The financial system: Strengths and weaknesses

This article discusses the growing priority given to the stability of the financial system by central banks in many parts of the world. It describes studies by international agencies and others of the roots of financial crises, and outlines various factors concerning the stability of the Icelandic financial system at present. The findings are summarized in a conclusion.

I. Introduction

Sudden financial crises which have struck many parts of the world in recent years, with extensive consequences for the countries concerned and the global financial system, have prompted attempts to identify ways of preventing unexpected shocks in national and global finances. International financial institutions, not least the International Monetary Fund, have focused on this task and promoted reforms to the architecture of the international financial system. It is considered important to ensure effective supervision of financial institutions' operations and monitor the stability of the financial system as a whole. Another priority has been more harmonized provision of information.

Central banks have increasingly begun to monitor in particular factors which concern the stability of the financial system as a whole. The opening of capital markets and deregulation of capital flows has made it increasingly important to strengthen the foundations of the financial system in each country and monitor factors which could undermine its credibility. This is considered the best way to prevent unexpected shocks. It is common for central banks to have two main targets, promoting price stability and healthy financial system operations. The soundness of the financial system is a necessary pre-condition for favourable economic developments and effective monetary policy. Central banks are turning their attention to the strength and efficiency of the financial system, the macroeconomic environment and the risks to financial stability that may be concealed in it, and the security of payment systems and various related factors. Such activities differ from financial

supervisory activities insofar as they are primarily directed at factors which may pose a risk to the financial system as a whole and to economic stability. Financial supervisory tasks, on the other hand, are directed more towards individual institutions. It is crucial for central banks and financial supervisory agencies to collaborate closely in promoting a solid foundation for the financial system and its healthy operation.

Central Bank of Iceland pays increasing attention to financial stability

In line with the pattern elsewhere, the Central Bank of Iceland has increasingly been focusing on monitoring of financial stability. These tasks were described in the Bank's Annual Report for 1998. With the establishment of the Financial Supervisory Agency (FSA) at the beginning of 1999, the Central Bank's own Bank Inspection was merged with the Insurance Inspection. The FSA and Central Bank cooperate closely and exchange information according to an agreement between them.

Like its counterparts in other countries, the Central Bank of Iceland has decided to publish reports on financial stability which are planned to appear regularly in the February and August editions of its quarterly Monetary Bulletin. This article is the first in this series. The presentation and approach will be formulated gradually and depend to some extent on conditions at each time. This first article includes a general discussion of financial crises and indicators which are considered necessary to watch. It also focuses on various factors concerning the stability of the Icelandic financial system, macroeconomic conditions, the external position of the econo-

my, lending developments and the position of credit institutions, and, finally, domestic payment intermediation. The main findings are summarized in a conclusion. In the next few months the Central Bank will focus even more closely on the mechanisms of Icelandic financial institutions and developments in various aspects of their activities.

II. Financial crises and warning signs

Financial crises are a disruption or sudden change in the activities of financial institutions or markets, which have a significantly negative impact on economic developments. Difficulties within a single financial institution, or major price changes in a single market, which do not have pervasive effects on the financial system as a whole and/or economic activity, are therefore not classified as financial crises. The severest consequences accompany banking crises and currency crises. Financial crises which threaten the financial system as a whole may call for emergency action on the part of the Central Bank and/or other public authorities.

Dozens of serious financial crises have taken place in the world over the past two decades and they could even run into the hundreds, depending upon how a financial crisis is defined. Of these, some 40-70 have had a sweeping macroeconomic impact.

Although the cost of a financial crisis is difficult to assess, it can prove enormous. Assessments depend, among other things, on whether to include only direct expense incurred by the public sector on account of rescue operations, or whether an attempt is also made to assess the loss of production caused by the crisis. All told, the most expensive crises may have cost around half of annual GDP. Among neighbouring countries, the Finnish crisis (1991-1993) cost most at 8-8.5% of GDP, and the one in Sweden (1991) is thought to have cost 4-6.5%.² In many cases a bank crisis or serious weaknesses in the financial system have preceded a currency crisis, in part because financial system difficulties may restrict the scope of the Central Bank to apply monetary restraint against a looming problem. These two factors in combination can produce particularly serious consequences. All this shows the importance of monitoring financial system soundness, including assessments of the risk of a serious currency crisis.

Macroeconomic indicators

Given how costly financial crises may prove, preventive action is important. This needs to be based on signals which suggest the presence of risk in good time. Following the financial crises in Asia, a number of studies have been published attempting to identify the indicators that herald a financial and currency crisis. The IMF also devotes an important part of its regular surveillance activities to studies of its members' financial systems. These encompass both indicators about the state of the financial market itself and general macroeconomic indications which have an impact on its operating environment. The most important macroeconomic indicators which deserve to be monitored are the following:³

- Large growth in lending. Very rapid growth has
 often preceded a serious financial crisis. There is
 a risk that rapid growth will be accompanied by a
 deterioration in the quality of credit institutions'
 portfolios. Rapid growth in mortgages, other consumption loans and loans denominated in other
 currencies may precede a general upswing.
- Widening current account deficit. A large and widening current account deficit is generally accompanied by an inflow of foreign capital, largely procured through the financial system. Thus a close relationship exists between a current account deficit and credit growth. An excessive deficit may also be an indicator of a currency crisis which can harm the liquidity of financial institutions, especially when funded to a large extent with short-term credit. The situation is very volatile when a large current account deficit goes hand in hand with a low level of investment, and if the ratio of currency reserves to current liabilities is very low.

^{1.} Frydl, Edward J. "The Length and Cost of Banking Crises", IMF

<sup>Working Paper WP/99/30, March 1999.
The figures are taken from studies by Caprio and Klingebiel (1996) and by Lindgren, Garcia and Saal (1996) and refer to direct financial cost of resolving a bank crisis.</sup>

^{3.} Largely based on the IMF's assessment of the most important indicators of a financial crisis. Some other indicators have been included which the IMF does not rank among the most important, but could be regarded as heralding a financial crisis in Iceland. See further, e.g. World Economic Outlook, IMF, May 1998 and Kaminsky, Graciela L., "Currency and Banking Crises: The Early Warning of Distress", IMF Working Paner. December 1999.

- Economic shocks and low economic growth.
 Economic stagnation or contraction reduces the capacity of companies and individuals to meet their financial obligations, and has often preceded difficulties in the financial system.
- Unrealistic real rate of exchange. A large rise in the real exchange rate can cause export sectors difficulties in meeting their commitments. Furthermore, a high real exchange rate increases the risk of sudden currency depreciation which can impair the ability of borrowers with no export revenues to meet their foreign liabilities.
- Asset inflation. Monetary expansion can contribute to excessive rises in share and property prices. Tighter monetary restraint can cause these prices to drop suddenly at the same time as revenues of financial institutions diminish. This can put great strain on the financial system.
- Composition of capital inflow. A high ratio of short-term borrowing and portfolio investments in the capital inflow poses more risk of a sudden outflow than when long-term capital and direct investment dominate.
- Profitability of sectors which weigh heavily in lending by financial institutions. In small and undiversified economies, it is difficult to avoid allocating a fairly large part of lending to a few sectors. Financial systems in small countries can therefore be sensitive to shocks which are confined to specific sectors.
- Ratio of M2 to currency reserves or growth in these aggregates. A high ratio of M2 money supply to foreign currency reserves is an indicator of domestic monetary expansion, i.e. growth in money supply which is not supported by a currency inflow, thereby increasing currency crisis risk.
- Heavy corporate indebtedness. A high ratio of corporate debt to assets clearly increases the risk of default.
- Changes in the terms of trade. Experience shows that a sudden change in the terms of trade can create difficulties in the financial system, especially in small countries with undiversified exports. A large improvement in the terms of trade can lead to inflation and rapid rises in asset prices, which could be wiped out by a sudden deterioration in the terms of trade.

Other important indicators to monitor include domestic interest rates, public sector intervention in lending activities, lending by the banking system to the public sector, changeability in the inflation rate, mounting default, foreign interest rate developments and susceptibility to external influences.

Indicators from the financial sector

A turnaround in the economy often leads to difficulties in the financial system, no less than difficulties in the financial system lead to general economic troubles. Sharp fluctuations in the exchange rate and interest rates, for example, increase the risk faced by financial institutions, especially if they are heavily indebted abroad, or have large foreign portfolios or a substantial imbalance in the currency composition of their assets and liabilities. Financial institutions can also be indirectly affected by the impact of large changes in the exchange rate or interest rate on their customers, even if they hedge themselves against such direct influences. Liberalization heightens risks at the same time as tougher competition may limit profits. If liberalization is not backed up by effective supervision, serious flaws may develop in the financial system. The most important benchmarks used to judge financial soundness are the following:4

- Currency risk of financial institutions. A large difference between assets and liabilities denominated in foreign currency, customers' currency risks, and heavy foreign borrowing, especially of a short-term nature, can indicate that financial institutions are prone to exchange rate fluctuations or changes in currency inflows.
- Share of lending to specific sectors. A high share can indicate susceptibility to changes in these sectors' position.
- Securities portfolio. A high ratio of equities and other securities in total assets is an indicator of sensitivity towards price fluctuations in them.
- Ratio of defaults to total lending. A rise in this ratio is an indicator of deteriorating portfolio quality.
- *Equity ratio*. A falling ratio can suggest growing risk and impaired ability to meet shocks.
- Share of Central Bank credit in equity or liabilities. A large increase in Central Bank lending to

^{4.} Largely based on the IMF's survey of indicators.

financial institutions often suggests liquidity problems.

• Credit institutions' profitability and share prices. A declining ROE or ROA can indicate increased risk, for example if the reason is growing loan losses. In this context special attention must be paid to the share of earnings from subsidiaries, which can be a danger sign if it is high. It should be remembered that share prices cannot definitely be seen as a full reflection of the market participants' assessment of underlying risk, if the prevailing view is that the public sector will bale out financial institutions which are in trouble.

Other similar indications of operating risks at financial institutions include a large premium on interbank market interest rates depending on the institutions involved, substantial differences in yield for bids in individual institutions or syndicates compared with other bids in the market, ratio of deposits to M2, ratio of lending to total deposits, maturity of liabilities in the banking system and share of outstanding loans to companies which are operating at a loss.

III. Iceland's macroeconomic environment at present

Iceland's economic and monetary situation at present is characterized on the one hand by dynamic economic growth which has been sustained for several years, a large increase in real disposable income and a relatively good position of industries, and on the other hand by strong symptoms of overheating, asset inflation, monetary and credit expansion, a large current account deficit and inflation which has grown considerably of late. Under these conditions it is unlikely that financial institutions will face difficulties in the near future, since companies are still in a good financial position. However, persistent economic imbalance which takes the form of a large current account deficit and rising inflation can lead to a loss of confidence in the exchange rate and, at worst, a currency crisis. From a financial stability viewpoint, this is the main cause for concern, together with the threat that the present conditions might contribute to a banking crisis later by encouraging household and corporate indebtedness which cannot be sustained in the face of a setback.

Economic and monetary indicators

Economic growth and the terms of trade. Economic growth has been sizeable in recent years, in the range 5-6% from 1996-1999, and is forecast around 3% this year. The terms of trade improved considerably in 1997 and 1998, by almost 7% for goods and services. On the whole they have changed little since then. Although the growth in national income will slow down this year, there has been no weakening of income generation so far and this is hardly foreseeable in the near future. Such a failure would increase the likelihood of a disruption to financial stability, by hitting the financial position of companies and households.

Current account deficit. The current account deficit is forecast to exceed 5% of GDP this year, for the third consecutive year. This has not happened for the past four decades and the deficit is now greater and more persistent than in previous periods of growing export revenues. A large and persistent current account deficit is a particular cause for concern in light of the low ratio of investment to GDP. The burden of sustaining a large deficit becomes increasingly heavy with greater indebtedness in the economy and higher international real interest rates. Thus the current account deficit is a cause of concern for financial stability. It increases the external debt of the economy, making it more susceptible to shocks and possibly, in the long run, undermining confidence in the exchange rate of the króna.

Composition of capital inflows. A current account deficit has to be funded with capital inflows. The capital inflow requirement in recent years has been greater than would otherwise have been the case, on account of large-scale investments by pension funds abroad. The capital inflow in recent years has to a very large extent been in the form of longterm borrowing. Foreign borrowing grew in pace with the current account deficit in 1998 and 1999. and amounted to 61 billion kr. net in 1998 and 83 billion kr. net during the first nine months of 1999. Balance of payment figures show some overall inflow of short-term capital from 1996 until 1999. In the course of 1999 the composition of foreign borrowing changed, with loans lengthening and shortterm borrowing accounting for a lesser share. The outflow of short-term capital during the first three quarters of last year was largely explained by DMBs and other credit institutions building up deposits

abroad, which were reduced somewhat during the final quarter.

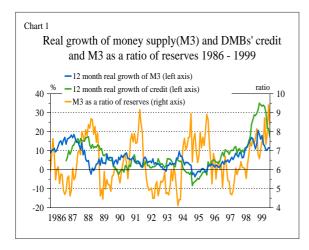
Real exchange rate. The real exchange rate measured in terms of unit labour cost rose by 6.5% from the fourth quarter of 1998 to the same period last year, to stand more than 13% higher than the historical low in 1994. The real exchange rate measured in these terms is still below the average in the 1980s and considerably lower than during the last period of economic overheating. On the other hand, such a high real exchange rate combined with a current account deficit cannot be found since the 1970s. Since then, changes in the nature of the economy may be expected to have lowered the equilibrium real exchange rate. The good position of industries and high level of employment, on the other hand, do not suggest that the real exchange rate's deviation from its equilibrium level is a cause for concern as far as economic stability is concerned.

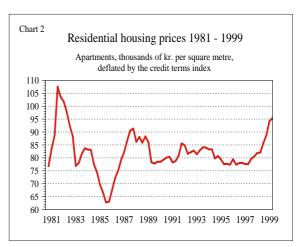
Monetary and credit expansion. Large monetary and credit expansion is one of the main causes of concern in connection with financial stability at present. As the accompanying chart shows, the real growth in lending by DMBs has been much greater than during previous upswings, although this is partly explained by their larger share in the credit system. However, other monetary indicators suggest the same trend. Money supply has grown on a large scale in real terms and the ratio of money supply (M3) to currency reserves is on the high side. Credit developments will be discussed later.

Asset prices. Prices of assets have risen considerably in the recent term. A particularly large increase

took place last year with housing prices in the Greater Reykjavík Area rising by 20%, the ICEX-15 index by almost 50% and the price of cod quotas by 25%. There is a risk that economic overheating and large-scale credit expansion have kindled the recent rise in asset prices, and that this is to some extent a bubble which could burst in the event of economic shocks and a reversal in expectations. But all things being equal, there is little probability of a large fall in asset prices in the near future, and especially not in the case of housing, which is actually expected to rise somewhat in excess of consumer prices. On top of considerable rises last year, share prices have been climbing so far this year too but as usual it is fairly uncertain whether this is an ongoing trend. However, asset prices appear to be stretched fairly tight, as will be discussed later, increasing the probability that they are approaching a peak. Credit institutions must therefore show great caution in the near future regarding their lending and assessments based on asset prices.

Property prices rose rapidly in the second half of 1997 after a drop in real terms and then stagnation earlier in the 1990s. Apartment prices per square metre in the Greater Reykjavík Area rose by 20% from the fourth quarter of 1998 to the same period last year. Data on prices of business premises are less reliable, but there is a general consensus that they have risen by considerably more than residential accommodation recently. Figures in the range 30-40% from the beginning of 1999 to the present day are being quoted, although business premises also witnessed a much greater drop in price than residen-





tial accommodation during the period of contraction and stagnation from 1992-1995. The official real estate valuation of residential accommodation and business premises was raised by 18% in the Greater Reykjavík Area at the beginning of 2000, but generally by somewhat less elsewhere. The accompanying chart shows apartment prices in the Greater Reykjavík Area over the past 20 years, adjusted with the credit terms index. It must be pointed out that the method of processing such data has changed considerably over this period, so that the statistics are not entirely comparable. With this qualification, housing prices seem to be at a historical high, around 19% higher in real terms than the average over 1990-1997. Admittedly this is still some way from the peak in 1982, but it should be pointed out that indebtedness on account of home-buying is much greater today than then, and that many buyers ran into difficulties after 1982. In fact, more factors were at work then than price fluctuations alone. Although difficulties encountered by property buyers did not spark extensive loan losses at that time, they did occasion special government action from 1985-1991. Despite less reliable information it is unwise to assume that prices of business premises are lower than housing prices in a historical context. It is clear that a drop in the prices of mortgaged business premises contributed to loan losses by deposit money banks and investment funds after the peak in the economic cycle in 1987.

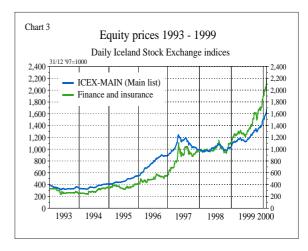
Past experience and growing indebtedness seem to suggest some risk that a reversal in household incomes and falling property prices could prompt difficulties in the credit system. Since business premises appear to be fluctuating even more than residential housing, and since businesses have less financial flexibility than households, there is no less reason for caution in assessing their ability to meet payments and the collateral value of their property. It should be borne in mind that purchases of business premises are largely financed by general credit institutions, but residential accommodation by the Housing Financing Fund. It should also be remembered that lower collateral limits are generally applied by Icelandic credit institutions than in neighbouring countries.

The market value of shares in listed companies increased sharply last year, by just over 67% from the beginning of 1999 to the end of this January. The

market value was equivalent to 53% of GDP at the end of last year but 36.4% the previous year. Share prices (the ICEX main index) have also risen a great deal, by 53% from the beginning of 1999 to the end of January 2000.

It is clear that a major explanation for the good profitability of companies listed on the stock exchange is their favourable economic and operating environment. The appreciation of the króna last year also had a positive impact on the financial performance of companies which have large debts denominated in foreign currencies. Such an improvement cannot be expected to prove permanent or repeat itself. It should also be pointed out that a number of the companies listed on the stock exchange, in particular in the financial sector, enjoyed substantial gains from rises in equity and bond prices last year. Such a profit is temporary and irregular in character, and does not form part of their permanent revenue potential. The conclusion is therefore that good company profitability in 1999 may to a large extent be explained by the exceptionally favourable economic environment and upswing, and by temporary gains on the appreciation of the króna and securities transactions.

It is very difficult to assess whether the pricing of shares on the exchange entails a real risk, since this is based on expectations of companies' future profits, which are essentially unknowable. The ratio of share prices to current profits (Q ratio) is currently higher than in Iceland in many places at present, which is partly due to Iceland's higher interest rates, and also exceptionally high share prices in the USA and vari-



Market worth, quota value and the Q ratio of listed fisheries companies on Iceland Stock Exchange

The market worth of the 20 fisheries companies listed on Iceland Stock Exchange amounted to 70.3 billion kr. at year-end 1999. This January their market worth rose by more than 5%, to reach almost 74 billion kr. at the end of the month. In mid-1999 their combined booked equity stood at 33.4 billion kr. The book value of quotas which they had either bought or acquired through mergers amounted to 13.3 billion kr. at the same point. Thus the book value of quotas was equivalent to some 40% of these companies' equity.

The ratio between market worth and equity (Q ratio) was therefore 2.10 at the end of 1999 and 2.2 at the end of the following January. The Q ratio was somewhat lower among fisheries companies than the weighted average of all companies listed on the stock exchange, which was 3.9 at year-end and 4.4 at the end of January.

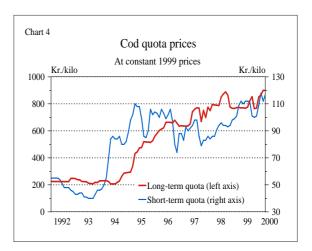
These companies' total quotas – acquired and officially allocated – were worth 114 billion kr. based on

quota prices at the end of the year and their quota levels during the current fishing season. Taking into account the market worth of these companies, their quota ownership and the Q ratio of listed companies in general, it is clear that quota assets are only incorporated to a small degree into assessments of their market worth. It is impossible to state with any certainty the extent to which quotas are actually assessed as part of their market worth, but it can be pointed out that the Q ratio of fisheries companies is lowest among those with no quotas, at around 1, while the highest Q ratio among the 20 listed is 6.5.

Clearly the market has assessed fisheries companies' worth very cautiously in relation to the value of their quota assets. At most the quota value has been assessed at one-third of market worth, but the proportion is probably much lower. Thus quota ownership is not a decisive factor in pricing of shares in the fisheries companies listed on Iceland Stock Exchange.

ous European countries at the moment. Furthermore, the Q ratio of listed companies in Iceland is somewhat higher if the financial sector is excluded, since their profits have been unusually large recently. Demand for shares has been running high and market participants appear to expect increases. Their optimism, however, entails a long-term risk, in particular in light of the frail equilibrium in the economy at the moment.

Credit institutions may face a special risk on lending to the fisheries sector when collateral is based on *quota value*, which is prone to fluctuations. So far, quota prices have generally not fallen. However, there are examples of sharp drops for individual species such as shrimp quite recently. One of the main risks associated with specific sectors or branches of industry is if credit institutions lend money against inflated quota prices. There are grounds for monitoring the development of market prices of quotas and their impact on credit decisions. If high quota prices prompt increased lending, there is also a greater risk that a significant drop in them will devalue the collateral and lead to loan losses. Credit institutions appear to realize the risk involved in quota valuation. Studies by the Central Bank have shown growing caution on their part in this respect. The main credit institutions have developed procedures for assessing the creditworthiness of companies on the basis of their revenues, operations and income flow from planned investment. In general loans are not made against quota value alone, so there does not seem to be a great risk from loans based on inflated quota prices. More risk is entailed if a sharp drop in quota prices lowers the value of assets which have been mortgaged within the fisheries sector. Loan losses do not transpire until collateral needs to be liquidated to settle debt, but it is



Equity and debt ratios					
	Net financial accounts ¹			Firms on the ISE	
Equity ratio (%)	1986	1988	1996	1996	1999 ¹
Fishing sector	12.6	5.0	25.9	32.5	35.1
Industrial sector	36.6	29.5	39.6	46.8	43.9
All sectors	35.7	28.0	33.2		31.9
Long-term debt/total assets	ï				
Fishing sector	0.48	0.50	0.46	0.45	0.46
Industrial sector	0.26	0.28	0.28	0.23	0.32
All sectors	0.38	0.30	0.34		0.33
Long-term debt/equity					
Fishing sector	3.84	9.52	1.78	1.39	1.30
Industrial sector	0.70	0.95	0.70	0.49	0.74
All sectors	1.06	1.05	1.02		1.04
1. January-June 1999.					

uncertain that this stage will be reached unless a serious setback occurs to the operating basis of fisheries companies. There are no such signs at present.

The market price of both permanent and temporary quotas has risen greatly in recent years, cf. the accompanying chart. This high and rapidly rising market price for short-term and long-term quotas does not reflect a natural price for them. The recent court ruling on quota ownership rights still does not appear to have had much impact, which suggests that the permanence of allocated quotas has been cautiously assessed in price formation of long-term quotas or catch shares. The market value of fisheries companies and quota value is discussed separately in a box on page 26.

Industrial and household finances

Industrial finances

The main indications about industrial finances and profitability can be found in the finance companies' recently published assessment of profitability last year. An improvement is generally forecast in 1999 compared with the previous year. Particularly good profitability is expected among finance, hi-tech, IT, oil and transportation companies. Profitability of fisheries companies falls into two clear categories: those involved in processing and fishing of demersal species, where profitability was generally good, and those engaged largely or entirely in processing of pelagic species and shrimp, where profitability was

poor. Many industrial manufacturing companies are on the defensive, especially those selling in the domestic market in competition with foreign manufacturers. On the other hand, good performance is shown by manufacturing companies in the fields of hi-tech and product development which export a sizeable part of their production. The explanation for the poorer profitability of general manufacturing companies lies in the higher exchange rate, higher interest rates on domestic borrowing, and rising wages.

Industrial finances have improved significantly since the last economic upswing at the end of the 1980s, as shown in the table above. The turnaround is particularly marked in the fisheries sector, where the equity ratio has increased substantially and the ratio of long-term liabilities to equity has fallen. Difficulties in the fisheries sector played a large part in the banking system's loan losses at the end of the 1980s and the early 1990s. It would take very large setbacks in order for a similar development to occur today. Industries, in fact, are much better equipped to handle setbacks themselves.

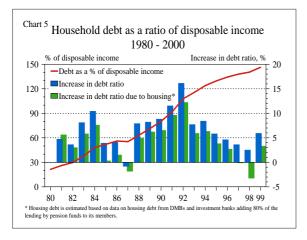
The equity ratio of companies listed on the Stock Exchange suggests a reasonably strong position, in the range 32% to 34% in recent years. The debt ratio of listed companies has been equivalent to 33% to 35% of their balance sheet totals in recent years. Among fisheries companies, the level of debt has been virtually unchanged in recent years, while it has risen somewhat in industrial manufacturing, especially relative to equity.

On the whole, industrial profitability and finances are in relatively good shape at present, especially in the Icelandic historical context. This picture is unlikely to change fundamentally in the immediate future unless unexpected shocks occur. However, it is uncertain that profitability will improve on the scale needed to fulfil current Stock Exchange expectations. Growing inflation, wage rises and the rising real exchange rate could squeeze profits at export and import competing industries in the near future, although there are obviously still opportunities for greater streamlining.

Household finances

Despite a large increase in real disposable income, household indebtedness with the credit system has been growing rapidly in the recent term, with very fast growth in private consumption. Household debt rose by 14% more than prices over the 12 months until September 1999. The accompanying graph shows the rise in debt relative to real disposable income over the past 20 years. The rate of debt ratio growth appeared to slow down considerably at the start of the current upswing, partly because of a large increase in real disposable income. It is noticeable that the growth in debt relating to housing purchases has been slowing down. Last year, however, the debt ratio increased by 6 percentage points at the same time as real disposable income rose by more than 5%. Household indebtedness in Iceland is now at one of the highest levels relative to real disposable income. In the upswing in 1985 to 1987, household debt grew by less than real disposable income. An increase in debt during an upswing may represent a risk if economic growth is not on a firm footing.

Households accumulated debt in 1999 alongside a large rise in asset prices and growing consumption in excess of real disposable income. It is not easy to assess the impact of the rise in asset prices on household behaviour and whether this contributed at all to the fact that borrowing and private consumption outpaced real disposable income. Clearly, however, higher property assessments increase mortgage value irrespective of the owners' ability to meet payments. Less is known about equity ownership of households since shares are usually filed in tax returns at nominal rather than market prices. The extent to which unlisted and foreign shares are reported to the tax authorities is also uncertain. According to tax returns for 1999, share ownership of individuals amounted to 42 billion kr. at the end of 1998, and on the basis of share prices at Iceland Stock Exchange their value



was probably more than 100 billion kr. Gains by individuals on share prices therefore went a long way to offsetting the 70 billion kr. added to household debt during 1999.

The main risk that high asset prices pose to the financial system is their tendency to drop very suddenly if expectations about future income flows from them change. During a reversal, the ability of individuals and companies to service and repay loans which they have taken to finance asset purchases often diminishes at the same time as a large and sudden drop takes place in the price of the collateral. Information for assessing the risk posed by current asset prices is lacking. However, it is clear that there are historical precedents for property prices dropping by 15-20% in real terms. Collateral which is approaching 80% of property prices could therefore prove to be insecure.

IV. External position of the economy

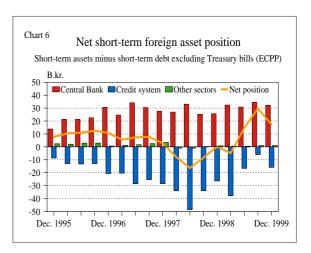
A serious disruption to the external balance of the economy can put a strain on the financial system. A large drop in the exchange rate caused by such a development can affect credit institutions with high levels of foreign debt, especially if they have a large proportion of short-term liabilities. Even when financial institutions themselves hedge against currency risk, their customers may be unprotected, which increases the risk of loan losses.

Central Bank currency reserves

One of the Central Bank's roles as stated in the Central Bank Act is to maintain and build up a foreign currency reserve sufficient to ensure free trade with other countries and Iceland's external financial security. One role of the currency reserve is to reduce the probability that a sudden outflow of capital will lead to an excessively large fall in the exchange rate. The Central Bank strives to maintain the currency reserve above a certain minimum size with reference to the scope of foreign trade. Over the past 6 years the currency reserve has been in the range 13%-18% of merchandise and service imports, and 18-25% of merchandise imports. These levels were higher in the early 1990s when import volume was much less than in recent years. Today, however, these ratios perhaps say little about the Central Bank's ability to maintain exchange rate stability in a climate of unrestricted capital movements. The ratio of currency reserves to foreign short-term liabilities of credit institutions has been in the range 0.6-0.8 in recent years. From 1994-1996 this was much higher, at 1.2-2.3. In a modern economy, foreign exchange reserves by themselves offer little defence against capital outflows which may occour quickly if market confidence in the government's monetary and exchange rate policies fails. Exchange rate stability in a modern economy is perhaps therefore more dependent on the Central Bank's ability to maintain confidence in monetary policy and its political and legal scope to apply the resources at its disposal.

One factor determining the likelihood of a challenge to the currency reserve is how the current account deficit is financed. If this is done through direct external investment, little risk is involved. Financing it with long-term borrowing also carries a relatively low risk. The main risk involves funding with foreign short-term borrowing or portfolio investments. During a crisis these channels for capital can close or operate in reverse. Iceland's current account deficit and considerable amount of investment overseas has been offset with direct external investment in business operations in Iceland to some extent, but in particular through foreign borrowing by private parties, mainly through the intermediacy of Icelandic banks. Foreign borrowing has sufficed to keep the currency reserves fairly steady. However, the Central Bank has occasionally needed to take short-term loans in order to consolidate the reserves. For this purpose and as a contingency, the Central Bank has access to shortterm credit from foreign banks. The Bank's drawing facilities today are equivalent to almost USD 500 million. In addition the Central Bank has access to non-contractual borrowing facilities with various foreign financial institutions.

An economy's foreign short-term liabilities can give an indication of pending strain on its currency reserves.⁵ In Iceland this has generally been positive in recent years but was negative by almost 5 billion kr. at the end of the first quarter of 1999. At the end



of 1999 it swung back to just over 14 billion kr. in the black. The ratio of current liabilities to the currency reserves also increased at the end of the first quarter of 1999, to 169%, but fell back to 110% by the end of the year. Net foreign short-term liabilities of credit institutions, which were negative by the equivalent of 67% of the Central Bank's currency reserves at the end of 1996, slipped to 116% at the end of the first quarter of 1999 but had "improved" to 51% at the end of the year.

Access to foreign credit markets

Last year saw some increase in the interest rate premium on loans to Icelandic financial institutions. Probably there were other explanations than diminishing creditworthiness. Indeed, Icelandic commercial banks have all received credit ratings from international firms which should make it easier for them to borrow externally. A likely explanation is the streamlining which has characterized the global financial sector in the past few years, as seen in bank mergers and subsequent restructuring of operations. The result has been increased demands for return on equity. One consequence is that the interest rate premium on lending has been rising. Moreover, Icelandic banks had a fairly high profile in the foreign long-term market in 1999, with good results in many cases.

V. Lending by credit institutions and their position

Lending within the credit system has grown rapidly in recent years. Total lending has grown in real terms

^{5.} The foreign current position can be defined as foreign short-term assets less foreign short-term liabilities. Iceland's foreign assets mainly comprise the Central Bank's currency reserves and foreign short-term assets of credit institutions. Foreign short-term liabilities are mainly short-term borrowing by credit institutions and some companies. The amount of outstanding Euro-Commercial Paper in international markets is excluded from this analysis, since this is entirely backed up by untapped credit facilities.

by almost 97% since 1989 and 47% since 1995. Lending to households rose sharply in and around 1990 and, stated in fixed prices, has grown by 171% since 1989. Total lending to enterprises has also shown great growth over this period, or 56% in real terms, and most rapidly over the past few years, or 63% since 1997. At the end of 1995 outstanding loans by the credit system were equivalent to 184% of GDP, and 203% at the end of September 1999.

Deposit money banks

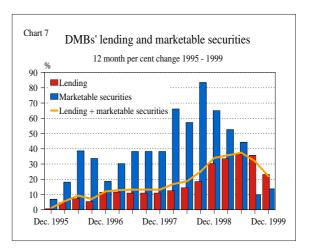
Lending by deposit money banks has shown large growth in the recent term. In 1999 it increased by more than 75 billion kr., or 23%, and in 1998 by 76 billion kr., or 26%. The growth in lending tailed off somewhat towards the end of 1999. By expanding their lending on such a large scale the DMBs have increased their share in the credit market, since their lending has outstripped that of other credit institutions

Besides direct lending to customers, DMBs have increasingly been buying marketable securities in the recent term, although at a much slower pace. The increase in combined lending and marketable securities was 22% in 1999 and around 30% in 1998.

DMBs have seen much smaller growth in deposits and bond issues than in lending and marketable securities in the past two years. From yearend 1996 to the end of 1999 the ratio of deposits to lending at DMBs decreased from 80% to 65%. From the end of 1995 to the end of 1998 their ratio of deposits and bond issues to lending and marketable securities fell from just under 90% to 70%, which means that they have increasingly been relying upon other financing, especially from abroad.

In 1999, foreign borrowing by DMBs for re-lending increased by almost 43 billion kr. This item rose by 32 billion kr. in 1998, but even when combined with the increase in deposits this was insufficient to meet the growth in lending that year, and DMBs drew heavily upon their liquid assets. In 1999 this trend was reversed and the liquidity position improved once more.

Foreign borrowing for re-lending has been increasing in importance. The ratio of foreign bor-



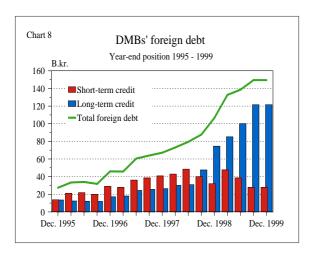
rowing to lending and marketable securities was 19% at the end of 1997, 23% at the end of 1998 and 28% at the end of 1999. This funding has been put on a firmer foundation, since the share of long-term loans has grown at the expense of short-term ones. Of the 128 billion kr. of liabilities at DMBs at the end of 1999, 89% were long-term foreign loans, a ratio which had almost doubled over two years, from 45% at the end of 1997. The credit institutions' direct currency risk is very limited and is governed by rules set by the Central Bank. On the other hand, an indirect currency risk is created if they re-lend foreign loans to borrowers whose revenues are exclusively in Icelandic króna.

Borrowers who do not earn currency revenues apparently depend increasingly on loans denominated in foreign currencies. This applies, for example, to retailing, agriculture, municipal authorities, various service activities and to some extent individuals. Loans denominated in foreign currency entail a considerable risk for these borrowers and also for credit institutions which broker them, not least if they are secured against collateral which may prove to be insecure.

The investment credit funds'⁷ financing of lending and securities portfolios has been characterized by a large increase in the issue of marketable securities, especially Housing Financing Fund bonds, and

The growth in lending in 1998 is adjusted here to include the incorporation of the Commercial Loan Fund into Íslandsbanki late in 1998.

^{7.} In Central Bank statistics, the following are classified as investment credit funds: the Housing Financing Fund, The Icelandic Investment Bank (FBA), Kaupthing, The Cooperative Fund, The Agricultural Loan Fund, The Agricultural Productivity Fund, The Tourism Fund, The Municipal Authorities' Loan Fund and the Regional Development Fund.



large foreign borrowing, while domestic borrowing contracted in 1999. The Housing Financing Fund is by far the largest investment credit fund, accounting for around 70% of their total lending. It is financed with domestic bond issues, while foreign borrowing accounts for 84% of lending by investment banks and other credit funds. The Housing Financing Fund increased its lending to homebuyers by 14.7% in 1999, compared with an increase of 7.2% in 1998. Lending and securities portfolios at investment banks increased by 18%, while their total increase in lending by investment credit funds was 14.7% in 1999 and 8.6% in 1998.

Sectoral lending

Lending by commercial banks and savings banks, investment credit funds and state credit funds, plus foreign borrowing, grew by an estimated 81 billion kr. between 1998 and 1999, or 9.4%. Just under half this increase was in the form of foreign borrowing, at 38 billion kr. In real terms the increase was 5.2%. Outstanding loans from banks and funds amounted to 937 billion kr. at the end of 1999. Of these, 356 billion kr. were denominated in foreign currencies, or just under 38%. The greatest increase was in lending to homebuyers, at 33 billion kr. At the end of 1999 outstanding loans by banks and funds for housing purchases totalled 291 billion kr., having almost tripled over ten years in real terms. New lending to the service sector amounted to 19 billion kr. in 1999 and to the retail sector 11 billion kr., a combined increase of 30 billion kr., of which 21 billion kr. was denominated in foreign currencies. Total outstanding lending by commercial banks and savings banks to

these sectors stood at 94 billion kr. at the end of 1999, of which 43 billion kr. were in foreign currencies. The greatest proportional rise in lending between the years was 34%, to the service sector, while the increase to the retail sector was 23% and to housing construction 13%.

Some change has taken place in the relative shares of credit between main sectors over the past decade. Households' share of total lending rose from 32% at the beginning of the 1990s to 38% in 1999, while the corporate and central government shares decreased. Foreign loans fell as a proportion of total lending, to just over 26% in 1999 compared with almost 33% at the beginning of the last decade. Enterprises were by far the largest foreign borrowers with around 65% of the total. The central government's share decreased somewhat while foreign borrowing by municipal authorities increased correspondingly.

Despite some deceleration towards the end of last year, the growth of lending by DMBs was still very fast. The Central Bank's earlier warning about credit growth and its conceivable consequences is just as valid as ever. Rapid credit growth can lead to less prudent lending assessments and result in loan losses when the economy contracts. In the Central Bank's view, a considerable risk was entailed in the funding of lending by credit institutions towards the end of 1998 and in the first part of 1999, which appeared in the heavy use of foreign short-term credit. This risk has been reduced, since it has to a large extent been replaced by long-term borrowing. On a sectoral basis, households are showing a growing share and a large increase has taken place in lending to retail and services in recent times. Lending to these borrowers has been denominated in foreign currencies in some cases, despite their low currency revenues. They are therefore running some risk in this case, as are the credit institutions which have taken foreign-denominated loans to re-lend to them.

Profitability and equity of DMBs

At the time of writing, revised figures for the financial position and profitability of commercial banks and the largest savings banks are available until mid-1999. These show an improvement in profitability. Some have also published profit figures for the whole of 1999 which confirm their improved profit and profitability compared with the previous year. A

large increase in share prices in financial institutions (see chart 3) reflects market expectations of continuing good profitability by them.

Net interest earnings (interest margin) of commercial banks and savings banks contracted from 4.6% of average balance sheet totals in 1995 to 3.6% in 1998, and there are signs of an even further decrease in 1999. The net revenue margin of commercial banks and savings banks, which is net interest revenue plus other operating revenue less operating expenses, also contracted from 2% of average balance sheet totals in 1995 to 1.8% in 1998. There are indications that this figure has increased again in 1999. Profit of commercial banks and savings banks, namely net revenue margin after provision for loan losses, income and net worth tax, and irregular income and expenditure items, grew from 0.5% of average balance sheet totals in 1995 to 0.9% in 1998, and there are indications that it rose still further last

Provisions for loan losses were similar in króna terms during the first half of 1999 to the same period in 1998. For whole years, loan loss provisions decreased from 1994-1997, then increased again in 1998. Profit after provision for loan losses increased fairly steadily for each of the years 1994-1998 and there are good prospects that this was also the case during 1999 as a whole.

At year-end 1999, equities represented only a fairly small amount of the DMBs' assets, at just under 9 billion kr. compared with their total outstanding lending and market security assets of 460 billion kr. However, share portfolios were equivalent to 27% of their equity. Thus fluctuations in the price of shares owned by DMBs can have some impact on their return on equity.

Return on equity has been increasing rapidly at commercial banks in recent years. It measured 5.3% in 1995, 8.4% in 1996 and 9.3% in 1997. In 1998 it reached 16% and the outlook is for a similar development in 1999, judging by first-half figures.

The equity ratio of commercial banks and savings banks as a whole was 9.8% at the end of 1998, unchanged from the previous year. However, it was higher in the two years preceding that, at 10.7% in 1996 and 11.1% in 1995. The main explanation for this reduction is that since the end of 1995, the risk base used for calculating this ratio has grown by 77%, but equity by only 56%. In recent years subor-

dinated loans have become increasingly prominent in the equity ratio. Thus the equity ratio less subordinated loans has fallen by considerably more than the total equity ratio in recent years. For example, in 1995 the commercial banks and savings banks' equity ratio less subordinated loans totalled 10%, but was 7.8% in 1998. In mid-1999, the commercial banks' equity ratio was the same as the previous year at 9%, but excluding subordinated loans it measured 6.7%, compared with 7.1% for the corresponding point in 1998.

Capital adequacy requirement

Credit institutions must meet specific requirements for capital adequacy. Equity including subordinated loans may not be lower than 8% of the risk base. The risk base is assessed according to provisions in law and special rules set by the Financial Supervisory Agency, which are harmonized throughout the European Economic Area. Bank equity ratios are lower in Iceland than elsewhere in the Nordic countries. At the end of 1998 the equity ratio of Icelandic commercial banks, excluding Icebank, measured just over 9%. At the same time this figure was 10.5% at Norwegian and Swedish banks, and at Danish and Finnish banks it was 11.3% and 11.5% respectively.

In the opinion of the Central Bank, many credit institutions have an undesirably low equity ratio at the moment, not least bearing in mind their favourable operating conditions. Their equity ratios excluding subordinated loans are even poorer. It must be an important task for many of them to boost their equity position substantially in order to equip themselves better to face more difficult economic conditions than at present. Since credit institutions must meet minimum capital adequacy requirements during the greatest economic downswings, their equity must be all the greater during upswings.

VI. Domestic payment intermediation

One of the foundations on which financial stability is based is efficient and reliable payment intermediation between customers and banks. It is important to minimize risks in payment intermediation. Iceland has a single payment system, operated by the Icelandic Banks' Data Centre (RB), a netting system in which netting takes place once a day late in the evening. Clearing is made through participants' ac-

counts with the Central Bank in the morning of the following day. A great deal of effort has been devoted in recent years to adapting the Icelandic system to international standards, and some of these reforms have been implemented while others are still being prepared.

For some time now, work has been underway on upgrading the RB netting system to fulfil the international Lamfalussy conditions. The legislative foundation for netting has been secured with the passing of the act on security of payment orders in payment systems, based on a European Union directive to this effect. Also, the Central Bank is finalising preparation of rules which aim to fill the remaining gaps in this area. A sophisticated reserve system is being taken into service by RB which will increase system reliability substantially.

Payment intermediation is undergoing rapid evolution in Iceland, partly on account of the Internet. Home banking has also mushroomed and innovations in mobile phone technology have opened new possibilities in this field. One company has begun experimental issue of smart cards and the two large payments card companies are jointly preparing the issue of such cards as well.

This February the treasury plans an experimental electronic issue of T-bills which will mark the beginning of securities dematerialisation in Iceland.

In some respects payment intermediation in Iceland has evolved along different lines from elsewhere. Real time booking enables the general public to make withdrawals from current accounts as soon as deposits are made into them. In most other countries, owners of deposits need to wait until transactions have been cleared between banks. The legal framework for payment systems has been firmly shaped in most Western European countries, but less so in Iceland until now. Securities have been dematerialised in the other Nordic countries for quite some time and most Western European countries have also set up such frameworks, although the extent of this development varies from one country to the next.

Close interbank cooperation in payment intermediation could be a weakness

The development in Iceland has been that RB, which originally was primarily envisaged as a netting centre, has also gradually undertaken operation of the largest part of the commercial banks and savings banks' business systems, including many of those which deliver transactions to the netting system.

There is little dispute that it is cost-effective for banks to share resources as much as possible in payment intermediation, although this arrangement can entail certain risks. Systemic risk is greater if most or all elements of the payment system are centralized. A breakdown in centralized software, hardware or telecommunications equipment could paralyse the entire national banking system. The reserve facility which is being set up will significantly reduce this risk.

Long-term strategic planning for payment systems was fairly poor during the past decade and principles which established themselves in other countries had virtually no impact in Iceland. An example is the introduction of real-time booking of cheques. Real-time booking of cheques (and debit card transactions) means that account owners can dispose of deposits immediately, even though clearing between banks is not made until the following day. This means that a failure in a bank's operations would leave no way to unwind transactions and recalculate netting without the defaulter.

The arrangement for netting settlements also needs to be improved. Today, banks can withdraw from their settlement accounts with the Central Bank even if their balances are insufficient, since this is always adjusted with a retroactive loan the following day. This needs to be changed. Clearing needs to take place the same day. In order for this to be feasible, netting must be brought forward to give cash management departments of banks the scope to adjust their positions by trading in the interbank market or with the Central Bank.

Unannounced withdrawals of large sums from deposit accounts are another example of an unfavourable development. In most places a bank needs to be notified of plans to dispose of sums above a certain limit, which gives the bank scope to procure funds for meeting this obligation towards the account owner. Such an arrangement would also be preferable in Iceland. A similar point is that bank customers can continue to handle their accounts long

The article by Tómas Örn Kristinsson in this Monetary Bulletin includes a description of the development of international payment system references and quotes the Lamfalussy conditions.

after the banks are closed, by accessing them via company online connections, home banking or debit cards. A company which withdraws a large sum after the bank has closed can cause it considerable extra cost, which could be avoided under different business arrangements.

It is considered necessary to grant new banking institutions access to general payment systems. In this respect Iceland faces a problem since RB operates both the payment system and other systems for its owners. The plan is therefore to separate these services.

Strategies for payment systems and compliance with the Lamfalussy conditions

In collaboration with the commercial banks, the Central Bank has been working on a reform to the present payment system structure. One issue has involved strategies for the RB payment system and fulfilment of the Lamfalussy conditions.⁹ The new act on security of payment orders in payment systems and the planned Central Bank rules will consolidate the legislative basis of the system. It is likely that a separate company will be set up to handle netting. The idea is for the company to set objective rules about access to netting and handle collective operation of various areas in which access needs to be granted to more parties than the commercial banks, savings banks and payment card companies. The Lamfalussy conditions should presumably have been fulfilled entirely within a very few months. Work is now nearing completion on an agreement which Icelandic banks aim to make concerning interbank services. This describes the areas in which banks undertake tasks for other institutions, procedures for such services and the charges to be made.

Careful preparation needed for future policies

For several years the Central Bank has been interested in ensuring the security of real-time gross settlements between banks along the lines familiar from other countries. The reason is that the largest payments carry the most risk in the payment system and could have serious consequences for the entire banking system were they to fail. A study has already been launched on an RTGS system to be established

by the Central Bank for payments between credit institutions if the payer's account can cover them. This assumes that the Central Bank would offer a credit facility in order to facilitate liquidity in the system. Such a credit facility, however, would only be provided against satisfactory guarantees.

The Central Bank intends to acquire detailed knowledge of payment system structures in other countries. The aim is to acquire information on all processes within and outside the banks, to enable monitoring of the security of these channels and intervention if the situation is considered insecure.

Little attention has been paid to external payment transfers. In most cases these are based on long-standing business contacts and standardized international channels, but major changes in the banking environment give grounds for further consideration of this matter.

VII. Conclusion

Various positive factors characterize the Icelandic financial system at the moment. Economic growth is strong and profitability of industries generally appears to be good even though the rising exchange rate is constricting some sectors. The position of Icelandic financial institutions appears to be fairly solid and there is little likelihood of a sudden downturn in their operations and profitability unless unexpected shocks strike the economy. Defaults with credit institutions appear to have decreased considerably. Asset prices have risen fast of late but there seems to be little probability of a sudden general reversal this year. Credit institutions therefore do not appear to face any particular risk from changes in asset prices in the near future. Furthermore, credit institutions in Iceland generally set lower mortgage ceilings than those in neighbouring countries.

The composition of capital inflows has improved from the position at the end of 1998 and in early 1999 insofar as the share of short-term credit has decreased. The foreign short-term position is therefore better than it was during the first months of last year, although it could be better. The Central Bank has immediate, contractual access to foreign capital markets and the official credit ratings which Icelandic commercial banks have received recently strengthen their position in foreign markets. The American credit rating firms Standard & Poor's and

^{9.} See article by Tómas Örn Kristinsson on page 46 in this Monetary

Moody's recently confirmed their earlier assessment of the Republic of Iceland's credit rating, and Fitch IBCA also recently gave the Republic a credit rating of AA- at the beginning of 2000.

The main weaknesses of the Icelandic financial system at present lie in the large current account deficit, monetary and credit expansion, the realatively low equity ratio of many credit institutions, and to some extent the sensitive foreign short-term position, even though this has improved. Inflation has been growing recently, while the real exchange rate has risen and is now approaching the average for the past 20 years. The Central Bank considers that DMBs and some other credit institutions have expanded their lending too rapidly recently, as reflected in their deteriorating equity position. From a financial stability viewpoint, credit institutions should have boosted their equity position in order to be better equipped to face more difficult times. It may prove difficult for them to strengthen their equity under less favourable economic and operating conditions than now prevail. The growth in lending slowed down towards the end of last year, although it remained rapid. Large credit growth entails a risk that lenders take insufficient heed of the borrowers' ability to repay, which could cause loan losses at credit institutions if the economy contracts. The higher the level of corporate and household debt, the greater this risk. Borrowing in a foreign currency always involves a risk if revenues are not earned in it. The current account deficit is financed by the accumulation of debt abroad and if it is not significantly reduced in the near term, it could undermine the credibility of the exchange rate.

Under prevailing conditions, the risk is that the present pattern of overheating, a large current account deficit, inflation and a rising real exchange rate will increase economic difficulties and the probability of a currency crisis later on. External shocks to the economy could have similar consequences.

The financial system would be better equipped to tackle sudden changes if the economy were in better external equilibrium. Besides reducing inflation, economic policy ought to focus primarily on reducing the current account deficit.