Chart 8
Forecast errors for 2019 and contribution of selected shocks¹



1. The chart shows forecast errors for selected macroeconomic variables for 2019, according to the MB 2018/4 forecast, and the contribution of selected shocks occurring in 2019.

Source: Central Bank of Iceland.