



*Autumn Statement*

*Monetary developments, prospects and policy*

*November 11, 1997*

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## *Introduction*

*The slack that was present in the Icelandic economy during 1992-95 has disappeared. The high rate of economic growth this year and last year has brought the economy close to the limits that are compatible with price stability in the long run. At the same time, the external conditions of the economy have improved through additional power intensive industry and the recovery of fish stocks. There are many signs of increased domestic demand, including expanding monetary and credit aggregates. Wage increases and tax reductions promised in connection with the wage settlements border on being excessive and contribute to the sharp increase in domestic demand. Business profitability appears to be adequate although it has probably deteriorated since last year's record level, inter alia because of higher wage costs.*

*The economic upswing has led to stronger Treasury finances and the welcome achievement of a budget surplus, on an accruals basis, and declining state debt in real terms is in sight assuming that the projections of the budget proposal materialize. It would, however, be desirable to tighten fiscal policy even more in order to stem the rise in national expenditure, increase national saving and create room for lower long-term interest rates and a less restrictive monetary stance.*

*The improved external conditions have raised the real exchange rate which is compatible with equilibrium in the economy. In addition, the construction of power intensive industry has led to a net inflow of foreign currency. All other things equal, both these factors contribute to an upward pressure on the exchange rate of the króna at the same time as the current account worsens. The emergence of a current account deficit at a level of investment that is not particularly high historically or in an international context is a matter of concern. However, it is mainly the responsibility of fiscal policy to respond to this situation, given the division of tasks between fiscal policy and monetary policy. The adjustment of the real exchange to a higher real equilibrium exchange rate can take place either through a nominal appreciation of the exchange rate or through faster inflation. A lower nominal exchange rate is not desirable under these circumstances.*

*The economy is still in reasonably good balance despite some signs of uncertainty. The current account deficit this year will be significantly smaller than expected this spring, and most of it is related to construction of power intensive industrial plants. Price increases in the wake of the wage agreements were smaller than expected, no clear signs of wage drift have emerged and inflation remains moderate. However, there is some uncertainty ahead. The Central Bank forecasts rising inflation next year, and that prices will rise on average by 2.7% between 1997 and 1998. The inflation rate will be even higher during the first half of next year as a result of the general wage increase at the beginning of the year. Inflation forecasts following wage agreements have in recent years erred on the upside. On the other hand, continued rapid growth will lead to a tightening of the labour market and rising demand for goods and services increases the risk that producers will pass cost increases on to prices. Under current conditions in the Icelandic economy, the risks of overheating overwhelm the risks of contraction implying that monetary policy will continue to be tight.*

# I Monetary policy

The main goal of monetary policy is price stability. Monetary policy instruments primarily affect inflation over the long run and price stability creates desirable conditions for innovation and economic growth. Despite other and contrary objectives in the legislation on the Central Bank, a fairly strong consensus appears to have developed for this policy. The exchange rate of the króna is an intermediate target for monetary policy as a stable exchange rate contributes to price stability. Exchange rate policy is determined jointly by the Central Bank and the government. Since September 1995, exchange rate policy has aimed to keep the exchange rate of the króna within fluctuation margins of  $\pm 6\%$  of a central rate of a trade-weighted index. The Central Bank implements monetary policy by determining money market rates through the setting of policy rates. In the short run, the Bank can influence the exchange rate through interventions on the foreign exchange market. The Bank can also have a short-term impact on long-term interest rates through interventions on the bond market, although the potential magnitude of this impact declines as the market grows.

## The impact of monetary policy

The impact of monetary policy on the economy has been the subject of some discussion recently. Most economists agree that a monetary policy that affects the economy, mainly indirectly on open markets through changes in short-term interest rates, works through three channels. These are the interest rate channel, the exchange rate channel and the credit channel.

The interest channel rests on changes in short-term interest rates affecting the entire interest rate spectrum, with long-term rates changing to some extent in response to changes in short-term rates. In turn, long-term interest rates affect private consumption and investment, with changes in the short-term rates also having a temporary effect. Changes in private consumption and investment in turn affect the level of total demand for goods and services and thus

indirectly the demand for labour. Both have an impact on inflation. The effectiveness of the interest channel varies by country, reflecting in part the relative importance of fixed versus floating rates for long-term loans, the indebtedness of households and firms, the extent of indexation, etc. It also varies with time depending on the development of expectations on financial markets. Lags are typically considerable in this channel, with two years often passing before the effects of a change in short-term interest rates on inflation have worked their way through.

The exchange rate channel sees changes in short-term interest rates directly affecting currency flows, which in turn affect the exchange rate unless the Central Bank sterilizes the flows. The bank's ability to do so, however, is constrained as there are limits to how large or small the bank's international reserves should become. Changes in the exchange rate have a direct impact on inflation through changes in import prices in domestic currency and an indirect one by affecting the demand for domestic goods and labour, inter alia through effects on exports and imports. It is generally believed that the exchange rate channel is the quickest and most effective in impacting the price level in small open economies under conditions of free capital movements.

The credit channel sees changes in market interest rates causing changes in the supply of bank credit, which can have a strong impact on households and small firms which typically do not have access to non-bank sources of credit. This impact comes on top of the impact of changes in bank interest rates in response to changes in market interest rates which affect the demand for bank credit.

Research shows that all these channels are open in Iceland. A special chapter of the Autumn Statement discusses interest rate determination and how changes in short-term interest rates affect the entire interest rate spectrum. Research also shows that changes in indexed

long-term rates have an impact on private consumption and investment, both directly and indirectly, by changing asset prices. Domestic monetary policy is therefore effective through the interest rate channel although its effectiveness may not be the same as in other countries, in part because of the prevalence of indexation. Experience strongly suggests that since all restrictions on capital movements were lifted at the beginning of 1995, the short-term interest rate differential vis-à-vis abroad has a considerable impact on currency flows. Currency flows in turn cause changes in the exchange rate as long as the Central Bank does not engage in sterilization operations. A strong relationship between the exchange rate and domestic inflation has been confirmed in a great number of econometric studies. The exchange rate channel is, therefore, highly effective in the transmission of monetary policy. Changes in the nominal exchange rate of the króna also generally cause changes to the real exchange rate, and econometric studies show that imports, and to a lesser extent exports, are sensitive to changes in the real exchange rate. A higher real exchange rate thus lowers the demand for domestically produced goods and thus reduces the demand for labour. Both factors reduce the danger of overheating.

#### **The effectiveness of monetary policy with free capital movements**

Capital movements to and from the country have been free of restrictions since the beginning of 1995. The experience of other countries shows that unrestricted currency flows can complicate the maintenance of a stable exchange rate. This has, however, proved possible here in the recent period as the exchange rate has never moved out of the previous  $\pm 2\frac{1}{4}\%$  fluctuation margins which were in effect until autumn 1995 and daily fluctuations in the exchange rate have been small compared to what is common among other countries.

Free capital movements cause domestic short-term interest rates to seek equilibrium with foreign rates, taking account of expected exchange rate movements and a risk premium in domestic interest rates. If a credible fixed

exchange rate policy is being pursued there are no expected exchange rate movements and the risk premium becomes small with a strong tendency for domestic interest rates to converge on foreign rates. Under these circumstances, monetary policy can do little more than to maintain a stable exchange rate and the level of domestic interest rates is determined by foreign rates.

If the exchange rate is determined on a currency market in the absence of official intervention, considerations of domestic demand conditions can be allowed to dictate interest rate determination. The reason is that the transmission of monetary policy through the exchange rate becomes fully effective and it becomes possible to maintain a different interest rate differential vis-à-vis abroad than is possible under a fixed exchange rate policy if needed. It is, therefore, incorrect to conclude at the outset that monetary policy will be ineffective under unrestricted currency flows.

Conditions in Iceland lie in between these extreme cases. First, capital does not move completely freely between Iceland and other countries in the sense of economic theory, although by law it is free to do so. Transaction costs and incomplete information prevent domestic interest rates from adjusting instantaneously to foreign rates. Second, the exchange rate is adjustable to a certain extent. These two factors imply that the opportunity exists to conduct an independent monetary policy.

#### **Monetary policy and the real exchange rate**

In the long run monetary policy cannot determine the real exchange rate of the króna. However, the government and the Central Bank have considerable say over the nominal exchange rate. Earlier, the nominal exchange rate was unilaterally set, but with the advent of an active interbank market for foreign currency the Central Bank affects the exchange rate indirectly through its interest rate policy and its interventions on the foreign exchange market. How changes in the nominal exchange rate translate into changes in the real exchange rate is determined by the development of wages, productivity and prices. Changes in the nominal exchange rate which do not reflect changes in

underlying economic conditions only have a short-term impact on the real exchange rate but in the long run mostly affect the price level. This is one of the strongest arguments in favour of assigning monetary policy the task of achieving price stability. In the long run the real exchange rate is also affected by the factors that determine the real equilibrium exchange rate, which is that real exchange rate consistent with external balance and economic growth in line with potential. These factors include the nation's saving rate, investment level, relative labour productivity in the tradeable and non-tradeable sectors, capital productivity, resource base, etc. Changes in these factors cause changes to the real equilibrium exchange rate. The real exchange rate then adjusts to the real equilibrium exchange rate either through changes in the nominal exchange rate or through changes in the price level.

Nominal exchange rate changes caused by monetary policy can play a role in economic adjustment. If, for example, the real equilibrium exchange rate has appreciated, monetary policy can ensure that the adjustment takes place through an appreciation of the nominal exchange rate rather than through a temporary acceleration of inflation. The latter involves the danger that inflation expectations rise and that a higher rate of inflation becomes permanent. If, on the other hand, the real equilibrium exchange rate has depreciated because of negative external shocks, a nominal depreciation can speed the needed adjustment as experience shows that nominal wages and prices have limited downward flexibility. However, care needs to be taken not to allow the temporary acceleration of inflation that accompanies a nominal depreciation to be interpreted as the abandonment of a low inflation policy, in order to prevent long-term inflation expectations from rising. The larger and more obvious the external shock and the greater the slack in the economy, the less is the danger of this happening. Both these factors lessen the likelihood that wages will increase following such nominal exchange rate depreciations.

#### **Fiscal policy and monetary policy**

A restrictive monetary policy under free cap-

ital movements and an adjustable exchange rate works mainly by putting restraint on firms. This may have undesirable side effects. On the other hand, a number of factors indicate that fiscal policy measures, particularly on the tax side, are far more effective in reducing private consumption than monetary policy measures. The relationship between private consumption, national saving and the current account balance is close. This lends further support to the view that fiscal policy should be used to achieve acceptable external balance, while monetary policy is aimed at low inflation. Under current circumstances these objectives need not collide. Tighter Treasury or local government finances would at present support the achievement of both objectives. For example, an increase in direct taxes would simultaneously lower private consumption, increase national saving, reduce the current account deficit and lower the risk of demand-pull inflation. A lowering of direct taxes would have the opposite effect.

The division of tasks between monetary and fiscal policies, which has been developing in Iceland as in other industrial countries, assumes that monetary policy is directed at containing inflation and that fiscal policy is directed at supporting a sufficiently high level of national saving to ensure current account balance. If fiscal policy does not achieve this task, pressure could mount on monetary policy to abandon price stability in favour of an improved current account balance and a stronger competitive position for firms. Such a change in policy would however not be desirable, not least because it would lead to higher real interest rates over the long run. It is, therefore, paramount that fiscal policy be sufficiently restrictive.

A tightening of fiscal policy will under current conditions, assuming all other things are unchanged, lessen the pressure on monetary policy and enable a narrowing of the interest rate differential vis-à-vis abroad. Investment and domestic business would thus obtain greater room for manoeuvre. However, the impact of tighter fiscal policy on the exchange rate of the króna is uncertain. All other things equal, a narrower interest rate differential favours a lower exchange rate. On the other hand, national sav-

ing increases and the current account strengthens. These factors cause the real equilibrium exchange rate to appreciate which in turn causes the nominal exchange rate to appreciate. Furthermore, an appropriate mix of monetary and fiscal policies could lead to greater confidence in overall economic policy which could boost currency inflows with an upward pressure on the exchange rate. It is difficult to assess in advance which factors will be strongest.

### **The stance of monetary policy**

Since the Central Bank raised its interest rates by 0.4 percentage points in September last year, domestic monetary policy has been relatively tight. This increase in rates widened the differential between domestic money market rates and trade-weighted foreign money market rates to 2.8 percentage points. The differential widened further in the ensuing weeks and months as foreign rates declined, to above 3 percentage points in the latter part of January. The tightening in September 1996 was necessary in response to, on the one hand, rising inflation expectations and increased uncertainty about the outcome of wage negotiations and, on the other, increased currency outflow in previous weeks. In January, the Bank implemented measures aimed to preserve the degree of tightness to the level intended in September 1996. The nominal interest differential vis-à-vis foreign rates, however, declined somewhat from its January peak as a result of rising interest rates abroad. Lowering money market rates was out of the question as long as the outcome of the wage negotiations had not been determined.

The wage agreements concluded at the end of March appeared to contain wage increases that were at the limit of what was compatible with continued stability. Negotiated wage increases were in the range 5½-6%, or sharply higher than among trading partners, and the outlook was for the inflation rate to exceed 3% by a considerable margin during the first months of 1998. However, developments in the wake of the wage agreements were quite positive until August. Inflation expectations, which can be inferred from the difference between the yields on non-indexed and indexed securities with the same

maturity, also eased rapidly. Large currency inflows from April to July pushed the exchange rate of the króna upwards although the Central Bank sought to keep the exchange rate stable through currency purchases. Continued currency inflows could have led to a lowering of short-term interest rates, especially since lower inflation expectations and increased confidence in stability meant that an unchanged interest differential vis-à-vis abroad implied a relative tightening of the monetary stance. However, in light of the danger of overheating which accompanies such rapid output growth as had been occurring and the likely impact of the wage agreements on demand and prices, the Central Bank was of the view that it was appropriate to wait until additional indicators, including from the labour market and concerning monetary and credit aggregates, became available. On the other hand, it can be said that the Central Bank in fact allowed a relative easing of the monetary stance by not raising domestic rates when foreign rates rose over the summer and the nominal interest rate differential narrowed. At the end of July, the interest differential had narrowed to 2½ percentage points.

Developments in August, September and October were far less favourable. Currency flowed out, and the exchange rate of the króna depreciated by 2½% from the end of July to the end of October. This weakening of the exchange rate implies a relaxing of monetary conditions on top of the easing associated with the narrowing of the interest rate differential vis-à-vis abroad from the middle of September to the end of October, when domestic rates had not been raised in response to rising rates abroad. At the end of October, the interest rate differential had narrowed to below 2.4 percentage points. Inflation expectations as measured by the non-indexed/indexed yield differential also rose again. Thus, the inflation premium on three-year Treasury notes had widened to above 3 percentage points at the end of October from below 2½ percentage points at the end of July. As these developments came on top of other indicators that pointed to a rising danger of overheating, it was clear that conditions were not appropriate for lowering short-term interest rates.

**The situation and outlook**

High economic growth and lower unemployment last year and this year have pushed the economy close to the limits that are compatible with price stability over the long run. At the same time, the external conditions of the economy have improved because of expanding power intensive industry and the recovery of fish stocks. This has led to an appreciation of the real equilibrium exchange rate and offers a choice as to whether the adjustment of the real exchange rate to the higher real equilibrium rate takes place through faster inflation or through a higher nominal exchange rate. Wage increases and tax reductions promised in connection with this year's wage agreements are greater than would have been desirable and contribute to the rapid expansion of domestic demand. The restrictiveness of fiscal policy is hardly sufficient in light of the strength of the upswing. The

economy remains in fairly good balance, as exemplified by low inflation and a smaller current account deficit than expected this spring. However, the outlook is for inflation to gather pace next year and the Central Bank predicts that the inflation rate will exceed 3% during the first half of the year. The tendency to over predict inflation in the wake of wage agreements in recent years is a cause for hope that the outcome may be better. On the other hand, the slack in the economy has disappeared. Continued rapid economic growth can tighten the labour market and lead to wage drift. Stronger domestic demand also increases the danger that producers will pass cost increases on to prices. Cautionary considerations dictate that monetary policy take most account of the overheating risks in the coming months. This implies that monetary policy will continue to be tight.

## II Production and demand

The strong economic growth of last year has continued this year, and will be even stronger than expected earlier. According to the recently presented National Budget, GDP growth this year will be 4½%, or 1 percentage point higher than forecast in April. In 1996, GDP grew by 5.2%. As last year, this year's GDP growth is being fueled by the rapid expansion of investment and private consumption. Fixed investment is assumed to increase by 18½% and private consumption by 5% (as in 1996). This rapid rate of economic growth raises the question whether or for how long it can continue without undermining the economic stability that has been achieved. The large increase in investment and private consumption caused the current account to record a deficit last year, following three years of current account surpluses. The current account deficit is expected to widen further this year.

The emergence of a current account deficit at the time of rapid growth is in itself not necessarily a matter of concern. Quite the contrary, under such circumstances imports can be seen to ease the pressure on domestic resources, which otherwise could lead to rapidly rising inflation through a spiral of wage and price increases. Countries with high growth rates and high investment levels can sustain current account deficits for years or even decades, without it leading to an unsustainable build up of debt that could threaten economic stability, provided that the deficits are used to finance profitable ventures that lead to increased production and export earnings. Most of the current account deficit being experienced now is of this character, because the forecast deficit largely disappears when adjustments are made for imports for power intensive industry and power plants.

In last year's Autumn Statement, the Central Bank concluded that too large a part of the current account deficit was caused by the increase in private consumption, in particular in the light of the low level of national saving. Since then circumstances have changed significantly. Wage

agreements have been concluded that call for wage increases that are higher than among trading partners and decisions have been taken on additional power intensive projects. The National Economic Institute took account of these factors in its April forecast and forecast that the current account deficit would reach 5% of GDP this year. In the National Budget, the forecast was lowered to 3.4%, in part because of the better than expected outcome for the current account during the first half of the year. Information is now available on merchandise trade for the first nine months of the year, which indicates that the current account deficit could be smaller still.

### Production and external trade

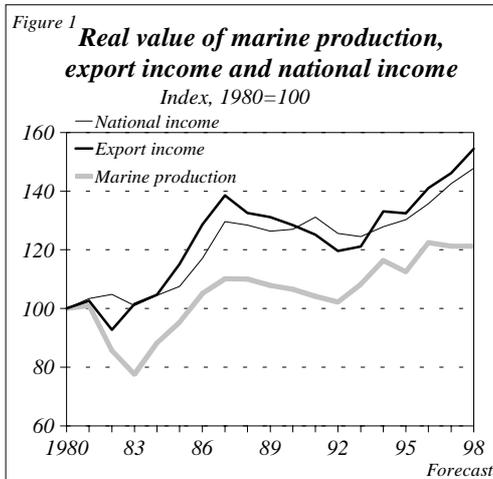
The external conditions of the economy have changed only modestly over the last twelve months. Economic growth among Iceland's main trading partners is likely to be somewhat faster than in 1996. Most important for Iceland is that growth in Europe is recovering after an extended period of stagnation. This offers hope that prices on the main export markets will increase. Also, improved stability and growth in the former states of the Soviet Union and in East European countries may open new markets for Icelandic exports. The same applies to a large part of Asia despite the recent turmoil on currency and stock markets. International economic developments are discussed in greater detail in an appendix.

Prices for the main export products have strengthened this year but are, nevertheless, historically quite low when account has been taken of general price developments in main export market countries. On the whole, the fish catch has not changed much, although the overall value of production may increase somewhat. Recent economic growth has thus only to a limited extent been driven by already improved external conditions but rather by expectations of improving external conditions, in addition to investment which is fueled by the inner dynam-

ics of technology and productivity developments. Thus, foreign direct investment in power intensive industry reflects expectations of higher aluminum prices in the future and investment in the fisheries in recent years is partly based on expectations of larger quotas. In addition efforts are being made to improve the competitiveness of the Icelandic fisheries by enhancing efficiency, adopting new technology and realizing the gains stemming from an efficient fisheries management system.

The main reason the National Economic Institute's forecast from April has been revised upwards is that the outcome for external trade has been more favourable than expected; imports in particular have been lower than projected. The growth in imports of goods and services is now expected to be 3 percentage points lower than before. In addition, exports are expected to be slightly higher than before, largely on account of the export of an airplane. Also on account of the sale of the airplane, investment is now expected to expand not quite as fast as previously expected, although the overall growth rate will continue to be very strong.

Changed prospects for the external accounts since April are mostly the result of lower than expected merchandise imports. The trade balance is now forecast to show a deficit of 5.6 b.kr. and not 15.1 b.kr. as in April, despite lower export production. The trade balance for the first nine months of the year showed a surplus of ½ b.kr.. However, the balance of non-factor services is likely to be less favourable than the National Economic Institute assumed in April, mainly because a larger fraction of imports to



power intensive industry will now be classified as service imports rather than goods imports. This does not, however, explain why the balance of non-factor services during the first six months this year was in fact 1.3 b.kr. better than during the same period in 1996. During the first six months of the year, service exports rose by 24% while service imports increased by less than 11%. The large increase in exports is partly the result of temporary factors, such as large sales to the defense force, but also by foreign contractors involved in the construction of power intensive industry and power plants hiring resident subcontractors. These transactions are recorded on both sides of the services account.

While the above should indicate that the current account deficit could be somewhat lower than assumed in the National Budget it needs to be kept in mind that a very large share of imports related to the aluminum smelter at

#### Main economic indicators

Volume changes in %

	1995	1996	Forecast in April 1997	Forecast in October 1997	Forecast 1998
Private consumption.....	4.2	6.4	5.0	5.0	5.0
Public consumption.....	1.3	1.4	2.0	2.2	3.0
Investment.....	-2.8	23.5	20.0	18.6	1.3
National expenditure.....	3.1	7.1	7.0	6.7	3.9
Exports of goods and services.....	-2.1	10.0	2.8	3.2	4.6
Imports of goods and services.....	3.8	16.6	12.7	9.6	5.9
Gross domestic product.....	1.0	5.2	3.5	4.5	3.5
National income.....	1.9	4.2	3.9	5.0	3.7
Balance of trade, % of GDP.....	0.8	-1.7	-5.0	-3.4	-3.4

### Balance of payments

*Changes from year before in % or balance in m.kr.*

	1995	1996	Forecast in April 1997	Forecast in October 1997	Forecast 1998
Exports of goods .....	-2.2	9.6	1.2	1.5	5.0
thereof export production .....	-0.3	6.7	3.0	2.7	7.8
Imports of goods .....	6.5	16.6	15.3	7.6	6.9
thereof general imports .....	6.1	17.8	5.6	5.0	4.6
<b>Balance of trade .....</b>	<b>13,356</b>	<b>1,817</b>	<b>-15,141</b>	<b>-5,579</b>	<b>-6,307</b>
Revenue on services .....	-1.9	10.9	7.3	7.7	3.6
Expenditure on services .....	-2.7	16.6	5.9	14.7	3.2
<b>Balance on income .....</b>	<b>-12,502</b>	<b>-10,803</b>	<b>-11,026</b>	<b>-9,855</b>	<b>-11,007</b>
<b>Balance on services .....</b>	<b>3,169</b>	<b>1,219</b>	<b>567</b>	<b>-1,701</b>	<b>-1,299</b>
<b>Current account .....</b>	<b>3,717</b>	<b>-8,231</b>	<b>-25,974</b>	<b>-17,507</b>	<b>-18,996</b>

Grundartangi will take place on either side of the turn of the year, making the final results quite sensitive to minor changes in the timing of imports. Exports may, on the other hand, be somewhat underestimated as the assumption for aluminum exports has not been changed despite the early start up of the expansion of the smelter at Straumsvík. Exports of manufacturing products, other than those of power intensive industry, have grown strongly, or by 9½% during the first seven months of the year compared with the same period last year. These exports amounted to 3½ b.kr. during the period.

The National Budget assumes that imports for power intensive industry and the related power plants will be 15 b.kr. in the current year. Excluding these imports gives an adjusted current account deficit from the National Economic Institute's October forecast of 0.7% of GDP.

#### The real exchange rate and competitiveness

The wage agreements during the earlier part of the year contained wage increases considerably in excess of wage increases among main trading partners. The Central Bank estimated that private sector wages will on average rise by 5.6% between 1996 and 1997 while wages among trading partners will rise by only 3%. In 1998, the corresponding numbers will be 6.6% and 4.2%. Domestic productivity is expected to rise somewhat faster than productivity abroad, so that, in the absence of the appreciation of the exchange rate of the króna, relative unit labour costs in manufacturing would rise by about

1½%. However, because of the appreciation of the króna, the actual increase in relative unit labour costs will be higher, or just under 3%. For 1998, the rise in relative unit labour costs could be lower, or around 2%. The real exchange rate, in terms of relative consumer prices, will rise much less, or by around 1% this year and ½% in 1998. The competitive position has clearly been weakened by these developments but that needs to be seen in the following context:

The real exchange rate has been very low in recent years in an historical context and its rise over the past three years has only reversed half of the depreciation that took place in 1993 and 1994.

The appreciation of the real exchange rate has been quite modest, compared to appreciations frequently experienced internationally during a strong upswing. Thus, it is estimated that the real exchange rate of the pound sterling has appreciated by about 23% over the last two years. The real exchange rate of the New Zealand dollar has appreciated to a similar extent since 1994. In both countries, the nominal exchange rate has appreciated strongly which accounts for most of the real appreciation. A similar story could be told of real exchange rate developments in many other countries, including the Nordic countries, where economic growth has been on the rebound, following recessions which led to both nominal and real depreciations.

In addition to the cyclical impact on the real exchange rate, the Icelandic economy has experienced positive shocks of a permanent character

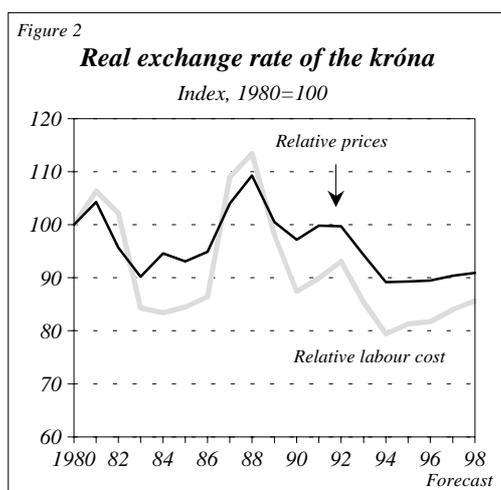
which should, all other things being equal, lead to an increase in the real equilibrium exchange rate.

The conclusion that the real equilibrium exchange rate has appreciated needs to be examined in more detail. It is difficult to determine at each point in time what the real equilibrium exchange rate actually is, as it is not a directly observable variable. However, by examining the development of the real exchange rate over a long period one can obtain a rough idea in what range the real equilibrium exchange rate lies.

When the real exchange rate is very low in an historical context, it is more likely than not to be inconsistent with price stability over the long run. A strong competitive position boosts growth to the limit of realistic capacity utilization, competition for labour increases and wages and prices rise. Favourable external trade and capital inflows create upward pressure on the nominal exchange rate. The real exchange rate appreciates. The continuity of this process is, however, often interrupted by changes in external conditions or in economic policies, resulting in actual developments that can be far more complicated. The fact that the real exchange rate has recently been well below the average for the last two decades indicates, other things being equal, that the real exchange rate has been below the real equilibrium rate. It is estimated that during the last quarter of this year the real exchange rate will be 5½% below the average since 1980

in terms of relative prices and 7% below the average in terms of relative labour costs.

There is a number of caveats to this line of reasoning. There can be a systematic error in real exchange rate measures which can make averages poorer indicators of long term positions the longer the period is when the averaging is to be done. It needs also to be kept in mind that the real equilibrium exchange rate is not a constant, but a variable that changes when external conditions undergo permanent changes. The fall in national saving, the cut in fish quotas and the long-term deterioration of the terms of trade undoubtedly led to a depreciation of the real equilibrium exchange rate during the early 1990s. As a result of the long lasting external imbalances, foreign debt has risen sharply since the early 1980s. Such an increase in foreign indebtedness also lowers the real equilibrium exchange rate. It is therefore not unlikely that the real equilibrium exchange rate has been somewhat lower than the average real exchange rate of the last seventeen years. The unfavourable developments experienced during the early 1990s lowered the real equilibrium exchange rate. These developments have proved lasting but not irreversible. More recently, the external conditions of the economy have improved markedly, a development that is likely to be permanent. Fish stocks are recovering as a result of effective fishing management. Fishing and fish processing operations are also realizing potential efficiency improvements offered by the current fisheries management system. At the same time, international developments have made the country's energy resources more attractive. Foreign direct investment in power intensive industry has increased sharply and the outlook is for that development to continue. The terms of trade are rather poor, but can be expected to improve. It is therefore likely that the real equilibrium exchange rate has strengthened although it is impossible to put a number on its actual level in terms of the various measures of the real exchange rate. Historical experience, current economic conditions and prospects for the future suggest that the real equilibrium exchange rate is probably above the current level of the real exchange rate.



### **Business profitability**

The last fishing year (September 1, 1996 to August 30, 1997) saw a record catch of almost 2.2 million tons. During the first nine months of this year, the catch reached 1,860 thousand tons compared with 1,780 thousand tons during the same period in 1996. Over the last four years there has been a continuous increase in the catch volume by a combined 39%. The value of the catch has, however, only increase by 6% as most of the increase has been in herring and capelin which are not as valuable as the ground-fish species. According to a new forecast from the National Economic Institute, the total catch during the current calendar year will be 2,160 thousand tons, an increase of 105 thousand tons over 1996. However, the value of the catch and production for export is expected to decline by around 1% in real terms because of changes in the composition of the catch. The allowable catch of certain important species was raised for the current fishing year (September 1, 1997 to August 30, 1998). The capelin quota may also turn out to be larger than currently expected.

The position of Icelandic marine products on foreign markets generally appears strong during the fall of 1997. International stock levels for the main products are low, and sharply lower than a year ago. Prices for most products are rising and the outlook is positive. Since 1994, when the continuous decline in prices from 1991 stopped, to the autumn of 1997, prices for marine products in foreign currency have on average risen by 15%.

Interim accounts for fisheries firms registered on the Icelandic Stock Exchange and on the Over the Counter Market (OTC) have been appearing during the autumn months. The discussion here is based on the interim accounts for twenty two fisheries firms which accounted for 47% of total turnover in the fisheries in 1996. Profits from regular operations declined in relation to turnover from 4.9% during the first half of 1996 to 2.5% during the first half of 1997. Net profits in relation to turnover also declined slightly, or from 7.3% in 1996 to 6.6% this year. The difference between the development of profits from regular operations and net profits reflects profits from the sale of assets, especial-

ly boats and shares, and profits from the operation of subsidiaries. The gross operating surplus (operating profits before depreciation charges and capital cost items) rose somewhat between 1996 and 1997, according to the interim reports, or from 15% of turnover to 16.3%, and the net operating surplus (the gross surplus adjusted for depreciation) rose from 7.5% in 1996 to 7.7% this year. The varying development of the various profit concepts mostly reflects the rise in depreciation charges and especially capital cost items during the first half of 1997 compared with the corresponding period of 1996. For the firms in the sample as a whole, depreciation has risen from 7.4% of turnover last year to 8.8% this year and capital cost items from 2.7% of turnover to 5.2%. Rising depreciation charges are the result of rising book values of fixed assets for firms, that have shares traded on the Stock Exchange. It is notable that exchange rate developments do not appear to have adversely impacted the profits of fisheries firms during this period as the gross operating surplus has risen over the corresponding period last year.

Good profitability in the fisheries, a stronger equity position and promising future prospects have caused share prices in fisheries firms to rise. Despite some decline in the most recent months, the market value of fisheries firms registered on the Stock Exchange trebled between the beginning of 1996 and the end-September this year. Information is not available on the development of share prices of firms on the Over the Counter Market. At end-September the price index for fisheries firms stocks was 211% higher than at the beginning of 1996, but 12.5% higher than at the beginning of this year.

The most reliable information on profits in manufacturing can be obtained from the accounts of the ten manufacturing firms currently registered on the Icelandic Stock Exchange. These ten firms are among the largest and strongest manufacturing firms and the development of their profits can be taken as an indication of profit developments for manufacturing as a whole. Turnover for these firms in 1996 was 15 b.kr., or around 15% of the total turnover in manufacturing, excluding power intensive industry. According to the interim accounts,

turnover during the first half of this year was up 20% over the same period last year, whereas both gross and net operating surpluses declined somewhat. The gross surplus declined from 10.8% to 8.8% and the net surplus from 6.2% to 4.5%. Lower manufacturing profits mainly reflect higher wage cost but also increased use of raw materials. Depreciation charges have also risen in response to an increase of nearly a third in fixed assets since 1995.

The strong profitability of business in recent years is also reflected in rising profits for financial institutions. Loan loss provisions by the three commercial banks and four of the largest saving banks have decline by 13% between 1996 and 1997. Operating income, other than interest, of deposit banks has also risen sharply. Bank profits have risen despite a narrowing of the difference between interest earnings and interest payments.

On the whole, on the basis of the profitability of the fisheries and manufacturing firms, the shares of which are traded on the Icelandic Stock Exchange and the OTC market, business profitability appears relatively good at present. These firms are admittedly among the largest and strongest in their respective sectors so their results should not be expected to fully reflect average results in those sectors. It is, however, not obvious that an assessment of economic conditions should be based on averages. The existence of poorly performing firms, which drag down average results, can be seen primarily as a measure of the potential gains from

restructuring and efficiency improvements in the relevant sector.

### Demand

All conditions have been in place for a strong expansion of demand this year. The wage agreements that have been completed during the year have led to an increase in wages of around 6%, employment has risen and the number of working hours increased. It is estimated that real disposable income will increase by around 5½%. Investment in power intensive industry will peak this year and public consumption will expand somewhat faster in real terms than in the two previous years. According to the National Budget, national expenditure will increase by 6.7% this year compared with 7.9% last year. Private consumption is expected to grow somewhat more slowly, which should grow in line with real disposable income. In the view of the National Economic Institute, the growth of fixed investment will slow from 23.5% in 1996 to 18.6% this year. This can, however, hardly be interpreted as a decline in demand, as discussed below.

The National Economic Institute projects that private consumption will expand by around 5% this year, down from 6.4% in 1996. The rise in private consumption thus appears somewhat lower than the increase in real disposable income which is most likely well above 6%. Household debt is expected to rise by 19 b.kr. this year, which is somewhat lower in real terms than in the past three years. In real terms the increase in indebtedness is 5½%, the lowest rate of increase in household debt since 1979. Net household investment in housing and cars is estimated to be 14 b.kr. In addition, households will increase their financial assets somewhat. Increased household debt is thus not being used to finance private consumption, and the equity ratio, excluding pensions assets, for households is set to remain largely unchanged from last year. This will be the third year in a row that this ratio either rises or remains unchanged, following a steady decline over a decade and half. This ratio does not include holdings of shares or home furnishings. Share holdings are likely to have increased in the last two years.

### Main ratios and indicators from p/l accounts and balance sheets, publicly listed fisheries companies (ISE and OTC) 1995-1997

M.kr. and %	1995	Sample (23 comp.)		Sample 1997 <sup>1</sup>
		1996	1996	
Turnover, m.kr. ....	42,944	53,044	49,056	31,723
Pre-tax profit/turnover ...	6.3	5.9	6.5	6.6
Pre-tax profit before extra-ordinary items/turnover .	3.4	3.1	3.4	2.5
Operating profit/turnover.....	15.3	14.4	14.8	16.6
Return on equity .....	19.3	14.3	15.2	.
Return on capital employed	7.1	5.8	6.3	.
Equity ratio .....	27.5	31.4	31.7	33.4
Cash-flow, m.kr. ....	3,394	4,610	4,589	3,584

1. First 6- 8 months

The growth in fixed investment is now estimated to be lower than was expected in April, or 18.6%. The main reason for the lower growth of fixed investment is that the sale of an airplane during the year lowers investment in transportation. Investment in this sector is now estimated to be 5.5 b.kr. rather than 8 b.kr. Although the sale of an airplane is recorded as negative investment in the national accounts (but also as positive exports resulting in no effect on GDP growth), it does not signal a reduced activity in flight transportation nor is it a sign the demand has declined.

Investment in power intensive industry is now expected to be somewhat higher than was the case in April, or 12.6%. Investment in the power intensive industry and the related power plants is now estimated to be a third of total investment. Investment in housing is another large investment component, accounting for around a fifth of the total in recent years. Housing investment declined by 10% in 1995 but rose by 4% in 1996. If housing investment rises by 5% this year, as the National Economic Institute assumes, the 1995 contraction will almost have been fully reversed. Housing investment would, nevertheless, be 15% lower than in 1990. In fact, the level of housing investment in recent years has not been as low since 1972, despite a significant population increase in the meantime. The same applies to investment in commercial property. This investment has risen somewhat in the last two years but from a very low level and it remains at its lowest since 1981. Combined, these two items, investment in housing and commercial property, have accounted for between a fourth and a third of gross fixed investment. Hence, their growth has a significant impact on the level of employment in the country.

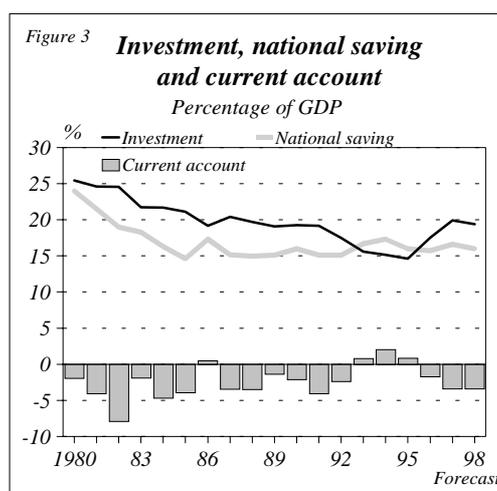
### Outlook

The National Budget, presented in October, assumes that strong growth will continue next year, with GDP expanding by 3½%. Investment in power intensive industry will peak this year, and some decline will occur next year. On the other hand, other business investment is expected to continue to increase and take up some of

the slack from the decline in power intensive investment. Most important here is Icelandair's planned purchase of aircrafts next year. Housing investment is projected to continue to increase at about the same pace as this year, around 5%. Public investment, on the other hand, is set to decline somewhat. On the whole, fixed investment is assumed to rise by 1.3%. Exports will increase in line with increased production capacity for aluminum and ferro-silicon, while marine exports are assumed to remain unchanged. Private consumption is expected to increase in line with real disposable income and the real increase in public consumption is expected to be somewhat higher than in recent years.

The main uncertainties regarding the 1998 forecast are to some extent the same as those concerning the outcome for the current year. Imports of investment goods, both for power intensive industry and air transportation, can easily move from one year to the next. It is also uncertain to what extent other sectors will take up the slack when investment declines in the power intensive industry. In the present forecast much depends on the plans of one firm, Icelandair, as investment in the fisheries is in fact expected to slow from the high levels of this year and last. Furthermore, other power intensive projects are on the drawing board and could be started already next year.

The outlook for household consumption and



saving is always uncertain. The National Economic Institute assumes that private consumption will increase by 5% next year. This is lower than the increase in real disposable income. Given that household debt now exceeds 130% of disposable income, household saving could increase even more. An increased emphasis on pension saving, and tax concessions to that effect, could lead in the same direction. Whether any of this will, however, occur next year is uncertain.

As the Central Bank has repeatedly pointed out, and discussed at length in the 1996 Autumn Statement, national saving in Iceland has in relative terms been among the lowest in the OECD for more than a decade. In the opinion of the Bank, the level of saving has been undesirably low. Figure 3 shows that gross saving is closely linked to gross investment over the long run

despite temporary deviations in individual years. Increased investment last year and this year has, however, not managed to raise national saving to any considerable degree. This reflects that increased investment has largely been financed with foreign resources, either borrowed or invested directly, which has caused a deterioration in the current account balance. Gross national saving in relation to GDP will, nonetheless, rise by 1 percentage point this year to 16½%, according to the National Economic Institute. The national saving rate is projected to drop again in 1998 and remain at that level through the remainder of the century. This is certainly a matter of concern and underscores the need for more sound public finances, which is the quickest and most secure way to increase national saving. In addition, ways need to be sought to strengthen private saving.

### III Public finances

The 1997 Budget was approved at a time when the outcome of pending wage negotiations was still uncertain and work on proposals for reducing marginal effects in the income tax system was yet to be finished. According to the Budget, revenue, at around 126 b.kr., was expected to exceed expenditure marginally, giving the first surplus since 1984. Treasury expenditure, excluding interest payments, was to decline by 8 b.kr. in real terms (using the GDP deflator), mainly because responsibility for primary education was to be transferred from the state to local governments but also because of cuts in expenditure on education, housing, health care and transportation. Revenue was projected to decline by 5.7 b.kr. in real terms, with Treasury revenue from personal income taxes declining by almost 6 b.kr., reflecting an increase in the local government income tax to finance primary education.

ments, by 2.6 b.kr. The corrected surplus is, therefore, put at 2.2 b.kr. now compared with a budget target of 0.1 b.kr.

Increased revenue is primarily the result of increased levels of activity and turnover. Significant tax reductions were announced in connection with the March wage agreements. The Treasury's loss of revenue because of the tax cuts is put at 5 b.kr. per year when the cuts will have been fully implemented, while the cost of the first step is put at 1.7 b.kr. with one half not appearing until 1998. The 0.8 b.kr. that will be lost in 1997 had, however, already been earmarked for lowering marginal tax rates.

The rise in expenditure by 2.6 b.kr. above target reflects in part higher wage and benefit payments following the wage agreements. Health care outlays are expected to exceed budgeted amounts by 0.8 b.kr. even when higher wage payments are taken into account. Real estate

**Table 1. Overview of Treasury finances 1994-1998**

*Percentage of GDP*

<i>Cash basis</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>Budget 1997</i>	<i>Forecast 1997</i>	<i>Budget bill 1998</i>
Revenue .....	25.2	25.3	26.4	24.3	25.1	24.5
Expenditure <sup>1</sup> .....	26.9	27.3	26.8	24.3	24.6	23.9
Revenue balance .....	-1.7	-2.0	-0.4	0.0	0.5	0.6
Net sale of equity .....	0.0	0.0	0.0	-0.1	0.0	1.0
Net lending <sup>1</sup> .....	-1.7	-2.1	-0.1	0.4	-0.3	-0.4
Net borrowing requirement .....	3.4	4.1	0.6	-0.3	-0.2	-1.2
Repayment of domestic debt .....	1.4	2.4	6.1	1.3	2.9	1.5
Repayment of foreign debt .....	2.1	0.7	1.9	1.5	1.5	1.6
Net borrowing.....	7.0	7.3	8.6	2.4	4.2	1.9

1. Outflow is negative.

#### **The outlook for 1997**

At first sight, the 1.3 b.kr. Treasury deficit now expected for this year points to a slackening of policy. However, when a correction is made for the interest payments made in connection with the early redemption of Treasury bonds, the outcome is actually expected to be better than implied by the Budget. Revenue is expected to exceed target by 4.7 b.kr. but expenditure, excluding the above mentioned interest pay-

management and increased activities by the Ministry of Foreign Affairs will add 0.5 b.kr. to expenditure.

Net lending is set to be 1.8 b.kr. whereas the 1997 Budget assumed that net repayments would amount to 1.7 b.kr. Two-thirds of this difference are a loan from the Treasury to the State Housing Authority, which replaces own borrowing by the Authority. Viewing the interest payments on the accelerated redemption of bonds as

**Table 2. Treasury financing**

<i>B.kr.</i>	<i>Jan.- Dec. 1996</i>	<i>Jan.-Sept. 1996</i>	<i>Jan.-Sept. 1997</i>
Net borrowing requirement .....	2.7	11.6	7.5
Foreign borrowing .....	7.3	11.1	-6.0
Domestic borrowing .....	-4.5	1.3	14.8
Long-term .....	-3.9	-5.5	7.1
Short-term .....	-0.6	6.9	7.8
Central Bank sale of Treasury securities .....	7.7	5.9	-0.3
Long-term .....	3.4	4.0	1.1
Short-term .....	4.3	1.9	-1.4
Increased Treasury securities with other agents .....	3.2	7.2	14.5

amortization, indicates that the Treasury net borrowing requirement will be negative by 0.9 b.kr. rather than positive by 1.8 b.kr. as assumed in the Budget.

Thus far this year, the Treasury balance, counting early interest payments as amortization, has been 4.8 b.kr. stronger than at the same time last year. Financing shows even greater changes. Instead of net foreign borrowing of 11 b.kr. to the end of September 1996, the Treasury has lowered its net foreign debt by 6 b.kr. this year. On the other hand, the Treasury has in net terms (gross borrowing net of amortization, including accelerated interest payments) borrowed 14.8 b.kr. domestically compared with 1.3 b.kr. during the same period last year. These improvements appear against a backdrop of reduced pressure from changes in the Central Bank's portfolio. During the first nine months of

1997, the Bank's holdings of Treasury bills declined by about 1 b.kr., while its holdings of other Treasury securities increased by about the same amount. During the first nine months of 1996, the Bank's holdings of Treasury bonds, notes and Treasury bills declined by 5.9 b.kr. Economic agents, other than the Central Bank, have thus increased their holdings of government securities by 14.5 b.kr. this year compared with 7.2 b.kr. during the corresponding period in 1996.

### The budget bill for 1998

As of 1998, the presentation of the Budget changes dramatically. For the purpose of comparison the presentation here nevertheless sticks mainly with the cash basis presentation of recent years. On this basis, it is assumed that revenue will be 137.6 b.kr., and will rise by 5%, but that expenditure will be 134.4 b.kr., up 1.7%. Three factors complicate the picture, irregularities in interest payments, the transfer of primary education to municipalities and increased payments into the public sector pension fund. Table 2 attempts to adjust for these factors for the period 1995-98 in order to get comparable numbers. Spending and revenue are lowered for primary education, interest payments are replaced by accrued interest and a correction is made for the difference between the contributions to the pension funds and the pension entitlements that accrue in the course of the year. The outcome is more akin to accruals accounting, but still missing are various irregular items and accrued rev-

**Table 3. Treasury finances with corrections**

*Billions of krónur*

	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>Budget 1997</i>	<i>Forecast 1997</i>	<i>Budget bill 1998</i>
<i>Cash basis</i>						
Revenues .....	109.6	114.3	127.7	126.2	130.9	137.6
Expenditure .....	116.9	123.3	139.7	126.1	132.7	134.5
Balance .....	-7.3	-9.0	-12.0	0.1	-1.8	3.1
Revenue corrections for schools .....	-5.0	-5.0	-6.2	-1.2	-1.2	0.0
Corrected revenues .....	104.6	109.3	121.6	125.0	129.6	137.6
Expenditure corrections:						
Advance interest payments .....	-	-	-10.0	-	-4.0	-
Elementary schools .....	-5.0	-5.0	-6.2	-1.2	-1.2	0.0
Accrued interest .....	3.6	3.5	1.5	2.2	2.2	3.9
Pension liabilities .....	2.8	3.0	2.7	2.3	3.1	2.0
Corrected expenditures .....	118.4	124.8	127.7	129.4	132.7	140.4
Corrected balance .....	-13.8	-15.5	-6.1	-4.4	-3.1	-2.9

enue. After these corrections, the Treasury balance is seen to improve significantly between 1995 and 1996 and somewhat between 1996 and 1997, but is expected to remain unchanged between 1997 and 1998, despite favorable growth which alone should lead to a further improvement.

Corrected in this manner, Treasury expenditure is projected to rise by 6% or by the same percentage as the price deflator for public consumption. The increase in operating expenditure is put at 2.5 percentage points in excess of the public consumption deflator and the increase in transfers by ½ percentage point. Maintenance and investment spending should decline by 5%, or 0.7 b.kr. in real terms from 1997 based on the fixed investment deflator. This spending will be at a historical low in 1998, at 2.6% of GDP compared with an average of 3.6% of GDP during 1986-95. It is questionable if it will prove possible to keep the investment component so depressed over the long run.

On the revenue side, the cut in the income tax rate is set to lead to revenue losses of 0.8 b.kr. in real terms despite the introduction of the capital income tax and the increase in the rate high income earners are charged. However, business and net wealth taxes are expected to mostly compensate for these losses. Indirect tax revenue is expected to increase by 1.9 percentage points in excess of the GDP deflator, which is a cautious projection given the outlook for growth and activity. Other revenue will decline somewhat in real terms, with higher income from asset sales compensating for lower dividend earnings.

Net lending is expected to be 2.4 b.kr. in 1998, up from 1.8 b.kr. this year. Sales of state assets are expected to amount to 8.1 b.kr., with 1.9 b.kr. reflecting capital gains that will be counted as revenue. The Treasury net borrowing requirement is estimated to be negative by 6.6 b.kr., the equivalent of 1.2% of GDP. This is the first time the net borrowing requirement will be negative since 1981, when the borrowing surplus was 0.2% of GDP.

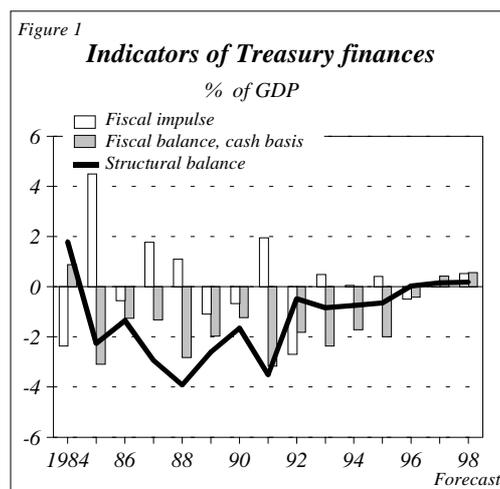
#### Public finances and the economic cycle

Adjusting for the interest payments associat-

ed with the special redemption of Treasury bonds, the improvement in the Treasury balance between 1995 and 1996 amounted to 1.6 percentage points of GDP; a further improvement amounting to 0.8 percentage points of GDP is expected between 1996 and 1997. However, the 1998 Budget Bill does not imply any significant improvement next year.

The accompanying chart shows different measures of the Treasury's fiscal stance. The first is the Treasury's revenue deficit, including adjustments for advance interest payments in 1996 and 1997, but not for the transfer of primary education or for pension liabilities. The latter two do not significantly affect yearly comparisons, because the transfer of primary education affects revenue and expenditure in the same way and the pension correction should be the about the same every year.

The second approach is to measure the Treasury's fiscal impulse by the increase in the fiscal deficit, as a percentage of GDP, in excess of what would be implied by economic growth on the revenue side and population growth on the expenditure side. A negative fiscal impulse signifies tightening. It may come as a surprise how small the tightening shown in 1996 is, but the balance should have improved even more than it did because of economic growth in excess of population growth. The fiscal impulse associated with the improvement in the Treasury balance this year is small but positive, and even



more so in 1998, indicating easing of the policy stance, when no improvement in the actual balance is expected despite above potential growth. Overall, the easing during this year and next could cancel the tightening in 1996.

The fiscal impulse measure is flawed in that what appears to be a significant tightening one year may in fact be the correction of an unusually easy policy stance the year before. Another approximation is to calculate a cyclically adjusted, or structural, fiscal balance. This approximation attempts to calculate what the Treasury balance would have been had the economy been operating at potential. However, estimating potential GDP, especially for the current period, is not easy. In figure 1 this is accomplished using a filter which identifies the trend in GDP. Then it is estimated what the Treasury balance would have been had the economy been on trend, assuming certain relationships between Treasury revenue and expenditure and the deviation of output from potential. Results from these calculations need to be interpreted with care, and they probably capture better the change in conditions from one period to the next than the actual conditions at any given time. According to the results in figure 1, the improvements in the Treasury balance this year and last is somewhat larger than the estimated cyclical improvement alone or by 0.8% of GDP. This can be said to be a rough measure of the tightening of the fiscal stance during these years. However, the 1998 Budget Bill does not indicate any additional tightening next year.

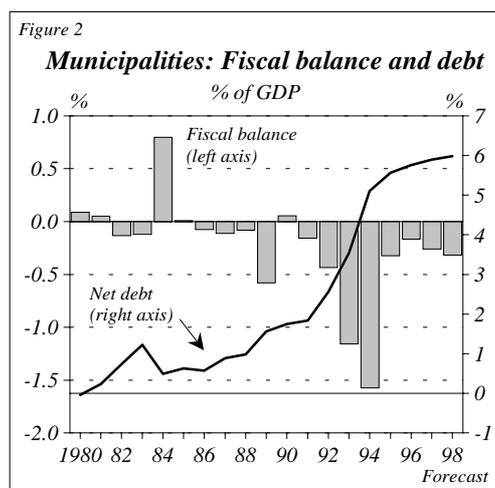
### Treasury debt

It should be emphasized that the above comments about the lack of restrictiveness of the 1998 Budget Bill is based on an assessment of the economic situation. It does not alter the fact that progress has been made in containing government expenditure and reducing the fiscal deficit. With the corrections in Table 3, Treasury expenditure is set to decline from 27% of GDP in 1994 to 25% in 1998, and the Treasury deficit is set to narrow from more than 3% of GDP in 1994 to 0.5% in 1998. Although the deficit does not narrow between 1997 and 1998, asset sales corresponding to 1.2% of GDP imply a tighten-

ing not recorded in the revenue outcome. In addition, Treasury assets in terms of uncollected revenue are expected to increase both this year and next. As a result, Treasury net debt should decline by 1½ b.kr. this year and by more than 3 b.kr. next year. In real terms, the debt will decline even more or by 7 b.kr. this year and more than 9 b.kr. in 1998. The ratio of gross Treasury debt to GDP is set to decline from 51% at the end of 1995 to 42½% at the end of 1998. Up to 1995 this ratio had risen steadily since the overheating year of 1987.

### Local government finance

The year before local government elections has previously proved difficult for local government finances as turned out to be the case in 1989 and 1993. According to the accounts of the fourteen largest municipalities, covering almost 80% of the population, their combined deficit in 1996 was less than 1 b.kr. For 1997, these municipalities aimed for an overall deficit of less than one half b.kr., or less than 0.1% of GDP. The latest indications point to a deterioration of the finances of these municipalities, but only to such an extent that their combined deficit could expand to 2 b.kr. Little information is available for next year but the National Economic Institute assumes some easing of policy stance between 1997 and 1998. As figure 2 shows, a strong effort was made in 1995 to improve local government finances. Local gov-



ernment debt has ballooned in recent years although, in relation to revenue, it is still lower than for the Treasury, or 65% compared to 110%. However, municipalities have less control over their revenue and expenditure, and therefore need to exercise caution.

### **General government finances**

The deficit of the general government, i.e. central government, social security, and local governments, is now estimated to have been 1.7% of GDP in 1996, and has not been lower since the overheating year 1987. The National Economic Institute expects the general government deficit to contract further this year, to 0.7% of GDP. This estimate is not fully comparable with the numbers that have been presented in Tables 1 and 3 for the Treasury alone. The National Economic Institute takes a more com-

plete account of various irregular expenditure items as well as uncollected revenue. It is notable that despite a marginal increase in general government net debt in 1997, it is projected to decline in relation to GDP from almost 40% of GDP in 1996 to 37% this year and 34½% in 1998. Economic growth helps bring down the debt-to-GDP ratio, but even more importantly general government net debt, in 1997 prices, is expected to decline from 201 b.kr. at the end of 1996 to 196 b.kr. at the end of this year and to 188 b.kr. at the end of 1998. Gross debt of general government has been prominent in international comparison since the Maastricht criteria include a requirement that gross public debt must not exceed 60% of GDP. The ratio for Iceland is expected to be 53.5% in 1997 and 50.5% in 1998.

## IV The labour market, incomes and prices

### The labour market

Demand for labour has risen this year for the third year in a row. Labour demand is expected to continue to increase faster than supply, causing further decline in unemployment. Unemployment is expected to decline from 4.3% of the labour force in 1996 to 3.9% this year (this corresponds to 5200 unemployed persons on average) and 3.6% in 1998. The rate of unemployment in September this year stood at 3%, the lowest level in September since 1992.

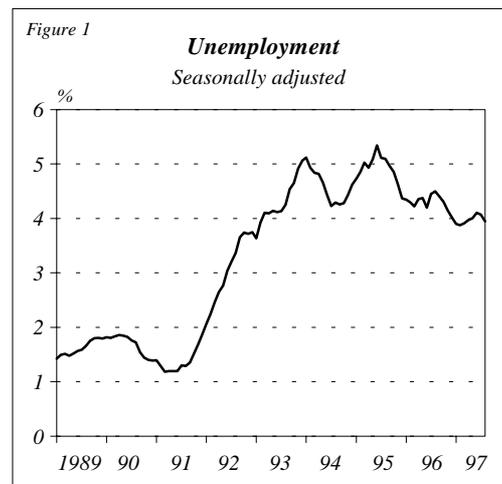
Strong growth, as has been experienced over the last two-three years, along with declining unemployment, unavoidably raises the question of whether bottlenecks are beginning to form in the labour market, which could lead to wage drift in certain sectors, which in turn could lead to higher general wage increases than would be compatible with long run price stability. No simple answer to this question is on offer. Econometric methods have been used to estimate how low unemployment can fall before price stability is endangered and the results of such studies here, as in other European countries, generally show that this level of unemployment has risen. It is now generally believed that this unemployment barrier is not a constant but a sticky variable which is affected by many factors that concern the flexibility of the labour market.

First, it matters how fast unemployment declines. The faster unemployment declines, the less time the labour market has available to break up the bottlenecks that form. Second, the flexibility of the market to meet demand in certain locations for certain skills can vary greatly and for a number of reasons. Each economy typically has a reserve of labour, which enters the labour market in good years but exits when conditions deteriorate. This reserve has traditionally been in the household sector, but earlier also in agriculture. In more recent years, the school system and movements of people to and from the country have served a similar purpose. The general education level and the training of the work force also matter in that they affect the ability of

the labour force to meet new demands. Finally, there are the structural issues concerning the labour market that have been a matter of debate in Europe in recent years, such as the arrangement and generosity of unemployment benefits (particularly in relation to the lowest wages) and business taxation.

As the female labour force participation rate has risen, the role of households in maintaining a labour reserve to draw on during upswings has declined. In recent years schools have taken over some of the role homes played before. Employees, who have lost their jobs, have gone to school for a time but returned to the labour force when economic conditions improve.

The sensitivity of labour force participation to changes in labour demand reduces the fluctuations in unemployment as has been the case in recent years. When the labour market situation deteriorated around 1990 the labour force participation rate declined. It reached its lowest level of 75.3% in 1993 but has slowly risen since then. For 1997, the participation rate is estimated to be 76.6%, a small increase over 1996. Labour supply is, according to the National Economic Institute, expected to grow by 1.2% over 1996, an increase corresponding to 1600 man-years. This increase in supply will almost satisfy the



increase in demand this year, with the National Economic Institute projecting employment to rise by 1.7%. In 1996, employment rose by 2.4%, the highest annual increase since 1987.

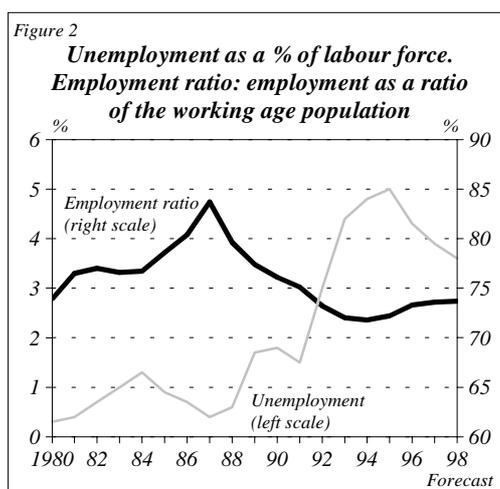
The increase in the female participation rate in recent years has been accompanied by a rise in the female unemployment rate. In August, female unemployment was 5.1% compared with 1.8% for males. Unemployment has declined more in the regions than in the Reykjavík area and the difference that has existed in recent years has widened. At the same time, people have moved steadily from the regions to the Reykjavík area, and particularly from the Vestfirðir area, where unemployment has been lowest. One can, therefore, conclude that to some extent the variation in unemployment across the country is the result of movements of people rather than the other way around.

A survey by the National Economic Institute conducted in April this year, however, indicated that employment creation in the Reykjavík area could absorb the influx of people in the period ahead. The survey showed that employers wanted to add 310 jobs, mostly in the Reykjavík area, or 330 jobs, while in the regions employers wanted to get rid of 20 jobs. According to this, the difference between the regions and the Reykjavík area when it comes to unemployment should narrow. Localized shortages of labour are thus less likely to lead to labour market imbalances. The National Economic Institute's

September survey, however, revealed a strong interest among employers, both in the Reykjavík area and in the regions, to hire more people. It is clear that much of the increase in labour demand comes from the services sector (excluding hospitals), particularly in the Reykjavík area. In the April survey, manufacturing exhibited the strongest desire to add jobs, whereas the September survey showed the greatest desire to hire in the services sector, excluding hospitals. Localized and skill-specific shortages have been satisfied to some extent by the immigration of workers, both foreigners and Icelanders living abroad. There has, for example, been a shortage of workers for engineering jobs, and some foreign workers have come to occupy those jobs. However, foreigners are most commonly recruited to work in fish processing.

The number of work permits for foreigners has risen in recent years. During the first eight months of this year, 831 work permits were issued, of which 452 were new temporary permits. This compares to a total of 742 permits at the same time in 1996. Net emigration has also slowed as economic conditions have improved. During the first seven months of the year the net number of emigrants was 54 compared to 309 in the same period last year. For all of 1996, net emigration was 444, down from 1418 in 1995, which was the highest level of net emigration since 1970.

The mobility of workers in and out of the labour force, between countries and regions, and between occupations, reduces labour market pressures during upswings and lowers unemployment during recessions. During upswings, this flexibility lessens the likelihood of wage drift and prevents a temporary upswing from undermining long-term stability. So far in the current upswing, the flexibility has been sufficient. Labour has been drawn from the available labour reserves, from the ranks of the unemployed, from homes, from schools and from abroad, both Icelanders and foreigners. It is a matter of judgement how long these labour reserves will last if economic growth continues at the pace of recent years. Unemployment is still somewhat above typical levels prior to the recession of the early 1990s. It is, however,



unlikely that those unemployment levels can ever be achieved again. Some of the unemployed lack the skills needed in a rapidly changing economy. The continued rise in the number of long-term unemployment despite the general improvement of labour market conditions, is a clear sign of this. At the end of May, 37% of those unemployed had been unemployed for longer than six months; two-thirds were women. In 1996, the long-term unemployment accounted for less than a third of unemployment, but their share of the total has risen in each of the past five years.

### **Incomes**

As unemployment has fallen, the bargaining position of workers has strengthened. The decline in real wages during the recessionary years has also led to expectations that the decline would be reversed when conditions improved. These conditions were reflected in the wage negotiations which started at the beginning of the year. Agreements were reached with most of the largest unions in March, while some agreements are yet to be concluded. The wage agreements are of longer duration than in the past, typically to the year 2000.

It is estimated that the agreements will lead to an average increase in wages of about 6% this year. Real incomes will, therefore rise even faster than in recent years. In 1996, the Statistics Iceland's wage index rose in real terms by 4.1%; by 2.9% on the general market but by 5.8% for public sector and bank workers. In real terms the wage index should rise by 3.2% this year and by 4.1% in 1998.

Other factors affect real disposable income. Social security benefits have risen by 8.7%, well in excess of wages. The income tax rate was lowered by 1.1 percentage point from May 1 and from mid-year pension contributions became fully deductible from income tax. Real disposable income is projected to rise by 4.5% this year and by a higher 5.2% in 1998. At the beginning of 1998, wages will rise by 4% and the income tax rate will decline by 2 percentage points. Employment will also continue to increase.

Wage drift (that is wage growth in excess of negotiated increases) has been fairly steady in

recent years, but accelerated somewhat in 1996 to 1.4% from below 1% in each of the previous years. There are no unambiguous signs that a sharp acceleration in wage drift, which could be an indication of serious labour market imbalances, has taken place in the recent period.

### **Prices**

The impact of the wage increases this year on prices has been lower than historical experience would indicate. The consumer price index rose by 1.9% during the twelve-month period ending in October 1997. Year-on-year inflation between 1996 and 1997 is forecast to be 1.8%. Inflation among trading partners is projected to average 2.1%.

Most of the increase in the consumer price index reflects a 4% increase in the price of domestically produced goods, while the price of imports (excluding alcohol and tobacco) has been largely unchanged. The price of imports declined during the spring following the appreciation of the króna. The trade-weighted appreciation of the króna by 2.5% from the beginning of the year to the end of July contributed to the decline in import prices.

According to the National Economic Institute, the price of general imports declined by 0.3% during the first seven months of the year but that of imported consumer goods by 1.2%. This decline is also apparent in imported items in the consumer price index, the price of which declined by 0.3% from March to June. There are, however, signs that the price of imported goods has begun to rise again, and the exchange rate of the króna has weakened by about 2.5% between end-July and end-October. These developments indicate that an exchange rate appreciation is reflected in import prices. Previous experience was mostly related to the relationship between depreciation and prices.

Negotiated wages and the Statistics Iceland's wage index have largely developed as assumed in the Central Bank's inflation forecast. However, the increase in the consumer price index during the second quarter was only 0.6% and only 0.7% in the third quarter. The wage increases are therefore only to a limited extent reflected in price increases, perhaps because of

**Table 1. Quarterly inflation forecast**

%		Fore- cast	Index change	Error
1996	1. quarter	0.84	0.50	0.34
	2. quarter	0.57	0.74	-0.17
	3. quarter	0.40	0.79	-0.39
	4. quarter	0.35	0.15	0.20
1997	1. quarter	0.17	0.20	-0.02
	2. quarter	0.89	0.59	0.29
	3. quarter	0.45	0.69	-0.25
Total				0.00
Standard deviation				0.29

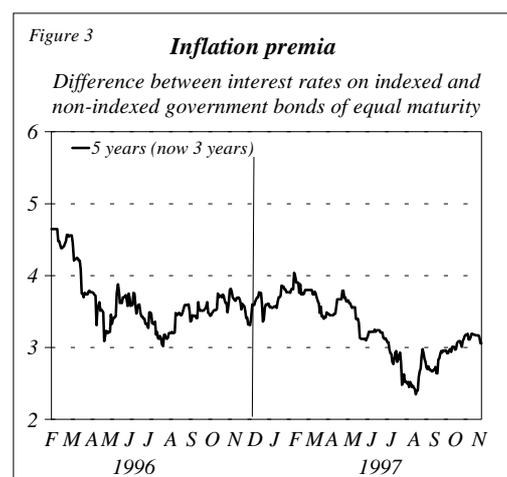
improved productivity, lower import prices, intensified competition and seasonal factors. There is, however, no evidence that the wage assumptions used in the inflation forecast prepared after the wage agreements were wrong.

Increased competition among domestic airlines influenced the index over the summer, when the cost of domestic flights declined by 14% in July and lowered the consumer price index by 0.15%. This component is now 17% lower than in July. The impact of increased competition is most likely more widespread, through indirect effects on other components. In recent years, the seasonal factors have been more prominent, largely because of large fluctuations in the price of vegetables, potatoes and other foods. A part of the Central Bank's forecast errors in recent year can be explained with reference to these seasonal factors, including the tendency to over-predict price increases at year-end. Temporary factors also complicate short-term inflation forecasting. Two such factors this year bear mentioning, an increase (and decrease) in food prices because of a strike this spring and an increase in tobacco prices this autumn. Such changes affect the value of the index at any given moment in time but certainly not the long-run rate of inflation. Table 1 shows the Central Bank's inflation forecast one period ahead in comparison to the actual change in the consumer price index. The cumulative forecast error is negligible, with the standard deviation of the error less than 0.3%, while the standard deviation of the forecast equation is 0.5%. These are fairly strong results. An analysis of annual forecasts show that over the last two years forecasts prepared at the beginning of the year have been

higher than both later forecasts and actual inflation. The reason is, as discussed above, that wage increases during the first half of the year have not appeared in inflation as the forecast model assumed.

### Inflation forecast

The consumer price index is not expected to change much over the next two months, as the seasonal decline in some of its components will slow its rise. The forecast of the increase in the index between 1996 and 1997 averages has therefore changed little since the last forecast, from 1.7% to 1.8%, while somewhat more for the increase in the index in the course of the year, from 2% to 2.3%. However, inflation is expected to be higher in 1998 than this year, in part because of the 4% increase in wages at the beginning of the year. The assumption regarding productivity growth has been raised by ½ percentage point for each of 1997 and 1998, reflecting the new national economic forecast. The forecasts of international economic institutions now indicate that import prices in foreign currency will be largely unchanged from the year before, whereas the Bank's July forecast assumed an increase of 1.5%. The current inflation forecast for 1998 is therefore similar to the one prepared in July, or 2.7% year-on-year, compared to 2.8%. From the beginning to the end of 1998 the forecast inflation is 2.2%, compared to 2.7% in the July forecast.



Interest rate differentials between indexed and non-indexed government bonds with three years to maturity indicate that inflation expectations exceed somewhat the Central Bank's inflation forecast. This can be seen from figure 3. On November 5th the interest rate differential was 3.1%, reflecting inflation expectations and inflation risk over a period of three years. Although the inflation risk premium is not observable, it is unlikely to be sufficiently large to explain the

entire gap between the banks inflation forecast of 2.2% over 1998 and 2½% inflation in 1999 and the interest rate differential between indexed and non-indexed bonds. The Central Bank has also conducted a survey on inflation expectations among households. In September households on average expected an inflation of 3½% in the following 12 months, but 42% of those having an opinion expected inflation to be below 3%.

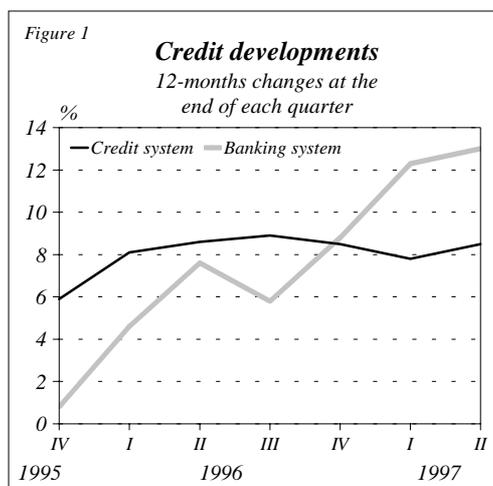
## V Money and financial markets

Financial market developments this year have been characterized by expanding deposit money bank credit, especially re-lending of foreign loans to businesses. Broader credit indicators point to a smaller increase, on a par with that of 1996. Deposit banks have clearly increased their share of lending. Money supply aggregates also show more rapid expansion this year. Increased financial saving and capital inflows during the first half of the year led to a decline in long-term interest rates and the Treasury has taken advantage of the more relaxed market conditions to increase the role of the domestic market in its borrowing. During the first half of the year the capital account registered considerable inflows, which have been reversed since August reflecting seasonal factors as well as increased portfolio investment abroad. Secondary market trading in bills and bonds on the Iceland Stock Exchange has increased sharply as a result of a reform of market making. Trading in equity has also increased sharply, and the Iceland Stock Exchange share index rose during the early part of the year, reaching a peak in May at 40% higher than at the beginning of the year. Equity prices have since declined, and the share index was at the end of October 16.5% higher than at the beginning of the year.

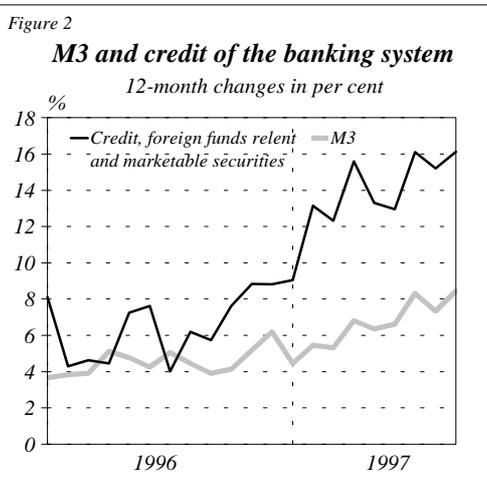
### The development of credit and the money supply

The growth of the main monetary aggregates has been considerably faster this year than it was last year in terms of the twelve-month change to the end of September each year. Lending, re-lending and securities holdings of the banking system increased by 16%, or 40 b.kr, in the last twelve months, but by 5.8% in the corresponding period in 1996. Re-lending of foreign loans showed the largest increase, or 53%. Lending to the business sector increased most while lending to individuals showed about the same increase as last year. Behind these developments lies increased economic activity and a transfer of lending operations to banks from other parts of

the credit system. Lending by the credit system as a whole was up by 8.5% on a twelve-month basis around mid-year, an increase similar to the twelve-month increase to the end of June 1996. Growth in lending by the investment funds has slowed recently. The twelve-month increase to the end of June 1997 was 6.8%, or 19 b.kr., compared with 7.4% at the end of June 1996. Lending by the housing funds has shown that sharpest slow-down, with the twelve-month increase at the end of June this year at 7.5% compared with 12% last year. On the other hand, leasing companies have significantly increased their activity this year. The twelve-month increase in their assets to the end of August 1997 was 5.5 b.kr. Leasing contracts in domestic currency were up 2.5 b.kr. and in foreign currency by 1.6 b.kr.



Money supply aggregates, both narrow and broad, have also risen faster this year than in 1996, partly reflecting the elevated level of economic activity. The twelve-month increase in M3 to the end of September 1997 was 8.4% compared with 3.9% at the same time last year. Corresponding figures for M1 were 12.1% in 1997 and 8% in 1996, but it needs to be kept in mind that changes in the payments system along



with lower inflation appear to have caused a greater increase in current deposits than in other types of deposits. Including securities issues (M4), the growth of deposits was almost twice as fast over the last twelve months as in 1996.

The liquidity position of the deposit money banks deteriorated by 4.6 b.kr. over the twelve months to the end of September while it improved by 1.3 b.kr. in the corresponding period last year. The deterioration in the liquidity position has been caused by an increase in lending in excess of the increase in available funds of both domestic and foreign origin. The liquidity position has, nevertheless, been well above the level required by regulation.

The Central Bank's monetary base has risen sharply over the last twelve months, or by almost 28% to the end of September. A large part of this increase is the result of the sale of

#### The accounts of the banking system

B.kr.	Sept. '95- Sept. '96	Sept. '96- Sept. '97
Foreign assets	-2.2	-17.8
Credit, funds relented and marketable securities	13.6	40.1
Central Bank claims	-6.6	-2.2
Deposit money banks	14.7	25.3
Foreign funds relented	1.8	14.2
T-bills held by banks	3.9	2.8
Money supply and bank issues of securities = M4	11.9	24.1
o.w. M3	6.8	15.2

Central Bank certificates to deposit money banks, which is a tightening measure. Correcting for this factor, the increase in the monetary base over the last twelve months is 14%.

#### Mutual funds

Mutual funds have continued to expand in 1997, although not at the same pace as in 1996. The value of outstanding mutual fund shares stood at 29.5 b.kr. at the end of September, representing an increase of 7.2 b.kr. from twelve months earlier. More than half of the increase has taken place in so called short-term funds. Around 90% of mutual fund assets are domestic bills and bonds while the remainder is invested in domestic equity and foreign securities. In terms of borrower, 60% of the assets are Treasury securities or securities guaranteed by the Treasury, 16% are bank securities, 5% are securities of other credit lending institutions and 3% are securities of municipalities.

Over the last few years, the assets of equity funds have risen rapidly, reflecting strong demand for their shares, an increase in the number of funds and attractive returns. During the first ten months of this year, equity funds issued shares amounting to 8.8 b.kr., compared with 5.3 b.kr. during all of 1996. The total assets of equity funds, for which the Central Bank collects data, amounted to 15.2 b.kr. at the end of September, an increase of 7.4 b.kr. over the twelve preceding months.

#### The money market

The foundations of the domestic money market were laid in 1992 with the commencement of regular issues of standardized Treasury bills and with the agreement between the Treasury and the Central Bank to close the former's overdraft with the latter. The market has since developed rapidly, including the part which is visible on the Stock Exchange and Central Bank money market transactions, as well as the part which is less visible. For example, during the first nine months of the year the total volume of Treasury bill transactions, sales and redemptions of shares in short-term funds and Central Bank repurchase agreements was around 223 b.kr. It

needs to be noted, however, that the maturity of money market instruments is short, which partly explains this high turnover.

The sale of Treasury bills through auctions during the first ten months of the year was 53.1 b.kr., a decline of 300 m.kr. from the corresponding period in 1996. During the first ten months, Treasury bill turnover on the Stock Exchange was 62.2 b.kr., compared with 70.2 b.kr. during the same period in 1996. This decline may reflect that at the end of last year banks began to issue standardized bills which are registered on the Stock Exchange. These bills have achieved a foothold on the market. Their turnover over the first ten months of this year was 23.7 b.kr. At the end of September, the outstanding stock of these bills was 13.4 b.kr., while the stock of outstanding Treasury bills was 16.9 b.kr.

The short-term mutual funds have expanded rapidly in the recent period. Their assets amounted to 10.3 b.kr. at the end of September, an increase of 4.2 b.kr. during the preceding twelve months.

Deposit money banks introduced a new deposit form earlier this year, so called money market accounts. They are tied for ten days and carry a yield that is linked to the yield on Treasury bills less a certain fraction. Despite their recent introduction, these deposit accounts already amounted to 6.2 b.kr. at the end of September, which corresponds to 3% of total deposits.

### **The bond market**

The domestic bond market has expanded rapidly in recent years. At the end of September, the stock of outstanding market bonds was 285 b.kr., up 36 b.kr. from the beginning of the year. During the same period, bonds amounting to 40 b.kr. were issued in public offerings and private placements, compared with 45 b.kr. during the first eight months of 1996. The decline is largely the result of a contraction in the sale of non-indexed Treasury bonds.

Significant bond market reforms have been implemented this year. In February, the Government Debt Management Agency announced a reduction in the number of out-

standing Treasury bond issues from 46 to 9 in four steps. Market making in the remaining issues will be strong, and they will be benchmarks. Three steps in this process have already been implemented, and the number of bond classes has shrunk to 36. At the beginning of this year, around 65% of outstanding Treasury bonds were concentrated in the nine largest classes of bonds. By the end of September, this ratio had increased to 75%.

In March, the Central Bank renewed and expanded its agreements with three securities firms concerning portfolio management of a part of its holdings in government bonds and market making for those issues. Following these agreements, two banks announced that they would act as market makers in a similar manner as the securities firms.

### **Issues of marketable securities 1996 - 1997**

<i>B.kr.</i>	<i>Jan.-Aug. '96</i>	<i>Jan.-Aug. '97</i>
Treasury	22.2	18.9
Municipalities	0.9	0.9
State Housing Fund	12.8	12.0
Bank bonds	4.7	4.8
Other	4.5	3.1
Total	45.1	39.7

The State Housing Fund decided to keep open its 1996 classes of housing bonds during this year, which represents the first step in reducing the number of housing bond classes. In June, the State Housing Fund reached an agreement with two operators on the financial market that they engage in market making in housing bonds. In April, regulation concerning Central Bank facilities for market makers in Treasury bonds was changed. A market maker now needs to meet stricter requirements set by the Central Bank rather than those of the Stock Exchange. In September, the amount ceiling of the Central Bank repo facilities for market makers was raised and annual limits on the use of the facilities were abolished.

The result of all these changes has been a sharp increase in turnover for government bonds and housing bonds this year. On the Stock Exchange, turnover in these bonds was 49 b.kr. during the first ten months of the year compared

with 24 b.kr. during the first two months of 1996. In addition to the reforms, the decline in long-term interest rates this year and expectations of further declines have also boosted turnover on the bond market.

### The equity market

Two developments stand out in relation to the equity market, on the one hand, higher transactions volumes both on the primary market and the secondary market, and, on the other, greater price volatility. During the first ten months of the year, shares valued at 14.7 b.kr. were issued compared with 7 b.kr. during the same period in 1996. Turnover on the secondary market has increased even more, with total turnover on the Stock Exchange and the Over the Counter Market (OTC) amounting 14.7 b.kr. during the first ten months of the year compared with a turnover of 7 b.kr. during all of 1996. This increase reflects the maturation of the market, as well as the effect of the introduction of the capital income tax.

Some equity issues take place through private placements, and trade in shares also takes place outside the confines of the Stock Exchange and the OTC. Information on the extent of these transactions is not available but indications are that it is considerable.

#### Turnover in the Icelandic equity market

<i>B.kr.</i>	<i>Jan-Oct.</i>		
	1995	1996	1997
<i>Primary market:</i>			
o.w. equity funds	2.9	12.2	14.7
o.w. fisheries companies	1.5	5.3	8.8
	0.9	5.4	4.1
<i>Secondary market:</i>			
Iceland Stock Exchange	3.6	7.9	14.6
OTC	2.9	5.8	11.5
	0.8	2.0	3.1
Total:	6.5	20.1	29.3

From 1994 to 1996, the Stock Exchange's share price index rose by 40% per year on average. During the first four months of this year, the index rose by 37%. The index continued to rise in the first days of May, but since then it has

declined. For the first ten months of the year, the index is up 16.5%, following a near continuous decline since May. When final profit results for 1996 and interim results for 1997 were reported, some observers speculated that domestic equity prices could have become excessively high.

### The capital account

During the first six months of 1997, the capital account balance was negative by 100 m.kr. while it was positive by the same amount during this period in 1996. The Central Bank's international reserves grew by 3.2 b.kr. during the first half of the year indicating net currency inflows of about the same amount. This reflected in part increased foreign borrowing and foreign direct investment, especially in the expansion of the Straumsvík aluminum smelter, totaling 7.8 b.kr. Deposit money banks were responsible for the bulk of the currency inflows through foreign borrowing and drawing on foreign assets. On the other hand the Treasury, municipalities, investment funds, and the business sector have lowered their foreign debts this year. Purchases of foreign securities have increased this year, to 4.8 b.kr. during the first half, largely on account of pension funds.

Since the end of July, this development has been partially reversed as currency inflows have slowed and the Central Bank's reserves have declined. Purchases of foreign securities and seasonal factors appear to have led to currency outflows. In this period, the Central Bank's reserve position has declined by 3.7 b.kr.

#### Capital and financial account 1996 - 1997

<i>B.kr.</i>	<i>Jan-June</i>	
	1996	1997
Capital and financial account.....	-1.9	-0.1
Capital transfers, net .....	0.0	0.0
Financial account .....	6.2	-0.2
Central Bank's reserves (- increase)	-0.9	-3.2
Financial acc. excluding reserves ..	16.3	3.0
Direct investment, net .....	0.1	2.0
Portfolio investment, net.....	-1.6	-4.8
Other capital, net.....	17.8	5.8
o.w. Treasury .....	7.1	-2.3
o.w. others.....	10.7	3.5

## VI Interest rates and the exchange rate

The Central Bank has pursued a restrictive monetary policy which has been reflected in a considerable differential between domestic interest rates and interest rates abroad. The differential between domestic money market rates and trade-weighted money market rates abroad averaged about 2.7 percentage points during the first ten months of the year. The differential has narrowed since the spring, first because of a decline in domestic money market rates and then because of an increase in interest rates abroad. When the outlines of the wage agreements began to take shape in mid-April, the direction of currency flows was reversed with fairly steady inflows being recorded to the end of July. The currency inflows were reflected in an excess demand for Treasury bills. Inflation expectations fell following the wage agreements which led to a decline in risk premia in non-indexed interest rates.

Both long-term and short-term movements in foreign borrowing were among the factors behind currency inflows during the first six months of the year. As discussed below, the exchange rate has fluctuated somewhat, not least in response to a reorganization of the interbank market in July. The opening of financial markets has increased the substitutability of domestic and foreign investment opportunities, especially on the short end, and changes in interest rates have a strong impact on financial flows.

Since the end of July, some currency outflows have been experienced, partly because of seasonality in current payments and because of increased purchases of foreign securities. A narrowing of the interest differential vis-à-vis abroad along with unclear expectations of imbalances in the economy may have contributed to these developments.

The Central Bank's own interest rates have been largely unchanged this year although some minor adjustments have been made. Yields on Central Bank certificates were raised by 0.8-0.9 percentage points at the beginning of the year to slightly below the yield on Treasury bills. This

made the certificates more competitive vis-à-vis the banks' other investment alternatives as the supply of Treasury bills had receded, leaving the money market short of investment opportunities. At the same time, banks were permitted to use the certificates along with Treasury bills in their repurchase transactions with the Central Bank. Simultaneously, the discount rate and the yield in resale agreements were raised by 0.5 percentage points. These changes were intended to maintain the degree of tightness of monetary policy that had prevailed since the autumn of 1996 when the Central Bank raised short-term interest rates and the minimum liquidity requirement in order to prevent excess demand for Treasury bills from pushing down money market rates. This monetary tightness resulted in a stable exchange rate and supported low inflation.

Yields on indexed bonds have lowered. Also, the decline in inflation expectations has led to a sharp fall in yields on non-indexed government bonds. Deposit money banks rates have, however, changed little in the course of the year.

### Money market rates

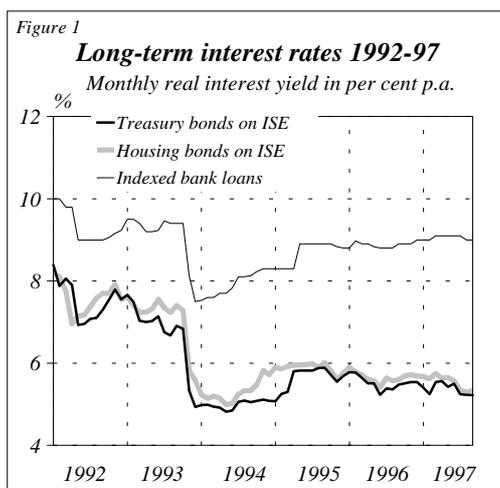
Interest rates on the money market have declined somewhat in the course of the year. At the beginning of the year, the yield on three-month Treasury bills was 7.07%. The yield rose somewhat in February and March while wage negotiations were ongoing and uncertainty prevailed about inflation prospects. Thereafter money market yields declined, to 6.91% at the end of October.

At times the supply of Treasury bills has been limited because the Treasury's borrowing requirement has been small, giving rise to excess demand. Furthermore, interest in investing liquid funds in Treasury bills increased. This applies to businesses, banks and securities firms because of their money market accounts and money market funds. In addition, a better balance in forward contracts for foreign currency during the first half of the year increased the

demand for Treasury bills because deposit money banks hedge the risk associated with forward purchases of foreign exchange through purchases of Treasury bills.

### Bond market rates

Bond yields have also declined this year. This applies to yields on both indexed and non-indexed bonds. Yields on indexed bonds changed little during the first half of the year, but from mid-year through September the yield on the main classes of Treasury bonds and housing bonds fell sharply. Since the beginning of the year to the end of October, the yield on housing bonds declined from 5.78% to 5.31% and the yield on eight and eighteen-year government bonds from 5.79% and 5.53%, respectively, to 5.29% and 4.92%, respectively. This decline in yields is the result of a lower Treasury borrowing requirement and increased interest in foreign borrowing.



The yield on non-indexed Treasury notes has declined since the beginning of the year, inter alia in response to lower inflation expectations. However, at the beginning of the year the yield on three-year bonds rose by nearly one-half percentage point, from 9.38% to 9.84%. From the beginning of February to the end of September, the yield on these bonds declined by 1.6 percentage points, to 8.29%, somewhat above their lowest level during the year of 7.88%. Despite

this decline, the differential between the yield on non-indexed Treasury notes and the trade-weighted yield on five-year foreign government bonds is still very large. It was widest at 4.6 percentage points in mid-February but narrowest in the beginning of August at 2.6 percentage points. At the end of October, this yield differential was 3.1 percentage points.

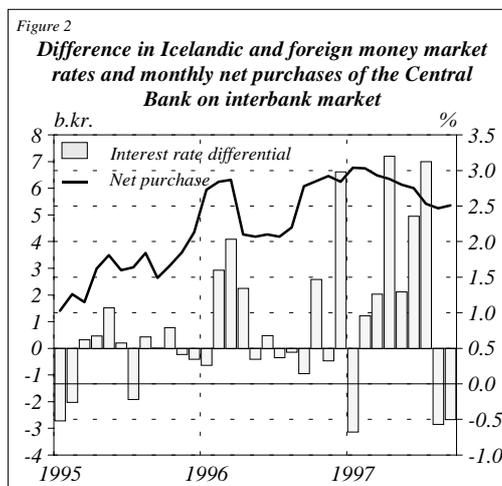
### Bank rates

Despite the decline in money market and bond market interest rates in the course of this year, the lending rates of commercial and saving banks were largely unchanged during the first ten months of the year. On the lending side, rates on bills of exchange and overdrafts increased by about 0.1 percentage point while average rates on indexed and non-indexed loans were about the same at the end of October as at the beginning of the year. On the deposit side, rates on general deposits have been unchanged while rates on indexed, time deposits have declined by 0.1-0.2 percentage points. In the recent period, deposit banks appear to have changed their rates less frequently than in the past, and the link between bank rates, on the one hand, and money market and bond market rates, on the other, may have weakened.

### Currency flows and exchange rate developments

Uncertainty at the beginning of the year about the outcome of wage agreements influenced the foreign exchange market and the Central Bank's net sales of foreign currency on the interbank market amounting to 3.2 b.kr. in January. At the same time, the exchange rate of the króna weakened. The Central Bank responded by raising its deposit rates as well as its overnight rates on loans to deposit banks in the latter part of January.

The differential between domestic and foreign money market rates has a strong impact on currency flows and thereby on the exchange rate of the króna. The differential on three-month domestic rates and the trade-weighted average of comparable rates abroad was at the beginning of the year above 3 percentage points and had been at that level since the Central Bank raised



domestic money market rates by 0.7 percentage points in September 1996.

The Central Bank's actions in January, along with growing confidence that wage agreements would be concluded without threatening increased inflation, led to a turnaround in the development of the exchange rate of the króna beginning in the first week of February. From the beginning of the year through the first week of February the exchange rate of the króna had weakened by 0.35%. During February, the Central Bank's net purchases of foreign exchange amounted to 1.2 b.kr., and the exchange rate strengthened. Growing confidence in stability in the wake of the wage agreements, currency inflows because of construction activity in the power intensive sector despite a weaker current account balance, led to a significant appreciation of the króna during the early part of the year. During the first seven months of the year, the Central Bank's net purchased of foreign currency on the interbank market amounted to 21 b.kr. and the exchange rate of the króna strengthened appreciably during this period. The Central Bank's net sales of foreign exchange outside the interbank market, mostly related to the payment of Treasury debt abroad, however, amounted to 17 b.kr. during this period, giving an improvement of less than 5 b.kr. in the Central Bank's reserve position from the beginning of the year to end-July. During this period, the Central Bank sought to stem the appreciation

of the króna through purchases of currency on the interbank market, but nevertheless the exchange rate of the króna strengthened by 2.8% between the first week of February and the end of July, and was then 2.5% stronger than at the beginning of the year.

The Central Bank's net purchases of currency were particularly notable in April and July, exceeding 7 b.kr. in both months. During July alone, the exchange rate of the króna strengthened by more than 1%.

From the end of July to the end of October, developments were in the other direction. Currency flowed out through the interbank market and the exchange rate of the króna fell by about 2.5%, close to its level at the beginning of the year. A number of factors lie behind these developments. First, seasonal fluctuations in currency purchases have played a role, second, the money market interest rate differential narrowed, and third, currency inflows related to construction in the power intensive sector slowed at the same time as purchases of foreign securities increased. Finally, it bears mentioning that uncertainty about inflation prospects has increased again because of larger increases in consumer prices in August and September than earlier in the year, which may have reversed the balance of forward contracts from positive to negative.

The volatility of the exchange rate index appears to have increased since the beginning of August with fluctuations becoming larger and sharper as turnover on the interbank market has increased. This increased volatility to a large extent reflects a reorganization of the interbank market and of exchange rate quotation which was implemented in the middle of July, when participants of the interbank market began market making in the US dollar. At the same time, the formal exchange rate fixing meetings which had been held in the Central Bank each morning were abolished and the exchange rate is now recorded on the basis of bank bids or actual prices in Central Bank interventions. This change has clearly led to larger fluctuations in the exchange rate index than before. The Central Bank has also withdrawn to a greater extent from the market. Despite the increased volatili-

ty, price determination now better reflects demand and supply conditions, and is in that sense more correct, than before. The Central Bank and market participants had expected volatility to increase as a result of the reorganization. The fluctuations are, nevertheless, still only a fraction of what is typical abroad.

At the beginning of the year, the Central Bank's net foreign asset position was 31.1 b.kr. It declined to 26.3 b.kr. by the end of January and to 21.5 b.kr. by the end of February. After that, the net asset position improved and peaked

at 35.5 b.kr. at the end of July. At the end of October, the net foreign asset position stood at 27 b.kr. and had thus declined by 4.1 b.kr. in the course of the year. At the beginning of the year, the Central Bank had no short-term foreign debt, it rose to 2.8 b.kr. by the end of February as the Bank sought to maintain its international reserves. This debt was fully repaid during April. A decline in the Treasury's foreign debt, by about 5.5 b.kr. this year, has limited the rise in the reserves.

## VII Interest rate determination and interest rate differentials

In the Central Bank's report on European Economic and Monetary Union (EMU), which was published in June 1997, it was concluded that Iceland hardly satisfied the membership criterion on long-term interest rates. This should not come as a surprise as domestic real long-term rates have for a long time been considerably higher than abroad, despite inflation being about the same, or even lower, in Iceland than abroad in recent years. For the most recent period, this differential may reflect the differing cyclical positions in Iceland versus among trading partners. While many trading partners, particularly in continental Europe, have suffered from weak growth, which has required low interest rates, the Icelandic economy has been in an upswing, as has been the case in the United Kingdom and some Nordic countries, which has required increased restraint through higher interest rates. This explanation is, however inadequate, as the differential was in fact higher during the stagnation period from 1988-94. In addition, different relative cyclical positions are more likely to affect the short-term nominal interest rate differential rather than the differential between long-term real rates, as central bank monetary policy measures act on short-term rates. Other explanations are therefore needed to account for this real interest rate differential.

This chapter describes research into interest rate determination and interest rate differentials conducted under the auspices of the Central Bank, which can help to explain interest rate formation, real interest rate differentials against abroad and the outlook for real interest rate developments in coming years. It needs to be emphasized that this research is far from complete. A further complication is the extensive structural reforms of domestic financial markets over the last decade which have had a strong impact on interest rate determination. The impact of these reforms is yet to fully material-

ize. For example, only two years have passed since capital movements to and from the country were fully liberalized.

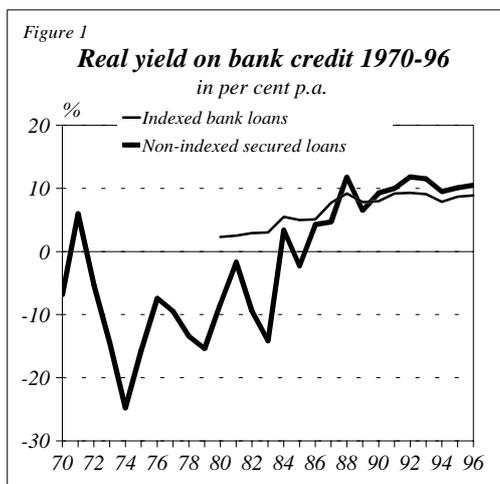
The first section below describes interest rate developments over recent decades as well as the structural changes that have been implemented over the last two decades. The second section discusses interest rate determination in the context of unrestricted currency flows. The third section reviews research into interest rate setting in Iceland. The fourth section looks at factors which explain varying real interest rate levels in different countries. Finally, the fifth section discusses the long-term rate of return on capital and the outlook over the long run.

### Interest rate developments and financial reform

The circumstances of interest rate determination have been thoroughly overhauled in recent years. Most importantly, the centralized, administrative setting of interest rates, which was in

#### Some major events in the development of the financial markets in Iceland

1979	Law on financial indexation comes into effect.
1984	Partial liberalisation of domestic bank interest rates.
1985	Iceland Stock Exchange established.
1985	Securities firms start operating mutual funds.
1986	Full interest rate liberalisation in the banking system.
1988	A system of primary interest rates established.
1989	The first housing bonds sold on the market.
1992	A money market emerges.
1993	The minimum required maturity for the indexation lengthened from 6 to 12 months for deposits and shortened from 3 to 2 years for lending.
1994	Long term external capital movements liberalised.
1995	Full capital account liberalisation.



place to the mid-1980s, was abandoned in favour of market determination of interest rates. Bond and money markets have been established and restrictions on capital movements have been lifted. Extensive use of indexation has also had a paramount influence on the development of the financial market.

Until 1984, bank lending and deposit rates were set by the Central Bank. In February 1984, the Central Bank granted deposit banks permission to set the terms for deposits tied for six months. In August the same year, deposit banks were granted permission to set terms for all deposits, other than general saving deposits. Full freedom to set their own interest rates was granted to deposit banks in November 1986. The interest rate freedom led to far greater choice of investment for savers. The banks began to offer a certain type of indexed deposit accounts, so called switching terms accounts, which regularly compared indexed and non-indexed terms.

High and volatile inflation, as in 1987-89, made it difficult for banks to let real interest rates on non-indexed loans reach the real rates on indexed loans. Since inflation slowed sharply after 1990, the real rate on non-indexed loans has always been considerably higher than on indexed loans, which is to be expected given uncertainty about future price developments. The twofold system of indexed and non-indexed obligations has created risks for the banks, as an

imbalance can emerge between indexed assets and liabilities. Interest rates have, therefore, not only been determined by market conditions but also by the riskiness of these imbalances. Interest rates on non-indexed items have, thus, become very sensitive to fluctuations in inflation but less so to changes in the supply of and demand for credit.

The establishment of the Iceland Stock Exchange in 1985, where bonds dominated to begin with, and the formation of a money market in 1992, when the Treasury's unlimited access to central bank credit was closed and the Treasury began to issue standardized bills, were important steps towards market determination of interest rates. Regular Treasury issues of bills, notes and bonds were the first element in the setting of interest rates by a market. Housing bonds subsequently replaced direct mortgage lending by the State Housing Authority, which in turn stopped bilateral negotiations with the pension funds for funding. Housing bond terms are determined by market conditions at the time transactions are undertaken. In recent years, housing bonds have replaced government bonds in playing a leading role in the determination of yields on indexed bonds. The terms of most other bond issues now reflect housing bond terms. Government attempts in 1994 and the early part of 1995 to push interest rates down hastened this development.

Through a joint effort by the government and the Central Bank, interest rate levels were pushed down by 2 percentage points towards the end of 1993. For example, the average real interest rate on indexed bank loans declined from 9.5% to 7.5% and the real yield on government bonds declined from 7% to 5%. This interest rate level was to be maintained and even lowered through increased Treasury borrowing abroad, if acceptable credit terms were not available on the domestic market. Furthermore, the Central Bank became very active on the secondary market and the bank reserve and liquidity requirements were eased to enable them to lower their interest rates. These measures proved insufficient, and interest rates moved up in the face of strong credit demand, although they have not reached their previous levels.

On the short end, Treasury bills have played a dominant role in interest rate determination. So far, an interbank market, as is common in other countries, has not materialized. It is possible that the flexible bank access to central bank facilities is delaying the development of the interbank market. The small size of the market has also been pointed out, as has the synchronicity of liquidity needs, for example at the time of VAT and PAYE income tax payments. The Central Bank, through its market making, has a strong influence on Treasury bill yields, and uses this influence as well as its control of its own policy rates to achieve its monetary objectives. Under current conditions, with a fixed exchange rate policy in place and free capital movements, short-term rates are increasingly used to influence short-term currency flows to and from the country to achieve foreign exchange balance. The Central Bank's scope to achieve its objectives is larger the closer the link is between its interest rates and other rates on the domestic financial market.

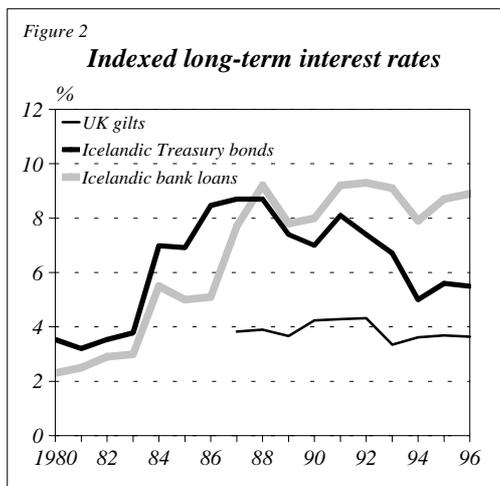
The correlation between changes in Treasury bill yields and the yields on commercial bills was fairly close until the latter part of 1993. The banks then raised their commercial bill rates sharply following the devaluation at the end of June 1993. At the same time, Treasury bill yields on the Stock Exchange declined although they rose somewhat during July. It is possible that during this time loan losses and poor operating results made it difficult for banks to lower rates. The government borrowing requirement was high and the Treasury competed with the banks in offering indexed saving forms. High yields were offered on indexed deposits, and uncertainty about the actual terms on the switching term accounts narrowed the scope deposit banks had to lower rates. The extension of the minimum duration of indexed deposits around mid-1993 reduced this uncertainty. This may have helped the banks follow developments on the money market, as since this time interest changes appear to have been more in line with each other, although their differential has increased.

It is difficult to see the link between long-term and short-term rates on the domestic market, not least because of the extensive use of

indexation. On the non-indexed market, changes in short-term rates should show up in long-term rates with some lag if competition is in place. On the other hand, high short-term interest rates could indicate tight policies and lower inflation over the long run which could have the opposite effect on long-term rates. Low, or declining, money market rates could by the same token lead to an increase in long-term rates. Long-term obligations are generally indexed while short-term obligations are generally non-indexed which complicates the connection between short-term and long-term interest rates and makes an assessment of the interest rate spectrum, or the yield curve, more difficult.

Domestic real interest rates have moved in a number of significant steps since 1980 as is shown in Figure 2 which shows domestic indexed rates for 1980-96 and indexed rates on UK government bonds for comparison. At the outset of indexation, yields on indexed bank loans were slightly above 2% while the yield on government bonds was 3½%. These yields were largely unchanged until 1984, when bond yields rose sharply. Yields rose further during 1987 and 1988, when the freedom to set interest rates was combined with overheating in the economy. A poorer fiscal position and a higher domestic borrowing requirement after the mid-1980s pushed in the same direction. Government bond yields reached 8½% during 1987 and 1988. Bank lending rates rose even higher, to above 9% in 1988 when they exceeded bond rates for the first time, which, given relative risk and repayment ability, should be the norm, and this has indeed been the case since. Real interest rates declined somewhat during 1989-90, especially on government bonds, both because of the slack in the economy and official efforts to push them down. They rose again in 1991 and remained quite high until they were brought down by the joint effort of the government and the Central Bank in November 1993, as was mentioned above. Since then they have varied between 5-6%.

International experience shows that real interest rates temporarily rise, sometimes significantly, following the lifting of restrictions on interest rate determination and financial markets, for



two reasons. First, restrictions on interest rates lead to excess demand for credit at prevailing interest rates. When interest rates are then freed, they rise sharply along with credit. Second, household saving appears to have a tendency to decline temporarily when restrictions on the domestic financial market are lifted. The reason seems to be that the incentive to increase spending in the face of easier credit tends to outweigh, at least in the beginning, the incentive to increase saving arising from higher interest rates and greater choice in terms of investment.<sup>1</sup>

In this light, it was unfortunate that interest rate determination was freed at the same time as the national economy overheated. This undoubtedly magnified the jump in real interest rates which was to be expected. Matters were further complicated by the absence of an efficient money market which limited the ability of the Central Bank to influence interest rates. The high level of real interest rates which emerged at this time may be a factor behind the still relatively high level of real interest rates, as it created a new benchmark for investors, but interest rates tend to be rather persistent.<sup>2</sup>

### Interest rate differentials and capital movements

Many have been surprised by the large differential between domestic and foreign interest rates that has prevailed even after the lifting of the remaining restrictions on currency flows at

the beginning of 1995. Perhaps too high hopes have been attached to the downward pressure on domestic interest rates that would come from the liberalization of capital movements. In an imaginary world, which is risk free, where access to information is instantaneous and cost free, exchange rates are firmly fixed (eliminating the risk of exchange rate changes) and capital flows freely, interest rate differential across countries should disappear. If an interest rate differential was to appear in this world of absolute certainty, let's say that domestic rates would become higher than corresponding foreign rates, then demand for domestic securities would rise instantaneously, leading to an increase in their price and a decline in their yield. By the same token, borrowing abroad would rise at the expense of domestic borrowing (or even to pay domestic loans). The real world is, of course, very different.

Expectations and uncertainty play a key role in determining interest rates, whether in an open or a closed economy. In a closed economy the main uncertainty concerns price developments over the duration of securities. Uncertainty also attaches to the rate of return on other investment alternatives and the risk of default. In an open economy, where investors have the opportunity to invest in foreign securities, investors also need to take into account expected exchange rate changes and be compensated for the uncertainty that generally characterizes exchange rate developments. If investors, for example, believe that the Icelandic króna is a relatively weak currency, they need to be compensated for that by offering them yields on Icelandic securities which are higher than the yields on comparable foreign securities to the extent of the expected depreciation. Then on top comes a risk premium. When equilibrium has been reached, that is when no profits can be made from altering the composition of asset portfolios, the interest rate differential vis-à-vis abroad should be equal to the expected change in the exchange rate plus a risk premium. This relationship can be written:

$$i - i^* = (e^e - e)/e + \sigma$$

where  $i$  stands for domestic interest rates,  $i^*$  for

foreign interest rates,  $e$  for the exchange rate,  $e^e$  for the expected exchange rate and  $\sigma$  for the risk premium that investors demand when they invest in a foreign currency<sup>3</sup>. The risk premium is always present, whether the expectation is of an appreciating or depreciating currency. In a world of variable exchange rates, where uncertainty prevails, domestic and foreign interest rates will, therefore, generally differ.

This uncertainty, or risk factor, is very important from the perspective of economic management, because within certain limits and under certain circumstances the monetary authorities can change the interest differential vis-à-vis abroad without that leading to a corresponding change in currency flows which would nullify the interest rate change. This results from the fact that domestic and foreign investors face opposite risks. From the vantage point of Icelandic investors, an exchange rate risk attaches to foreign securities while an investment in domestic securities is mostly without such a risk, to the extent that the expenditures of the domestic investors are in Icelandic krónur. If for simplicity we assume that the expected exchange rate change is zero and the same for domestic and foreign investors (which does not have to be the case as will be discussed below) so that the interest rate differential is determined solely by the risk premium, and assume an initial position where domestic investors only own domestic securities and foreign investors hold only foreign securities (as seen from the perspective of the domestic investor), then the interest rate differential should be the sum of the risk premia of the domestic and foreign investors, within which the monetary authorities can change interest rates to affect domestic demand without creating an incentive for currency movements.<sup>4</sup> This scope for interest rate changes grows in importance the more asynchronous the domestic business cycle is in relation to the business cycle abroad, for example because of external shocks, negative or positive, which are unique for the country concerned.

There are other factors at work that allow the authorities to vary the differential between domestic and foreign rates. To limit risk, investors tend to distribute their assets across

currencies. It may be assumed that the adjustment of the composition of the asset portfolios to a new equilibrium is not instantaneous, which increases further the scope the authorities have, at least in the short run.

It has often come as a surprise that foreign investors have not shown an interest in Icelandic securities, despite a wide interest rate differential on top of indexation. In this context it is important to note that the assessment of foreign investors may differ from that of domestic investors. Expectations of exchange rate movements and risk assessments may both vary. First, expectations of exchange rate changes may be different for a domestic investor than for a foreign investor because of varying access to information on Icelandic economic matters. Foreign investors may take longer to adjust to all the changes that have taken place in the Icelandic economic environment in recent years and give reason to believe that the króna will be a stronger currency in the future than an examination of its historical development would lead one to believe. The long story of the deteriorating value of the króna in relation to the main currencies is bound to weigh heavily in the assessment of foreign investors, of its likely evolution in the future, especially when it comes to long-term investment.<sup>5</sup> In addition, the Icelandic market lacks the size and depth that would allow an investor to quickly sell securities without losses. The small size of the market also makes it relatively costly for the foreign investor to obtain reliable information about and assess the Icelandic economy, the characteristics of the Icelandic market and the securities that are on offer. Certain special characteristics, such as indexation, add to the obstacle created by the small size of the market.

For the foreign investor the important objective is to safeguard the purchasing power of his investment in his own currency, because his spending is mostly in that currency, or at least not in Icelandic krónur. Indexation may reduce exchange rate risk over the long run, because of the close link between prices and the exchange rate, but it will never fully eliminate it, because fluctuations in the real exchange rate can be large and lasting. That expectations and risk

assessments differ between domestic and foreign investors accords to some extent well with the development of interest rate differentials and securities investments. In fact, Icelanders have in recent years been consistent net purchasers of foreign securities, despite the wide interest rate differential, which can be explained by the adjustment of domestic asset portfolios to the step-wise lifting on restrictions on capital movements.

The risk premium  $\sigma$  can be interpreted as embodying not only compensation for a general exchange rate risk, but also indirectly all the factors that influence risk or are unique to the securities of a particular country. The size of  $\sigma$  can be influenced by a number of factors, such as political conditions, the position of public finances, government debt levels, default risk, etc. It also reflects the confidence market participants have in the stability and success of economic policies. It takes a long time to build such confidence. Despite significant reforms in recent years, there is probably some way to go before foreign investors will be fully confident in their sustainability.

The relationship between changes in foreign and domestic exchange rates should have become stronger with the liberalization of capital movements. The result of an econometric study done in the Central Bank<sup>6</sup> is that a significant relationship exists between the interest rate differential in one period and domestic interest rates in the following period, on the basis of a weighted average of foreign interest rates or US interest rates. Using German rates gave a negative, but insignificant, relationship. The results also indicated that the relationship had strengthened considerably following the liberalization of short-term currency flows at the beginning of 1995, as was to be expected.

The relationship between domestic and foreign interest rates is, however, not strong enough to render the Central Bank's monetary policy ineffective, as can be seen from the variability of the interest rate differential against abroad. From 1994, domestic money market rates have fluctuated from being lower than the average of comparable rates abroad to being 3 percentage points higher. On this basis, mone-

tary policy should be regarded as a potent policy tool, despite free capital movements. The authorities' scope to alter domestic rates is greater because of how risky foreign investors regard the króna as a currency; foreign investor hold hardly any krónur denominated securities.

### **Factors influencing interest rate determination**

Under the auspices of the Central Bank's Economics Department two studies which shed light on the determination of interest rates in Iceland have been conducted. First, a study was conducted that sought to explain the quarterly movement in real government bond yields during 1987-95. A second study was conducted that examined the relationship between the various types of interest rates.<sup>7</sup>

Concerning the development of bond yields, the main explanatory variable appears to be the current account deficit, with larger deficits leading to higher real yields. However, there are signs that this relationship may have weakened after 1993. Changes in the real exchange rate also had an impact on real bond yields, with a stronger real exchange rate leading to lower real yields and vice-versa. Other factors, including foreign interest rates, central bank interventions on the financial market, the fiscal deficit alone and government debt, do not appear to have had a significant impact on real interest rates in the period under study. However, there appeared to be a weak link between the Treasury's long-term borrowing on the domestic market, corrected for that part of the fiscal deficit financed by the Central Bank, and real interest rates.

At first glance, it appears difficult to interpret these results. For example, they appear to contradict what is often maintained in economic debate, namely that government debt accumulation is among the main factors behind higher real interest rates. However, first impressions may be deceptive. The current account balance consists of, on the one hand, the fiscal balance and, on the other, the balance between private sector saving and investment. An improved fiscal position, all other things equal, strengthens the current account balance and thus contributes to lower real interest rates. Also, the current

account balance can be viewed as the difference between national saving and investment. This implies a positive correlation between national saving and real interest rates and a negative one between investment and real interest rates. All this is in good conformity with economic theories about countries with a restrictive capital movement regime. This may also explain why the relationship appears to weaken after 1993 but long-term capital movements were fully liberalized in 1994.

The indirect link between national saving and real interest rates implicit in the above results is probably one of the explanations for the high level of real interest rates in Iceland, since national saving was typically 25-30% of GDP until 1978 but then declined steadily until 1985 and has since been of the order of 15-17% of GDP.<sup>8</sup> Concerning the result that only a weak direct link exists between the long-term Treasury borrowing requirement and real interest rates during the period in question, it needs to be kept in mind that in this period the credit demand of businesses and households was far more significant than that of the government and that household credit demand was to a certain extent strengthened through tax concessions (mortgage interest rebates) and through access to long-term credit provided by state guarantees (state housing loans and housing bonds). It is worth mentioning that an attempt was made to explain movements in real interest rates using the net borrowing requirement of the public sector, businesses and households. Only household borrowing had a significant long-term impact on real interest rates during the relevant period, business borrowing had only a short-term impact while government borrowing had no significant direct impact. Overall, however, this model was not as robust as that which relied on the current account deficit as the main explanatory variable.

Studies indicate that real yields on government bonds have played a central role in interest rate determination in recent years. Thus a close relationship exists between real bond yields, on the one hand, and bank rates, both indexed and non-indexed. The direction of causality appears to flow from bond yields to bank rates. In addition, foreign nominal rates appear to have some

impact on indexed domestic bank rates. Non-indexed bank rates are largely explained by real bond yields, but also by the net borrowing requirement of businesses. Since their introduction, short-term money market rates also appear to be influenced by real government bond yields. However, money market rates have a strong and rapid impact on non-indexed bank rates.

The leading role played by long-term rates differs from the normal assumption that money market rates play the leading role, especially in determining non-indexed, short-term rates. The main reason appears to be the underdevelopment of the money market in the period in question and the influence the Central Bank had on bond rates. These circumstances have changed radically in recent years. The Central Bank has largely ceased trading in bonds while the money market has developed rapidly and the Central Bank has increasingly turned its attention to money market rates. It is thus likely that in the future nominal short-term rates will play an increasingly leading role in the setting of interest rates across the spectrum. On the long-term end, housing bonds appear to have replaced government bonds as the trend setter for real yields.

More than half of borrowing in Iceland carries flexible interest rates. Experience shows that, where flexible interest rates are dominant, such as in the United Kingdom, financial markets adjust rapidly to interest rate changes. This is also the case in Iceland, while the special feature of the Icelandic financial system is the dominant role played by indexed loans. Domestic interest rate determination is therefore bound to continue to differ from that in other countries, especially where loans that carry fixed nominal rates are more common. Another factor that plays a role in interest rate determination is the relative share of credit intermediation through securities markets, on the one hand, and banks, on the other. Where the relative share of banks is large, the adjustment of interest rates tends to be slower.<sup>9</sup>

### **Comparison of real interest rate levels**

Interest rate differentials between countries

in terms of nominal rather than real interest rates were discussed above. This can be justified on the basis that in the short run it is the real interest rate level in the home country of the investor, not the country where he invests, that matters for the equilibrium between domestic and foreign rates. Even under conditions of perfect capital mobility, with no change in the exchange rate expected and therefore no exchange rate risk, which would cause domestic nominal interest rates to be equal to foreign rates, real yields in terms of respective inflation rates could differ significantly.<sup>10</sup> Real interest rate developments in different countries are, therefore, only loosely connected through the tendency of nominal rates, especially short-term rates, to converge. Nevertheless, international capital movements also constrain the impact national authorities can have on real interest rates. Looking over very long periods, however, average real interest rates tend to be fairly similar across countries, and more so than nominal rates, most likely reflecting that growth and productivity have their strongest impact over the long run.

The Central Bank's Economics Department has conducted an econometric study to determine which factors explain the variation in real interest rates across countries.<sup>11</sup> Average real rates during 1970-90 were examined for twenty-one industrial countries, including Iceland. A number of variables that could account for differences in real rates were studied. For the period as a whole, the only significant variables were fiscal deficits and government debt. It was determined separately that the size of the country did not increase the explanatory power of the model. Other variables were also insignificant, including the private sector savings rate, economic growth, current account balance, and interest rate margins in the banking system. These results need to be interpreted with care as the number of observations (21) are relatively few and the results were quite sensitive to the specific observation period.

### **Long-term rate of return and the outlook for interest rates**

Many important economic decisions rest on an assessment of the long-term outlook for real

interest rates, including estimates of the rate of return on investment in power plants, which have a very long lifetime, and the setting of pension contributions and entitlements. It is instructive to examine the development of real interest rates in a long run perspective. Here this issue will be examined from two directions. On the one hand, the results of an examination of real interest rates over a one hundred-year period will be reported. On the other hand, the long-term outlook for domestic real interest rates will be assessed.

It can be useful to examine very long time series for interest rates, where they are available, in order to determine if the series reveal any trends that can help in assessing the long-term outlook for real interest rates. The Central Bank has had such an examination performed.<sup>12</sup> When possible, the study looked at both the real yield on bonds and on equity. The data was consistent with the assumption that real rates are trendless over long periods. The average value of real interest rates for the period is thus an indicator of the long-term value of real interest rates. In the United Kingdom and the United States data on bond yields go back to 1872. For the period 1872-1995, real interest rates in these two countries averaged 2.2% and 3.0%, respectively, whereas in Belgium during 1921-95 real rates averaged 1.2%. Average real interest rates in seventeen industrial countries during the period 1966-93 were 2.6%. The average was highest in Denmark at 4.7% but lowest in New Zealand at 0.5%. The real yield on equity was higher, especially when dividends paid were included. Over a period of a century and a quarter, it appears to have been possible to earn an average real rate of return of 4% on a portfolio consisting in equal measure of UK and US bonds and stocks.

It can be argued that over the long run the real return on capital should not depart much from economic growth. The theoretical underpinning for this view will not be elaborated here. With an efficient financial market, the link between economic growth and the real return on capital must be close. On such a market, the return on stocks and bonds must be in balance, taking account of different levels of risk. It is obvious that there is a close relationship between eco-

conomic growth and the profitability of firms, and by extension between growth and the rate of return on stocks. Hence, with efficient financial markets, a strong relationship must exist between bond yields and growth. This means that, if the outlook for growth over the next one hundred years is different (for example, lower because of environmental constraints) than the experience of the past one hundred years, it is unclear whether the real return on a portfolio of securities over the past one hundred years provides an adequate guide for the outlook for the real return over the next one hundred years.

Current domestic real interest rate levels are high in both an historical and international context, as well as in relation to the growth of potential output. This should imply that real interest rates should decline over the long run. This raises the question of what factors will pull real interest rates down. Among the candidates are:

1. Lower international real interest rates.
2. The development of the domestic pension system.
3. The impact of continued stability on the risk premium embedded in domestic rates.
4. An improved fiscal position of the public sector.
5. A greater private sector contribution to national saving.
6. Greater competition on the domestic financial market.

While it can be argued that over the very long run, domestic real interest rates are bound to decline, even below 3%, it is far more difficult to foretell the timing of such a decline. Also, high credit demand during upswings in the future is likely to keep real interest rates quite high. The analysis in this chapter indicates that the authorities can do a number of things to hasten the long-term decline in real interest rates. First, it is important to preserve stability and implement reforms that enhance the credibility of economic policy, and thereby lower the risk premium in domestic rates. Second, the steadfast pursuit of balanced government finances will under normal conditions contribute to lower interest rates. The same can be said for measures

that strengthen private sector saving, such as tax changes that boost incentives for pension saving or lower the attractiveness of borrowing. An easing of monetary policy could lower real rates in the short run. But if the easing is not warranted by economic conditions it could raise them in the long run, by raising the risk premium.

1. The issues in this paragraph are covered in more depth in Palle S. Andersen and William R. White: The macroeconomic effects of financial sector reforms: An overview of industrial countries, í OECD Proceedings: Macroeconomic Policies and Structural Reform, OECD, 1996.

2. This should not be confused with the issue of whether interest rates are determined by supply and demand or not. There is no reason to expect otherwise since they were liberalised. The persistence that is discussed here comes through the supply side. Its effect is probably stronger than otherwise because of the undesirably low interest rate elasticity of the demand side, which is due to the low interest rate elasticity of the treasury's credit demand and various factors that have reduced the interest rate elasticity of loan demand of the household sector (variable rates, mortgage tax relief, etc.).

3. This is so called uncovered interest parity. Alternatively, covered interest parity means that the forward exchange rate is used as an indicator of expected future changes in the exchange rate, which may be written as:  $i - i^* = (e^f - e)/e$ , where  $e^f$  stands for the forward exchange rate.

4. More formally this can be argued as follows: Suppose that the foreign interest rate  $i^*$  is a constant. The level of domestic interest rates that makes domestic investors indifferent to buying domestic or foreign bonds is then  $i^d = i^* - \sigma^{fd}$ , where  $\sigma^{fd}$  stands for the risk of holding foreign bonds from the perspective of domestic investors (expected change in the exchange rate is assumed to be 0). If  $\sigma^{fd} > 0$ , then  $i^d < i^*$ . Similarly, from the perspective of foreign investors,  $i^f = i^* + \sigma^{fd}$ , where  $i^f$  represents the level of domestic interest rates making foreign investors indifferent to buying foreign or domestic bonds and  $\sigma^{fd}$  is the risk foreign investors attach to holding domestic bonds (foreign from their perspective). If  $\sigma^{fd} > 0$  and  $\sigma^{fd} > 0$ , then  $i^f > i^*$ . Consequently,  $i^f - i^d = \sigma^{fd} + \sigma^{fd} > 0$ . Suppose that  $i^f > i > i^d$ . Interest rates are too low to make foreign investors willing to buy domestic bonds and too high to make foreign bonds attractive to domestic investors. Given an initial position where domestic investors hold only domestic bonds and foreign investor foreign bonds, monetary authorities are able to change interest rates within those limits, without inducing capital movements.

5. On the other hand, in the case of short term instruments, i.e. 3 month Treasury bills, the history of the króna may not be an important factor, provided that the domestic economic conditions are sufficiently strong to lend some credibility to fixed exchange rate over a short period.

6. Þórarinn G. Pétursson, "The relationship between domestic and foreign short term interest rates", Central Bank

of Iceland, Economics Department, October 1996. A multi-dimensional time series model was estimated, where changes in domestic short rates are explained with the lagged changes in foreign rates and the last period's interest rate differential vis-à-vis abroad.

7. Þórarinn G. Pétursson: "The relationship between real interest rates and government finances", Central Bank of Iceland, Economics Department, unpublished manuscript (in Icelandic), 24 May 1995; same author: "A time-series analysis of domestic real interest rates", Central Bank of Iceland, Economics Department, unpublished manuscript (in Icelandic), 27 November 1995; same author: "Interest rate formation in Iceland", Central Bank of Iceland, Economics Department, unpublished manuscript (in Icelandic), 26 April 1996 and same author: "The yield curve and predictions of short term interest rates", Fjármálatíðindi 2, (published in Icelandic), 1996.

8. The developments of the national savings rate in Iceland was extensively discussed in the 1996 Autumn Statement.

9. Further discussions on this topic are provided by Tómas Hansson in Fjármálatíðindi 2 1996.

10. Over the medium term, inflation developments in the country of investment will, of course, affect expected changes in the exchange rate and exchange rate risk. However, over a short period this link may be quite weak. As an example, one could mention that inflation in Hong Kong, which has a pegged exchange rate vis-à-vis the US dollar under a currency board arrangement, has for decades exceeded the US inflation rate. Hence, bonds carrying real interest rates close to zero from the perspective of a Hong Kong investor can carry very high real interest rates from the perspective of a US-investor.

11. Marías Halldór Gestsson: "Long-term real interest rates: A cross-section study", Central Bank of Iceland, Economics Department, unpublished manuscript (in Icelandic), 20 September 1996.

12. Marías Halldór Gestsson: "The long-term yield on capital", Central Bank of Iceland, Economics Department, unpublished manuscript (in Icelandic), 13 September 1996.

## Annex I: International economic developments

International economic developments over the last twelve months have for the most part been favourable. The International Monetary Fund (IMF) estimates that world output will grow by 4½% in this year and next, which is a higher rate of growth than at any time in the last decade.

The outlook for growth in the developed countries has in general improved, although they are at quite different stages in the economic cycle. Economic growth has been particularly fast in North America, the United Kingdom and some smaller developed countries. On the other hand, economic growth has been rather subdued in some of the main economies in continental Europe, including Germany, France and Italy; growth in these countries is accelerating though. The IMF projects that GDP growth will be 3.7% and 3.6% in the United States and Canada, respectively, and also in the range 3-4% in the United Kingdom and many smaller European countries. However, for the EU countries as a whole the IMF projects growth of only 2.5%. In

Japan, where growth appeared to have gathered pace last year, the demand enhancing impact of government policies has waned, which led to a sharp contraction during the second quarter of this year. Views differ on how permanent this turnaround will be. In any case, it is clear that growth in Japan this year will be sharply lower than last, and probably lower than the 1.1% projected by the IMF.

The IMF assumes that growth in developing countries will be somewhat slower than last year, but not far from its average of recent years. The currency crisis in South-East Asia over the summer and the recent collapse of stock prices in Hong Kong is not expected to have a lasting impact on growth in this part of the world.

Most economic observers agree that the rate of economic growth in the United States in the recent period is not consistent with price stability in the long run. Unemployment fell below 5% during the second quarter of this year. This is a lower rate of unemployment than has been regarded as compatible with long-run price sta-

World economic developments						
	1993	1994	1995	1996	Forecasts	
					1997	1998
<i>Economic growth, % annual change<sup>1</sup></i>						
World output.....	2.5	3.7	3.7	4.1	4.2	4.3
European Union.....	-0.5	2.9	2.5	1.7	2.5	2.8
United States.....	2.3	3.5	2.0	2.8	3.7	2.6
Japan.....	0.1	0.5	1.4	3.5	1.1	2.1
Developing countries.....	6.1	6.6	6.0	6.5	6.2	6.2
Transition economies.....	-6.2	-6.5	-0.8	0.1	1.8	4.1
World trade.....	4.0	9.3	9.5	6.3	7.7	6.8
<i>Inflation<sup>2</sup></i>						
European Union.....	3.8	3.0	2.9	2.5	1.9	2.2
United States.....	3.0	2.6	2.8	2.9	2.4	2.8
<i>Unemployment</i>						
European Union.....	10.9	11.4	11.2	11.4	11.1	10.7
United States.....	6.9	6.0	5.6	5.4	5.1	5.3
<i>General government balance, % of GDP<sup>3</sup></i>						
European Union.....	-6.4	-5.8	-5.2	-4.3	-2.8	-2.3
United States.....	-3.6	-2.3	-1.9	-1.1	-0.3	-0.3

1. GDP. 2. CPI. 3. Percentage of GDP. General government deficit.  
Source: International Monetary Fund.

bility. However, leading indicators of inflation have not pointed to accelerating inflation and the Federal Reserve has maintained unchanged interest rates since March. A number of theories have been advanced to explain this lack of pressure on prices, including explanatory factors such as growing international competition, the exploitation of information technology and more effective labour markets.

Economic developments in Europe have varied sharply. In the United Kingdom and some smaller European countries growth performance has been favourable. As in recent years, growth is expected to be highest in Ireland at 6.5%. Finland is close behind with expected growth of 4.7% and in ten other European countries, including Norway, the Netherlands and Iceland, growth is projected to exceed 3%. However, growth performance has remained rather poor in Germany, France, Italy, Belgium, Austria and Switzerland, although growth appears to have picked up more recently in these countries.

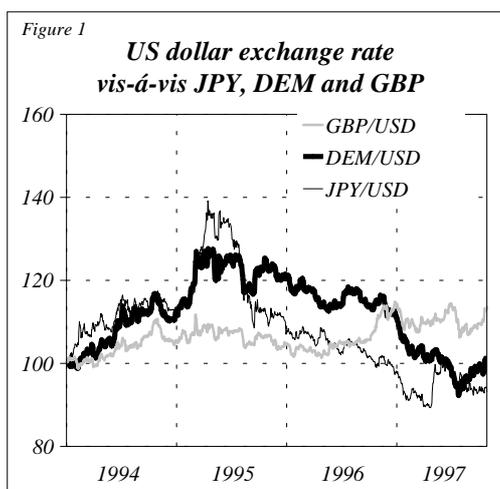
On October 10, the German Bundesbank decided to raise its repo-rate from its historical low of 3% to 3.3%. Many other European countries with close economic ties to Germany followed suit immediately. This first interest rate increase for some time followed a sharp weakening of the German mark against the US dollar, a weakening that was larger than German monetary authorities felt was desirable in the long run. On the other hand, it is clear that the depressed exchange rate of European currencies has contributed importantly to igniting growth in that part of Europe where growth has lagged over the last two years.

Rising growth in the major European countries is yet to translate into a notable decline in unemployment. On the contrary, unemployment has continued to expand to record levels in Germany and France. The IMF expects unemployment to be up 1 percentage point at 11.3% of the labour force in Germany this year, the same rate as for the EU as a whole, and up ½ percentage point in France at 12.9%. Unemployment is also expected to rise in Belgium, Austria, Switzerland and Sweden but to decline elsewhere.

The high unemployment in Europe is thought

to be partly the result of low growth, to which tight fiscal policies have temporarily contributed. In a recent report, the IMF hints that for some time monetary policies in Europe may have been too restrictive, given the ongoing process of fiscal consolidation in Europe. However, a large part of unemployment in Europe is generally accepted to be structural in nature. In the view of the IMF, structural unemployment is of the order of 8-9% and thus accounts for 80-90% of overall unemployment. Unavoidable unemployment related to normal frictions and mismatch in the labour market is probably 3-3½% implying that unemployment could be lowered by 4½-6% through reforms of labour markets and in other areas. Some have blamed rising international competition and trade with low-wage countries for high unemployment. International economic institutions have, on the other hand, argued that misguided attempts to guarantee job and income security which have raised wage costs are the main reason behind structural unemployment. Distorted competition and the associated inefficiencies are also thought to be contributing factors. Technological change has also increased demand for skilled workers while demand for unskilled workers has declined. Increased education and training are therefore among measures that could lend a hand in the battle with unemployment in Europe.

Among the most important challenges in economic management in Europe, as well as in many other parts of the world, is to get persistent budget deficits under control. Considerable progress has already been achieved in many countries, notwithstanding the negative impact from slow growth in some countries, including two of the key countries of the future Economic and Monetary Union (EMU), Germany and France. Taking account of cyclical effects, the IMF estimates that the structural deficit is below 2% of GDP in all EU countries, except Greece. On the other hand, the IMF expects that actual government deficits in Italy, Germany and France will exceed the 3% of GDP ceiling set in the Maastricht treaty by a small margin; the deficit in Greece is put at 4.7% of GDP. The outlook is for other countries seeking EMU mem-



bership to meet the Maastricht deficit criterion. Italy has achieved the greatest progress with the structural deficit narrowing from 5.4% of GDP in 1996 to 1.7% of GDP in 1997; according to the IMF, the structural deficit in Italy was 12.4% of GDP in 1990. It is now generally believed that a wide group of EU countries will establish EMU on schedule on January 1, 1999. A decision to this effect will be taken next year.

The different stages of the economic cycle in the various countries are reflected in interest rate and exchange rate developments. Most European countries and Japan have recently eased monetary policy in order to spur economic growth. Money market rates have therefore been low in these countries and their currencies have weakened. The mark and the yen have depreciated almost steadily against the dollar since 1995. The yen strengthened somewhat during the first part of this year but has weakened again after signs of weakness in the Japanese economy became apparent around mid-year. The exchange rate of the mark against the dollar fell to its lowest level for many years in August, or 1.89 marks to the dollar, 27½% lower than its strongest point in 1995. The exchange rate of the mark has, however, strengthened again because of favourable developments in external trade and in wake of the Bundesbank's increase in interest rates. In mid-October, the mark had strengthened by about 7% against the dollar compared to its weakest point in August.

In contrast to most expected members of EMU, the direction of monetary policy in the United Kingdom has been towards tightening. Soon after the election, the new government decided to grant the Bank of England greater independence, including the full freedom to set short-term interest rates. The Bank used this new freedom immediately to raise interest rates; its repo-rate was raised in three steps from the beginning of June to the beginning of August from 6% to 7%. The Federal Reserve raised the Federal Funds rate in March but has since then stayed the course.

On the whole, the world economic situations have been fairly favourable in the recent period. A currency crisis in South-East Asia and some other countries and resulting turmoil on stock markets across the world, difficulties in the Japanese economy and continued high unemployment in Europe cast a shadow on an overall positive picture. The current growth phase in the United States is already one of the longest ever. So far overheating, which typically precedes recessions, has been avoided. Certain danger signs have, nevertheless, appeared. Although prices of goods and services have risen only marginally, asset prices have risen sharply, especially stock prices, which rose continuously until very recently. The sharp fall in stock prices at the end of October and volatile prices since then illustrate that some of these price increases may have been unwarranted in that they were based on excessive optimism. The price collapse in October is, however, not expected to have a lasting effect on investment and the financial system, at least not outside Asia. Uncertainty related to the establishment of EMU is another matter of concern for policy makers and observers of international economic matters. Finally, there is a certain danger associated with the large capital flows to emerging markets. It is certainly positive that capital is flowing to countries with the greatest needs but there is always a degree of uncertainty concerning the sustainability of these flows, as the experience from Mexico in 1995, from Thailand and other South-East Asian countries this summer, and most recently from Hong Kong demonstrates.

## Annex II: Chronology 1996 - 1997

### November 1996

Bank bills were listed on the Iceland Stock Exchange for the first time.

On November 11, a new regulation issued by the Ministry of Commerce, no. 571/1996, took effect on the maximum of loans and guarantees of credit institutions and investment firms. This regulation is in all main aspects comparable to a former regulation which was valid for the credit institutions only, but the investment firms now fall for the first time under the same rules as the credit institutions.

### December

The Central Bank decided to extend its custodian agreements with three securities firms until February 28 1997; the agreements were supposed to expire on December 31 1996.

### January 1997

The State Housing Fund decided that the housing bonds would be issued in 1997 from the same series as in 1996.

The State Housing Fund sold 1.1 billion krónur of housing fund bonds from the 1996 series. The issues were sold through a public offer and a securities firm underwrote the sale. The sales agent was selected following a public tender among the securities houses.

On January 11, the Central Bank ceased extending foreign quota loans to deposit money banks.

On January 16, the Central Bank published a new inflation forecast, according to which, inflation in the first quarter of 1997 would be 0.2% between quarters or 0.7% on an annual basis.

On January 16, the Central Bank increased interest rates on its 45 and 90 day Central Bank notes by 0.8-0.9 percentage points to 6.6% and 6.7%. This was done to bring these rates closer

to rates on other money market instruments. The Central Bank opened reverse repo facilities for commercial and savings banks, using Central Bank notes as collateral. At the same time the yields on other reverse repos and the Central Bank's discount rate were increased.

### February

The Government Debt Management Agency announced that the number of outstanding issues of Treasury bonds would be decreased and the issues made larger. This would be done in four phases. The remaining issues would be benchmark issues. The main purpose of these changes is to make the Icelandic Treasury bond market more liquid and to improve efficiency.

On February 7, the Treasury announced that it would exercise its call option on nine issues of Treasury bonds that were both callable and puttable. The owners of the issues were invited to participate in a special auction, in which they could swap their bonds for benchmark bonds.

Búnaðarbanki Íslands and Íslandsbanki hf. announced that they would assume the role of market makers for benchmark issues of Treasury bonds and notes.

### March

The Central Bank renewed its custodian and market making agreement with three securities firms, which were selected following a public tender among them.

On March 7, Moody's Investors Service announced, that the outlook for Iceland's credit rating was positive, due to sound economic policies and better economic conditions.

### April

The Central Bank of Iceland changed its rules on lending facilities for market makers in government bonds. According to the older rules, it

was possible to use the lending facilities if institutions complied to the Iceland Stock Exchange conditions on market making. Now the market maker has to comply with the Central Banks conditions, which are stricter than the Iceland Stock Exchange conditions.

Landsbanki Íslands and Landsbréf hf. announced that they would assume the role of market makers for the housing bond issue 1996/2 on the Iceland Stock Exchange.

The State Housing Fund sold 1.7 billion krónur of housing fund bonds from the 1996 series. The issues were sold through a public offer and a securities firm underwrote the sale. The sales agent was selected following a public tender among the securities firms.

On April 18, The Central Bank published an inflation forecast for the year 1997, according to which, inflation between annual averages of 1996 and 1997 would be 2.1%, and changes over the calendar year 1997 would be 2.9%. The forecast for the second quarter of 1997 was 0.9% between quarters or 3.6% on an annual basis.

On April 23, the Government Debt Management Agency implemented the second phase of its plan to reorganise outstanding Treasury bonds. In a special auction, owners of 22 Treasury bond issues were offered to swap their bonds to benchmark issues.

The securities firm Kaupthing hf. established two mutual funds located in Luxembourg. One will invest in Icelandic bonds, the other one in Icelandic equity. The funds will be quoted on the local stock exchange.

## **May**

Parliament passed new legislation changing the state owned commercial banks, Landsbanki Íslands and Búnaðarbanki Íslands, to limited liability companies on January 1998.

Parliament also passed legislation on the restructuring of four investment credit funds, establishing an investment bank and a venture

capital fund. The new entity will begin operation in the beginning of 1998.

The Iceland Stock Exchange began sending to Reuters real time information about quotes and prices of Icelandic bonds and shares.

## **June**

On June 6, the composition of weights in the official exchange rate index was changed due to yearly revision in line with foreign trade in 1996.

Verðbréfaskráning Íslands hf. began operations. Its purpose is the electronic registration and dematerialization of securities. Electronic registration is scheduled to begin in 1999.

The State Housing Fund concluded an agreement with Íslandsbanki hf. and Landsbréf hf. according to which they assumed the role of market makers for certain housing and housing fund bonds. The market makers were selected following a public tender.

## **July**

The State Housing Fund sold 1.1 billion krónur of housing fund bonds from the 1996 series. The issues were sold through a public offer and a securities firm underwrote the sale. The sales agent was selected following a public tender among the securities houses.

On July 8, the domestic interbank market in foreign exchange was changed. The daily foreign exchange fixing meetings were abolished and the market became continuous. The banks became market makers in USD. In conjunction with these changes the Central Bank issued new rules on foreign exchange exposure, reserve requirements and liquidity.

On July 16, the Central Bank published an inflation forecast for the year 1997, according to which, inflation between annual averages of 1996 and 1997 would be 1.7%, and changes over the calendar year 1997 would be 2%. The forecast for the third quarter of 1997 was 0.5% between quarters or 1.8% on an annual basis.

On July 30, Moody's Investors Service upgraded Iceland's credit rating. The basis for the upgrade is that the Icelandic economy is becoming more diversified over the medium- to longer-term, authorities have restructured and stabilized the economy and strengthened control of marine resources.

### **September**

The Central Bank of Iceland changed its rules on lending facilities for market makers in government bonds. Access was increased.

### **October**

The State Housing fund sold 1.1 billion krónur of housing fund bonds from the 1996 series. The issues were sold through a public

offer and a securities firm underwrote the sale. The sales agent was selected following a public tender among the securities houses.

On October 15, The Central Bank published an inflation forecast for the year 1997, according to which, inflation between annual averages of 1996 and 1997 would be 1.8%, and changes over the calendar year 1997 would be 2.3%. The forecast for the fourth quarter of 1997 was 0.6% between quarters or 2.4% on an annual basis.

The securities firm Kaupthing hf. was granted permission to operate in foreign exchange and to take part in the interbank market in foreign exchange.

# STATISTICAL APPENDIX

Table 1. Survey<sup>1</sup>

	<i>M1 incl. estimated accrued interest. 12-m. %-changes end of period</i>	<i>M3 incl. estimated accrued interest. 12-m. %-changes end of period</i>	<i>Deposits including estim. interest. 12-m. %-changes end of period</i>	<i>Lending and relending DMBs. 12-m. %-changes end of period</i>	<i>Liquidity position of DMBs as a ratio of deposits and bonds issued. end of period</i>	<i>Foreign exchange reserves in terms of imports<sup>2</sup></i>	<i>Official exchange rate<sup>3</sup></i>	<i>Share prices, 12-month % changes<sup>4</sup></i>	<i>Reykjavík area<sup>5</sup></i>	<i>Real estate prices. Residential exports, latest year on % change<sup>6</sup></i>	<i>Merchandise imports, latest year on % change<sup>6</sup></i>	<i>Balance of trade as a % of merchandise exports. Latest 12 months</i>
1980.....	61.9	65.4	67.1	66.4	8.1	2.5	...	...	...	60.2	60.0	3.5
1981.....	60.1	70.5	69.9	72.2	3.9	3.6	...	...	...	46.5	56.3	-3.0
1982.....	29.1	58.0	59.7	92.0	-6.2	2.4	...	...	66.7	29.7	54.0	-22.2
1983.....	77.9	78.7	80.2	85.6	-5.6	2.9	...	...	43.6	119.6	75.2	2.5
1984.....	42.5	33.4	33.8	43.0	-8.1	2.4	...	...	31.6	26.5	31.6	-1.4
1985.....	27.3	47.6	48.2	29.7	-5.3	3.2	...	...	13.8	43.3	41.3	0.0
1986.....	43.3	35.0	34.9	19.1	-2.3	4.0	...	...	15.6	33.2	21.4	8.9
1987.....	31.7	35.2	35.4	42.1	2.1	2.7	...	...	38.1	18.0	34.2	-3.7
1988.....	16.5	24.0	24.3	37.2	4.3	2.8	...	67.9	36.3	16.2	12.7	-0.5
1989.....	32.8	27.2	27.6	25.2	8.3	3.5	...	44.3	14.9	29.8	17.1	9.3
1990.....	24.9	14.9	15.2	11.0	8.4	3.9	...	61.9	12.6	15.5	20.7	5.2
1991.....	19.9	14.4	14.6	11.5	9.1	3.7	...	32.3	11.5	-1.0	8.0	-3.4
1992.....	1.3	3.8	3.7	5.7	9.8	4.6	100.7	-9.8	5.6	-4.1	-6.9	-0.4
1993.....	5.4	6.5	6.5	7.0	10.6	4.7	110.6	-10.1	-0.2	7.8	-6.4	12.8
1994.....	10.7	2.3	1.9	-0.1	5.8	2.9	116.0	6.8	-1.2	19.0	12.9	17.2
1995.....	9.6	2.2	2.0	0.8	4.3	2.8	116.1	29.7	-1.5	3.5	10.8	11.4
1996.....	8.5	6.2	6.2	12.4	7.9	3.3	116.2	64.4	0.1	8.2	20.4	1.5
1996:												
January....	10.8	3.6	3.5	4.7	5.1	2.9	116.4	45.1	1.3	1.8	10.5	9.6
February..	9.5	3.8	3.2	4.9	5.5	2.7	116.3	46.8	-2.0	3.0	10.8	10.5
March .....	9.6	3.9	3.9	6.1	8.1	2.9	116.2	54.0	-2.6	4.7	9.8	10.4
April.....	11.6	5.1	6.0	7.7	6.9	3.5	115.9	60.6	-2.9	6.0	12.3	9.1
May.....	9.8	4.8	4.5	8.5	5.8	2.7	115.9	67.7	0.7	2.0	12.5	6.9
June.....	10.1	4.2	4.1	10.1	6.3	2.6	116.1	70.8	-3.3	3.6	11.2	7.4
July.....	11.8	5.0	4.9	8.0	8.9	3.2	116.2	74.6	1.6	5.3	13.1	6.4
August.....	9.1	4.4	4.2	8.0	8.9	2.8	116.3	70.6	4.7	5.9	14.8	6.5
September	8.0	3.9	3.9	7.8	8.7	2.7	116.3	73.0	-1.2	5.3	15.9	3.5
October....	13.5	4.1	4.0	8.0	7.7	2.8	116.2	71.7	-0.5	8.1	20.7	3.2
November.	15.1	5.2	5.0	11.1	7.1	2.8	116.2	62.5	3.1	6.2	19.0	1.8
December.	8.5	6.2	6.2	12.4	7.9	3.3	115.8	59.9	2.5	8.2	20.4	1.5
1997:												
January....	11.2	4.4	4.8	11.8	7.8	2.6	115.8	56.4	1.0	12.1	20.7	2.6
February..	10.0	5.5	6.3	14.0	6.6	2.6	116.0	56.5	1.7	8.8	20.6	0.9
March .....	11.3	5.3	5.8	13.4	5.8	2.8	115.8	49.5	2.4	5.7	16.5	1.3
April.....	10.2	6.8	6.7	13.3	7.1	3.0	115.3	71.7	2.8	6.8	16.9	0.5
May.....	11.7	6.4	6.2	13.3	6.9	3.1	114.7	60.2	1.1	7.6	15.3	0.3
June.....	10.7	6.6	6.7	13.8	5.6	3.6	114.2	49.5	3.0	6.5	14.8	0.2
July.....	15.3	8.3	8.4	16.2	8.2	3.7	113.4	43.9	-0.6	6.2	13.0	0.4
August.....	7.9	7.3	7.3	16.0	7.0	3.6	113.2	28.0	-3.4	4.1	12.4	-0.9
September	12.1	8.4	8.5	17.4	5.9	3.2	113.6	21.3	...	...	...	...

1. Latest values are provisional. 2. Fixed exchange rate. 3. Dec. 31, 1991 = 100. From Sept. 6 1995, the trade (goods and services) weighted basket of 16 currencies replaced the former basket of US dollar (18%), ECU (76%) and Japanese yen (6%). 4. Year on year nominal change and twelve-month change to end of month. Based on the Iceland Stock Exchange share price index from Jan. 1 1993, before that on the VIB share price index. 5. 12-month nominal year on year change or from same quarter previous year. Price per m<sup>2</sup> of apartments in the Reykjavík area. 6. Accumulated latest 12 months on previous 12 months, %-change.

Sources: Central Bank of Iceland, Iceland Stock Exchange, The Valuation Office of Iceland, Statistics Iceland.

**Table 2. Domestic interest rates**  
in % per year

	Central Bank's interest rates.		Money market yields at end of period				Bond market yields (bids on ISE) at end of period <sup>1</sup>				Average interest rates of bank credit	
			CB's bid for Treasury bills on Iceland Stock Exchange								Non-indexed secured loans	Indexed secured loans
			Annual averages				Inter-					
Dis- count	REPO yield	3 mon. bills	6 mon. bills	12 mon. bills	bank loans	Treasury notes	5-year Treasury bonds	20-year Treasury bonds	25-year housing bonds			
1990 .....	25.6	17.7	.	.	.	10.0	.	7.10	.	7.30	16.4	8.0
1991 .....	23.9	20.4	.	.	.	13.5	.	8.25	.	8.40	17.7	9.2
1992 .....	16.8	12.5	11.30	11.35	.	8.6	.	7.80	.	7.60	13.1	9.3
1993 .....	14.1	8.4	5.48	5.61	5.91	5.7	6.55	5.00	.	5.45	14.3	9.1
1994 .....	4.4	5.3	6.07	6.45	7.40	4.9	8.65	5.05	.	5.75	10.6	7.9
1995 .....	5.9	6.9	7.28	7.63	7.89	7.0	10.59	5.90	5.74	5.80	11.6	8.7
1996 .....	5.7	6.6	7.07	7.29	7.83	8.3	9.38	5.81	5.53	5.78	12.4	8.9
At end of month:												
1995:												
January....	5.5	6.3	6.69	7.16	8.08	5.9	9.20	5.05	.	5.87	10.9	8.3
February..	5.5	6.7	7.10	7.57	8.33	6.5	9.00	5.30	.	5.82	10.9	8.3
March .....	6.4	7.3	7.30	7.65	8.28	6.9	8.76	5.30	.	5.94	10.9	8.3
April .....	6.4	7.3	7.57	7.75	8.28	6.9	8.73	5.78	.	5.95	10.9	8.3
May .....	6.4	7.3	7.64	7.88	8.33	6.9	9.09	5.78	.	5.95	11.8	8.9
June .....	6.4	7.3	7.13	7.61	8.10	6.9	9.74	5.85	.	5.95	11.9	8.9
July .....	6.1	7.0	7.30	7.60	8.09	6.6	9.58	5.86	.	5.95	11.9	8.9
August .....	6.1	7.0	7.34	7.74	8.16	6.6	9.64	5.88	.	5.95	11.9	8.9
September	5.6	6.5	6.95	7.19	7.46	6.2	10.35	5.94	5.94	5.97	11.9	8.9
October....	5.6	6.5	7.09	7.25	7.42	6.2	10.60	5.73	5.60	5.63	11.9	8.9
November.	5.6	6.5	7.09	7.28	7.53	6.4	10.54	5.64	5.54	5.68	12.1	8.8
December.	5.6	6.5	7.28	7.63	7.89	7.0	10.59	5.90	5.74	5.80	12.1	8.8
1996:												
January....	5.6	6.5	7.60	7.66	7.89	7.0	10.52	5.87	5.80	5.87	12.1	8.8
February..	5.6	6.5	7.50	7.62	7.93	6.7	10.32	5.78	5.67	5.73	12.9	9.0
March .....	5.6	6.5	7.47	7.59	7.87	7.1	9.47	5.70	5.66	5.73	12.6	8.9
April .....	5.6	6.5	6.54	6.66	6.93	6.7	8.64	5.42	5.39	5.54	12.4	8.9
May .....	5.6	6.5	6.52	6.65	6.86	6.5	8.90	5.15	5.22	5.50	12.3	8.8
June .....	5.6	6.5	6.50	6.68	6.86	7.1	8.73	5.42	5.29	5.39	12.2	8.8
July .....	5.6	6.5	6.53	6.68	7.09	6.5	8.62	5.42	5.41	5.68	12.2	8.8
August .....	5.6	6.5	6.58	6.75	7.22	6.6	8.67	5.31	5.39	5.53	12.2	8.8
September	6.0	6.9	7.09	7.22	7.85	6.9	8.85	5.40	5.49	5.62	12.2	8.8
October....	6.0	6.9	7.09	7.29	7.81	7.2	9.58	5.90	5.58	5.78	12.6	8.9
November.	6.0	6.9	7.13	7.32	7.85	7.2	9.20	5.80	5.50	5.68	12.7	8.9
December.	6.0	6.9	7.07	7.29	7.83	8.3	9.38	5.81	5.53	5.78	12.8	9.0
1997:												
January....	6.5	6.9	7.10	7.31	7.84	7.3	9.84	5.80	5.34	5.67	12.8	9.0
February..	6.5	6.9	7.14	7.38	7.84	.	9.54	5.80	5.25	5.77	12.8	9.0
March .....	6.5	6.9	7.15	7.45	7.80	7.4	9.28	5.80	5.15	5.75	12.8	9.1
April .....	6.5	6.9	7.10	7.43	7.73	7.4	9.30	5.70	5.12	5.63	12.9	9.1
May .....	6.5	6.9	7.00	7.38	7.67	.	8.91	5.75	5.16	5.68	13.1	9.1
June .....	6.5	6.9	6.99	7.30	7.58	8.3	8.64	5.67	5.05	5.49	13.1	9.1
July .....	6.5	6.9	6.91	7.07	7.25	.	7.88	5.40	4.90	5.17	13.0	9.1
August .....	6.5	6.9	6.87	6.88	6.88	.	8.07	5.37	5.04	5.35	12.8	9.0
September	6.5	6.9	6.87	6.90	6.90	.	8.24	5.23	4.96	5.25	12.8	9.0
October....	6.5	6.9	6.91	6.93	6.94	.	8.29	5.20	4.92	5.31	12.8	9.0

CB = Central Bank of Iceland. ISE = Iceland Stock Exchange.

1. Yield in excess of changes in consumer price index (CPI) except on Treasury notes which are non-indexed.

**Table 3. National product and expenditure <sup>1</sup>**

	<i>Current prices, m.kr.</i>				<i>Volume changes in %</i>			
	1995	1996	1997 <sup>2</sup>	1998 <sup>3</sup>	1995	1996	1997 <sup>2</sup>	1998 <sup>3</sup>
1. Private consumption.....	272,708	296,840	317,466	343,371	4.2	6.4	5.0	5.0
2. Public consumption.....	94,080	100,679	107,401	117,252	1.3	1.4	2.2	3.0
3. Capital formation .....	65,951	84,828	103,680	108,740	-2.8	23.5	18.6	1.3
4. Stock changes.....	2,374	-1,036	0	0	.	.	.	.
5. Gross national expenditure (1+2+3+4) ..	435,112	481,312	528,547	569,363	3.1	7.1	6.7	3.9
6. Export of goods and services .....	161,250	176,761	183,930	196,959	-2.1	10.0	3.2	4.6
7. Import of goods and services .....	144,725	173,725	191,210	204,566	3.8	16.6	9.6	5.9
8. Gross domestic product (5+6-7) .....	451,637	484,348	521,267	561,756	1.0	5.2	4.5	3.5
9. Net factor income.....	-12,502	-10,803	-9,855	-11,007	.	.	.	.
10. Current transfer <sup>4</sup> .....	-306	-464	-372	-383	.	.	.	.
11. Current account (6-7+9+10) .....	3,717	-8,231	-17,507	-18,996	.	.	.	.
12. Gross national product (8+9) .....	439,135	473,545	511,412	550,750	1.4	5.6	4.8	3.3
13. Current account in % of GDP .....	0.8	-1.7	-3.4	-3.4	.	.	.	.
14. Current account in % of GNP .....	0.8	-1.7	-3.4	-3.4	.	.	.	.
15. Net factor income in % of GDP .....	-2.8	-2.2	-1.9	-2.0	.	.	.	.

1. National economic forecast, October 1997. 2. Estimate. 3. Forecast. 4. Official development aid, international institutions etc.  
Source: National Economic Institute.

**Table 4. Public finances**

<i>Accrual basis</i>	<i>Billions of krónur</i>				<i>Percentage of gross domestic product</i>			
	1995	1996	1997 <sup>1</sup>	1998 <sup>1</sup>	1995	1996	1997 <sup>1</sup>	1998 <sup>1</sup>
1. Public revenue .....	162.8	177.8	188.8	200.5	36.0	36.7	36.2	35.7
2. Public expenditure .....	176.2	185.9	192.4	204.3	39.0	38.4	36.9	36.4
3. Financial balance .....	-13.4	-8.1	-3.6	-3.8	-3.0	-1.7	-0.7	-0.7
4. Net public debt .....	172.6	195.0	196.3	196.2	38.2	40.3	37.7	34.9
1. Treasury revenue <sup>2</sup> .....	130.5	143.1	145.4	152.6	28.9	29.5	27.9	27.2
2. Treasury expenditure .....	142.0	149.2	147.8	154.8	31.4	30.8	28.4	27.6
3. Financial balance .....	-11.6	-7.3	-2.4	-2.2	-2.6	-1.5	-0.5	-0.4
4. Treasury net debt .....	155.3	168.2	166.6	163.5	34.4	34.7	32.0	29.1
1. Local government revenue .....	34.9	40.5	47.7	51.1	7.7	8.4	9.2	9.1
2. Local government expenditure .....	36.4	41.3	49.0	52.8	8.1	8.5	9.4	9.4
3. Financial balance .....	-1.4	-0.8	-1.3	-1.8	-0.3	-0.2	-0.3	-0.3
4. Net debt of local government .....	25.1	27.9	30.7	33.6	5.6	5.8	5.9	6.0

1. Estimate. 2. Treasury and social security.  
Source: National Economic Institute

**Table 5. Prices**

	<i>Consumer price index<sup>1</sup></i>			<i>Credit terms index<sup>2</sup></i>			<i>Wage index<sup>3</sup></i>			<i>Building cost index<sup>4</sup></i>		
	<i>Changes</i>		<i>Changes</i>	<i>Changes</i>		<i>Changes</i>	<i>Changes</i>		<i>Changes</i>	<i>Changes</i>		
	<i>Aver- age</i>	<i>from pr. year %</i>	<i>over year %</i>	<i>Aver- age</i>	<i>from pr. year %</i>	<i>over year %</i>	<i>Aver- age</i>	<i>from pr. year %</i>	<i>over year %</i>	<i>Aver- age</i>	<i>from pr. year %</i>	<i>over year %</i>
1980.....	8.1	61.8	59.7	164	57.5	52.6	.	.	.	9.8	54.9	57.5
1981.....	12.2	50.8	41.1	249	52.0	47.6	.	.	.	15.1	53.6	45.2
1982.....	18.4	51.0	63.7	373	49.9	60.5	.	.	.	23.2	53.8	63.0
1983.....	33.9	84.2	70.8	669	79.2	73.4	.	.	.	40.2	73.3	55.1
1984.....	43.7	29.2	23.1	895	33.8	18.9	.	.	.	50.9	26.7	19.5
1985.....	57.9	32.4	34.1	1,169	30.6	35.6	.	.	.	66.6	30.9	34.7
1986.....	70.2	21.3	12.8	1,457	24.6	14.7	.	.	.	83.9	26.0	17.2
1987.....	83.4	18.8	26.1	1,711	17.4	22.2	.	.	.	98.7	17.6	18.0
1988.....	104.6	25.4	18.3	2,111	23.4	19.1	.	.	.	116.4	18.0	16.2
1989.....	126.7	21.1	23.7	2,498	18.3	21.6	106.3	.	13.3	142.3	22.2	27.3
1990.....	145.5	14.8	7.3	2,886	15.5	7.1	116.1	9.2	6.1	169.6	19.2	10.6
1991.....	155.4	6.8	7.2	3,103	7.5	7.6	125.8	8.3	6.3	183.1	7.9	6.2
1992.....	161.2	3.7	2.4	3,218	3.7	1.6	129.5	2.9	2.3	188.2	2.8	1.2
1993.....	167.8	4.1	3.2	3,298	2.5	3.0	131.3	1.4	0.9	192.0	2.1	3.1
1994.....	170.3	1.5	1.7	3,359	1.9	1.3	132.9	1.2	1.5	197.0	2.6	1.8
1995.....	173.2	1.7	1.6	3,412	1.6	1.6	138.9	4.5	9.6	203.1	3.1	3.2
1996.....	177.1	2.3	2.0	3,488	2.2	2.1	147.8	6.4	1.4	212.4	4.6	6.1
1997 <sup>5</sup> ...	180.3	1.8	2.3	...	...	...	...	...	...	...	...	...

1. May 1988=100. 2. June 1979=100. 3. May 1989=100. 4. Validity time. July 1987=100. 5. Preliminary.  
Sources: Statistics Iceland, Central Bank of Iceland.

**Table 6. Real exchange rate, competitive position, national economic indicators**

	<i>Real exchange rate</i>		<i>Competitive position</i>		<i>Purchasing power of exports, %-ch.<sup>1</sup></i>	<i>GDP per man-year, %-ch.</i>	<i>National income per cap., %-ch.</i>	<i>Invest- ment, percent of GDP</i>	<i>Current account, percent of GDP</i>		
	<i>Relative prices</i>		<i>Fisheries</i>								
	<i>Index</i>	<i>%-ch.</i>	<i>Index</i>	<i>Average sector</i>							
1980.....	100.0	.	100.0	.	100.0	100.0	-1.9	2.4	3.3	25.4	-1.9
1981.....	104.3	4.3	106.3	6.3	99.4	99.1	2.7	-0.9	2.2	24.6	-4.0
1982.....	95.7	-8.2	102.2	-3.9	96.1	97.1	-9.7	-0.4	0.0	24.6	-7.9
1983.....	90.2	-5.8	84.3	-17.5	104.8	106.5	9.6	-3.0	-4.9	21.7	-1.9
1984.....	94.6	4.9	83.4	-1.1	100.9	103.2	3.1	2.7	2.3	21.7	-4.6
1985.....	93.1	-1.6	84.5	1.3	105.5	105.8	10.0	-0.3	2.1	21.1	-3.9
1986.....	94.9	2.0	86.4	2.2	111.7	109.1	11.7	3.0	8.0	19.2	0.5
1987.....	104.0	9.5	109.0	26.2	104.6	101.8	7.7	2.6	9.5	20.4	-3.4
1988.....	109.3	5.2	113.4	4.0	95.1	95.0	-4.3	2.9	-2.4	19.7	-3.5
1989.....	100.5	-8.1	98.1	-13.5	97.7	98.6	-1.1	1.7	-2.7	19.0	-1.3
1990.....	97.2	-3.3	87.4	-11.0	106.3	104.3	-1.5	2.1	-0.4	19.2	-2.1
1991.....	99.8	2.6	89.9	2.9	110.0	105.8	-2.6	1.2	1.9	19.2	-4.0
1992.....	99.7	0.0	93.0	3.4	108.4	104.5	-4.6	-1.9	-5.3	17.5	-2.4
1993.....	94.3	-5.4	85.3	-8.3	104.0	102.9	1.5	1.8	-1.9	15.6	0.8
1994.....	89.1	-5.5	79.2	-7.2	108.8	107.0	9.9	3.0	1.9	15.1	2.0
1995.....	89.3	0.1	81.0	2.3	108.8	107.1	-1.1	-0.4	1.3	14.6	0.8
1996 <sup>2</sup> ....	89.5	0.3	81.0	0.0	106.2	105.8	6.5	3.2	3.6	17.5	-1.7
1997 <sup>2</sup> ....	90.5	1.1	83.9	3.6	104.9	105.6	3.6	2.7	4.4	19.9	-3.4

1. Purchasing power of exports measured in imports. 2. Preliminary.  
Sources: National Economic Institute, Central Bank of Iceland.