

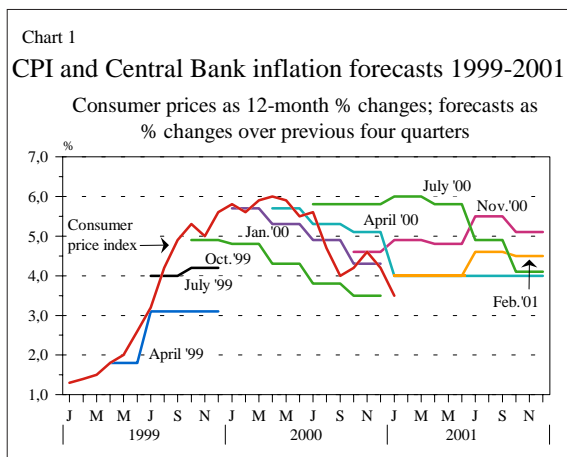
Economic and monetary developments and prospects¹

Outlook on inflation unchanged in 2001 despite weaker króna

Inflation has continued to slow down despite a considerable depreciation of the króna in recent months. The Central Bank now forecasts similar inflation over 2001 to its November forecast. Lower inflation recently is thus counterbalancing the impact of the weaker króna. Consequently, inflation will increase somewhat as the year progresses. Assuming an unchanged exchange rate, the Bank then expects inflation to decelerate in 2002 to measure 2.7% over the year. This is based on the assumption that the economy will cool as the year progresses. Considerable uncertainty surrounds this forecast. The depreciation could have less impact, causing lower inflation in the near future. Offsetting this is the possibility that pressure which has built up in the goods and labour markets could fuel inflation further. It is therefore crucial for the economy to cool down in the near term, although there are no very clear signs that this process has begun. Growth of turnover is slowing down in some areas, but elsewhere it is still running high. Bank credit is still expanding strongly and the most recent data indicate greater pressure in the labour market than at any previous time in the present upswing. For these reasons the Central Bank still does not consider that the time is ripe to ease the monetary stance. However, it remains ready to respond if more unequivocal signs of a cooling in the economy emerge.

Inflation turned out below the autumn forecast

Despite a substantial depreciation of the króna in the past few months, inflation turned out lower than had been expected in the autumn. The twelve-month rise in the CPI continued to drop, as shown in Chart 1, to 3.5% in January. Measured in these terms, inflation has slowed considerably since last spring, when it peaked at 6%. It has also decreased in Iceland as measured by the European Union's harmonised CPI, which is well suited to international comparisons. The EU index mainly differs from the Statistics Iceland CPI in that it does not include imputed rent from own housing. In December, the harmonised CPI showed a twelve-month rise of 3.7% in Iceland compared with 2.4% among main trading countries. The differential has remained roughly the same since the autumn, but was greater in the earlier part of the



year. Five EU countries have the same inflation as Iceland, or higher, measured in these terms.

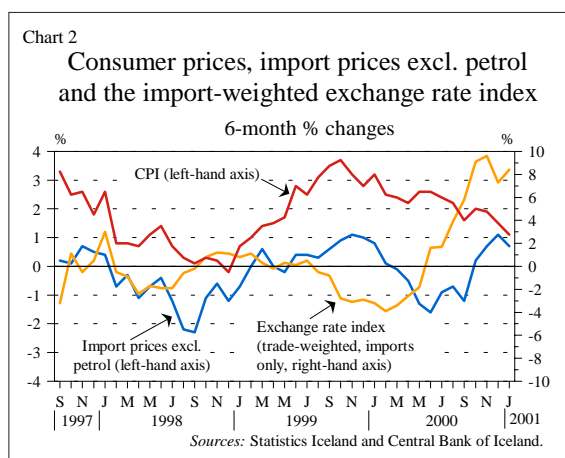
A lower rate of inflation than had been forecast is partly to be explained by temporary factors such as

1. This article uses data available on January 26, 2001.

the fall in petrol prices and a significant drop in real estate taxes in regional Iceland, which was included in its entirety in the January CPI measurement. Retail petrol prices fell by almost 5% from the beginning of October 2000 to January 2001. Without this, the CPI would have risen by over 50% more during the period. There is no prospect for this trend to continue in the near future, given that oil and petrol prices in world markets have risen somewhat since the beginning of this year.

Although real estate prices rose in Reykjavík by 14% and in regional Iceland by 4%-12% during 2000, the January CPI recorded a reduction of 3.7% in real estate taxes. This was caused by a legislative amendment this autumn whereby real estate taxes in regional parts of the country now use a tax base which reflects local real estate prices (instead of those in Reykjavík, as before). In many places the resulting reduction amounted to as much as 50% and easily outweighed the rise in real estate prices during the year. A temporary impact is therefore involved here which distorts the underlying inflation picture. Without these structural changes, the index would have risen in line with forecasts and expectations, by 0.4% in January instead of by 0.1%.

Nonetheless, petrol and real estate taxes do not entirely explain the lower rate of inflation than the Central Bank had forecast at the beginning of November. The Bank forecast a 1.5% rise in the price level between Q3 and Q4 of 2000 then, but the increase turned out to be 1.1%. Had petrol prices and the regional property tax base not gone down, the CPI could have been expected to rise by 1.3%. Such an adjustment leaves a forecasting error of only 0.2%, which is well within the margin of statistical error (see box on inflation forecasting errors). There is strong evidence that this overprediction originates in a lower price impact from the exchange rate depreciation than might have been expected on the basis of historical experience. Chart 2 shows that the short-term correlation in the CPI between the price of foreign currency and the development of import prices (excluding petrol) has not been particularly strong in the most recent years. The reduction in prices of imports excluding foods, beverages, petrol and motor vehicles in the three months to January (see Table 1) is largely the result of January sales. This factor appears to cause an even greater reduction than at the same time last year.



In 1999, increases in housing prices and petrol were important contributing factors to the rise in consumer prices. Between them, these two factors

Table 1 Analysis of CPI inflation by origin 1999-2000

%	Change in index in the previous		Relative contribution to increase in CPI	
	3 mo. ¹	12 mo.	2000	1999
(1) Domestic agricultural products less vegetables ...	4.6	3.4	6.2	3.2
(2) Vegetables	-32.6	0.3	0.1	0.4
(3) Other domestic food and beverages	1.7	1.6	3.0	8.2
(4) Other domestic goods	12.5	3.6	4.6	2.5
(5) Imported food and beverages	8.8	-0.8	-0.7	4.1
(6) Cars and spare parts	4.2	0.7	2.1	2.1
(7) Petrol	-18.4	5.1	6.8	16.2
(8) Other imported goods.....	-5.1	-0.8	-3.3	-1.2
(9) Alcohol and tobacco.....	6.6	3.2	2.9	0.9
(10) Housing	4.6	9.4	35.3	31.1
(11) Public services.....	4.1	2.1	7.6	10.4
(12) Other services	4.5	6.4	35.4	21.9
Total	1.8	3.5	100.0	100.0
Domestic goods (1-4)	3.2	2.7	14.0	14.3
Agricultural products and vegetables (1-2).....	-0.9	3.0	6.3	3.6
Domestic goods less agricultural products and vegetables (3-4) ..	6.0	2.4	7.7	10.7
Imported goods, total (5-9)	-2.2	0.7	7.8	22.2

1. Changes at an annualised rate. Source: Statistics Iceland.

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 forecasts 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 under-predicted. 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 under-predicted 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 square error (%)	Average bias (%)
<i>Central Bank</i>		
1995:1-2000:4	0.42	0.06
1997:1-2000:4	0.47	0.06
1999:1-2000:4	0.54	0.00
<i>ECF daily newsletter</i>		
1995:1-2000:4	0.45	0.26
1997:1-2000:4	0.45	0.27
1999:1-2000:4	0.39	0.12
<i>Íslandsbanki-FBA¹</i>		
1999:1-2000:4	0.67	0.03

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

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.

accounted for almost half the rise in the CPI during the year, as Table 1 shows. Last year petrol played a much smaller role and during the final quarter the drop in its price directly contributed to lower inflation than otherwise would have been the case. The housing component weighed heavily last year, however, explaining more than one-third of the rise in consumer prices. Nonetheless, the rise in the price of private services was an equally important factor and has contributed almost half of the rise in consumer prices over the past three months. Services are labour-intensive and the rise in their prices reflects strong wage increases in recent times.

The Central Bank has now overpredicted inflation for two quarters in succession. However, the forecasting error is much lower than in Q3 and within the margin of statistical error, even without taking into account special factors such as the lower regional property tax base. Recent overpredictions follow underpredictions for seven quarters in a row. Errors in inflation forecasts by the Central Bank of Iceland and other analysts are discussed in a separate box. The survey there reveals that, over the long term, the Bank's forecasts have turned out to be fairly accurate. The bias is negligible and the root mean square error is lower than the standard deviation in the estimated statistical models. Measured in these terms, the Bank's forecasts also turn out to be slightly better than those of others.

Has the relation between exchange rate and prices changed?

Exchange rate and price developments in recent months prompt the question whether the relationship between them has fundamentally changed. There are many indications that the exchange rate impact is weaker than it used to be, a phenomena that has been noted in many countries in recent years. Weaker exchange rate pass-through could result from special, temporary factors, from longer lags between changes in the exchange rate and prices, or from changes in the long-term relation between the exchange rate and prices. The light that statistical analysis sheds on this topic is discussed in a separate box. It appears that the short-term relationship between the exchange rate and prices has weakened considerably in recent years, but the long-term relationship is still intact. Such studies, however, cannot answer the question as to whether the relation has changed over the past one or two years, since a longer timespan is needed before data can reveal this. Be that as it may, the findings suggest that the impact of a lower exchange rate will eventually be to generate higher inflation for a while, but that its timing is highly uncertain.

Various theories can be proposed as to why the relationship between the exchange rate and prices may have changed. Firstly, more fluctuations in the exchange rate are likely to cause uncertainty about their permanence. They therefore need to persist for longer in order to have an impact on prices of goods

and services. If this theory is correct, the inflationary impact of the depreciation can be expected to appear in the next few months, provided that the exchange rate does not begin to appreciate sharply. This means that the exchange rate impact ought to be delivered in the long run if nothing else changes. A second viewpoint is that a higher degree of competition can make it more difficult for companies to pass on the impact of a depreciation. In this case, the markup might be lowered permanently if the level of competition increases also permanently. On the other hand, it is doubtful whether company markups offer them the scope to absorb in full a percentage depreciation which has run into double digits. Thirdly, it is conceivable that the short-term relation between the exchange rate and prices (and in fact also between wages and prices) is weakened under low inflation. One reason is that some expense is involved in changing prices. This cost weighs relatively heavier when warranted individual price increases are smaller, which may be expected to be more commonly the case when the general rate of inflation is lower.

Statistical and theoretical analysis therefore give the conclusion that there are no firm grounds for claiming that an impact of a depreciation in the exchange rate on inflation will not eventually emerge. This is not to say that it will appear in full, however. Many countries' experience of depreciations in the last decade was precisely that the impact was felt later and to a lesser extent than could have been expected. Nonetheless, it is worth bearing in mind that many of these countries had a slack in their economies, which counteracted the exchange rate impact, while in Iceland, so far at least, the goods and labour markets are in a state of excess demand.

Inflation forecast: little change from October forecast for 2001

The current inflation forecast is affected by the opposing forces of unexpectedly low inflation in recent months and even further depreciation of the króna. Furthermore, the Central Bank has reviewed all its main assumptions on the basis of latest developments, the National Economic Institute's forecast for economic growth and employment, and forecasts by international institutions for external trade price trends. A summary of the main assumptions behind the inflation forecast is given in Table 3. In making

Table 2 Inflation forecast of the Central Bank

	<i>Quarterly changes</i>				
	<i>Percentage change from previous quarter (%)</i>	<i>Standard deviation</i>	<i>Annualised quarterly change (%)</i>	<i>Change on same quarter of previous year (%)</i>	
2000:1	1.1		196.0	4.3	5.8
2000:2	1.4		198.8	5.9	5.7
2000:3	0.5		199.8	2.1	4.5
2000:4	1.1		202.1	4.6	4.2
2001:1	0.9	0.5	203.8	3.5	4.0
2001:2	1.4	0.5	206.7	5.9	4.0
2001:3	1.1	0.5	209.0	4.5	4.6
2001:4	1.0	0.5	211.0	4.0	4.5

<i>Year</i>	<i>Annual changes (%)</i>	
	<i>Year on year</i>	<i>Within year</i>
1997	1.8	2.2
1998	1.7	1.3
1999	3.4	5.8
2000	5.0	3.5
2001	4.3	4.6
2002	3.2	2.7

Shaded area indicates forecast.

the forecast it was not considered feasible to rule out that the impact of the depreciation would eventually be transmitted to prices, but the exchange rate is assumed to remain unchanged from January 26. This rate is more than 3½% lower than assumed in the Bank's inflation forecast in November.

The forecast now is for somewhat lower inflation between 2000 and 2001 than was assumed in November, or 4.3% compared with 5.1% then. The forecast from the beginning to the end of 2001, however, remains the same at 4.6%. This is based on the

Table 3 Main assumptions of the inflation forecast

<i>Percent change over year</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>
Contractual wages	5.3	3.8	3.7
Wage drift	2.0	1.5	1.0
Domestic productivity	2.0	2.0	1.5
Import prices in foreign currency terms	4.0	1.0	1.0

Box 2 The relation between the exchange rate, wages and prices

The Central Bank's inflation forecasts have been based on models which are broadly determined by the relation between prices and wages, import prices and the exchange rate. Models are estimated using statistical techniques. It was common to use models in which inflation was solely explained by a distributed lag of changes in wages and import prices. Closer consistency with economic theory is obtained by also including the long-run equilibrium of these variables, in which case productivity developments also have to be taken into account. In recent years the Bank has also employed models which incorporate the impact of demand pressure in the domestic goods and labour markets.

Evaluation of parameters in long-run relations is sensitive to inherent measurement biases, and the difficulty of making exact measurements of general price changes over the long run is familiar from index number theory. When the Bank's models are estimated using data extending back to the 1960s or 1970s, they appear to be statistically well determined with stable parameters. However, the models based on both long-run relations and changes fitted slightly but significantly better than models that only incorporated changes.

Prior to 1990 the models explained a large proportion of price changes. After 1990 there was a marked slowdown in wage and price rises, and the exchange rate stabilised. No clear signs emerged that the relations had changed but the standard deviation of the inflation models fell.

More than a decade has now passed since inflation in Iceland reached a similar level to that which is common among nations with comparable standards of living. This

could be enough to evaluate the parameters in a simple model of quarterly inflation values without going further back in time. However, measurements from periods of little change contain less information about the economic relations than periods of greater fluctuations, and ten years is a short period for assessing the impact of long-run equilibrium relations. Thus, all statistical findings from such models need to be interpreted with great caution.

Estimation results using an inflation model confined to the period of "national accord" (which broke the wage-price spiral) differ considerably from the Bank's earlier models. The standard deviation is lower, yet the model explains a much smaller proportion of price changes than its predecessors, and the estimation of its parameters is imprecise. There is little sign of the former short-term relations between changes in inflation, wages and import prices. The impact of long-term equilibrium in these variables is still present, but describes a slow adjustment of prices to wage and import price developments. Thus the results suggest that the link between the exchange rate and prices is still in place, but that the lag in transmitting the impact of exchange rate changes is greater than before.

This model shows greater price change inertia than was revealed by earlier models, and could reflect a structural change. It is also possible that this impact has long been present, but did not come to the fore as long as price changes kept pace with rapid, large changes in wages and import prices. Among the factors which are never directly shown in measurements covered by the model, but influence its results, are inflation expectations, greater price competition and built-in bias in measurements.

assumption that the impact of the lower exchange rate will emerge in the near term, in keeping with historical relations. Nonetheless, this factor remains highly uncertain, and the impact is actually likely to be somewhat slower. If so, inflation will turn out somewhat lower over the next few months than is assumed here, and then accelerate. It is even conceivable that the lag in the exchange rate impact will be so long that inflation in 2001 will be lower than forecast here. Inflation in 2002 would then be correspondingly higher; models assuming a slower exchange rate impact in fact forecast a considerably

higher figure for 2002 than is given here. The present forecast assumes that inflation will slow down in 2002 to reach 2.2% between the years and 2.7% in the course of the year. This is a somewhat lower rate for next year than was forecast in November. The explanation is that the impact of a lower exchange rate will largely have worn off by then, and other assumptions will contribute to a lower inflation rate than was previously expected. These assumptions are for a rather lower degree of wage drift, a greater increase in productivity and smaller rise in import prices denominated in foreign currencies. This is

based both on forecasts by international agencies and the assumption that the demand pressures in the economy will ease in the course of this year.

Various risk factors are associated with the above inflation forecast. Inflation could end up lower this year if the exchange rate impact is weaker, or if real estate prices are brought down by a turnaround in the market. On the other hand, demand pressures in goods and labour markets could emerge further in the form of higher inflation. The Central Bank's models which incorporate demand factors such as the output gap and unemployment actually forecast a significantly higher rate of inflation this year than is presented here. Thus the rate at which the prevailing overheating begins to cool could prove crucial for the near-term inflationary scenario.

Is the overheating waning?

Some misunderstanding occasionally seems to arise in discussions of whether the economy is cooling down or demand pressures are easing. Lower growth rates for various turnover and demand aggregates, compared with the year before, are sometimes cited in this respect. However, this in itself is by no means sufficient for an easing in demand pressure. In order for the economy to cool, growth needs to drop below its equilibrium level. An example of this is the output gap, which is measured by the proportion of GDP to potential output. The positive output gap probably peaked last year. The potential growth rate is very difficult to determine, but is probably no more than 3-4%. Thus it is not enough for economic growth to slow down in order for the positive output gap to subside; rather, it would need to drop below 3-4%. Similar reasoning applies to other demand and turnover aggregates.

This should be borne in mind in examining what the most recent indicators, summarised in Table 4, tell us about whether the economy is beginning to cool. These indicators give no grounds for drawing the conclusion that the growth of GDP and domestic demand last year was significantly different from the National Economic Institute forecast in December, i.e. growth of 4% and national expenditure growth of almost 5½%. There are, however, certain signs of a considerable reduction in private consumption growth, given that the retail sector appears to be stagnant and imports of consumer goods have only

Table 4 Selected indicators
(Based on latest data on each indicator)

<i>I Turnover and demand</i>	<i>Data period</i>	<i>1999</i>	<i>2000</i>
<i>– change on previous year (%)</i>			
General merchandise imports ¹	Jan. - Nov.	4.5	4.1
without fuels and metal smelters ¹ ...	Jan. - Nov.	3.8	5.5
Import of consumer goods ¹	Jan. - Nov.	10.2	1.4
without automobiles ¹	Jan. - Nov.	8.5	5.9
Merchandise exports ¹	Jan. - Nov.	10.3	0.0
Turnover based on VAT records ²	Jan. - Oct.	6.1	4.4
manufacturing excl. fish			
and metal smelters ²	Jan. - Oct.	5.0	3.8
retail trade ²	Jan. - Oct.	5.5	0.4
Payment card turno. (in real terms)	Jan. - Dec.	13.2	6.5
<i>II Tax receipts</i>			
<i>– real change on previous year (%)³</i>			
Total taxes.....	Jan. - Dec.	13.5	10.4
VAT	Jan. - Dec.	9.1	3.7
<i>III Labour market</i>			
Unemployment rate (%).....	December	1.7	1.3
New work permits	Jan. - Dec.	3,046	4,018
Job vacancies (monthly average)	Jan. - Dec.	291	521
<i>IV Money and credit</i>			
<i>– change on previous year (%)</i>			
Money supply (M3)	December	16.9	11.0
Bank credit	December	22.9	26.4
Credit system credit.....	September	17.0	21.1
<i>V Asset prices</i>			
<i>– change on previous year (%)</i>			
Share prices (ICEX-Main Index)	Dec. 31	44.5	-13.8
Housing prices ⁴	December	21.8	12.4
Housing prices in real terms ⁴	December	15.7	7.7

1. At constant prices.

2. Real change (deflated by consumer prices excluding housing prices.)

3. Real change (deflated by consumer prices.)

4. Greater Reykjavík Area. Based on three-month moving average price data. Figures for December 2000 are apartments only.

Sources: Statistics Iceland, National Economic Institute, Directorate of Labour, Iceland Stock Exchange (ICEX), The Valuation Office of Iceland, Central Bank of Iceland.

increased slightly. This is mainly the result of lower motor vehicle imports, since imports of other consumer goods rose by almost 6% in real terms from January to November, compared with the same period the year before. Turnover in the service, hotel and

catering sector also appears to have grown by almost 13% in real terms over the same period, while real growth of payment card turnover in 2000 was 6½%.

All in all, the indicators in Table 4 do not provide any clear signs that the economy is cooling. Import growth is similar in real terms to the year before, the labour market is very tight and lending is still expanding rapidly, in fact at a faster rate than during the previous year. Admittedly the growth rate of M3 has slowed down, although it is still considerable and higher than is compatible with a low rate of inflation in the long term, i.e. an inflation rate of less than 3%. Excluding VAT turnover, the main turnaround can be seen in asset prices. Share prices have fallen substantially in recent months, and real estate price rises have slowed down considerably after fairly hefty increases last year.

Credit expansion still excessive

It has been fairly disappointing to see that no end appears in sight to the excessive growth in lending. DMB lending increased by just over 26% last year, which is a somewhat higher rate than the previous year's 23%. Figures for lending by the credit system as a whole, i.e. all credit institutions, are only available until the end of September last year, when 12-month growth was running at 21%, a considerable increase since the end of June. By way of qualification, part of the increase in credit over the past few months is explained by automatic rises in the stock of

foreign-denominated loans caused by the sliding króna. Adjusting second-half DMB credit growth for changes in the exchange rate and prices yields an annualised rate of just over 13%, compared with just under 21% at the same time the previous year. Of course, this growth is still above the level compatible with long-term stability and low inflation, but nonetheless indicates a significant slowdown in the underlying rate of credit growth.

To a large extent, DMB lending growth during the second half of 2000 was financed with foreign borrowing, in line with the recent pattern. Table 5 shows that the share of foreign borrowing was almost 50%, which is nonetheless considerably lower than at the same time in 1999. Bank deposits and Central Bank funding also accounted for a lower share than in 1999, but this is offset by much greater net domestic securities issues and a larger figure for the category "other items, net."

A big treasury surplus ...

Cash figures from the State Auditor for 2000 reveal a 12 b.kr. treasury surplus, which according to a rough estimate by the Central Bank suggests a fiscal surplus on an accruals basis of 21 b.kr. This is somewhat higher than was foreseen in the budget (17 b.kr.) but less than assumed when the supplementary budget was approved (23 b.kr.). According to the cash accounts, the surplus before borrowing and debt service was 9.5 b.kr., but after adjusting for overrepresented interest charges and ad hoc pension fund payments, it amounts to 22 b.kr., in line with the budget target. Funds were used to amortise domestic long-term debt (including accrued interest) to the tune of 19 b.kr., pay off 4 b.kr. in T-Bills and make an ad hoc payment of 7 b.kr. towards pension liabilities. Net foreign borrowing in excess of repayments amounted to 8 b.kr., which was considered appropriate in the light of the current account deficit and the weak foreign reserves position.

Central government revenues in 2000 appear to have been similar to the preceding year, while excluding proceeds on the sale of assets they increased by 7½%, which is somewhat less than the estimated growth in nominal GDP. Personal income tax and capital income tax receipts exceeded the budget figure by 7½ b.kr. to yield 22% more revenue than in 1999, while corporate income tax revenue

Table 5 Deposit money bank lending and financing in second half of 1999 and 2000

<i>Increase in lending in second half-year (annualised %-change)</i>	<i>1999</i>	<i>2000</i>
Nominal lending	22.0	22.2
Value adjusted lending ¹	20.8	13.3
<i>Relative contribution to funding (%)</i>		
Lending.....	100.0	100.0
Deposits.....	30.1	14.8
Foreign liabilities.....	76.7	48.8
Domestic securities	-13.2	18.4
Central Bank facilities, net.....	18.1	7.0
Other items, net	-11.7	10.9

1. Adjusted for exchange rate and inflation developments.

remained unchanged. VAT receipts increased in pace with national expenditure, but revenue from import duties fell.

Outlays appear to have risen by 1½%, assuming that pension commitments will increase as planned in the budget and supplementary budget. More significantly, outlays excluding pension liabilities increased by just over 4% but fell in real terms relative to public consumption or GDP. Health and insurance outlays overshot the budget by 6%, rising 1% in excess of prices instead of falling by 4%. In all, outlays excluding pension commitments overshot the budget target by 4½% and the general rise in prices by 2%.

The budget for 2001 was passed with a surplus of 34 b.kr. Excluding proceeds from the sale of assets and irregular rises in pension fund liabilities, a surplus of 19½ b.kr. is assumed in 2001, compared with figures of 21 b.kr. which appears to be the result for last year, and 14 b.kr. in 1999. This measurement of the fiscal balance is more natural than the raw surplus, since neither sale of assets nor irregular pension fund liabilities reflect contemporary central government activities in the sense that they directly call for factors of production to be used.

Revenues are estimated at 14% higher in 2001 than in 2000, but 7.3% higher excluding sale of assets. Revenue forecasts seem broadly in line with the macroeconomic outlook, apart from the assumed rise in corporate income tax which is hardly tenable. By contrast, payroll taxes could yield more revenue than assumed.

The main increases in outlays are 0.6 b.kr. on account of parental leave, 0.8 b.kr. towards child allowances and 1.2 b.kr. to the Municipal Equalisation Fund. Investment outlays increase by 1.6 b.kr. from the budget and supplementary budget for 2000, or 0.9 b.kr. in excess of prices. The domestic component of investment will grow by even more, in particular due to road and harbour building projects. This would appear to be misguided, given the tightness of the labour market. The budgeted increase in outlays at the Ministry of Health and Insurance is slightly smaller than public consumption prices, but was set without regard to last year's overshoot. Additional funding in the autumn therefore seems unavoidable. Interest outlays go up between the years despite the ongoing reduction in treasury debt. Although interest rates are rising, a more decisive

Table 6 Treasury finances overview

<i>B.kr., accruals basis</i>	<i>Estimate Budget</i>		
	<i>1999</i>	<i>2000</i>	<i>2001</i>
Total revenues.....	222.6	222.0	253.1
proceeds on asset sales	16.1	0.6	15.5
Revenues excl. proceeds on asset sales	206.6	221.5	237.5
Expenditures	199.0	201.7	219.2
extraordinary pension fund outlays	6.7	1.3	1.0
Financial balance.....	23.6	20.4	33.9
excl. proceeds on sale of assets.....	7.6	19.8	18.4
excl. proceeds on sale of assets and extraordinary pension fund outlays	14.3	21.1	19.4
Balance, using NEI definitions	14½	21	19½
cyclically adjusted	10	15	16½
<i>% of GDP</i>			
Balance, using NEI definitions	2.3	3.3	2.8
cyclically adjusted	1.6	2.2	2.3

Sources: State Accounting Office, National Economic Institute and Central Bank of Iceland (estimates).

factor is the planned buildup in deposits with banks and pension funds instead of repaying debt. Recently negotiated pay rises for teachers employed by central and local government authorities will probably need to be expensed in the treasury accounts for 2001.

The surplus is estimated at 34 b.kr., or 19½ b.kr. excluding sale of assets and special pension fund items. The credit budget surplus target is 39 b.kr. It is planned to reduce debt by 9 b.kr., pay 15 b.kr. into pension funds in excess of commitments for the year as known at the time the budget was drawn up, and deposit 15 b.kr. in the treasury's account at the Central Bank.

... but the fiscal stance remains unchanged

The main source of comparable public sector financial statistics is data from the National Economic Institute (NEI), which are based on international accounting principles and adjusted to changes made in the presentation of central government accounts and the budget in 1998. In light of the budget and the latest figures, the Central Bank's Economics Department has estimated changes in figures previously published by the NEI for 1999-2001. The NEI figures omit revenues from sale of assets and extraordinary pension fund outlays, and use a different pro-

cedure for handling depreciation of tax revenues from the regular central government accounts format. According to these figures, the fiscal surplus was 6 b.kr. in 1998, 14½ b.kr. in 1999 and 21 b.kr. or 3.3% of GDP last year, and should amount to 19½ b.kr. and 2.8% of GDP in 2001. The drop in the surplus as a percentage of GDP is consistent with lower economic growth, and the cyclically adjusted surplus this year could end up similar to 2000.

The Central Bank's standard cyclical adjustment, without revenues from sales of assets and irregular pension outlays, is now based on GDP of 1½% above the long-term trend. Adjusted using this reference, this year's surplus would amount to 16½ b.kr. rather than 19½ b.kr., if the adjustment includes only sales profit and this extraordinary pension fund payments. However, cyclical adjustment does not take sufficient account of treasury revenues from net national spending, i.e. through the current account deficit, nor of corporate taxation which is relatively sensitive to the economic cycle. Revenues from the current account deficit are likely to be in the range 6-8 b.kr. and corporate taxes should contract when economic growth slows down. Even so, the fully adjusted treasury result seems to be in the black – without any proceeds from the sale of assets. It is quite a different matter, however, whether fiscal policy should have been even more restrictive in order to boost national saving.

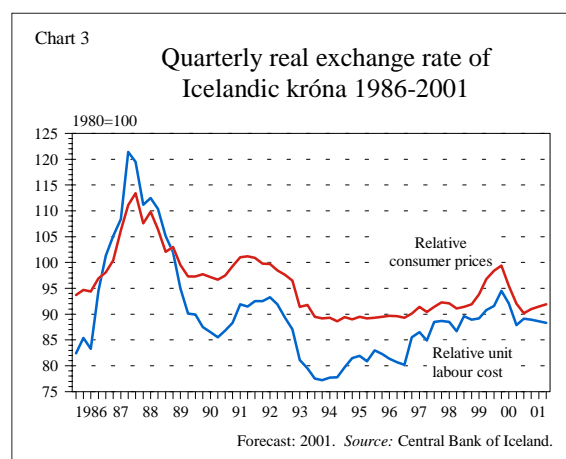
In this context it should be remembered that the treasury has undertaken sizeable burdens in recent months. Tax cuts and contributions to local government, to the tune of almost 2.5 b.kr., will be felt in full in 2001. The ultimate additional cost of legislation on parental leave will hardly be less than 2 b.kr., but less than half of this amount will come through this year. Only 0.6 b.kr. of the planned 1.5 b.kr. rise in child allowance appears now. Further expenses will also be incurred due to the secondary school teachers' pay settlement and the Supreme Court ruling which overturned means-testing of benefits to married handicapped people on the basis of family income. These decisions have encroached on the scope for manoeuvre that the treasury had created for tackling a future slowdown of the economy.

Are local governments bringing their finances under rein?

The deficit on local government operations in 2000 hardly appears to have been less than the previous year, at 3 b.kr., which is equivalent to 5% of revenues and 0.5% of GDP. This year, however, there are hopes for an improvement in the local authorities' position, since they have taken advantage of authorisation for large increases in their levies, raising average municipal tax from 11.96% in 2000 to 12.68% today. The Local Authorities' Equalisation Fund was allocated 1.1 b.kr. in the budget to subsidise property taxes in communities where real estate prices are low, in return for a cut in these taxes. Also, a special allocation of 0.7 b.kr. will be made in 2001 to local authorities which have suffered falling revenues because of depopulation. Judging from the largest municipalities' budgets, the nationwide balance could improve by 2 b.kr. this year compared with 2000. Nonetheless, the impact of the recent teachers' pay settlement leaves this somewhat uncertain.

The real exchange rate has depreciated

The real exchange rate of the króna has witnessed a considerable depreciation in the past few months, in pace with the nominal exchange rate, as shown in Chart 3. Based on the current inflation forecast the real rate of exchange in 2001 will be approximately 2% below the 20 year average in terms of relative unit labour cost and approximately 4½% in terms of relative consumer prices. An analysis in the last *Monetary Bulletin* concluded that a strong real



exchange rate was not the main cause of the current account deficit. That analysis still holds good. Nor does the real exchange rate at present seem excessively high in historical terms. Similarly, export growth in sectors which are not subject to supply limitations has been fairly good recently and profitability has been acceptable. It is interesting to note that, although business profitability apparently worsened last year, annual financial statements suggest the main explanation lies in higher financial expenses due to heavier indebtedness and the depreciation in the rate of exchange. Profit before financial expenses, on the other hand, does not seem to have fallen. Finally, it should be pointed out that an overvalued real exchange rate generally manifests itself in weak economic growth and unemployment, which is far from being the case in Iceland at present.

The effectiveness of monetary policy

The effectiveness of monetary policy has been in the spotlight recently. Two claims which are worth closer consideration have been heard. The first is that monetary policy only has a limited impact on domestic demand, both because of widespread ways of avoiding Central Bank restraint through borrowing abroad, and also because of the low sensitivity of credit demand to interest rate changes. The other claim is that the tight monetary stance has played a major part in the enormous current account deficit that has been built up in recent years.

The Central Bank admits that unlimited access to foreign borrowed funds dampens the effectiveness of the monetary stance. However, such access by no means renders monetary policy ineffective. Only a proportion of borrowers have the opportunity of taking credit on international terms. Nor is this access unlimited either, since foreign credit institutions impose ceilings on their lending to banks or individual companies in Iceland. Research and experience indicate that the Central Bank of Iceland's policy rates exert a sizeable impact on other domestic interest rates. The effect is particularly marked on unindexed bank interest rates. Since credit demand shows little interest rate elasticity in the short term, it takes a considerable time for Central Bank interest rate rises to impact domestic demand. But the effect is eventually delivered, even if households pay little heed to interest rate levels in their expenditure deci-

sions. The impact of a higher interest burden cannot be avoided. The same applies to corporations, although interest rates can be expected to have a stronger prior impact on their expenditure. In fact it is contradictory to claim simultaneously, as some have done, that interest rates are an ineffective instrument, but also that high interest rates pose a threat to future growth. However, it must be admitted that if interest rates acted as a more effective deterrent against spending, their impact would be less disruptive than in the case when interest rates have very limited effect until the debt service burden is significantly affected. Delayed response increases the risk of default, posing a threat to the stability of the bank system.

So are there no limits to the effectiveness of monetary restraint in a small, open economy like Iceland? Conceivably there are. A tighter stance could prove less effective if it lacks credibility, e.g. if it results in a much higher interest rate level and differential than has been experienced in other countries. However, Iceland has not yet reached these limits. There are various examples from other countries where much higher central bank interest rates were maintained and the interest rate differentials with abroad were larger than those prevailing in Iceland today. At present Iceland's short-term nominal differential with abroad is 6½%, or 5% in real terms, and Central Bank real interest rates are just over 6½%. At the turn of the year 1989-1990, Australia's nominal interest rate differential against the US dollar reached 10%, the real differential 7½% and real central bank interest rates 10%. New Zealand in the second half of 1990 is another example, with figures of 7%, 8½% and 10½% respectively. The third example is the UK from 1990-1991, where the nominal interest rate differential against the Deutschmark was 7%, the real differential 6% and real interest rates 7½%. In the UK, where a fixed exchange rate regime was in operation at the time, the period of high interest rates culminated in a currency crisis in 1992. The other countries employed inflation targeting and after some time their restraint delivered results in the form of lower inflation, and the slowdown in growth was only temporary.

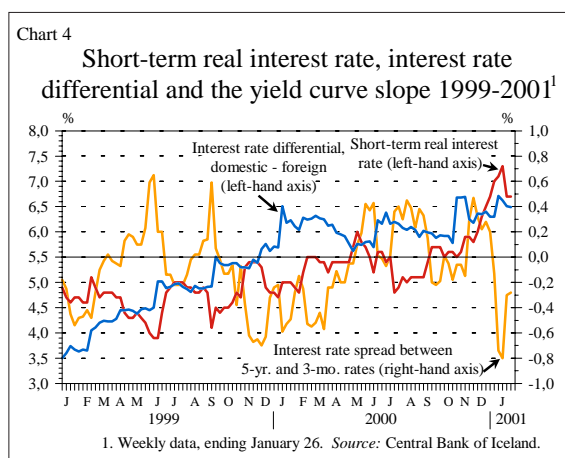
The Central Bank has never played down the fact that tighter monetary stance could lead to a short-term widening of the current account deficit. A rise

in Central Bank interest rates causes the real exchange rate to appreciate. In the course of time, however, domestic demand and inflation fall. The real exchange rate and current account balance then return to normal, since monetary policy's primary long-term impact is on inflation.

What is the scale of this potential short-term impact? Is it conceivable that the bulk of the current account deficit at the moment could be explained by the tight monetary stance? Assessments by the Central Bank's Economics Division indicate that the real exchange rate may recently have risen by 2-3½% as a result of monetary restraint. The reference period here is from 1996 to the first half of 2000, when the exchange rate peaked. The impact of this temporary real exchange rate appreciation on the current account deficit is fairly uncertain, although estimates suggest it lies in the range of ½-2½ percentage points of GDP with a lag of 1-2 years, after which it gradually dwindles. By comparison, the real exchange rate appreciated by 10½% over the same period and the current account deficit widened by 7½ percentage points. Thus monetary policy only explains a small part of this development. More immediate explanations are available. The impact of Central Bank interest rates on the current account deficit are discussed in more detail in a separate box.

The monetary stance

Measured in terms of interest rates, the monetary stance has tightened since the last *Monetary Bulletin* was published in November. The short-term interest rate differential with abroad has remained close to the level prevailing in the wake of the Central Bank's increase in policy rate on November 1. Short-term real interest rates have risen sharply due to lower expected inflation. Towards the end of January the Central Bank's policy rate was just over 6½% in real terms, based on the inflation premium on T-bonds. This is the highest level since capital movements were deregulated at the beginning of 1995. Another sign of the tight stance is that short-term interest rates now run somewhat higher than non-indexed long-term interest rates, which suggests that market



participants expect lower short-term rates in the future. (The expectations that can be read from current interest rates are discussed in more detail in a box accompanying the article on Financial Markets and Central Bank Measures elsewhere in this issue). Offsetting this interest rate restraint to some extent is the fact that towards the end of January the króna had depreciated by just over 3½% from its level on November 1.

The analysis presented in the last edition of *Monetary Bulletin*, which found that the tight monetary stance is currently operating with full force through the interest rate mechanism, therefore remains unchallenged. At the same time, indications have emerged that the Central Bank's interest rate rises are now delivering an impact in the areas most sensitive to them, such as the property market. Nonetheless, in the view of the Central Bank time is still not ripe for easing the monetary stance, for two main reasons. Firstly, the signs of a cooling down in the economy are still not beyond question, as stated earlier. Secondly, the exchange rate has moved closer to the lower limits of the target bands in recent weeks. As before, the Central Bank will keep a close watch on the economic conditions. If clear indications emerge that the economy is cooling sufficiently down, the monetary stance may be eased in the next few months. Such indications are not at hand at the moment.

Box 3 The impact of monetary policy on the current account

Certain claims have been heard recently that the Central Bank's tight monetary stance has played a large role in the present large current account deficit. In this light it is worth taking a closer look at the relation between monetary policy and the current account deficit, and the Central Bank's part in developments in recent periods.

The Central Bank's tight stance is reflected in the increase in its policy rate, which generally leads to a higher nominal exchange rate of the króna. If prices show short-run inertia, the nominal exchange rate appreciation will cause the real exchange rate to appreciate, but only in the short run. In the long run the higher nominal exchange rate will lead to a fall in domestic prices and the real exchange rate will return towards its long-term equilibrium value, which is known as the equilibrium real exchange rate.¹ Consequently, monetary policy can only impact the real exchange rate in the short term. In the long run the real exchange rate moves back towards its equilibrium value and the impact of monetary policy cancels out.

All things being equal, an appreciating real exchange rate following tighter monetary measures causes a contraction in exports and an increase in imports. Thus, the current account deficit increases, all other things being equal, when the monetary stance is tightened. However, this impact can only be temporary, since at some point domestic prices will begin to fall and the real exchange will move back towards its equilibrium value.

From 1996 to the first half of 2000 when it reached its peak, the real exchange rate rose by 10½%. To a large extent this increase can be attributed to the upswing of recent years. However, it is interesting to attempt to assess how large a part of this increase may be traced to monetary policy.

Three approaches are used for evaluating this impact. Firstly, we can assume that the part of the real exchange rate appreciation attributable to the Central Bank's measures corresponds to the nominal appreciation over the period, which was 5.9% from 1996 to the first half of 2000. This is tantamount to assuming that all the nominal appreciation can be attributed to monetary policy and

ignores any impact it may have had on domestic prices. It can be assumed that the nominal appreciation, and monetary policy in general, have dampened domestic price rises and thereby counteracted the upward effect of the nominal appreciation on the real exchange rate. Therefore it is logical to assume that this evaluation produces an upper limit for the impact of monetary policy on the real exchange rate.

The second approach is based on the counteractive impact that changes in the nominal rate have on domestic prices. According to the Central Bank's inflation model, a 1% nominal appreciation of the króna causes a 0.4% reduction in domestic prices in the long run, since the proportion of imported goods in domestic consumer prices is 0.4. Assuming that domestic wages and foreign prices remain unchanged, the real appreciation due to monetary policy measures can therefore be calculated as 60% of the nominal appreciation. This is based on the assumption that the entire nominal appreciation can be attributed to monetary policy and that domestic prices have fallen as a result of the exchange rate appreciation in accordance with the Bank's econometric models.

The third method is based on the equilibrium conditions for domestic security and currency markets, whereby the real interest differential between domestic and foreign financial assets is equivalent to the expected change in the real exchange rate. Accordingly, a positive real interest differential corresponds to market expectations that the real exchange rate will depreciate to leave expected real returns on domestic and foreign assets equal. Assuming unchanged foreign real interest rates and a given expected future real exchange rate, monetary policy's share in the rise in real exchange rate can be measured as equal to the rise in the short-term real interest rate over the period. This approach is based on the assumption that the rise in short-term real interest rates can be entirely attributed to monetary policy.

To assess the Central Bank's contribution to the real appreciation of the króna over the period, the three-month T-bill rate was used as the short-term interest rate, while inflation expectations were measured using the spread between unindexed treasury bonds and indexed treasury bonds to calculate the short-term real interest rate. Over the period since 1996, short-term real interest rates measured in this way have risen by 2% and the nominal

1. A discussion of the equilibrium real exchange rate of the króna can be found in Arnór Sighvatsson, "Jafnvægisraungengi krónunnar", *Fjármálatíðindi*, 47, 2000, 5-22.

exchange rate has appreciated by 5.9%, as mentioned earlier.

According to this evaluation, a maximum of 6% of the real exchange rate appreciation can be attributed to monetary policy. As mentioned before, this assumes that the entire nominal appreciation of the króna can be attributed to monetary policy and ignores the fact that an appreciation in the nominal exchange rate contributes to lower inflation. A more realistic assessment is that these measures have caused a real exchange rate appreciation in the range 2-3½%. It should be reiterated that this impact can only be temporary. In the long run monetary policy cannot have an impact on real interest rates and the real rate exchange rate.

Much uncertainty surrounds the impact that changes in the real exchange rate have on Iceland's current account deficit, due to lack of research and the limitations

of the National Economic Institute's macroeconomic model for forecasting long-term relations. Nonetheless, the macroeconomic model and simple statistical studies of the relation between the current account deficit and real exchange rate suggest that the abovementioned appreciations in real exchange rate widen the current account deficit by ½-2½% some 1-2 years later.

It must be emphasized that these findings are highly uncertain and therefore need to be interpreted with caution. However, they do suggest that only a relatively small part of the real exchange rate appreciation and deteriorating current account balance in recent years may be traced to monetary policy. A much larger share can therefore be attributed to the strong overheating which has prevailed in the Icelandic economy in recent years, which have been the very target of the Central Bank's measures.