Box 1 Forecasting errors in Central Bank and other inflation forecasts

The need for assessing the inflation outlook has increased enormously over the past decade and a growing number of analysts are forecasting changes in the CPI. These forecasts vary in reliability and quality. Comparison and assessment of their statistical significance is necessary, both for the sake of the forecasters themselves and others who monitor the economy or use the forecasts in various ways. The following is an assessment and comparison between the Central Bank of Iceland's annual and quarterly forecasts and corresponding forecasts from other sources. and 0.4% in ECF newsletter. Few conclusions can be drawn about Íslandsbanki-FBA from the two annual fore-casts it has produced.

Table 2 compares quarterly forecasts by the Central Bank, ECF newsletter and Íslandsbanki-FBA. ECF newsletter does not publish quarterly forecasts, only the monthly values of the index three months in advance, which are recalculated here as quarterly forecasts. The same approach was taken in the first quarterly forecasts by Íslandsbanki and FBA, but after their merger they have

Table 1 Forecasts for annual CPI inflation 1994-2000¹

%	2000	1999	1998	1997	1996	1995	1994
Central Bank of Iceland	5.0	1.9	2.6	2.1	2.4	2.5	1.4
National Economic Institute	3.9	2.5	2.7	2.5	2.5	2.5	2.5
ECF daily newsletter	5.0	2.3	3.2	2.3	2.9	3.0	1.3
Íslandsbanki-FBA ²	4.9	1.7					
Realised inflation	5.0	3.4	1.7	1.8	2.3	1.7	1.5

1. Change in consumer price index between annual averages. Forecaster's latest forecast in the relevant year is shown in each case.

2. Prior to Íslandsbanki-FBA merger in 2000, the Íslandsbanki forecast is shown.

Evaluations of inflation forecasts focus on their bias and root mean square error (RMSE). The bias shows the forecasts' mean deviation from actual inflation and thus whether inflation is being systematically over- or underpredicted. The root mean square error measures how far the forecast value differs on average from the true value.

Table 1 presents a survey of annual inflation forecasts by the Central Bank of Iceland and other analysts, together with actual inflation figures for the period 1994-2000, based on changes in annual averages of the CPI. Up to and including 1998 there was a tendency to overpredict inflation, which was reversed in 1999 when all analysts underpredicted inflation. All forecasts for 2000 turned out to be very close to the actual rate of inflation during the period, except at the National Economic Institute which forecast considerably lower inflation for the year. The Central Bank's forecasts over this period have both the lowest RMSE and smallest bias among all forecasters. The RMSE is 0.7% in Central Bank forecasts but 0.9% at both the NEI and the ECF daily newsletter (Gjaldeyrismál). The Central Bank's mean bias is 0.1% compared with 0.2% at the NEI published proper quarterly forecasts. Three periods of varying duration are examined, the shortest of which covers only 1999-2000 to allow the Íslandsbanki-FBA forecasts to

Table 2 Comparison of quarterly forecasts

	Root mean	Average	
Central Bank	square error (%)	bias (%)	
1995:1-2000:4	0.42	0.06	
1997:1-2000:4	0.47	0.06	
1999:1-2000:4	0.54	0.00	
ECF daily newsletter			
1995:1-2000:4	0.45	0.26	
1997:1-2000:4	0.45	0.27	
1999:1-2000:4	0.39	0.12	
Íslandsbanki-FBA ¹			
1999:1-2000:4	0.67	0.03	

1. Prior to Íslandsbanki-FBA merger in 2000, the FBA forecast is shown.

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be included. It makes little difference whether forecasts by FBA are used (as in the table) or by Íslandsbanki before the two banks merged.

Looking at the Central Bank forecasts, the mean bias is not significantly different from zero, and the RMSE is around or below the standard error of the estimated model, or around ½%. ECF newsletter appears to have systematically overpredicted inflation, in particular during the first half of the period, although its RMSE is similar to that of the Central Bank. RMSE of ECF newsletter's forecasting error is lowest for 1999-2000, although it would be unwise to draw sweeping conclusions about the very short period involved. Like the Central Bank, Íslandsbanki-FBA has a mean bias that is not significantly different from zero, but its RMSE is highest among the forecasters for this period. On the whole the analysts considered here did fairly well in forecasting inflation in recent years. Periods often occur when forecasters go astray, however, such as Q3 last year when they all overpredicted inflation by two standard deviations or more.

This survey reveals that the Central Bank and other analysts overpredicted inflation during the first half of the period under examination, which is described in the Central Bank's 1998 Autumn Report. The situation has changed over the past two years. For all of 1999 and the first half of 2000, the Central Bank forecast a lower rate of inflation than turned out to be the case, and so did Íslandsbanki-FBA. Part of the inflation that the Central Bank forecast for 1998 does not appear to have emerged until the following year. In the second half of 2000, the inflation forecasts by all analysts were too high.