



FINANCIAL STABILITY

2006

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Financial stability means that the financial system is equipped to withstand shocks to the economy and financial markets, to mediate credit and payments, and to redistribute risks appropriately.

The purpose of the Central Bank of Iceland's *Financial Stability* report is:

- To promote informed dialogue on financial stability, i.e. its strengths and conceivable weaknesses, the macroeconomic and operational risks that it may face, and efforts to strengthen its resilience;
- To provide an analysis that is useful for financial market participants in their own risk management;
- To explain how the Central Bank carries out the mandatory tasks assigned to it with respect to an effective and sound financial system.

Published by:

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Vol. 2 May 2006

Printing: Gutenberg hf.

Financial Stability is also published on the Central Bank of Iceland website.

ISSN 1670-584X

Material may be reproduced from *Financial Stability* but an acknowledgement of source is kindly requested.

Icelandic letters:

ð/Ð (pronounced like th in English this)

þ/Þ (pronounced like th in English think)

In *Financial Stability*, ð is transliterated as d and þ as th in personal names, for consistency with international references, but otherwise the Icelandic letters are retained.

Symbols:

- * Preliminary or estimated data.
- 0 Less than half of the unit used.
- Nil.
- ... Not available.
- . Not applicable.

Introduction

A challenging course to navigate ahead

The finding of the Central Bank's previous Financial Stability report, in 2005, was that in spite of rapid expansion and the macroeconomic imbalances that needed to be tackled in the coming years, the Icelandic financial system was broadly sound. In the present report this overall finding is unchanged, but more challenging waters clearly lie ahead. The adjustment to changed conditions has already begun. It is important to keep a firm course and exercise caution in all respects.

The Central Bank of Iceland's report on *Financial Stability* assesses the financial sector's capability for withstanding a conceivable shock. It examines the position of financial companies, and their operating conditions and regulatory and supervision framework. Likewise, it discusses the position of households and businesses and the risks that they may face from such factors as a decrease in income, a fall in real estate prices or exchange rate volatility. Risk is always present, especially in times of great change, but measures are needed to minimise the likelihood of disruptions to the operations of major financial companies which could impair productive capacity.

Two main changes have occurred since the *Financial Stability* analysis was published a year ago. One has been intensified macroeconomic imbalances. The Central Bank has responded to inflationary pressures caused by surging demand with significant rises in its policy interest rate. The other turnaround was in the commercial banks' funding in international markets. There are many indications that the recent easy access to capital and favourable terms for it will deteriorate. Icelandic banks in particular face a changed situation. Over the past year they have expanded rapidly and raised large amounts of capital in international markets. Changed conditions now require financial companies to slow down the pace of this growth.

External conditions are favourable and on the whole stable. However, growing imbalances in the global economy could alter international financial conditions. The economic outlook in the main market regions for Icelandic businesses is nonetheless bright, with stable demand and high prices for major export products.

Macroeconomic imbalances can undermine stability. Exchange rate volatility in the wake of a wide current account deficit and falling asset prices could have a considerable impact on heavily indebted households and businesses, and on the operating conditions of financial companies. Although the Central Bank had expected the króna to weaken, the depreciation has come both sooner and faster than had been hoped. In the long run, this will prove healthy for the Icelandic economy, since the króna was valued significantly above a rate compatible with macroeconomic balance. Equity prices have also slipped considerably from their peak, after surges in recent years.

Total debt of Icelandic households is now equivalent to twice their annual disposable income, after a record rate of growth in 2005. Nonetheless, the household debt service burden has not increased,

because of longer loan maturities and lower interest rates. Only a minor share of household debt is denominated in foreign currency. Household assets grew in net terms last year, i.e. gross assets grew faster than their debt. However, housing prices are very high, especially relative to construction cost and rent. A fall in real estate prices could squeeze the most heavily mortgaged borrowers, especially if disposable income declines temporarily and the employment outlook takes a turn for the worse.

In general, the profitability and position of businesses looks sound. Admittedly, corporate debt grew at a record rate in 2005, but much of the increase has been deployed on foreign investment. Higher interest rates and borrower risk premia, and a weaker króna and equity prices, could have an adverse effect on many businesses, particularly the most leveraged ones. Exporters will benefit from the depreciation of the króna, and so will most listed companies. However, conditions of various companies in the domestic market, such as in the construction sector, will deteriorate. On the whole, households and businesses should be able to meet their debt service, but their position will tighten.

The Central Bank has firmly recommended a change in mortgage loan arrangements with less direct participation by the public sector. Competition is desirable in this market and the commercial banks and savings banks can consolidate their position in the long term by providing housing mortgages. The Central Bank opposed the easing of lending rules at the Housing Financing Fund (HFF) in 2004, largely on account of the timing of this move. Feeling encroached upon, the commercial banks and savings banks responded with higher loan-to-value ratios and longer maturities. The resulting credit boom drove up household debt, real estate prices, consumption and imports, with an accompanying widening of the current account deficit. Interest rate formation in the housing mortgage market has been abnormal and the commercial banks and savings banks have not adequately matched their own borrowing and lending terms. The present situation is unacceptable and a reform is called for.

The position of the three large commercial banks is crucial for the financial markets. They have recorded outstanding profitability and strong capital adequacy. An important part of the exceptionally high bank profitability in 2005 and the first months of 2006 stems from trading gains, but even if these items are excluded, their operating profit would still be very healthy. The same applies to the savings banks, but the declining share of net interest income in their operations is some cause for concern.

Two-thirds of outstanding total lending by the commercial bank groups at the end of 2005 was to borrowers outside Iceland, the lion's share of which was to customers in the Nordic countries. Virtually all lending to non-residents is confined to regions with sound and stable economies. However, growth in domestic lending is far in excess of a level compatible with stability. Although this lending meets credit quality criteria, growth on such a scale heightens the risk of later impairment. Lending growth has remained buoyant so far in 2006 and clear signs of an improvement have yet to be seen.

Leveraged share purchases and forward contracts for shares in Icelandic companies entail a special risk, in particular because of the small size of the market. Although these transactions conform to international practice, the banks need to show caution about scope and maturity profiles. The banks' equity portfolios at own risk grew in 2005, after adjustment for forward contracts. Large exposures also increased in nominal terms, but decreased as a ratio of the banks' equity capital.

Dynamic operations by Icelandic banks and the upgrading of credit ratings for them and the Republic of Iceland have ensured easy access for Icelandic financial companies to international capital markets in recent years. This access has been used liberally and the banks have become more dependent on market financing. Macroeconomic imbalances, rapid banking sector growth and recent negative press prompted foreign investors to raise Iceland's risk profile. Higher required yields in the secondary market for bank bonds and for Credit Default Swaps indicate that their financing costs will rise. While there is nothing unusual about such a development, what is surprising is how much wider spreads have been required relative to the terms offered to banks with comparable credit ratings. Revised market risk profiles for banks signal that, sooner or later, their customers' financing costs will go up.

A pronounced economic contraction could diminish financial stability. A fall in asset prices coinciding with a depreciation of the króna and higher international interest rates would exacerbate the adjustment. Simulations using the Central Bank's macroeconomic model support this finding. However, a stress test applied by the Financial Supervisory Authority (FME), and the Central Bank's assessment of possible loan losses, indicate firmly that the commercial banks' capital position is strong enough to withstand a significant economic crisis entailing several large shocks in tandem.

Work is continuing on technological and regulatory development of domestic financial markets. Apart from the bond market, turnover has increased, but markets are still limited by their small size, which increases the probability that fluctuations will be exaggerated. A take-over panel has been set up for the equity market and has published a few opinions, but has yet to leave a lasting mark. Largely because of the abnormal state of the housing mortgage market, the bond market has not evolved satisfactorily. The HFF has less need to issue bonds because borrowers are prepaying its older loans, and in the current climate the commercial banks and savings banks have not deemed it advisable to issue comparable bond series for their own funding.

In the recent past the Central Bank has focused on action to reduce operating risks in payment and settlement systems. Experience of system operation is positive and there is little likelihood of serious disruptions. However, the division of tasks among system participants needs to be clarified and their organisation and contingency plans strengthened. Forthcoming tasks include activating automatic locks in the netting setting for smaller payments, tailoring fees in the real-time gross settlement (RTGS) system to actual costs, and more contingency exercises.

Over the past few years, the government authorities have built up a sound legal, regulatory and supervisory framework in line with international best practice. This achievement has been noted in the IMF's Financial Sector Assessment Programmes, reports by international credit rating agencies, and elsewhere. An Appendix in this edition of *Financial Stability* addresses cooperation with the government authorities on financial stability and contingencies. Under normal conditions, there is little probability of operating difficulties among banks which are sound and apply effective liquidity and risk management. Through their foreign investments, the Icelandic banks have changed their focus and spread their risks. They can now be defined as cross-border banks, but headquartered in Iceland where their liquidity and risks are managed. Their owners bear responsibility for resolving any difficulties that may be encountered – those who benefit from the profits on operations should also meet such setbacks as may occur. However, financial shocks can have more sweeping consequences. For this reason, government authorities in most countries including Iceland draw up contingency plans to deal with events in the financial markets and present frank, public accounts of their viewpoints.

Major advances in recent years have created much economic value for Iceland, and the long-term income outlook is bright. The economy is market-driven with a regulatory framework on a par with the best in Europe. Iceland's fiscal position is very strong and the economy is both highly flexible and resilient. Rapid advances tend to be accompanied by growing pains. A slower pace of growth is long overdue, in order to attain better balance in the financial position of households and businesses, including financial companies. If conditions are borne in mind and signals about the need to reduce risk are heeded, the outcome should only be favourable.

Macroeconomic environment and financial markets

Imbalances create tough climate for financial stability

Macroeconomic imbalances have increased since the last Financial Stability report was published in April 2005. Real estate prices are much higher, the current account deficit in 2005 exceeded forecasts and the real exchange rate appreciated even further, but has slid fast so far in 2006. House price inflation has been slowing down in recent months and real estate prices may be close to their peak in real terms. Also, revised figures for residential investment indicate greater-than-expected housing supply. Vigorous supply in the coming years could contribute to a fall in house prices. Total debt of households, businesses and the aggregate economy rose at a record pace in 2005. So, in fact, did the value of assets. Much of the increase in corporate and national debt is explained by investment in foreign equities and foreign lending by the banking sector. Nonetheless, Iceland's net external debt soared during the year. International financial conditions have been exceptionally favourable in recent years, enabling domestic financial institutions to maintain brisk lending growth for longer than otherwise. The Central Bank of Iceland has often pointed to the risk that a deterioration in financial conditions may coincide with the inevitable adjustment of the economy. Most indications are that international interest rates will go up in the near future. As a result, investors have raised Iceland's risk profile and global financial conditions have worsened. After taking more risk in recent years in search of higher yields, investors are beginning to offload exposures that they now deem too risky. The króna was hit by this changed outlook in the first months of the year, when heavy macroeconomic imbalances were present.

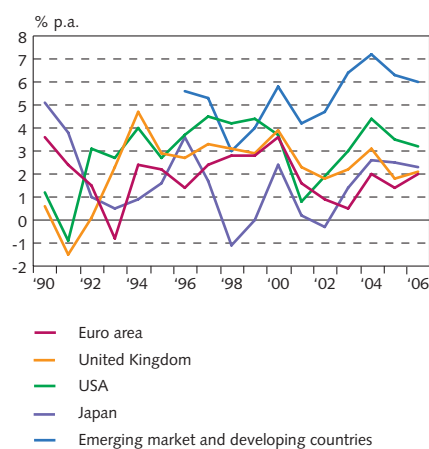
Macroeconomic conditions for financial stability

International conditions for financial stability remain fairly favourable

During the past year, the outlook for economic growth in Europe has improved somewhat, and current economic growth forecasts for the US remain similar to those made a year ago. Though growth slowed in the OECD countries in Q4/2005, the fluctuation is probably a temporary one. Under these conditions, some tightening of the lax monetary policy in recent years is normal. Short-term interest rates in the US have risen steadily over the past 1½ years, while long-term interest rates have only recently begun to creep upward. The European Central Bank has also raised its minimum bid rate twice and is expected to do so again this year. Long-term interest rates in Europe have increased from the historical low of last autumn and are now slightly higher than they were when the last *Financial Stability* report was published in April 2005. It is considered probable that Japan will abandon its zero interest rate policy in the near future.

As things stand, the outlook is for interest rates in Europe to rise in measured steps. The likelihood of a substantial interest rate hike in the current year, however, has increased in tandem with improving economic conditions in Europe. Furthermore, it may prove necessary to raise interest rates quickly if inflation forecasts worsen, for example due to continuing rises in energy prices. Ample global liquidity has contributed

Chart 1
International economic developments
1990-2006¹
Economic growth in main trading areas



1. Data for 2005 and 2006 are based on forecasts.
Sources: Consensus Forecasts, IMF.

Box 1

Global economic imbalances

Recently, growing imbalances in international trade have cast a shadow over the otherwise reasonably bright outlook for the global economy. It is manifested in the growing current account deficits run up by the United States and several other countries. Last year, for example, the US current account deficit corresponded to 6.4% of GDP. On the other hand, some emerging market economies in Asia, together with a few oil exporters,¹ have had mounting current account surpluses which, when taken together, roughly match the US deficit.

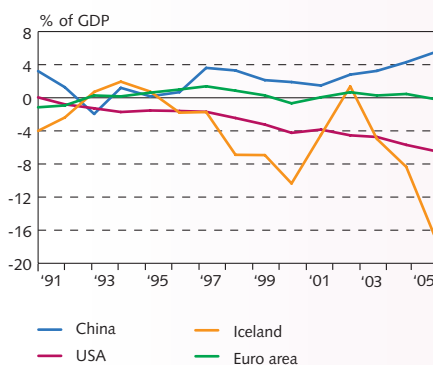
In the 1990s and until the equity bubble burst just after the turn of the century, the US current account deficit was financed primarily with inward direct and portfolio investment. However, the past few years have seen an increase in purchases of government and corporate bonds. Among the chief buyers are Asian central banks. US Treasury bonds now form the backbone of these banks' soaring foreign reserves, which have increased by 230% in just over a decade, and mostly during the past 4 years. Japan and China hold approximately 40% of the world's total foreign reserves.

In view of the fact that interest rates in the United States have been unusually low for a long period of time, the sustainability of this arrangement has to be questioned. The impact on financial stability of a readjustment of international trade will depend to a large extent on the speed and the way it occurs. In this context, it is important to consider the following factors:

1. Capital wealth has grown by substantially more than GDP. Investors are also more willing and able to invest capital abroad. As a result, unrestricted cross-border capital flows have loosened restraints on financing of the current account deficit. Due to the globalisation of financial markets, market forces now play a much larger role, while the influence of international institutions and bilateral agreements is waning.
2. Emerging market economies in Asia, which apply fixed exchange rate policies of various types, play a growing role. The international financial environment consists of countries with floating currencies and others with a more or less fixed regime. Pressures to adjust to shocks of any kind will tend to be more asymmetrical than in an environment where all currencies float; that is, the exchange rate adjustment targets only a handful of currencies.
3. The US dollar has been unrivalled as the world's reserve currency and an anchor for fixed-rate regimes. The euro, however, has gained ground recently as a reserve currency. Until now, this development has been slow, but rapid changes could precipitate a depreciation of the US dollar.

Persistent global economic imbalances may eventually create international tension. This could fuel calls for protectionism and tariffs, as witnessed in the US recently, and generally restrict free trade and cross-border capital movements. However, if the world community manages to resolve such disputes, the outlook for a measured adjustment is promising.

Chart 1
Current account balance as % of GDP
1991-2005¹



1. Data for 2005 are based on forecasts.
Source: Global Insight, OECD, Reuters EcoWin, Central Bank of Iceland.

1. These net exporters of oil are Algeria, Iran, Kuwait, Mexico, Nigeria, Norway, Russia, Saudi Arabia, the United Arab Emirates and Venezuela.

to keeping interest rates low. A rapid change in the underlying conditions sustaining this liquidity cannot be ruled out, however (see Box 1).

Never before has the Icelandic economy been as dependent on the changing global economic tide. There are two reasons for this: first, a record level of debt has left the economy more susceptible to changes in external financial conditions. Second, the current account deficit is wider than it has ever been. A steady inflow of foreign capital is therefore needed to sustain the growth in domestic demand. Should residents' access to foreign funds become more difficult and foreign interest rates increase, the exchange rate of the króna could come under pressure, resulting in a greater contraction of domestic demand than would otherwise be needed to restore balance in the economy. A drop in asset prices could magnify this effect still further.

Healthy outlook in the Icelandic banks' main market regions

The macroeconomic premises for financial stability in Iceland are no longer determined solely by the domestic economic situation or the impact of global economic conditions on it. Iceland's three largest banks now maintain extensive operations in the Nordic countries, the United Kingdom and elsewhere. Economic developments in these countries therefore affect the banks' operations directly and not merely through their indirect impact in Iceland. In general, economic conditions in the banks' main market areas have been favourable. The outlook is for increasing economic growth in the Nordic countries. Overall, inflation is low in the Nordic countries, due in part to stiff competition in the retail sector, modest wage increases and rising productivity. Real estate prices are high in some cities, as in much of the world, but in other respects, the economy of the Nordic region seems broadly in balance.

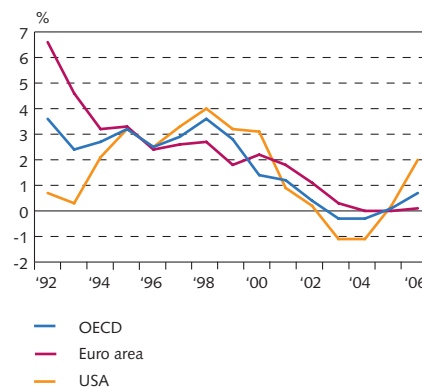
In the UK, one of the chief markets for Icelandic corporations and banks, economic growth has been sustained in recent years by consumer spending growth, which is in turn largely based on rising asset prices and household debt. The growth in private consumption in the UK was small early in 2005 but increased somewhat in the latter half of the year. According to *Consensus Forecasts*, private consumption growth will continue this year, but will probably eventually be restrained by weaker asset markets.

Poorer fish catch and US military withdrawal will dampen export income growth

The external conditions of the economy are fairly favourable and on the whole stable. Over the past year, marine export prices have soared. Prices may be expected to remain buoyant in light of the outlook for stronger GDP growth in Iceland's most important market regions. Export growth dwindled in 2005, partly as the result of poor fish catches in the second half of the year, while the strong króna is also likely to have dampened the increase in other exports. Poor catches have continued in recent months. The forecast for export growth in 2006 and 2007, which was published in *Monetary Bulletin 2006/1* in March, was revised downwards from that given in *Financial Stability 2005*. The main factors at work were this year's poorer fish catch

Chart 2
Average real interest rates in the OECD,¹
the USA and the euro area 1992-2006

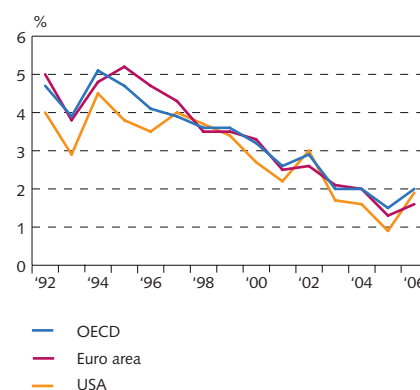
Annual data for three-month money market interest rates, in real terms based on the CPI



1. Weighted average for OECD countries, weights based on GDP in 2000 and purchasing power parities. Data for 2006 are based on OECD forecast.
Sources: OECD, Central Bank of Iceland.

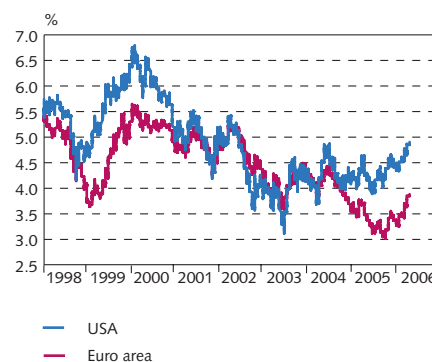
Chart 3
Average real long-term interest rates in the
OECD,¹ the USA and the euro area
1992-2006

Annual data for ten-year Treasury bond interest rates, in real terms based on the CPI



1. Weighted average for OECD countries, weights based on GDP in 2000 and purchasing power parities. Data for 2006 are based on OECD forecast.
Sources: OECD, Central Bank of Iceland.

Chart 4
Yield on 10-year government bonds
Daily data January 1, 1998 - April 6, 2006



Source: Reuters EcoWin.

Table 1 Indicators of macroeconomic imbalances

Position during compilation of Financial Stability report ¹	September 2004	April 2005	April 2006
House prices in Greater Reykjavík Area, 12-month real increase in %	5.6	26.3	15.8
– Construction cost to market value ²	1.4	1.7	2.0
Equity prices (ICEX-15 index), 12-month real increase in %	86.8	46.6	44.0
- P/E ratio of listed companies ³	16.0	17.2	16.3
Private consumption, average growth over last 4 quarters, % year-on-year	6.8	7.2	11.9
Current account deficit as % of GDP	-7.7	-9.3	-16.5
Growth of DMB lending, 12-month % change adjusted for exchange rate and inflation	24.5	45.7	46.4

1. Data available when the respective report was made.

2. Ratio of house prices to normalised construction cost.

3. Total sample: 16 listed non-financial companies.

outlook and a contraction in service and factor income in 2007 with the withdrawal of the US military. A counteracting factor is a more favourable development of export prices than had been assumed. The terms of trade improved by more than expected in 2005 and this year's outlook is also brighter.

Increased macroeconomic imbalances

Macroeconomic imbalances have intensified since April 2005. Housing prices are considerably higher, private consumption has far outstripped forecasts made a year ago and the current account deficit is wider. Lending growth also increased further from a high rate. Equity prices have surged in recent years, especially for the whole of 2005 and until February 2006. In recent weeks there has been a reversal and prices have headed downwards.

A sizeable contraction is probable after a record current account deficit

According to preliminary estimates, the current account deficit in 2005 was equivalent to 16½% of GDP. In other words, it was probably 4½ percentage points greater than was forecast in March 2005. This largest current account deficit in Iceland's history, as far as comparable economic data go back, combined with other indicators, prompts questions about the economy's likely path back to balance. In fact, the adjustment appears to have already begun, much earlier than was generally expected, with a sizeable depreciation of the króna. Almost without exception, episodes of large current account deficits end relatively quickly, with a contraction.¹ Given that Iceland's deficit is far wider than any OECD country has ever experienced, a fairly rough adjustment is to be expected. Iceland's exports are relatively inelastic towards exchange rate movements. Volume in the fisheries sector is restricted by quotas and aluminium exports can only respond after a long gestation period for investments. Also, aluminium and energy prices exert a stronger impact on that sector than the exchange rate

1. See Edwards, Sebastian (2004): Thirty Years of Current Account Imbalances, Current Account Reversals and Sudden Stops, *IMF Staff Papers* 51.

of the króna. Thus the adjustment primarily needs to take place on the import side. Imports are highly sensitive to sharp changes in the exchange rate.

Export growth and the demand sensitivity of imports reduce the need for a domestic demand adjustment ...

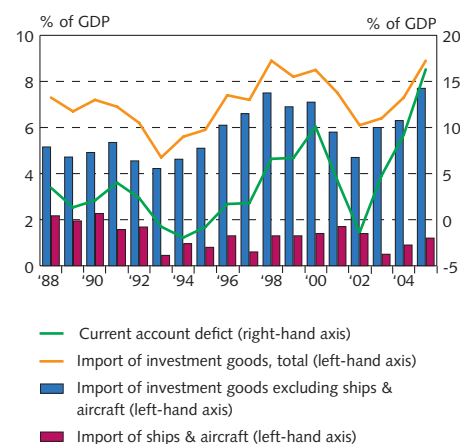
Although the current account deficit is very large, a number of mitigating factors could suggest that the adjustment will not be as hard as one might conclude on first impression. First, a substantial part of the deficit is explained by increased capital formation. Over the period 2002-2005 the current account balance deteriorated by the equivalent of 17.7% of GDP. Of this figure, 11.3% can be explained by increased investment and 6.5% by a decrease in national saving. Investments in the aluminium and power sectors are accompanied by large-scale imports – at a rough estimate, imports of goods and services for these projects accounted for around one-third of the current account deficit in 2005. Investment is to a large extent concentrated in the export sector, which reduces the required future adjustment of domestic demand, because export revenue generated by aluminium and power companies will meet debt service and dividend payments to the foreign owners. Exports of aluminium will increase by almost one-third in 2006 and 62% in 2007, according to the Central Bank's forecast published in *Monetary Bulletin* 2006/1 at the end of March. Sizeable investments were also made in the transport sector. However, some of the investment is not export-oriented, such as residential investment and a considerable share of investments in service industries.

Second, a contraction in domestic demand invariably results in a sharp decrease in imports, especially capital goods and consumer durables. Consequently, much of the impact of the contraction is absorbed into the external sector, causing less unemployment than is the case in larger and more self-sufficient economies. Over the period 2001-2002, imports shrank by 12% at the same time as national expenditure decreased by 3½%. Despite this sharp contraction, unemployment went up to only 3½% in 2003. Some of this relatively mild adjustment may stem from the launching of the Kárahnjúkar power station project in 2003. Construction activity and expectations of an approaching growth phase doubtlessly played a large part in easing the adjustment following the episode of overheating which ended shortly after the turn of the century.

Third, it seems fairly likely that work will begin on new investment projects in the aluminium and power sectors before the adjustment that is currently looming has been delivered in full. If these plans materialise, the króna could depreciate by less and demand recuperate earlier.

In spite of these mitigating factors, however, the need for a large-scale adjustment is still obvious. According to the Central Bank's latest forecast from March 2006, the current account deficit will still correspond to almost 10% of GDP next year when the east Iceland aluminium investments are more or less over and production is in full swing. It should be underlined that this forecast is based on the technical assumption of an unchanged exchange rate since mid-March

Chart 5
 Import of investment goods and the current account 1988-2005



Sources: Statistics Iceland, Central Bank of Iceland.

and a policy interest rate which is unchanged since before the Central Bank's last hike of 0.75 percentage points at the end of that month. Deviations from these assumptions – higher interest rates and probably a depreciation of the króna – will entail a larger contraction in both national expenditure and imports.

... but rising international interest rates could increase it

A number of considerations could also increase the domestic demand adjustment required to restore external balance compared with the episode in 2001-2002. When the current account deficit was reversed then in the space of two years, from 10.5% of GDP in 2000 to a surplus of 1.4% in 2002, the adjustment was facilitated by lower international interest rates. Net interest payments to abroad decreased from 3.8% of GDP in 2000 to 3.1% in 2002. The outlook a few years ahead now seems to be the opposite, however. International interest rates have already risen somewhat over the past year and the outlook is for further hikes in 2006, increasing the scale of the necessary adjustment accordingly. As mentioned in *Monetary Bulletin* 2006/1 in March, if average interest rates on Iceland's national debt were to move back close to the average in the 1990s, i.e. roughly 6½%, the current account deficit as a proportion of GDP would widen by more than 3%, other things being equal. Such an adjustment would weaken the króna and smother domestic demand even further, via either lower real wages or higher interest rates.

An ongoing sharp exchange rate adjustment cannot be ruled out

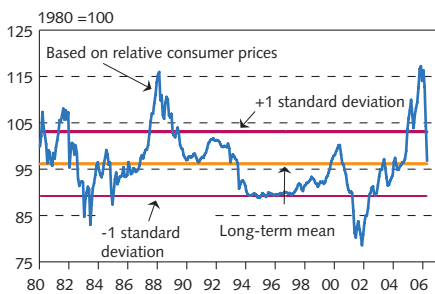
Although much of the current account deficit is attributable to investment which will generate export income in the long run, the króna is likely to come under considerable pressure while the macroeconomic adjustment is taking place, especially if international interest rates begin rising faster.

A substantial interest rate differential with abroad will be needed over this period to help produce a gradual adjustment. When some of the króna-denominated Eurobond issues mature later this year, much will depend on maintaining issuers' confidence in the long-term stability of the króna. If the króna depreciates far below its long-term equilibrium, a sizeable interest rate differential would contribute to a faster-than-otherwise recovery of its long-term strength.

Pension funds could play an important role in this adjustment process. They have invested quite heavily in foreign equities in recent months. A further large depreciation of the króna will boost the share of foreign equities in the pension funds' portfolios, above their current investment strategies. In league with expectations that the króna will return to its long-term equilibrium, this will ultimately support the exchange rate of the króna.

An exchange rate adjustment can serve to smooth out fluctuations in the economy. A weaker domestic currency stimulates exports while reducing demand and imports. On the other hand, if households, businesses and the aggregate economy are very indebted, there is a risk that the contraction in domestic demand generated by a sharp depreciation of the króna would exceed the expansionary

Chart 6
Real effective exchange rate of the króna
January 1980 - April 2006
Monthly data, based on relative consumer prices



Source: Central Bank of Iceland.

effect on exports, given the limited sensitivity of exports to exchange rate movements mentioned above – especially as a substantial rise in the policy interest rate might be required to contain the inflationary effect of excessive depreciation. This would especially be the case for a depreciation driven by speculative capital movements or those motivated by fears about changes in the exchange rate. For this reason, it is vital to apply monetary policy to contribute to a gradual adjustment of the exchange rate towards long-term equilibrium.

FX market developments in February and March show how delicate the current position is

Strong macroeconomic imbalances can leave the foreign exchange market exposed to events that in their own right do not appear particularly important. Market perceptions can change very swiftly. Fitch Ratings issued a press release on February 21 changing the outlooks on the Republic of Iceland's foreign and local currency Issuer Default Ratings (IDRs) to negative from stable. Although the ratings themselves remained unchanged and it presented no new information about the economy, the Fitch announcement swept the FX market immediately. After the announcement the króna depreciated by 7% in one day. Extensive reports and coverage about the Icelandic economy have followed, most of them in fairly negative terms, and appear to have contributed to the swift erosion of the króna recently.

Net external debt soared in 2004, leaving the economy more exposed to exchange rate volatility

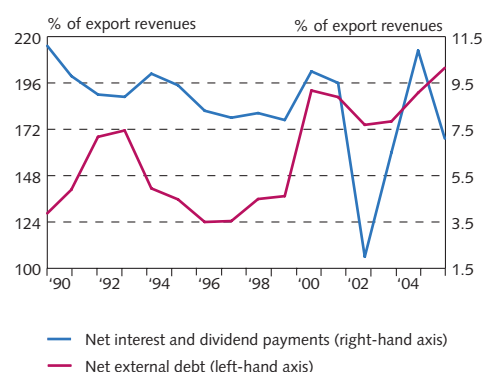
The main reason for Fitch's change of outlook in February was the exceptionally rapid build-up of debt in the Icelandic economy in recent years. At the end of 2005, external debt amounted to 3,227 b.kr., which is three times annual GDP. Rising debt is offset by considerable foreign investment, so the net external position has worsened by much less. It was negative by 829 b.kr. at the end of 2005, a deterioration of 163 b.kr. since the end of the previous year. Iceland's external debt and assets are discussed in Appendix 2 on p. 42, and in the section below on business expansion overseas.

The fiscal position is strong enough to withstand major shocks

The public sector accounts for only a fraction of Iceland's external debt. Treasury debt has decreased rapidly in recent years. The negative outlook on Iceland's sovereign rating must therefore be based on the sole supposition that Treasury would be compelled to assume the debts of the financial sector in the event of a serious financial crisis. The underlying assumption is that the main financial institutions perform too important a function in the Icelandic economy for any government to allow them to go bankrupt without intervening.

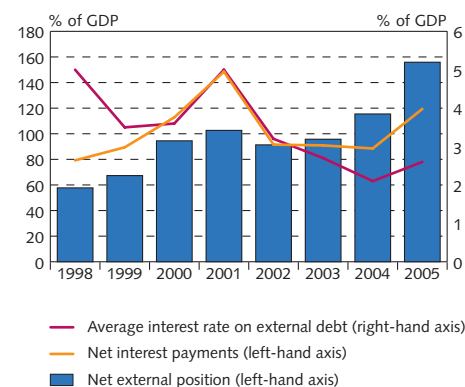
It is important to underline that the risk scenario on which Fitch's assessment is based is highly improbable. For the Treasury to experience debt service problems, at least two events apparently need to occur simultaneously: a major crisis in the financial system leading to the bankruptcy of systemically important institutions, and the abandonment of responsible fiscal policies which would overturn the Treasury

Chart 7
Foreign debt and debt service 1990-2005



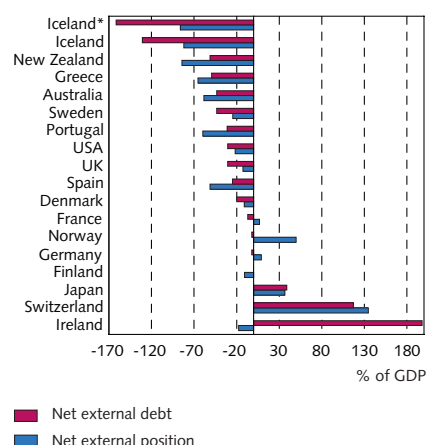
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 8
Net external debt and net interest payments to abroad 1998-2005



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 9
Net external debt and net external position of selected advanced economies at end of 2004



* Data for Iceland for the year 2005.
Sources: International Monetary Fund, central bank websites, Central Bank of Iceland.

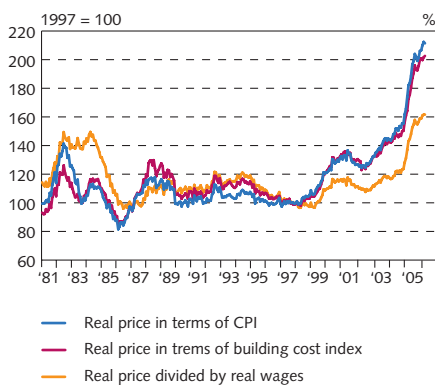
position and cause it to build up debt over and above any obligations it might incur or assume on account of a financial crisis. Given Iceland's current fiscal position, it is worth pointing out that a financial crisis as large as some of the most expensive international crises of the 20th century would not push central government deeper into debt than the governments of some countries with the same credit rating as Iceland. While such a crisis would deliver a major shock to the economy and living standards in Iceland, the government would appear to have ample scope for raising sufficient revenues to meet the interest costs on increased liabilities.

An economic downturn looks quite probable in the next few years

A period of overheating is normally followed by a relatively short period of contraction. A major episode of overheating, especially when characterised by a surge in and subsequent unwinding of asset prices, has sometimes led to a more persistent slump.² Could a sizeable contraction follow the robust growth that has characterised the Icelandic economy for past few years? No definite answer can be given. Most major contractions in Iceland have been the result of external shocks that have been hard to predict. The contraction in 2002 is an exception. Its sole cause was a macroeconomic adjustment following an episode of overheating. It was fairly sharp, but only short-lived, because a large-scale investment programme was launched soon afterwards and privatisation of the banks rekindled growth.

If external conditions remain favourable, the adjustment period could also be relatively short on this occasion. Other things being equal, however, the probable scenario is for some contraction followed by several years of much slower growth. A sharper contraction cannot be ruled out if external conditions deteriorate, e.g. with higher international interest rates, or if asset prices and the value of the króna drop by more than is currently expected. The impact of various shocks can be estimated by the Central Bank's macroeconomic model. Appendix 1 describes simulations to test the economy's response to a rise in international interest rates and a downturn in the value of the króna and asset prices. Such calculations do not represent a forecast and should be regarded only as a rough indication of the impact of such shocks; the predictive value of any macroeconomic model declines rapidly, the longer the horizon. The fairly high probability of further large-scale investments in the aluminium and power sectors should also be kept in mind, but these prospective projects are not taken into account in the simulations. One factor that the model cannot estimate adequately is the impact of the shock on household and corporate balance sheets. The position of these main domestic debtors of the banking system is described in more detail below.

Chart 10
Real wages and real prices of condominium housing
Greater Reykjavik Area January 1981 - February 2006



Sources: Land Registry of Iceland, Statistics Iceland.

Asset markets

Prices and developments in asset markets are important economic fundamentals underlying financial stability. Collateral in the form of

2. In Japan, for instance, a period of overheating in the 1980s was followed by 15 years of weak economic activity.

real estate and equities provides a partial guarantee for repayment of borrowing from financial companies. If they have reason to suppose that asset prices are above their long-term sustainable level, lenders need a larger safety margin in the form of secured assets. Asset market developments over the past year should encourage financial institutions to exercise caution. Both property and equity prices have risen so fast recently that a sizeable unwinding can be expected. Equity prices have already dropped sharply from the peak in mid-February, and real estate inflation has been slowing down.

Slower house price inflation after exceptionally fast rises

When the Central Bank published its last *Financial Stability* report at the end of April 2005, the real estate market was in the throes of a boom. At their briskest in the first months of that year, house prices rose by 5% month-on-month and the twelve-month rate of increase peaked at 40% in August 2005. For a while, larger properties in the Greater Reykjavík Area had risen by more than 50%. In the autumn, house price inflation in and around the capital Reykjavík began to slow and was down to 22% in February. In the rest of the country, house price inflation gathered steam last year, after lagging far behind Reykjavík since autumn 2004.

House prices could come down, even though increases so far can be explained by fundamentals

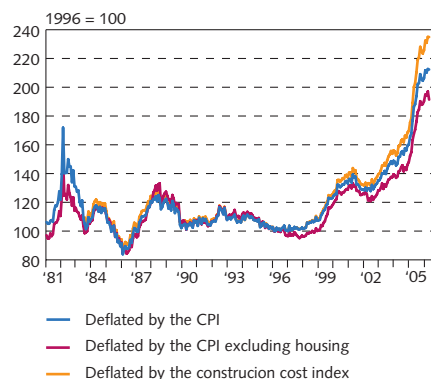
The wave of housing price increases in recent years invites the obvious question of whether they are likely to unwind, in full or in part, either through a straightforward nominal drop or relative to other prices over a longer period. This question is not easy to answer. The sustainability of asset prices is sometimes assessed in light of whether they are the product of fundamentals or driven by speculation. A purely speculative price increase is more likely to be quickly reversed than one based on fundamentals. Speculator activity, i.e. trading with the sole purpose of profiting from price changes, is not easy to distinguish from other market behaviour that is also driven by expectations of price changes. Last year there were persistent rumours about activities of real estate wholesalers that could be classified as speculation. No reliable statistics are available for such activity. Also, fundamentals – i.e. higher real disposable income, lower interest rates and easy access to credit – appear to explain almost the entire rise in residential housing prices.³

The fundamentals themselves are unstable

Whether or not speculator activity has been a factor behind the surge in prices in recent years is actually a secondary matter. Price developments driven by fundamentals are only as sustainable as the development of the fundamentals themselves. All the factors mentioned above are volatile. For example, real disposable income shrank significantly in the early 1990s and could do so again. Interest

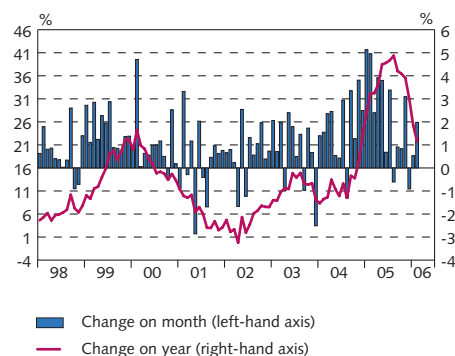
3. The impact of systemic changes in the domestic housing market on housing prices is discussed by Eliasson, Lúdvík and Thórarinn G. Pétursson: The residential housing market in Iceland: Analysing the effects of the recent mortgage market restructuring, Central Bank of Iceland *Working Papers*, No. 29/2006.

Chart 11
Price in real terms of detached residential housing in the Greater Reykjavík Area
January 1981 - February 2006



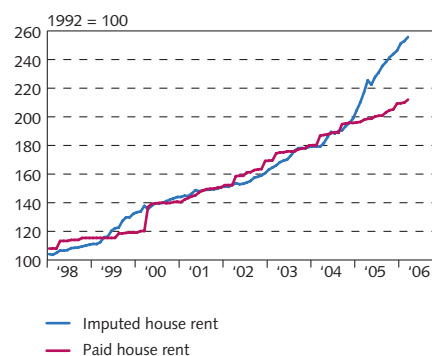
Sources: Land Registry of Iceland, Statistics Iceland, Central Bank of Iceland.

Chart 12
Price in real terms of residential housing in the Greater Reykjavík Area
January 1998 - February 2006



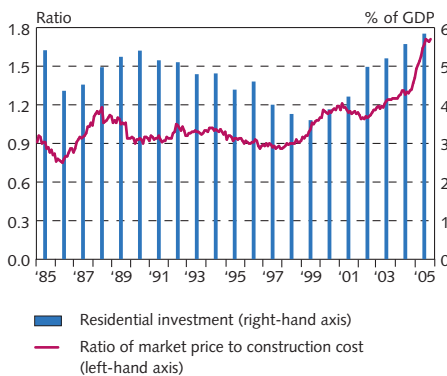
Source: Land Registry of Iceland.

Chart 13
Paid and imputed house rent
January 1998 - March 2006



Source: Statistics Iceland.

Chart 14
Housing market prices, construction cost and residential investment 1985-2005¹



1. The red line indicates the ratio of market prices of apartments in the Greater Reykjavik Area to construction cost. Both indices are normalised to the average for 1985-2004. Central Bank forecast 2005.
Sources: Land Registry of Iceland, Statistics Iceland.

rates fluctuate and ease of access to credit varies, also in the current deregulated environment.

An economic downswing could significantly erode disposable income, which in turn could drive down residential housing prices. Such a pattern has been noted in previous contractions. In 2002, however, nominal house prices in the Greater Reykjavik Area dropped only slightly for a very short period, and in real terms only for a few months, despite a significant tightening in domestic demand. This relatively soft adjustment can be explained by the very short duration of the contraction in 2001/2002, albeit sharp by international standards. The economy did not suffer any external shocks while the adjustment following the overheating in 1998-2000 was going on, and investments in the aluminium and power sectors began immediately in 2003. Accordingly, real disposable income never contracted, as it had done in the 1990s.

Is such a relatively mild adjustment – which in fact never became anything more than a short pause in the rise of asset prices – likely to repeat itself in the years to come? There are various indications that housing prices are more likely than not to fall in the next few years. The most obvious rationale is that the rises over the past three years have been greater and swifter than in 1999-2001. In the course of 2005, house price inflation had outstripped the CPI by 27.7% over that year. Over the same period, it rose by almost one-quarter more than wages and almost one-fifth more than disposable income. The widening gap between housing price developments and disposable income over the past year is presumably explained by lower interest rates. It seems doubtful that this gap can be maintained unless housing supply is somehow restricted in the long run. Much will depend on whether real disposable income continues to increase or contracts at some stage. In the latter event, the gap between housing prices and real wages will widen, making prices more likely to fall.

Boom in housing supply

It is imprudent to make inferences about the sustainability of housing prices on the basis of housing demand alone. The gap between housing prices and construction costs has widened substantially since 2001, even after allowance for higher land prices. This wide discrepancy represents a strong incentive to build residential or commercial property. Indeed, investment in residential housing has increased by leaps and bounds in recent years. In 1999, residential investment amounted to 3½% of GDP. In 2005 this ratio was 6% of GDP, the highest value since 1984. Higher housing prices in 1999-2000 were partly explained by a delayed pickup in investment following a period of weak economic activity in the 1990s. When a housing project has been decided and construction has begun, however, the trend also takes a long time to reverse if demand suddenly drops. A half-built house may be worth little unless it can be completed. A contractor who has paid a high price for building land using borrowed funds needs to build on it in order to meet his debt service. Lenders have a strong incentive to continue lending for construction projects that are already begun. Thus excess supply of housing is likely at some stage.

One argument against the probability of a sudden unwinding of real estate prices is that higher prices of building land are to some extent permanent, i.e. they reflect a lasting increase in population, higher living standards and less expensive capital. More and more wealthy individuals are competing for a limited resource – land. Because land is inherently a fixed quantity, increased demand can only take the form of a permanent price increase.

There is probably some truth to this argument. However, the speed and size of the surge in real estate prices in recent years appear to exceed what can be explained solely in terms of the effect of population growth and higher living standards on land prices. Previous periods of rapid real wage and population growth do not seem to have been accompanied by a corresponding permanent rise in land prices. Although the supply of land is a restrictive factor, it is not crucial for the supply of building land in urban parts of Iceland, which largely depends on political or administrative decisions. Organisation and preparation of building land is a fairly time-consuming process, and planning authorities and local governments have probably seriously underestimated the demand for it, as reflected in high building land prices in recent auctions.

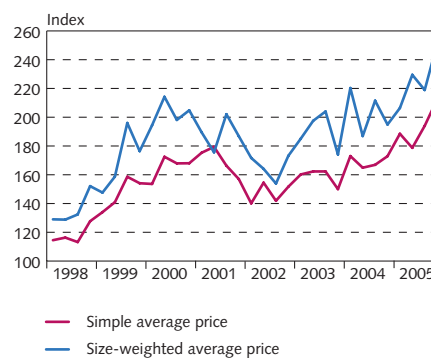
High prices of building land mean that the incentive to build may be less than the difference between housing prices and construction costs could imply. However, it should be a strong incentive for landowners and planning authorities to increase the supply of building land, which ultimately should produce the same outcome – namely an increase in construction volume leading to lower housing prices until balance is achieved.

Misleading comparison with foreign cities

In this respect, the situation in Iceland is totally different from the typical position of many large cities in other countries which have also witnessed booming housing prices in recent years. To some extent the same driving forces have been at work as in Iceland, i.e. low interest rates, increasing affluence and urban population growth. However, these cities do not have much building land at their disposal, except by demolishing buildings and constructing taller ones in their place. Investment has therefore not responded to increased demand in the same way as in Iceland. It is highly questionable to claim, as is sometimes done, that housing prices in Iceland are adjusting to the metropolitan norm in other countries. Nor should it be forgotten that real estate prices in many cities in Europe, North America and farther afield are also at a historical high and could also drop when interest rates go up.

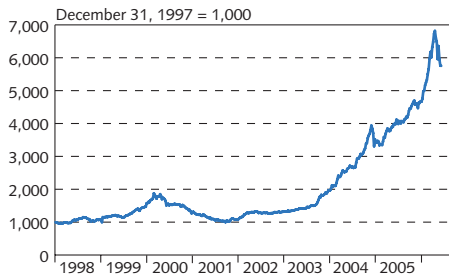
From the above it may be concluded that there is a fairly high probability that housing prices in the Greater Reykjavík Area will drop in coming years, perhaps even in nominal terms. This could also happen in other countries, but the grounds for this happening in Iceland seem stronger. The driving force behind such a reversal could be the same as anywhere else: a rise in interest rates, which have been exceptionally low for quite a while. Imbalances in the Icelandic economy, on the other hand, could contribute to a faster adjustment. The scale and persistence of the macroeconomic impact of such an

Chart 15
Price of business premises in the Greater Reykjavík Area, in real terms¹
Q1/1998 - Q4/2005



1. Deflated by the CPI.
Source: Central Bank of Iceland.

Chart 16
The ICEX-15 equity price index
Weekly data January 5, 1998 - April 7, 2006



Source: Iceland Stock Exchange.

adjustment will depend quite heavily on the resilience of household and business balance sheets, as discussed below.

Prices of business premises also close to a historical high

Information on prices of commercial real estate is not as reliable as for residential housing. Nonetheless, available data show that prices of business premises in real terms are considerably higher than when they peaked briefly at the turn of the century. On a longer view, prices have risen broadly in pace with residential housing. Since business premises prices exhibit more volatility, a sizeable drop in real terms cannot be ruled out in the coming years, as in fact happened at the turn of the century.

Equity prices appear normal in terms of most key ratios, but need to be viewed with caution

Prices of shares in Icelandic companies have soared in recent years. The first serious reversal for a long time began in February 2006. By April the ICEX-15 index had shed almost one-fifth from its peak in February. In spite of this decrease, equity prices had still almost quadrupled in the space of three years, and showed a twelve-month rise of 38%.

Buoyant equity prices prompt questions about overpricing. The stock market slide in recent weeks indicates market fears that pricing may be shaky. Valuation of equities is inherently uncertain, since it is based on expectations of companies' growth and future profits. This is reflected in sharp fluctuations in their market price. Various key ratios are used to estimate whether equities are overpriced, but none provides an absolute answer. The P/E ratio is one of the most common gauges.⁴ For listed Icelandic companies, the P/E ratio has been either on a declining trend or broadly stable in recent years. At the beginning

Table 2 P/E and price-to-book ratio

	P/E	Expected P/E	Price-to-book ratio
ICEX 15	11.2	11.1	2.2
ICEX 15 (excl. financial companies)	19.4	14.2	2.3
FTSE 100	15.0	13.1	2.4
OBX Oslo	16.6	13.4	2.9
OMX Helsinki 25	21.6	17.2	2.6
OMX Copenhagen 20	15.7	13.5	2.6
OMX Stockholm 30	16.0	16.4	2.9
DAX Frankfurt	15.8	14.1	1.9
CAC 40 Paris	15.9	13.4	2.5
Nikkei 225	46.4	49.7	2.9
S&P 500	18.0	15.3	2.8
NZSX 50 (New Zealand)	20.0	16.9	3.3
BUX (Hungary)	12.4	11.7	2.7

Sources: Bloomberg, Landsbanki Íslands.

4. The P/E (profits to earnings) ratio is the price per share divided by the earnings per share over the past year, or expected earnings over the next twelve months (expected P/E ratio).

of 2005, the P/E ratio of listed non-financial companies was roughly 16, but at the end of the year it was almost 17. It was considerably lower if financial companies were included, at roughly 11 at the end of 2005 and 13 at the end of the previous year. Large portfolio trading gains and exchange rate gains on foreign borrowing have boosted the profits of listed non-financial companies in recent times. Thus the EV/EBITDA ratio⁵ may prove a more suitable measure. However, this ratio does not imply that the rise in equity prices in 2005 was immoderate either. Equity prices have therefore tracked increased profits or EBITDA of listed companies.

Nor do Icelandic non-financial companies appear particularly overpriced by international comparison. The P/E ratio of the 15 companies in the ICEX-15 index is somewhat lower than in Iceland's main neighbouring and trading partner countries, but broadly the same if financial companies are excluded.

Another criterion for equity value is the price-to-book ratio. For ICEX-15 companies it has been on the increase in recent years, but is broadly in line with other countries (see Table 2).⁶

On the basis of these data, can the non-financial companies listed on ICEX be described as moderately priced? That would be an overstatement. Business profits are volatile. If last year's profits were higher than can be realistically expected in the future, the P/E ratio could rise rapidly. The risk of an equity price slump depends on the likelihood of a major contraction in profits over the coming years, or how much investors fear such a scenario. That risk is difficult to evaluate – if not, it would already be embedded in market prices of the shares. However, the changes that have occurred in international financial conditions could alter the profit outlooks of fast-growing leveraged companies. Thus there are grounds for treating current equity prices with some caution. The slide in recent weeks shows that equity prices have become very sensitive to news reports that affect expectations about the profit outlook of listed companies. Turbulence that could bring down Icelandic share prices need not originate in the Icelandic economy. Most listed companies are in the export sector or have substantial activities in other countries.

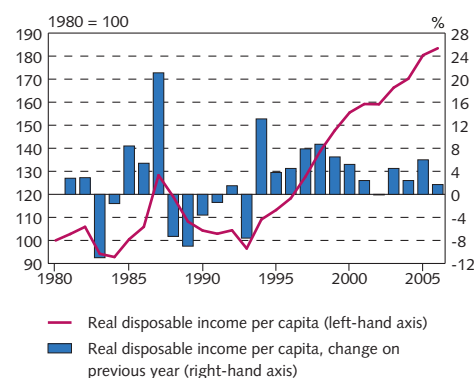
Leveraged purchases of equities, including those of financial companies, may pose a significant risk. If buyers encounter serious trouble in rolling over loans that they have taken to finance equity purchases and many need to sell at the same time, prices could take a steep slide.

As pointed out in *Financial Stability 2005*, where there is a considerable degree of cross-ownership, companies' profit may reflect a rise in equity prices in other companies that they own. The consequence may be a price development somewhat disconnected to the underlying operation. This gives reason for showing extra caution, even though common yardsticks for prices do not reveal much risk.

5. EV/EBITDA is the ratio between enterprise value (EV = market capitalisation + net performing debt) and EBITDA. EV/EBITDA is naturally only calculated for non-financial companies, not for financial or insurance companies.

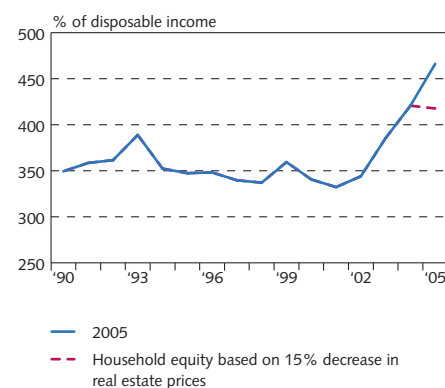
6. The price-to-book ratio is the market value of the company, divided by the cost of renewing all its means of production (in this case, equity).

Chart 17
Real disposable income per capita
1980-2006¹



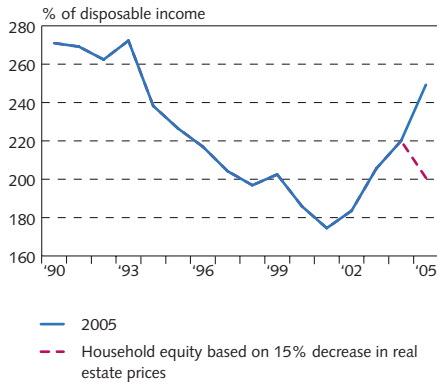
1. Central Bank forecast for 2005-2006.
Source: Central Bank of Iceland.

Chart 18
Net wealth of households with pension
reserves 1990-2005¹



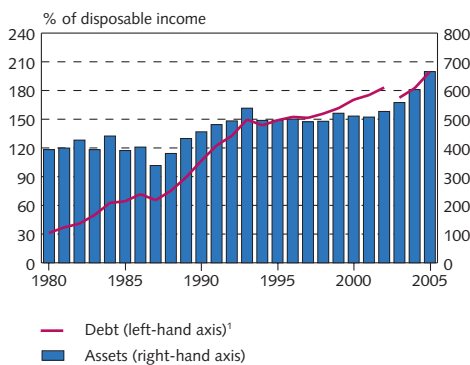
1. Excluding shareholdings. Data for 2005 are estimates.
Source: Central Bank of Iceland.

Chart 19
Net wealth of households excluding pension reserves 1990-2005¹



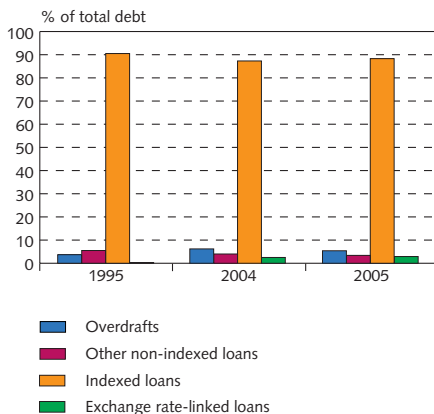
1. Excluding shareholdings. Data for 2005 are estimates.
Source: Central Bank of Iceland.

Chart 20
Household of assets and debt as a % of disposable income 1980-2005



1. New classification of lending from 2003. Assets do not include equity holdings.
Source: Central Bank of Iceland.

Chart 21
Composition of household debt with the credit system in 1995, 2004 and 2005



Source: Central Bank of Iceland.

Households and businesses

The above discussion has focused on the factors in the Icelandic and global economy that could cause a substantial economic downturn over the next few years. The end of surplus global liquidity, which now appears to be in sight, and the adjustment of demand, the current account balance and asset prices towards long-term equilibrium could produce such a downturn. However, the economic outlook in the main market regions for Icelandic companies is largely bright, although real estate markets there could begin to yield. The overall conclusion is that the household and business operating environment could tighten in the years to come. The next question is then whether households and businesses are equipped to meet the operating difficulties and shocks that their balance sheets may face in the coming years. The following section provides a discussion of how sensitive the balance sheets of households and businesses are to short-term shocks.

Exceptionally favourable operating conditions for households over the past year

Operating conditions for households were exceptionally favourable in 2005. Real wages increased by 2½% and total real disposable incomes by 8%, while employment picked up to send the unemployment rate below 1½% at the beginning of 2006. Interest rates in 2005 were at their lowest for some time and households enjoyed very easy access to credit.

In such a climate, the absence of significant signs of distress in the household sector is not surprising. The number of unsuccessful distraint actions, for example, decreased considerably year-on-year in 2005 to the lowest level since 2002, after peaking in 2004. Insolvencies were at the lowest rate for seven years. Judging by these indicators, households appear to have strengthened their position in the short term, as is normal at the present stage of the economic cycle. Thus they are likely to be better equipped now to meet future shocks.

Record increase in household debt in 2005

It cannot be taken for granted that an upswing is used to build up precautionary saving to draw on during leaner years, however. An upswing can also prompt households (and businesses) to take more risk, especially if credit conditions improve at the same time. This has definitely been the case for Icelandic households since autumn 2004, when the banks' entrance into the mortgage loan market presented significantly easier access to credit at lower interest rates than had been seen for many years. The wave of increased borrowing and refinancing that began in the second half of 2004 was at a peak when *Financial Stability 2005* was published. Over the year since then, household debt has been climbing, but so has the value of their assets, due to both higher prices and new investment.

Thus household balance sheets have swollen enormously over the past year. At the end of 2005, household debt was almost 1,100 b.kr., an increase of 206 b.kr. year-on-year. Their debt was more than double their disposable income, compared with 183.5% at the end of 2004. Household assets are estimated to have increased by much

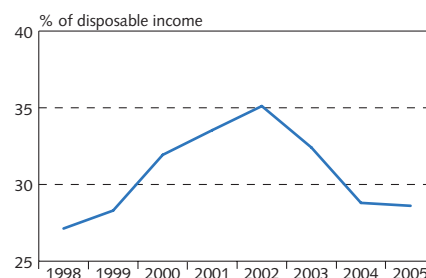
more over this period – 710 b.kr. including pension fund holdings, and 500 b.kr. excluding them. So in spite of a hefty rise in indebtedness, the net equity of households has improved, especially when pension fund reserves are taken into account. How should the effect of the household's swelling balance sheets be interpreted? Has their capacity for withstanding shocks been strengthened by growing net assets?

Many factors need to be considered. First, the reliability of the net wealth needs to be assessed, given how buoyant real estate prices are at the moment. As pointed out above, real estate prices are very high in a long-term context. In an international and historical context it is fairly common for real estate prices to drop by 15-20% in real terms and there are several examples of real decreases of as much as half in OECD countries (e.g. Finland, the Netherlands). The scale of the rise in recent years – a doubling in real terms within less than a decade, including 28% in 2005 – exacerbates this risk. Because the bulk of household debt is price-indexed, it makes little difference to the balance sheet whether the price level drops in nominal terms or simply relative to CPI inflation. A 1% decrease in housing prices would reduce household equity by 3.2 percentage points of disposable income.

A second factor to assess is the effect on households caused by significantly lower average interest rates on their debt, and by longer maturities; both factors reduce their debt service burden. Higher household debt does not necessarily imply an increased debt service burden. Households have taken long-term indexed loans to repay older loans carrying higher interest rates and for shorter terms. Price-indexed loans now account for 88% of total household debt. After waning temporarily this ratio has increased again, in particular due to an increased share of mortgage loans at the expense of other loans. In almost all cases, mortgage loans are fixed-interest, which is unlikely to change. A rise in the policy interest rate therefore does not have much impact on household debt service in the short term. In some cases mortgage loans have been used to pay off non-indexed short-term borrowing. As a proportion of total debt, the use of overdrafts has declined to 5.4%. However, interest rates on overdrafts are extremely high and are beginning to have a considerable effect on the payment burden of households that use them to any extent. On the whole, the household debt service burden appears to have fallen relative to disposable income in 2005 and the preceding years, despite massive growth of debt. Nor does this take into account the possibility that a sizeable younger age group may have left the rental housing market – it is not certain that their financial liabilities have increased by doing so.

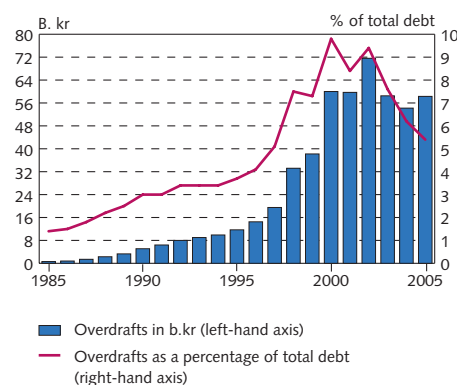
Third, the effect that likely changes in distribution of household debt among different income groups will have on their probable payment difficulties and arrears with the banking system needs to be established. Data processed from tax returns and published by the Inland Revenue provide unambiguous signs that higher debt is a general phenomenon and not noticeably more pronounced in one income group than others. However, this does not rule out the possibility that the number of heavily indebted households has increased across all income groups.

Chart 22
Household debt service 1990-2005¹



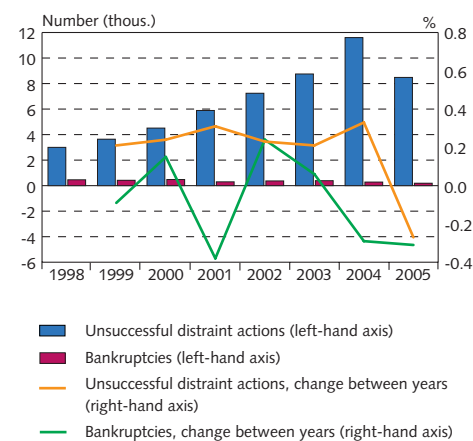
1. Amortisation and interest paid as a % of disposable income.
Source: Central Bank of Iceland estimates.

Chart 23
Household overdrafts at end of year, 1985-2005



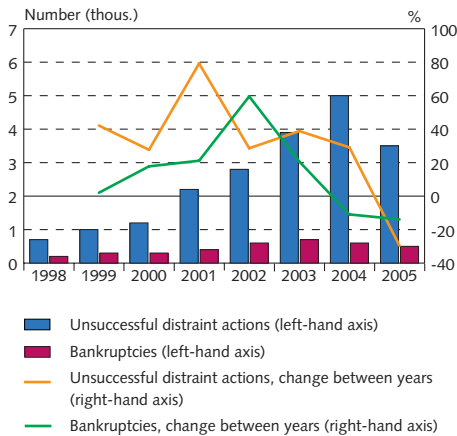
Source: Central Bank of Iceland.

Chart 24
Unsuccessful distraint actions and bankruptcies of households 1998-2005



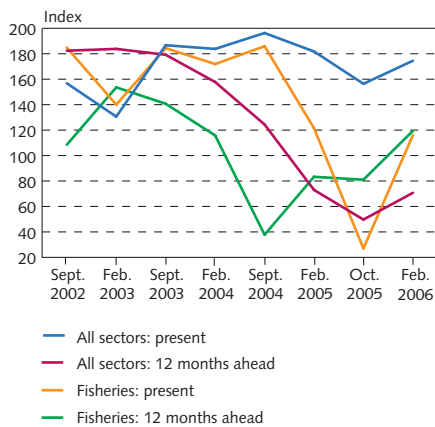
Source: Lanstraustr (Creditinfo Iceland).

Chart 25
Unsuccessful distraint actions and bankruptcies of businesses 1998-2005



Source: Lanstraut (Creditinfo Iceland).

Chart 26
Business sentiment surveys
September 2002 - February 2006



Source: IMG Gallup.

Finally, it is important to analyse the effect on households caused by a probable increase in the number of highly mortgaged properties, even though rising prices have probably driven up overall mortgage value. However, no data are available on this point at present.

It is not certain that households' resilience to economic shocks has worsened as much as their increased debt may imply. Debt service does not appear to have increased on the whole. It might be much heavier for those households that have increased their debt the most, but would then have eased for others. The greatest concern is the impact of a conceivable fall in housing prices on the most heavily indebted households. Such problems are, however, likely to appear over a longer period of time, if the economy is hit by a lengthy contraction accompanied by higher unemployment, lower real income and a significant fall in housing prices.

Generally strong position of businesses

Resilience towards economic shocks is in many respects more difficult to assess for businesses than households. They engage in highly diverse activities, operate in different markets and face different operating risks. Also, only limited information is available about recent developments of balance sheets and profit and loss accounts, except for companies listed on the stock exchange. Data from listed companies do not necessarily reflect very closely the activities of smaller businesses. Fairly accurate information is available about the total scope of business debt and its composition, but the asset side is more uncertain.

Gallup's regular business confidence survey among the 400 largest private sector companies in Iceland gives an idea of overall sentiment of business managers. The most recent survey was conducted in February. It reinforces the impression given by other surveys over the past year that the general position of businesses has been and still is favourable. However, the outlook is not as upbeat as before. The main exception has been in the fisheries sector, where companies had been hit by the strong value of the króna in 2005. In the most recent survey the position of the fisheries sector has improved, because of a weaker króna in February compared with previous surveys.

Overall performance of listed companies in 2005 was good, apart from the fisheries and marine product marketing sectors. EBITDA was

Table 3 Profitability and performance of listed non-financial companies 2004-2005¹

% of turnover except for equity ratio	EBITDA 2004	EBITDA 2005	Working capital from operations 2004	Working capital from operations 2005	Net earnings 2004	Net earnings 2005	Equity ratio 2004	Equity ratio 2005
Fisheries	17.5	18.7	15.3	10.1	14.3	9.7	35.6	30.0
Manufacturing	19.0	16.0	15.5	13.9	10.8	7.4	40.0	31.2
Marine product marketing	1.7	3.0	-1.1	4.2	-0.2	-0.9	27.4	26.0
Transport	8.7	7.4	6.7	3.0	5.7	11.7	27.6	43.6
ICT	13.9	9.3	8.6	7.3	5.3	2.9	34.3	33.8
Other	12.1	12.1	2.4	2.0	2.4	3.1	24.1	38.2
Total	11.2	10.1	7.8	7.0	6.1	6.7	32.4	34.5

1. Sampled companies: 26.

Source: Central Bank of Iceland.

broadly unchanged from 2004, net earnings after tax were up and the equity ratio had strengthened. Although fewer companies are now listed on ICEX compared with a few years ago, those that remain are large and growing rapidly. Average turnover of listed non-financial companies in 2005 amounted to almost 25 b.kr. Generally very favourable financial conditions during the year boosted their positions and drove growth. Strong profitability and high growth expectations, especially outside Iceland, encouraged high subscriptions to new equity offerings.

In line with widespread strong profitability in recent years, there has been little in the way of difficulties. Unsuccessful distraint actions, arrears and insolvencies have decreased year-on-year.

Corporate balance sheets swelled enormously in 2005 and debt increased by 60% of GDP

Although it may not be reflected in key ratios for listed companies, an enormous transformation has taken place in the Icelandic business sector balance sheet. For as far back as data go, corporate debt never increased on the scale witnessed in 2005. At the end of the year it corresponded to roughly 220% of GDP and had increased by around 60% of GDP in the space of a single year. A significant amount of the increased debt lies with companies that are expanding their operations overseas. Many of the companies investing abroad are not in fact listed on the exchange, but their activities account for the increase in corporate debt and much of the hefty growth in the debts and assets of the Icelandic economy as a whole. In addition, a sizeable number of domestic leveraged buyouts have been financed with foreign borrowing, and business investment increased by 57%.

Much of the increase in debt is due to outward investment

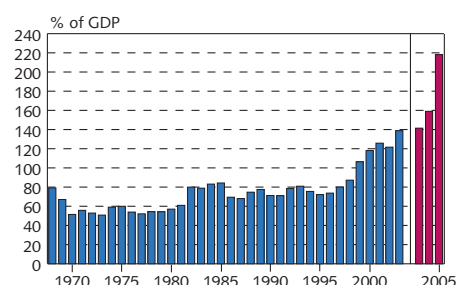
Much of the increase in business debt is due to outward investment by Icelandic residents, funding of which has been intermediated mainly by domestic banks. Moreover, the banks themselves stand behind a large share of outward investment in recent years, as discussed in more detail below, and Icelandic pension funds increased their foreign exposures considerably, as shown in Chart 28.

The bulk of the 715 b.kr. increase in corporate debt in 2005 can probably be traced to business expansion overseas. Precise estimates are difficult to make, but outward foreign direct investment amounted to 421 b.kr. in 2005. Considering that the current account deficit measured 164 b.kr. and foreign direct inward investment in Iceland amounted to 147 b.kr., domestic investment by companies outside the aluminium and power sectors therefore accounts for only a fraction of the additional debt. Part of the foreign debt accumulation is explained by leveraged buyouts by domestic companies. Participants in the large-scale transformation of Icelandic business that the financial sector has engineered often operate through holding companies, which probably account for a sizeable share of the foreign debt.

Heavy investment in aluminium and power generation

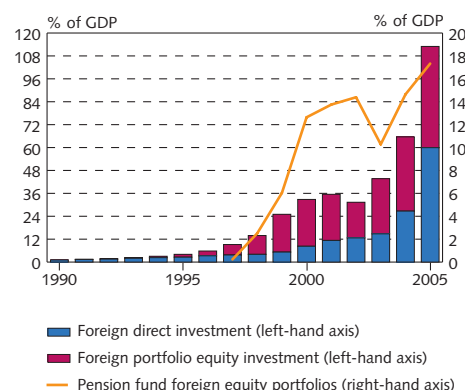
A large share of the credit procured in recent years for domestic investment is connected with aluminium and power companies. At a rough

Chart 27
Corporate debt 1968-2005¹



1. New classification of lending from 2003. Two columns are shown for that year: blue for the older classification and red for the new one. Source: Central Bank of Iceland.

Chart 28
Foreign direct investment and equity investment 1990-2005¹



1. Preliminary data for 2005. Source: Central Bank of Iceland.

estimate, these companies have taken foreign loans to the tune of 110-120 b.kr. to fund construction of aluminium smelters and power stations since these projects were launched in 2001.⁷

Companies outside the aluminium and power sectors may also be expected to have made sizeable investments in 2005. However, reliable data on business investment do not become immediately available. Statistics Iceland has revised its estimate for business investment in 2004 some way upwards – as the pattern of lending had in fact suggested, although this is difficult to interpret in a climate of cross-border operations and leveraged buyouts. If figures for 2005 have also been underestimated, much of the debt growth in that year may likewise be attributed to domestic investment. However, data on business lending is not classified according to its deployment.

Risk posed by rapid growth

As the above discussion makes clear, it is extremely difficult to draw firm conclusions concerning the resilience of Icelandic businesses towards adverse economic shocks, from the piecemeal information available on the massive changes in their balance sheets over the past few years. The business sector balance sheet has grown at an astonishing pace on both the asset and liability sides. As intermediaries in the funding of this massive transformation, the risks faced by financial companies hinge on how secure the funding is and the quality of the acquired assets, liquidity and operational profitability. So far, Icelandic business expansion overseas has been quite successful, but the pace of acquisitions has been too fast to make it possible to assess the quality of these assets under conditions of stress. Success often encourages riskier investments, or underestimation of risk. Thus the greatest risk may lie in the pace of growth. When a new investment is made before success of a previous ones can be assessed, there is an increased danger of mistakes being made.

Expanded overseas operations may not be as effective as they appear for hedging against domestic fluctuations

As Icelandic companies spread their market risk overseas, the risk they face from turbulence in the domestic economy ought to diminish. In the long run, the Europeanisation and globalisation of Icelandic businesses should strengthen their position. Since so much of the debt accumulated in recent years is connected with the acquisition of foreign assets, a depreciation of the króna or a contraction in the Icelandic economy will have relatively little direct impact on these companies' financial positions. However, many are vulnerable to changes in international conditions. The global economic outlook appears generally bright, at least over the short term. However, growing global macro-

7. The three power companies currently involved in constructing power facilities for aluminium production – Reykjavik Energy (Orkuveita Reykjavíkur, OR), Suðurnes Heating (Hitaveita Suðurnesja, HS) and Landsvirkjun (the national power company) – meet a substantial share of their capital requirement with foreign borrowing. They mostly borrow directly abroad without the involvement of domestic banks. Norðurál, which is owned by Century Aluminum, is funding just under 40% of an investment to expand to its smelter in southwest Iceland using foreign loans managed by the three Icelandic commercial banks. Construction of the Fjarðarál (Alcoa) smelter in east Iceland, on the other hand, is financed entirely from abroad with capital provided by Alcoa Corp.

economic imbalances could eventually cause their financial conditions to worsen. Many companies have expanded overseas by relying heavily on domestic banks, sometimes in cooperation with foreign banks, to procure foreign capital. If domestic financial companies' access to foreign credit tightens in the near future, this may affect both their overseas and domestic operations. Rightly or wrongly, imbalances in the Icelandic economy appear to have contributed quite substantially to the recent rise in yields in the secondary market for bonds of Icelandic banks. This indicates that companies which operate to a large extent outside Iceland but with the backing of the Icelandic banking sector could be affected by turbulence in the home economy even though only a small part of their operations are based there.

Businesses in the domestic market must prepare for tougher times ahead

Businesses that operate mainly in the domestic market will obviously be hit harder by shocks to the Icelandic economy than those largely operating in or selling to foreign markets. Given that a sizeable contraction cannot be ruled out, it is important for businesses to begin preparing for tougher times in the years ahead. Operating difficulties that could eventually lead to impairment in the financial system are likely to be mostly confined to specific sectors. In some areas, the operating outlook has improved. Certain fisheries companies have been squeezed for some years by the strong króna. The recent depreciation should significantly reduce the risk of payment difficulties and impairment in that sector.

Construction companies could encounter problems if they underestimate the risks

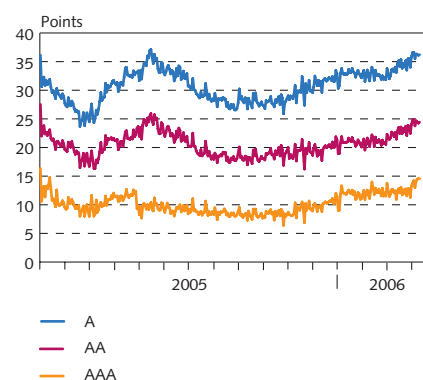
The sector that has experienced the most growth recently may also be the most likely candidate to encounter problems later. In recent years, construction has grown faster than any other sector of the economy, by 83% since 2002. High real estate prices have driven massive investment in residential housing and business premises over the past few years, in addition to large-scale construction projects for the aluminium and power sectors. Some of the rise in housing prices could be unwound in the years ahead by movements elsewhere in the economy, which would erode the operating base of some construction companies. Roughly one-quarter of the construction sector's debt with the banking system is denominated in foreign currency, and around one-third is in the form of overdrafts. Recent robust growth in retail and services could also be reversed by an adjustment of the economy. Up-to-date information on this sector's balance sheet is in short supply, however, making it impossible to assess its susceptibility to a potential loan-loss scenario, except in general terms.

International financial markets

Changes looming in international capital markets ...

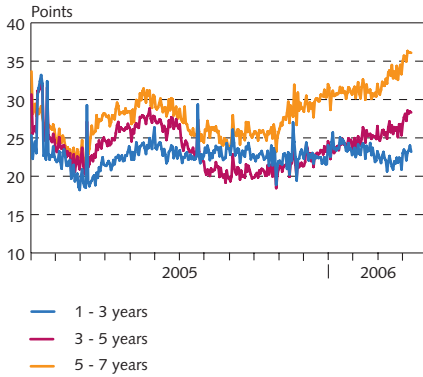
Changes appear to be looming in international capital markets, which could shift the position considerably from the analysis given in *Financial Stability 2005*. Credit supply surged in the wake of central bank policy

Chart 29
Bank bonds, spread on government¹
Daily data January 3, 2005 - April 7, 2006



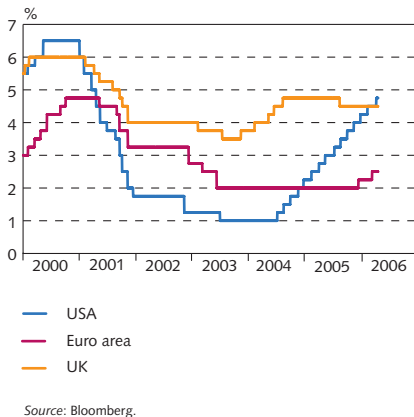
1. Eurobonds.
Source: DataQuery - JPMorgan.

Chart 30
European bank bonds, spread on government¹
Daily data January 3, 2005 - April 7, 2006



1. A-rated.
Source: DataQuery - JPMorgan.

Chart 31
Central Bank interest rates in the UK, USA
and Euro area
Daily data January 3, 2000 - April 7, 2006



rate reductions at the turn of the century. In search of higher returns, investors increasingly turned to higher-risk assets, which brought down risk premia. This period of strong credit supply now appears to be drawing to a close, as stated elsewhere. Accordingly, risk premia are on the rise.

Generally speaking, spreads on financial companies' bond issues were fairly stable for most of 2005, but have increased since the autumn. Spreads on government for A-rated financial companies have gone up by varying amounts, depending upon residual maturity. The highest rise has been on bonds with residual maturity of 5-7 years, while spreads on instruments with a residual maturity of 1-3 years have been broadly unchanged in recent months.

... and particularly for Icelandic financial companies

By virtue of their improving credit ratings, Icelandic financial companies have enjoyed open access to international capital markets in recent years. However, international analysts have expressed doubts about the large scale of their foreign funding and link it to signs of imbalances in the Icelandic economy.

The Icelandic economy has come under the spotlight of international players who have growing interests to safeguard there. High interest rates in Iceland and several other countries, compared with the main world economies, have stimulated carry trades, whereby investors finance their position-taking in certain currencies, such as the Icelandic króna, by borrowing in low-interest rate currencies, such as the yen or euro. The stock of króna-denominated Eurobond issues now stands at more than 220 b.kr. and in some cases the foreign króna Eurobond issues are made at a lower yield than Icelandic Treasury bonds. In part, these favourable terms reflect firm demand for such issues, but also the strong position of the issuers, who have included the Republic of Austria, the European Bank for Reconstruction and Development (EBRD) and the World Bank. In most cases, the foreign investors probably do not want to take credit risk on Icelandic entities by buying Icelandic bonds, but still want to gain on the high interest rates on them. These issues flourished in the closing months of 2005. Several issues were made during the first months of 2006, but their number dwindled sharply when the króna began to depreciate. Given how much the króna has depreciated since issues began, many foreign investors – although not the issuers – can be expected to lose on these trades.

Foreign investors are also thought to have taken positions in domestic securities. ICEX estimates that non-residents held listed Icelandic securities with a market capitalisation of roughly 600 b.kr. at the end of 2005. Although ICEX makes reservations about the exact amount, the figure should give some idea of the scale involved.

Negative coverage in the past few weeks about the economic outlook in Iceland has made foreign investors more critical of the risks connected with the króna and macroeconomic imbalances. Unease has also been felt in other countries with a similar carry trade climate and imbalances, such as New Zealand and several emerging market economies. Foreign investors' risk appetite may have waned with the increasing risk.

A credit default swap (CDS) is a bilateral contract insuring against credit risk, under which the buyer of protection pays a fixed premium (CDS spread) to the seller for a specific period of time. If a trigger event occurs, the protection seller pays a pre-defined compensation to the protection buyer. The trigger can be the bankruptcy of the company (or "reference entity") for which the protection is bought, or default on a bond or debt issued by it. If nothing triggers the swap during its term, the protection buyer continues to pay the premium until maturity. If it is triggered, however, the protection seller pays the buyer coverage of the financial loss sustained.

CDSs can also be used to gain exposure to credit risk, i.e. to achieve a similar risk profile without buying a specific issuer's bonds. An important difference, however, is that a CDS does not require an initial funding, which allows leveraged positions. Also, a CDS transaction can be entered into even if a cash bond of a particular maturity is not available from the issuer. A CDS protection buyer can furthermore create a short position in the reference credit.

Evolution

Credit derivatives have been steadily growing in size and scope since they first appeared after 1993. Originally there were no standards for contracts, but in 1999 the ISDA (International Swaps and Derivatives Association) published documentation (a master agreement and definitions), most recently revised in 2003. Standardised documentation has spurred the evolution of the market which, according to ISDA figures, reached a notional amount of more than 17 trillion US dollars at the end of 2005, compared with 919 b. US dollars at the end of 2001.

Pricing

Pricing of CDSs is based on a number of parameters, headed by the probability of default, the recovery rate on default and liquidity, regulatory and market sentiment factors. In theory, the CDS spread paid by the protection buyer should be closely related to the issuer's borrower risk spread.

CDSs involving Icelandic issuers

Several international financial companies quote prices for CDSs for Icelandic bank bond and Treasury series. The volume of trading in them is difficult to ascertain and the spread may easily change without a trade taking place. CDSs have generally been restricted to the largest bank bond issues. Spreads for Icelandic bank issues have been highly volatile in recent months, but have risen quite steeply since autumn 2005. In the case of senior 5-year debt of the Icelandic banks, spreads rose significantly in February and again in March when they approached 100 points. Some of this increase has unwound. The iTraxx Europe CDS index for both senior and subordinated debt of European issuers rose in September 2005, then fell on average until March, when it picked up again. Thus the March increase does not appear to be confined to Icelandic banks, although it was considerably sharper for them.

Box 2

Credit default swaps (CDSs)

Chart 1
CDS payment flows

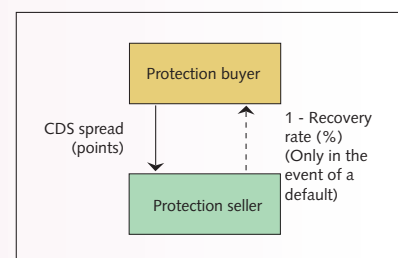
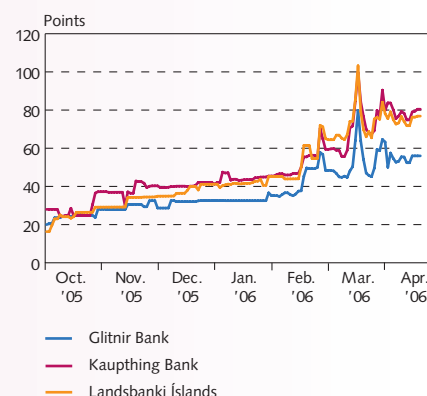
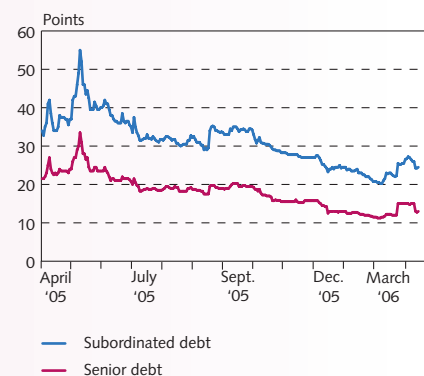


Chart 2
CDS spreads on Icelandic bank bonds¹



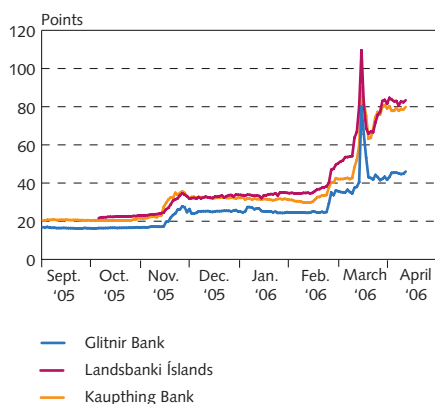
1. Eurobonds maturing in 2010.
Source: Markit Group Limited.

Chart 3
CDS spreads on European bond issues¹
Daily data April 11, 2005 - April 7, 2006



1. iTraxx index, 5-year issues.
Source: DataQuery - JPMorgan.

Chart 32
Discount margin on Icelandic Eurobonds¹
Daily data September 1, 2005 - April 7, 2006



1. Eurobonds maturing in 2010.
Source: Bloomberg.

These conditions have squeezed the terms offered to Icelandic financial companies in international capital markets. They issued bonds on favourable terms during the first four months of 2006, but their discount margins in the secondary market have risen sharply and fluctuated. It is impossible to ascertain anything about the trades behind price formation, however. In some cases the price may have changed without any trading.

The first indications of higher discount margins for Icelandic financial companies appeared in the market for Credit Default Swaps (CDSs). In October 2005 it became noticeable that market agents were buying Icelandic CDSs. Probably they already owned bonds issued by Icelandic financial companies and wanted to reduce their exposures in these instruments without selling them. Other investors, however, appear to have taken short positions in Icelandic financial companies through the CDS market.

Most issues by Icelandic financial companies in international markets are small and relatively illiquid. This creates technical drawbacks for taking short positions directly in the market, for example with forward sales, because the bonds can prove difficult to locate and borrow. The CDS market has enabled short positions to be taken and is discussed in more detail in Box 2.

Domestic financial markets

Structural changes in the market

Iceland's securities market has established itself over the past 15-20 years. From modest beginnings it is now flourishing. In recent years, the legal framework has been brought into line with that of EU countries and supervision has been stepped up substantially. Despite a few hitches on the way, in a relatively short space of time Iceland's financial markets have moved into line with international markets that have evolved over a much longer period. *Financial Stability 2005* concluded that the Icelandic markets were small but efficient. Their size leaves them exposed to a possibly unfavourable interacting chain of events. The finding now remains broadly the same. Advances have been made in various areas, however: turnover has grown substantially and the unease in recent months has increased confidence that Iceland's market infrastructure is more resilient than was previously thought. The following is an account of the main innovations and changes involving the equity, bond and foreign exchange markets.

Active discipline

One activity of Iceland Stock Exchange is to monitor market participants' compliance with its rules. If the occasion demands, ICEX may reprimand members publicly or fine them in the case of serious infringements. Two public reprimands were announced in 2005 and several private reprimands. Internal discipline of this kind is probably more conducive to market development than action by government authorities, since the markets are often much faster to respond. However, its usefulness is based on voluntary acceptance of such discipline by market participants and their readiness to comply when required. Peer pressure is a weighty consideration for those who care about their reputation.

Takeover panel

A takeover panel was established in mid-2005. Its founders were Iceland Stock Exchange Ltd. (ICEX), Eignarhaldsfélag hlutafélaga ehf. (an association of listed companies), the Financial Supervisory Authority (FME), Eignarhaldsfélag lífeyrissjóða um verðbréfaþing ehf. (an association of pension funds), the Bankers' and Securities Dealers' Association of Iceland, the Association of Small Investors, the Central Bank of Iceland, the Iceland Chamber of Commerce and the Ministry of Commerce.

The takeover panel's activities are not mandated by law and its rulings are not binding. The objective of establishing it was to strengthen the equity market by resolving wherever possible questions of uncertainty in connection with takeovers. The panel issues statements, provides advice and encourages professional discussion on takeovers and related issues. The takeover panel operates completely independently of ICEX and other founders.

New market on ICEX

ICEX is currently in the process of launching a new market: iSEC, a multilateral trading facility, which has been authorised following an amendment to the stock exchange legislation. The new market opens up the possibility of offering small and mid-cap companies access to investors and an equity market, which is a precondition for their membership of the Alternative Market and listing on the Main List.

When the ICEX takeover panel commenced its duties, it was established that the panel would not address matters that had arisen before its inception. The takeover panel has considered several cases involving trading of shares in companies including Islandsbanki, FL Group, Hampiðjan and Atorka. In the case of FL Group, the panel issued several opinions. In the first opinion, the panel considered that a takeover bid obligation had not been established because no agreement among the largest shareholders could be proved. Following FL Group's share capital increase in mid-December, the panel concluded that the largest shareholders could be shown to have acted in concert, which obliged them to make a takeover bid to other shareholders. Only a few minutes after the opinion was published, the panel issued an announcement that the shareholders who had been considered under obligation to make a takeover bid had sold unrelated parties some of their holdings, thus releasing themselves from the obligation. It was later revealed that the shares had been sold by a forward contract. The takeover panel examined the contract and then confirmed its prior opinion. This decision was criticised, as it was demonstrated that the largest shareholders had acted in concert and the sale of the shares by forward contract had little effect on their influence within the company.

On 5 December, the takeover panel issued an opinion deeming Fiskveiðihlutafélagið Venus hf. under obligation to make a takeover bid to other shareholders of Hampiðjan hf., as there were common interests and personal connections amongst the largest shareholders, who controlled more than 45% of share capital in the company. The company's board of directors subsequently requested a delisting from the ICEX Main List on the grounds that its number of shareholders had fallen below ICEX's requirements for minimum distribution of share capital. This has been approved.

Box 3

Takeover panel – First rulings and reactions

Multilateral trading facility

Box 4

Amendments made to the Stock Exchange Act in the spring of 2005 enable ICEX to operate a new type of equity market, a multilateral trading facility (MTF) for financial instruments. Preparation began immediately for the establishment of an MTF equity market, which was given the name iSEC. The market was formally opened at the beginning of 2006 and is open to enterprises in any industry, but it is intended primarily for innovative small and mid-cap growth companies. The requirements for listing on iSEC are less stringent than those for inclusion in the Main List.

The iSEC environment is subject to the same principles as those governing the Main List, where the technological framework, rules, monitoring, and other market infrastructure have been formulated with an eye to creating a sound market environment.

Source: ICEX Fact Book 2006.

Certain requirements for admission to iSEC are less stringent than for other listings. For example, a shorter operating history is required, but the market rules should still apply a comparable degree of discipline. The aim is to give companies time to adapt themselves to market operations without being subject to the full weight of the obligations entailed by a full listing.

Foreign equities listed and new foreign exchange members

A milestone was reached when ICEX made its first listing of foreign equities in summer 2005, in Faroese company Atlantic Petroleum. Mosaic Fashions, the Icelandic parent of a number of foreign companies, was listed shortly afterwards. This innovation gives Icelandic investors access to foreign securities in their home market, adding a new dimension to their investment options. While the Icelandic market is obviously unlikely to attract major international corporations, it may appeal to smaller companies from other countries that would prefer to be "a big fish in a little pond" rather than a "little fish in a big pond".

Two foreign financial companies became members of ICEX in 2005: Føroya Sparikassi of the Faroe Islands and Sweden's Swedbank Förenings-Sparbanken, bringing total foreign membership to four. They have only participated in market trading on a limited scale so far.

Mooted merger

In mid-2005 it was announced that Iceland Stock Exchange was examining the advantages and disadvantages of launching merger talks with OMX of Stockholm, which owns the exchanges in Stockholm, Helsinki, Copenhagen and the three Baltic countries. In December, ICEX announced that it did not intend to take part in merger talks. However, it has not been ruled out that the matter will be examined later. An advantage of a merger would be to ensure that Iceland would be included in development of the Nordic markets and possibly become part of an even larger whole if further mergers were to take place. The main disadvantages involve autonomy of Icelandic members and possible handicaps faced by the small home market as part of a much larger whole. ICEX acquired shares to a market value of 150 m.kr. in OMX and Oslo Stock Exchange in 2005.

Privatisation of Iceland Telecom

A major step in privatisation was taken when Iceland Telecom was sold to a consortium of Icelandic investors in summer 2005. The bidding process was efficiently organised and a foreign investment bank acted as consultant to the Executive Committee on Privatisation. Indicative bids were requested first, and 14 were received. Twelve bidders were invited to examine Iceland Telecom's operations in more detail and binding bids were requested. Three bids were then made and the highest was accepted, to a total amount of 66.7 b.kr. Roughly half of the buying price was paid in foreign currency and the remainder in Icelandic currency. The foreign portion was later deployed on retiring Treasury debt, while the domestic currency portion was deposited in the Central Bank in tied accounts where it has been earmarked for certain projects and will be released for them over the space of several years. The impact of the domestic currency payment was immediately felt in a greater need for Central Bank lending facilities among domestic credit institutions, which tightened the monetary stance.

Market depth

Market depth is difficult to define in direct terms. It embraces the size, turnover and price changes in a market, and their interaction. All domestic financial markets have grown rapidly in recent years. Over the past five years, for example, equity market turnover grew almost eight-fold and market capitalisation of listed companies tripled. Equity prices on the ICEX-15 index have increased by 3.8 times over the same period. Other factors are more difficult to measure, such as price responsiveness to single trades and large-scale trades, and responsiveness to pressures. The turnover rate for equities in Iceland over the past five years is comparable with that on main European exchanges. Market capitalisation as a proportion of GDP was 1.96 in Iceland at the end of 2005, but averaged around 1.0 on certain European exchanges.

Public issues of securities

One characteristic feature of developed markets is how easy it is to procure capital there. Public auctions of some kind are the general vehicle used. There was an increase in public issues of securities last year and the fairly heavy weight of corporate bonds is interesting to note. Bond offerings in 2005 amounted to 183 b.kr., compared with 135 b.kr. in 2004. Companies listed on ICEX procured 123 b.kr. in offerings in 2005, compared with 170 b.kr. the preceding year.

Who owns the securities?

Electronic registration enables securities to be categorised according to their ownership – for example, the relative amounts owned by households, companies, banks and non-residents. One drawback is that some securities are registered in custodian accounts and their ownership category cannot be ascertained absolutely. This initial hitch will hopefully be resolved to present more precise statistical data on ownership. Table 4 shows a breakdown of ownership of HFF bonds and equities as registered with the Icelandic Securities Depository. It can be inferred from data from other sources that the bulk of HFF bonds reg-

Table 4 Main owners of securities in February 2006

<i>M.kr.</i>	<i>Equities</i>	<i>%</i>	<i>HFF bonds</i>	<i>%</i>
Households	285,690	11.7%	3,042	0.8%
Housing Financing Fund		0.0%	18,275	4.9%
Commercial banks and savings banks	242,051	9.9%	153,492	41.5%
Investment banks	70,921	2.9%	10,927	3.0%
Securities companies	18,646	0.8%	1,093	0.3%
Investment funds	39,362	1.6%	32,663	8.8%
Pension funds	217,292	8.9%	107,541	29.1%
Insurance companies	58,094	2.4%	5,951	1.6%
Businesses	864,701	35.4%	2,890	0.8%
Non-residents	523,776	21.4%		
Others	7,663	0.3%	1,545	0.4%
Custody accounts	113,701	4.7%	32,327	8.7%
Total	2,441,897	100.0%	369,746	100.0%

Source: Icelandic Securities Depository.

istered in custodian accounts is actually owned by commercial banks and savings banks. Likewise, it can be discerned that roughly half of equities in custodian accounts are owned by non-residents and that the amount of equity portfolios held by commercial and savings banks could be around 10% higher than shown in the table.

Structural problems in bond markets

In recent years the Treasury's negligible borrowing requirement has led to a reduction in T-note issues and prompted efforts to simplify issuance. As a rule, demand for short-term Treasury-guaranteed instruments is robust, both because they set the risk-free rate and because they tend to form the backbone of securities portfolios. Robust demand coinciding with very limited supply of such instruments impairs the

Box 5 Corporate governance and investor relations

Corporate governance

Following the issuance of the Guidelines on Corporate Governance, which was a collaborative effort of ICEX, the Iceland Chamber of Commerce and the Confederation of Icelandic Employers (SA), ICEX published information on its own corporate governance on its website. Despite the fact that Iceland Stock Exchange itself is not listed on the securities market, ICEX regards compliance with these Guidelines, which are designed for listed and unlisted companies alike, to be an important consideration.

Rules for Issuers of Securities Listed on Iceland Stock Exchange, which took effect on January 1, 2005, require the board of directors of listed companies to declare in their annual statements whether the company abides by the Guidelines on Corporate Governance from 2004 and explain any deviations from compliance.

Source: ICEX Fact Book 2006.

Investor Relations Guidelines

In February, ICEX issued the Investor Relations Guidelines. The primary objective is to promote improved investor relations among listed companies. This is the first time that such guidelines have been published in Iceland. They aim to provide practical instruction on various issues and provide tools that companies will find useful in their dealings with ICEX, as well as with shareholders, analysts and market players.

Source: ICEX Fact Book 2006.

credibility of interest rate formation. Interest rates on Treasury notes are often used as a benchmark for pricing of contracts and bonds, both in formal markets and derivative trading. If the pricing of Treasury notes lacks credibility, it could lead to incorrect pricing of other contracts, so that risk pricing will be systematically distorted or random.

Demand for Treasury notes is buoyant due to changed circumstances, namely increased appetite among foreign investors for solid Icelandic securities, and new Treasury issuance arrangements. Foreign demand is partly generated by króna-denominated bond issues and partly due to position-taking in domestic financial markets. Some resident investors, e.g. mutual funds and pension funds, have strategically invested part of their assets in short, safe instruments in order to be able to meet unforeseen expenditures with minimal risk of price volatility. This has created even more competition for the small amount on offer. Also, money market funds often seek short, safe securities which fit the character and structure of their activities. Recent changes in Treasury issuance have aimed to strengthen longer bond series (maturing in 2010 and 2013) and reduce the weight of shorter series, shorten maturities on Treasury bills and buy back Treasury notes maturing in 2007. In retrospect, this may have had negative side effects. Although T-bills were widely regarded as an instrument for position-taking against VAT returns, their use appears to have been more widespread.

Another problem is that gaps are developing in the yield curve on Treasury instruments. Current issues in circulation are a one-month T-bill and one-, four- and seven-year T-notes (the first two of which are small series). The yield curve needs to be filled out with larger series, until a reasonably continuous curve of fairly reliable securities is available two years ahead (i.e. over the Central Bank's inflation forecast horizon). Preparations are under way for changing the current arrangements, among other things by increasing issue volume and condensing issuance of T-notes with maturities of up to two years.

Mortgage loan market developments

In February, Moody's announced that it intended to award Kaupthing Bank's structured covered bonds issue a rating of Aaa. The issue is secured by a pool of residential housing loans made by Kaupthing Bank in recent months, together with additional guarantees. Through this issue the bank is able to finance its housing mortgage loans at the best market rates. In April, Kaupthing Bank announced a block sale to a foreign investor of 43 b.kr. of this issue. This move shows fairly convincingly that the banks are capable of competing with HFF issues in the market. However, the playing field is not level. The HFF is covered by a Treasury guarantee not only for payments but also, after a pending amendment to the law, ensuring that the HFF will always be able to honour its obligations in a timely fashion, according to an announcement made on March 17. Furthermore, the HFF is exempt from taxation. Such a position is clearly untenable. Reforms to the HFF are under preparation which should be implemented at the first instance. The banks have been fairly successful in capturing housing mortgage market share, but financing arrangements have

The Housing Financing Fund

Box 6

The Central Bank of Iceland has commented on the lending activities and lending rules of the Housing Financing Fund (HFF) on several occasions in recent years. In 2003 the Bank submitted a report to the project manager and Ministry of Social Affairs' consultative committee in connection with plans to expand HFF activities in the housing mortgage market. The report pointed out that the state's share in the mortgage market was one of the largest anywhere, and that capturing further share would jeopardise the competitiveness of financial companies in the credit market. In an extensive report compiled at the request of the Minister of Social Affairs and published [in Icelandic] in the second half of 2004, the Central Bank outlined its view that changes in lending rules would have a raft of undesirable consequences. Among them was the risk that high loan-to-value ratios could lead to periods of negative mortgage equity.

Once the HFF had eased its lending rules, commercial banks and savings banks sharply intensified their mortgage lending. From a financial stability viewpoint the Central Bank considered this change beneficial, by consolidating the banks' operating base for the long run. However, the Central Bank also pointed out that the banks' entry into the mortgage market had more or less rendered the old housing credit system obsolete overnight. In light of these changes, the Central Bank saw the need for a timely appraisal of the HFF's future role in funding of housing purchases, and also of its division of tasks with the commercial banks and savings banks, in order to secure not only the foundation of the domestic financial system, but also credit facilities for those who, for some reason, do not enjoy the standard level of access to housing mortgages. From a macroeconomic point of view, the Central Bank deemed it imprudent to ease the HFF's lending rules during an episode of overheating in the economy. It was vital to time the changes with reference to economic conditions. When the proposed changes to HFF lending rules went into effect they would drive up housing prices and fuel further overheating, which was particularly inappropriate in light of the economic outlook at that time.

The banks' unexpected launch of housing mortgages – largely prompted by the HFF's plans to increase its market share – led to a surge in credit supply. The change was very sudden. Fierce competition between the HFF and the banks drove up housing prices, and thereby private consumption and inflation, sooner and faster than could be counteracted with a timely monetary policy response.

Necessary changes to the public housing mortgage system have been delayed excessively. One consequence is that the domestic long-term bond market will not be as active as it would have been, since the outlook now is that only part of housing finance will be channelled through it. The functioning of the domestic bond market, favourable mortgage financing, financial stability and Iceland's sovereign credit rating all depend on a prompt reform of the public housing mortgage system. In the current situation, such changes must be based on an important role in housing mortgage finance for domestic credit institutions other than the HFF.

The Central Bank's opinions on the Housing Financing Fund's lending rules and plans have been published [in Icelandic] on the Bank's website.

not followed in full, as might have been expected. The policy of the government has been that the HFF lends for the purchase of residential housing irrespective of location and, largely, financial position. The banks, on the other hand, have focused on areas with the brisker real estate markets, and in many cases have offered more favourable

terms than the HFF. Such facilities tend to be contingent upon borrowers accepting a full package of banking services, and the format of loans may differ. Banks have also lent for refinancing, which has often enabled mortgage equity withdrawal for consumption.

The Housing Financing Fund is the largest bond issuer in Iceland. Its measures therefore exert a considerable effect on bond price formation. Issuance schedules are important for pricing and for providing information to the market. Such scheduling can never be absolute and is changed and revised in line with conditions at any time. The HFF has scheduled its issues on a quarterly basis but there has been a marked lack of transparency in their implementation. It has arranged closed and open auctions without adequate explanation. It does not have preannounced auction dates, unlike for example the National Debt Management Agency. Nor does it state in advance which issues it intends to increase. For example, when the shortest series (HFF150914) was set up, the HFF announced that it would be increased to 50-70 b.kr. in 2005 to enhance its marketability. This was not done. In 2005, the HFF accepted bids of 18.9 b.kr. for HFF150914 but almost 28 b.kr. for its other series.

Foreign exchange market: spot-matching

An innovation was launched in the FX market on April 24, 2006 when Reuters added Icelandic krónur to its Spot-Matching bidding system. Around 1,140 potential bidders are connected to the system, including many of the largest banks in the world and various central banks. Operating alongside the current domestic interbank market, this system will give non-members the chance to trade in krónur without the intermediacy of formal market makers. The extent of the system's impact on trading volume with the króna is difficult to predict, but it is hoped to add depth to the market and underpin price formation.

Króna Eurobond issue

In August 2005, non-residents began issuing króna-denominated Eurobonds which were sold on to foreign investors. In effect, this innovation put Iceland on the international securities trading map. Issuance grew rapidly and in April 2006 the outstanding stock amounted to 222 b.kr., equivalent to 22% of GDP. Heavy issuance was prompted by the wide spread available to investors, while issuers could eliminate risk by buying Icelandic securities and paying for them in foreign currency, i.e. through currency swaps. Such carry trades are well known in currencies of other countries such as New Zealand and Australia. In Iceland, the impact of issuance was initially felt in the FX market through a sizeable appreciation of the króna, while demand also grew in the domestic market for bonds with a similar maturity to the foreign issues. The result was downward pressure on interest rates for these maturities. Trading of this kind poses little risk for issuers, who generally make simultaneous hedges and tend to have high credit ratings. Issuance enables them to reach groups of investors who would otherwise be deterred from trading with them by low yields, and the terms on offer are fairly favourable. Above all the investor takes a currency risk but can expect lucrative returns if the investment

pays off. The effect on the Icelandic economy is to increase exchange rate volatility, and herd behaviour in the markets can amplify fluctuations in the exchange rate and interest rates. Another effect is to give domestic investors increased scope for hedging. The first Eurobonds mature in the autumn, when some resulting currency outflow may be expected. However, experience elsewhere does not indicate that the impact on the exchange rate will be as great as when the initial transactions were made. Part of the explanation may be reinvestment, but the weaker exchange may also mean that less currency is obtained for the krónur when they are sold. One cause of the recent depreciation of the króna may be that some of these traders have closed their currency risks, reducing the effect they will have at maturity.

Turmoil in the markets

Icelandic investors have had exceptionally favourable access to foreign credit due to low international interest rates, easy liquidity and positive exchange rate developments. Icelandic banks have been involved in financing of hefty investments by residents in domestic and foreign markets. In the autumn, premia on Credit Default Swaps (see Box 2) with Icelandic bonds began to rise, which may signal future changes in the market terms offered to financial companies. In February, Fitch Ratings announced that it had changed the outlooks on the Republic of Iceland's foreign and local currency Issuer Default Ratings (IDRs) to negative from stable. The króna depreciated as a result. It recovered fairly quickly, but the markets remained tense. Equities prices dropped, after lying close to their highest value ever. These developments were watched closely in other countries. Some reports claimed contagion from the depreciation of the króna in other markets, even distant ones. The explanation is that the group of investors who have been involved in CDSs is currently fairly large and operating in markets in a number of countries. CDSs involve borrowing in low interest rate areas and investing in areas where interest rates are high. In the event of an unexpected loss in one market, investors need to readjust their position by selling securities in other countries, which could spark a chain reaction affecting markets around the world. Market agents and supervisory bodies are therefore on the alert to sharp increases in trading of this kind.

Non-residents' position-taking in Icelandic securities and related contracts – which sometimes prompted articles in the media – illustrates how the Icelandic market is closely linked to international markets today. Partly because of economic imbalances, opportunities have arisen in Iceland which foreign investors have capitalised upon. In its own right, the small Icelandic market should not send tremors through other countries, but the interaction of several markets can magnify fluctuations until they have an impact on a global scale. The domestic impact has been quite marked, but has been expected for some time, although it was hoped to occur later and in smaller steps. Considerable imbalances are present and the economy needs to respond quite sharply in order to counteract them. One of the advantages of having an independent currency is that it absorbs much of the shock that would otherwise be felt elsewhere in the economy, and speeds up the adjustment.

What kind of landing? - Simulations with the Central Bank's macroeconomic model

The Central Bank's new quarterly macroeconomic model (QMM) allows assessments of the impact of economic shocks such as a currency slide, a fall in asset prices and a tighter global monetary stance. While the model cannot predict the probability of such shocks, it can provide a rough picture of their consequences if they happen, e.g. whether they will lead to a hard landing.

What is a hard landing?

A hard landing is a metaphor comparing an adjusting economy with an aircraft that may be damaged on landing and left grounded for some time afterwards. Although the term has no clear economic definition, it obviously refers to a rapid turnaround. A hard landing commonly signifies a recession in GDP, for example for two successive quarters. Such terminology may be natural in emerging economies with boom and bust cycles, even when no actual contraction takes place. In a small open economy such as Iceland, it may be more questionable to focus on volatile quarterly GDP data which may give a misleading impression of the economic position. Other factors need to be examined. Growth of disposable income and labour market conditions – e.g. employment, participation rate and unemployment – often give a good picture of underlying strengths.

The crisis in Iceland in 1967-68, when the herring fishery collapsed following a boom, is widely classified as a hard landing. GDP plunged then at the same time as labour market participation dropped, unemployment increased and disposable income fell. Most people would probably regard the period 1988-92, when GDP growth was either negligible or contracted and unemployment climbed, as a hard landing too.¹ The contraction in 2002, on the other hand, has widely been called a soft landing, even though a 1% fall in GDP would qualify as a hard landing in most other countries.

When all is said and done, a "hard landing" is a subjective assessment of what should be considered a significant deviation from a long-term trend. In the following discussion, a hard landing refers to a sharp economic turnaround, when a significant contraction in GDP goes hand in hand with decreasing employment and disposable income.²

1. Icelandic business cycles are discussed in Pétursson, Thórarinn G. (2000): Business Cycle Forecasting and Regime Switching, *Central Bank of Iceland Working Papers* No. 7.

2. A recession is commonly defined as a contraction in GDP for at least two successive quarters. The US National Bureau of Economic Research (NBER) does not define a recession in these terms, but as a significant decline in economic activity spread across the economy, lasting more than a few months and normally visible in real GDP, real income, employment, industrial production and wholesale-retail sales. (See <http://www.nber.org/cycles/cyclesmain.html>).

What factors can lead to a hard landing?

The unease in financial markets in recent months demonstrates how vulnerable the Icelandic economy is to all manner of news when substantial macroeconomic imbalances are present. Rapid changes cannot therefore be ruled out, and minor incidents can become magnified out of all proportion.

A variety of shocks that could result in a contraction or even a hard landing will be examined below. The first is a substantial drop in asset prices for both equities and housing. A plunge in asset prices would cause a drop in the financial resources that households have at their disposal, and in private consumption and residential investment, besides the impact that lower equity prices have on listed companies' activities and investments. Offsetting this, inflation could slow down, given that the housing component of the CPI has a weight of almost one-quarter. This could create conditions for reducing the policy interest rate sooner than otherwise.

Second, a contraction could be caused by a substantial depreciation of the króna, with accompanying inflationary pressures and the need for a tighter monetary stance. While a depreciation would admittedly boost export growth, there would be a risk that the policy interest rate would need to be raised further to counter higher inflation, and its contractionary effects would outweigh the gains from increasing exports. Iceland's record current account deficit, a decline in carry trades and the large volume of króna-denominated Eurobonds maturing later this year are also named as possible factors that could weaken the króna. It has already depreciated by roughly one-quarter since peaking in value in November 2005. Thus it is only natural to examine what effect an even further depreciation would have.

Third, international events could spark a contraction in the Icelandic economy. There are many indications that the period of low global interest rates and plentiful liquidity is drawing to an end. Interest rates are on the increase on both sides of the Atlantic and the Bank of Japan is even expected to begin raising its rates as early as this year. A whole raft of events could cause a deterioration in the inflation outlook and an unexpectedly fast tightening of financial conditions. These include ongoing oil price rises, the dismantling of Asian fixed exchange rate regimes or a faster upswing in Europe. Higher interest rates in the rest of the world could have a substantial effect on the Icelandic economy, given the size of its external debt position. They would add to the debt service burden on foreign borrowing, drive up bond risk premia and even provoke a sharp turnaround in foreign capital flows in connection with carry trades and króna-denominated Eurobond issues.

Using a model to estimate the impact of a fall in asset prices, a depreciation of the króna and rise in international interest rates

Indications about the impact of these three factors – a fall in asset prices, a depreciation of the króna and rise in international interest rates – can be obtained from the macroeconomic model.³ It should be

3. A more detailed description of the Central Bank's quarterly macroeconomic model (QMM) is given in *Monetary Bulletin* 2006/1, Appendix 1, 59-61.

underlined that simulations are fraught with uncertainties and their results should be regarded only as a very rough indication of the way that economic developments could conceivably unfold in the wake of shocks.⁴ The Central Bank's macroeconomic model is not designed – any more than central bank models in general – to address financial stability considerations, where asymmetric information, uncertainty, risk assessment, herd behaviour and contagion play a key role and their impact on the household, corporate and central government balance sheets needs to be analysed.⁵

The baseline simulation is an almost pure model projection, and hence the model forecasts, for example, the development of the exchange rate of the króna. The policy interest rate follows a standard Taylor rule and responds to deviation of measured inflation from the inflation target and estimated output gap. A few alternative scenarios are examined for comparison, where either asset prices fall, the exchange rate of the króna depreciates or international interest rates rise. Finally, the combined effect of all three factors is examined. In all cases the timescale is until the end of 2010. It should be underlined that the uncertainties in simulations increase significantly, the longer the horizon.

Adjustment after a high growth episode increases the probability of a contraction

The baseline simulations in the QMM portray the adjustment needed by the Icelandic economy after a very robust growth episode. Domestic demand contracts rapidly, but hefty export growth sustains economic growth at the beginning of the period. Thus the output growth outlook for the current and next year is the same as in the Central Bank's baseline forecast in *Monetary Bulletin* 2006/1. However, the baseline simulation shows some contraction in GDP in 2008, but far less towards the end of the period. Disposable income decreases rapidly in 2008 and 2009, and there is also some fall in employment. Thus it can be said that even the baseline simulation entails a fairly hard landing.

According to the baseline simulation, the growth in housing prices slows down in the course of 2006 and housing prices fall considerably in real terms until the end of 2010.

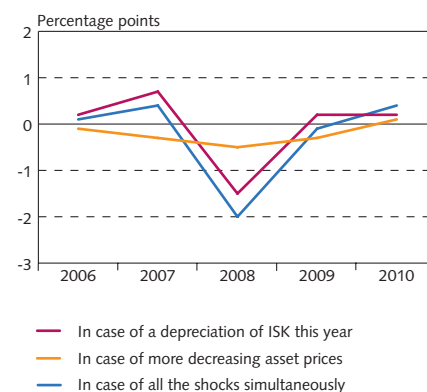
An even greater fall in asset prices would produce a larger contraction in 2008 than in the baseline simulation

To estimate the impact of a fall in asset prices, a simulation was made assuming that housing prices will drop by roughly 15 percentage points more than in the baseline scenario, and equity prices are furthermore reduced by 50% in 2006.

4. An important distinction between simulations and forecasting is that a reliable macroeconomic forecast is largely built on expert assessments, while simulations are based more on pure model projections. The importance of expert assessments is discussed in Sims, Christopher A., (2002): *The Role of Models and Probabilities in the Monetary Policy Process*, *Brookings Papers on Economic Activity*, and Svensson, Lars and Robert J. Tetlow (2005): *Optimal Policy Projections*, *International Journal of Central Banking* 1 (3), 177-207.

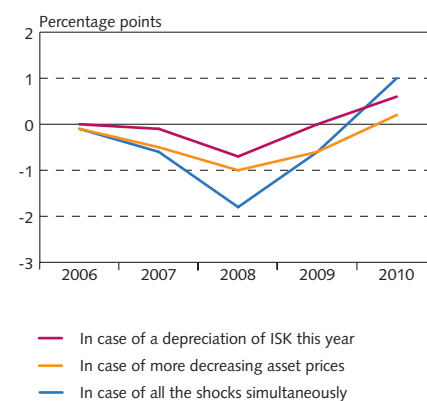
5. An appraisal of the ability of conventional macroeconomic models to analyse financial stability is given in Bårdsen, Gunnar, Kjersti-Gro Lindquist and Dimitrios P. Tsomocos, (2006): *Evaluation of macroeconomic models for financial stability analysis*, *Norges Bank Working Papers* 2006/1.

Chart 1
Economic growth 2006-2010
Changes from baseline scenario in case of different shocks



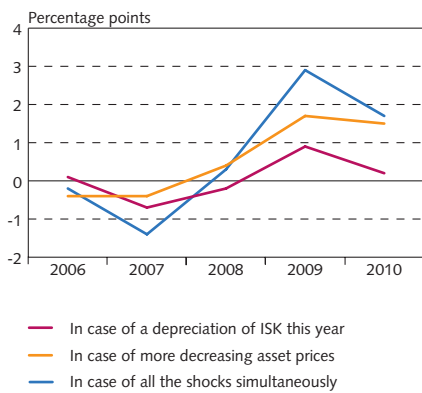
Source: Central Bank of Iceland.

Chart 2
Domestic demand growth 2006-2010
Changes from baseline scenario in case of different shocks



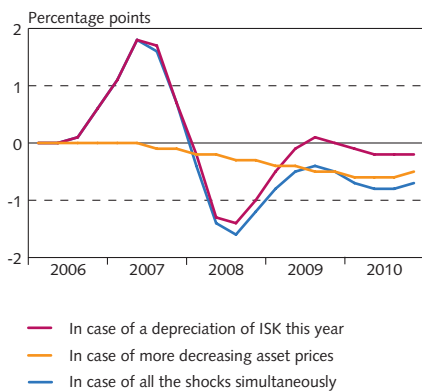
Source: Central Bank of Iceland.

Chart 3
Disposable income growth 2006-2010
Changes from baseline scenario in case of different shocks



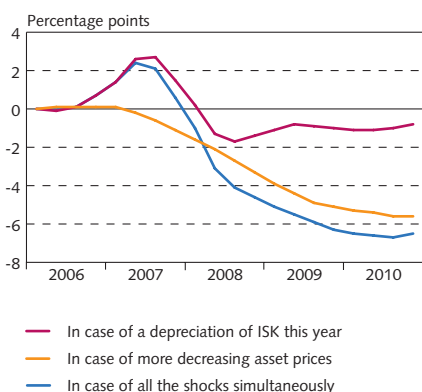
Source: Central Bank of Iceland.

Chart 4
Inflation 2006-2010
Changes from baseline scenario in case of different shocks



Source: Central Bank of Iceland.

Chart 5
Household debt growth 2006-2010
Changes from baseline scenario in case of different shocks



Source: Central Bank of Iceland.

The result of this simulation is that an even greater fall in asset prices than in the baseline simulation would lead to a larger contraction in domestic demand and a lower level of imports. Demand would contract by one percentage point more and GDP by half a percentage point more in 2008 than in the baseline simulation.

A sharp currency depreciation would boost output growth at first, but amplify the contraction in 2008

To obtain an indication of the effect of a depreciation this year, it was assumed that the exchange rate index would rise steadily in the course of 2006 to average 140 during the final quarter, after which the exchange rate was projected until the end of 2010. The simulation implies that a sharp depreciation will have a sizeable impact on economic developments.

In this scenario, output growth would initially be greater due to the more positive contribution of foreign trade, while domestic demand would shrink more rapidly. The contraction in output growth in 2008 would be 1½ percentage points deeper than in the baseline scenario. The effects of a tighter monetary stance are at work here, as the policy interest rate increases considerably due to the inflationary impact of the depreciation. Disposable income and employment develop along broadly the same lines as in the baseline simulation, although the contraction in 2008 is somewhat more pronounced.

Higher international interest rates would produce a more gradual current account deficit adjustment, but little change in the growth outlook

Monetary Bulletin 2006/1 in March discussed the effect on Iceland's current account deficit if global money tightened and average interest rates on Iceland's national debt were to move back close to the average in the 1990s, i.e. roughly 6.4%. What impact would such an interest rate hike have on the Icelandic economy as a whole?

To answer this question, international interest rates were made to increase in equal steps to 6.4% over two years, then remain steady until the end of 2010. The hike results in little change from the baseline simulation in terms of how output growth, employment and disposable income develop, but it would delay the adjustment of the current account deficit and weaken the króna. It seems probable that the model underestimates the impact of higher international interest rates, given Iceland's high level of indebtedness and the degree of openness of the economy.

A simultaneous fall in asset prices, a depreciation this year and higher international interest rates would lead to a hard landing

Finally, the simultaneous impact of all these shocks was examined, i.e. an even greater fall in asset prices than in the baseline simulation, a rise in the exchange rate index to 140 towards the end of 2006 and a rise in international interest rates to 6.4% over roughly two years.

The projected contraction in 2008 is much deeper if all the shocks were to strike the economy at once. Domestic demand would shrink by more than 1½ percentage points more than in the baseline simulation, and GDP by almost 2 percentage points. Thus according to this simu-

lation, there would be a substantially hard landing in 2008 if all three shocks were to hit the economy in this way. In this case, the impact of lower asset prices on private consumption go hand in hand with the effects of a tightening of the monetary stance due to the inflationary impact of the depreciation.

Once again it should be stated that the model does not enable an assessment of the possible effects on household and corporate balance sheets, nor of a failure in the banking system's role in channelling funds in the event of capital adequacy problems related to major loan losses.⁶ Such problems could obviously spur an even more marked contraction. Second, the model does not assume any further investments in aluminium smelters during the period in hand. Finally, it should be emphasised again that the uncertainty with these simulations increases significantly, the longer the horizon.

Forward-looking monetary policy may ease the adjustment

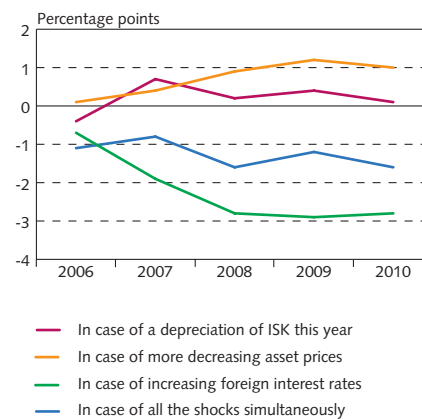
Iceland's economy has undergone an episode of intense overheating in recent years. Major imbalances have built up and the time for an adjustment has arrived. The speed and nature of that adjustment depends upon many interacting factors and the outcome is difficult to state with any certainty. Simulations indicate, however, that the adjustment may be sharp.

If monetary policy is more forward-looking than assumed in the simulations, and if it makes a timely response to the inflationary pressures accompanying the adjustment of the exchange rate and asset prices, the adjustment of the overall economy will be softer. Other external factors could produce a softer landing than described here, as discussed in the preceding section on the macroeconomic fundamentals for financial stability. Simulations of the type described here are also too simplistic to answer fundamental questions about financial stability, e.g. by estimating the impact on household and business debt service, bankruptcy levels and the role of the banking system in channelling funds.

Chart 6

The current account balance as % of GDP
2006-2010

Changes from baseline scenario in case of different shocks



Source: Central Bank of Iceland.

6. Smaller and more specialised models can possibly be used to predict these aggregates on the basis of simulations. The Central Bank is in the process of developing such models, and Appendix 1 on p. 64 describes a model for loan losses.

Appendix 2

Iceland's external assets and debt

Merchandise exports and imports were traditionally the mainstay of Iceland's foreign trade. Trade in services and capital movements were not liberalised until the mid-1990s. Before that time, Iceland's foreign assets and debt largely derived from claims relating to exports and imports, as well as foreign borrowing. The bulk of borrowing abroad was undertaken by the public sector – central and local government and public sector enterprises. Borrowing by banks and the private sector accounted for a relatively small share of external debt. In the recent term, however, mushrooming activities of financial companies and overseas expansion by their clients has totally transformed the scale and composition of Iceland's external assets and debt.

International investment position

Iceland's external assets and debt have expanded enormously in recent years, as Table 1 shows. It presents the international investment position (IIP), which shows the asset and liability position between residents and non-residents. The IIP is classified into direct investment, portfolio investment, other investment (deposits, loans, etc.) and the Central Bank of Iceland's foreign reserves. Portfolio investment and other investment are further broken down by main sectors of the economy: the Central Bank of Iceland as the monetary authority, general government (central and municipal), banks (deposit money banks/DMBs) and other sectors.

Table 1 International investment position¹

<i>IIP at end of period in b.kr.</i>	2000	2001	2002	2003	2004	2005 ²
Total assets	303.1	415.9	409.4	708.2	1,153.5	2,398.4
Direct investment abroad	56.2	86.8	101.3	122.5	245.0	597.0
Portfolio assets	173.6	197.3	159.7	262.3	374.2	627.6
Other investment, assets	39.1	95.2	111.2	265.2	468.7	1,106.5
Reserves	34.2	36.6	37.2	58.1	65.6	67.3
Total liabilities	766.0	1,012.2	989.1	1,266.1	1,819.2	3,227.3
Direct investment in Iceland	42.1	70.7	64.3	84.6	121.9	242.0
Portfolio liabilities	347.7	471.3	490.2	776.1	1,302.3	2,297.9
Other investment, liabilities	376.2	470.2	434.6	405.4	395.1	687.5
International investment position	-462.9	-596.3	-579.7	-557.9	-665.7	-828.9
Equity capital, net	178.1	188.8	150.5	234.6	392.9	723.7
Net external debt position	-641.0	-785.1	-730.2	-792.5	-1,058.6	-1,552.6
Monetary authorities	18.6	21.7	20.8	58.1	65.5	67.2
General government	-167.2	-239.8	-227.2	-220.9	-212.4	-168.8
Deposit money banks	-329.4	-373.7	-361.8	-471.1	-778.2	-1,268.5
Other sectors	-163.0	-193.2	-162.0	-158.6	-133.5	-182.6
Exchange rate: ISK/USD	84.47	102.95	80.58	70.99	61.04	62.98

1. Summary from Central Bank of Iceland Statistics webpage.

2. Preliminary data.

Source: Central Bank of Iceland.

Direct investment means that the investor acquires a significant influence in management of a company or a property. Such an active holding is defined as 10% or more of ordinary shares (equity capital). Direct investment is divided between outward investment by Icelandic residents (assets) and inward investment by non-residents (liabilities). In turn, these data are disaggregated into equity and other capital, assets and liabilities, between related parties such as a parent company and its affiliates. Banks' loan transactions with their affiliates, other than subordinated debt, are excluded. Direct business investment is recorded at book value at any given time. Book value cannot be certain to reflect market value of assets in all cases. Direct inward and outward investment figures do not include real estate, so these investments are excluded. It should also be pointed out that direct investment comprises only holdings in companies – any subsequent investments made by a subsidiary or associate are reflected in their book value with the parent company. For example, if an Icelandic resident company sets up a holding company in another country which then acquires another business, only the initial investment by the resident is classified as direct investment.

Portfolio investment shows residents' holdings of foreign securities (assets) and non-residents' holdings of Icelandic securities (liabilities). Definition of foreign and Icelandic securities is based on the residence of the issuer of the security. Portfolio investment covers equities, i.e. shareholdings of less than 10% in companies and units in mutual funds, debt instruments with an original maturity over one year, and money-market instruments such as bills. Securities are valued at market price.

Surge in external assets and debt

As Table 1 shows, Iceland's total external assets amounted to 303 b.kr. at the end of 2000 but had risen to an estimated figure of almost 2,400 b.kr. by the end of 2005 – eight-fold growth over five years. Lending by banks to non-residents is the largest single component of this increase. Pension funds have stepped up their investment sharply, to almost 300 b.kr. at the end of 2005. Extensive direct, portfolio and real estate investment by other residents also provide part of the explanation. Residents' foreign direct investment and portfolio in equities abroad exceeded those made by non-residents in Iceland by 724 b.kr. at the end of 2005. Outward direct investment has mainly focused on banking and financial services, but has also targeted the retail and services, pharmaceuticals, and transport and communications sectors. Total outward direct investment amounted to 597 b.kr. at the end of 2005, of which commercial banks accounted for 181 b.kr. Inward direct investment totalled 242 b.kr. at the same time, of which 41 b.kr. was in commercial banks.

Iceland's external debt has spiralled correspondingly since 2000, from 766 b.kr. to 3,227 b.kr. – increasing by more than four-fold at the same time as external assets have grown almost eight-fold. The main force driving the growth of debt is foreign borrowing by Icelandic banks to finance lending for domestic and foreign investment. At the end of 2005, the net external debt position (excluding equity capital)

was 1,533 b.kr., headed by DMBs with net debt of 1,268 b.kr. Other borrowers contributing to this figure were general government, the private sector and public sector enterprises, especially in the energy sector (See pp. 23-24).

High ratio of foreign debt to GDP

Iceland's total external debt and the development of the international investment position have been in the spotlight recently. At the end of 2005, Iceland's gross foreign debt was equivalent to 333% of GDP. This high debt ratio has sometimes been identified as a sign of macroeconomic weakness. However, general government debt in Iceland, at around 30% of GDP, is considerably lower than in Germany and France. Iceland's high debt to GDP ratio is not unique. A comparison of the external position of selected OECD countries at the end of 2004 reveals wide divergences between them (Table 2). In many cases, their ratios of assets and debt to GDP are as high as Iceland's or even higher.

Iceland's high level of indebtedness cannot be ignored, of course. However, the massive and rapid transformation that the Icelandic economy has undergone over a relatively short period must be borne in mind as well. Icelandic residents' outward direct and portfolio investment quadrupled over the period 2002-2005 and doubled in 2005. Such conditions can create temporary imbalances. A common feature of all the countries cited in the table with high ratios of foreign assets and debt to GDP is that financial services are prominent sectors in their economies. Over a handful of years, the Icelandic banks have been transformed from local service providers to become global financial corporations that define their home markets far beyond Iceland.

Iceland's net international investment position was negative by almost 829 b.kr. at the end of 2005, compared with 463 b.kr. at end-2000 – almost doubling over the past five years. As a proportion of GDP, Iceland's net IIP figure stands out from that for most of the countries in the table; it was negative by 86% of estimated GDP for the year at the end of 2005, having widened by 4% from the end of the previous year. Of the countries in the table, only New Zealand had a higher ratio, measuring 91% at the end of 2004.

Table 2 IIP of selected OECD countries as a % of GDP

	Assets	Debt	Net IIP
UK	356%	369%	-13%
Canada	80%	95%	-15%
Australia	79%	141%	-62%
New Zealand	62%	154%	-92%
Switzerland	551%	404%	147%
Ireland	1,163%	1,188%	-25%
Luxembourg	256%	253%	3%
Iceland	247%	333%	-86%

Ratios for 2004, except for Iceland, which is based on 2005.

Sources: Iceland: Statistics Iceland and Central Bank of Iceland Other countries: IMF, IFS datasets in FAME. IIP and GDP are converted from original currencies into USD for comparative purposes.

The main explanation for Iceland's negative net IIP is undoubtedly its wide and persistent current account deficit. Despite a current account deficit equivalent to 16.5% of GDP in 2005, the net IIP deteriorated by only 4% of GDP. Explanations include the depreciation of the króna and GDP developments.

Real value of foreign assets and debt

The bulk of foreign assets and debt are stated at market value. However, there are exceptions, for example foreign companies owned by Icelandic private individuals or legal persons, which have invested in securities portfolios and real estate and/or established subsidiaries in other countries, which in turn have invested in securities portfolios and real estate. In such cases, it is not certain that the current market value of the underlying assets is reflected in full in these companies' capital positions. Such an uncertainty can lead to an overestimation or underestimation of the value of foreign assets. Direct investment is evaluated as a proportion of the companies acquired or sold. Icelandic residents' direct outward investment, being far in excess of non-residents' inward investment in Iceland, may embody a discrepancy. In the current market climate, an underestimation is more likely, with a resulting overestimation of the net debt position.

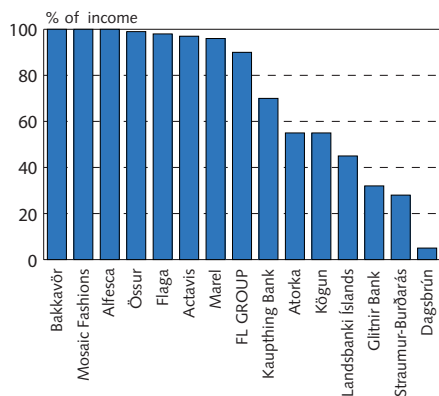
Deployment of borrowing – liquidity

Other important factors in assessing the debt position of an economy are how borrowed funds have been deployed and the liquidity of borrowers for honouring their liabilities. The real value of foreign assets and capacity for domestic assets to generate foreign currency revenues should also be borne in mind. Investment in aluminium and power sector projects is currently on an unprecedented scale in Iceland. The aluminium smelters are owned by non-residents, but the power generation investments are made by residents and largely financed with foreign borrowing funds. This is a massive investment project, predicated on long-term power sales agreements denominated in foreign currency. The loans that have already been taken on account of these investments have been included in full in the IIP. The investment is only just beginning to generate revenue, but will do so for many years. (See pp. 23-24).

Roughly half of lending by parent companies is denominated in foreign currencies

Foreign currency-denominated lending by parent companies amounted to 1,109 b.kr. at the end of 2005, which was around 50% of their total lending. Their largest borrowers were Icelandic companies, accounting for 634 b.kr., of which 248 b.kr. was lent to holding companies. Foreign currency-denominated credit for households amounted to only 25 b.kr., and lending to non-residents 474 b.kr. Consolidated figures for lending to non-residents by the three commercial banks, however, totalled almost 2,490 b.kr. Their geographical distribution is shown in Table 2 on p. 51.

Chart 1
Foreign currency income
ICEX - 15



Source: Iceland Stock Exchange (ICEX).

Most foreign currency-denominated lending is to large foreign currency earners

The largest share of foreign currency-denominated lending is to legal persons earning sizeable foreign currency revenues. Thus 41% of foreign currency-denominated lending at the end of 2005 was to non-residents, 24% to residents with more than 2/3 of their total revenues in foreign currency and 6% with between 1/3 and 2/3 of their total revenues in foreign currency. This left 29% of lending to residents with less than 1/3 of their total revenues in foreign currency, or none at all. The corresponding share at the end of 2004 was 35%. Accordingly, the share of foreign currency-denominated lending to borrowers who were most vulnerable to a depreciation of the króna shrank year-on-year (See Table 5 on p. 52).

Chart 1 shows foreign currency revenues as a proportion of total revenues in 2005 for the 15 largest companies listed on Iceland Stock Exchange. For most of these companies, the share of foreign revenues in their total revenues is very large.

Hedges for lending

A large number of holding companies have been set up in recent years and made domestic and foreign portfolio and real estate investments. Foreign currency-denominated lending by commercial banks and savings banks to them totalled 248 b.kr. at the end of 2005. Insofar as such credit is invested in domestic assets, a currency risk is involved. In many cases the underlying real estate has been leased to businesses and institutions, on terms that may be partially or wholly specified in foreign currency. This transfers the currency risk to lessees, which are either public sector bodies or companies earning some foreign currency revenues. In several cases, local governments have sold real estate with a simultaneous lease-back contract in foreign currency. Through such transactions, businesses and local governments have been able to free up capital deployed, to use in their operations, without any direct borrowing in foreign or domestic currency. The foreign currency liabilities of these public sector bodies may therefore be somewhat greater than their balance sheets indicate.

The largest share of other foreign currency-denominated lending by commercial banks and savings banks is to borrowers that earn a significant share of their total revenues in foreign currency. However, instances are known where foreign currency-denominated credit is taken by borrowers with no intrinsic hedge in foreign currency revenues. Many have been tempted by low interest rates on foreign borrowing compared with the terms of Icelandic loans and the strong króna. Low foreign interest rates have also helped exporters that have been squeezed by falling revenues caused by the strong króna. Rising prices of marine products have also helped for the most part, although not sufficiently to offset in full the appreciation of the króna in 2005. Most companies borrowing in foreign currency are aware of the risks and many have made hedges with financial institutions or third parties to reduce and manage the underlying risk.

Financial companies

Sound liquidity and equity positions important

The year 2005 was very favourable for Icelandic financial companies. Their return on equity was exceptionally high, their assets swelled and they continued to expand overseas. The main driver of strong profitability was increased net interest income following rapid credit growth, high income from commissions and substantial trading gains on securities, especially equities. Total assets of commercial bank groups doubled in 2005. Around one-third of their growth was due to acquisitions of subsidiaries, but organic growth also ran high. Lending, including mortgage lending, increased by high double-digit figures. Delinquency and impairment are at a historical low. At the same time, large exposures have decreased as a proportion of equity capital. Experience has shown that a sudden surge in lending growth may lead to greater loan losses. In 2005, interest risk on the banks' lending books increased, especially as a result of mortgage lending growth. Market risk, as a proportion of the risk weight base, also inched up from 2004, as did their equity exposures at own risk as a proportion of statutory capital. However, the banks' risks may be underestimated if a slide in equity prices leads to defaults on derivative contracts.

Banks' foreign currency-denominated funding in the markets has soared in recent years and the trend continued in 2005. A substantial share of the banks' debt matures in 2006 and an even larger proportion in 2007. High levels of foreign currency-denominated financing underline the importance of credit ratings, which have enhanced the banks' access to credit. Deposit ratios increased year-on-year and will strengthen the banks' position if they continue, other things being equal. At the end of 2005 the financial companies' equity position was strong with ample liquidity. A strong equity position and easy liquidity are important preconditions for financial stability.

Changed and more dispersed risk profile

The following is a discussion of Iceland's most important financial companies from the perspective of financial stability.¹

Ongoing expansion abroad

In 2005, the assets of the commercial bank groups almost doubled. Around one-third of this growth was due to acquisitions of subsidiaries, but organic growth also ran high, especially credit growth. The banks' expansion abroad and acquisitions of financial companies in other countries only began a very few years ago. Acquisitions of large foreign financial companies by the Icelandic banks continued in 2005 for the second consecutive year. In 2004, Kaupthing Bank acquired the Danish FIH bank to become the largest banking group in Iceland. Highlights in 2005 were when Glitnir Bank (previously named Íslandsbanki) acquired BNbank of Norway and it became part of the Glitnir group in Q2/2005, and Kaupthing Bank's acquisition of the UK bank Singer & Friedlander, which became part of the Kaupthing group in Q3/2005. Landsbanki also acquired three European securities companies during the year and merged with part of the Burðarás investment company. Thus the banks have different focuses in their

1. Based on the aggregate consolidated accounts of the largest commercial banks, largest savings banks and miscellaneous credit undertakings, unless otherwise stated. Discussion of the aggregate position may diverge from that of individual financial companies.

Table 1 Total assets of the largest commercial banks' foreign subsidiaries

End of 2005, b.kr.

<i>Kaupthing Bank</i>		<i>Glitnir Bank</i>		<i>Landsbanki</i>	
FI Holding AS (FIH)	817	BNbank	437	Landsbanki Luxembourg S.A.	199
Kaupthing UK – Group (S&F)	338	ISB-Luxembourg	94	Heritable Bank	68
Kaupthing Bank Luxembourg S.A.	210	KreditBanken	43	Kepler Equities	20
Kaupthing Sverige AB	112			Teather & Greenwood	11
Kaupthing Finance Ltd.	32			Merrion Capital	3
Norvestia Oyj	12			Landsbanki Asset Management Holding	3
Kaupthing Bank Oyj	11			LI Investment Ltd.	3
Other	35				
Total assets of foreign subsidiaries	1,567	Total assets of foreign subsidiaries	574	Total assets of foreign subsidiaries	307
Total assets of group	2,541	Total assets of group	1,472	Total assets of group	1,405
Subsidiaries' share	62%	Subsidiaries' share	39%	Subsidiaries' share	22%

Three largest commercial banks. Exchange rate at end of 2005. Excluding foreign branches.

Source: FME.

overseas expansion, which disperses overall risk. At the end of 2005, almost half of total assets of the largest commercial bank groups were accounted for by foreign subsidiaries.

Broader income base and more dispersed risks

Overseas expansion by the banks and lending by parent banks to non-residents have broadened their income base. Also, risks have changed in character and become more dispersed than a few years ago. A broader income base and more dispersed risks leave the Icelandic banks less vulnerable to domestic shocks, but correspondingly more susceptible to a more diverse range of financial shocks.

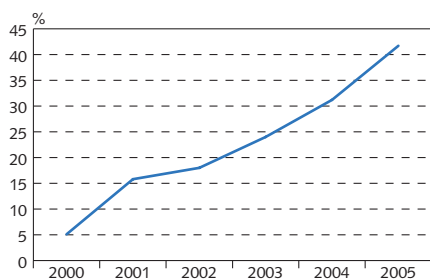
Ongoing growth in market-based financing

The banks' swelling balance sheets in recent years have naturally drawn attention to the ongoing increase in their financing in international markets. Low levels of deposits make the banks dependent on borrowing, especially through securities issuance in other currencies. By far the largest part of their borrowing is in the form of issues listed on international markets, which makes the banks vulnerable to the development of yields on their own debt instruments and prices of credit default swaps (CDSs). A fairly large share of the banks' listed debt matures in 2006 and an even greater proportion in 2007. This makes it crucial for financial stability in Iceland that the banks should retain their strong credit ratings.

Chart 1

Return on equity 2000-2005¹

Profit as a ratio of average capital position less profit



1. Three largest commercial banks' consolidated accounts. ROE for 2000-2004 based on earlier accounting methods.

Sources: Commercial banks' annual reports, Central Bank calculations.

Main commercial banks

Operating results

IFRS adopted

As of 2005, companies presenting consolidated accounts and listed on Iceland Stock Exchange (ICEX) were required to follow the presentation of accounts specified by the International Financial Reporting Standards (IFRS). The largest commercial banks came within this

definition and therefore followed IFRS accounting standards as of Q1/2005.²

Very strong profitability

Profitability was very strong at the largest commercial banks in 2005. At 42%, their combined return on equity has seldom if ever been higher. The main explanations are increased interest income following a surge in lending, large income from fees and commissions, and substantial gains on portfolios of securities, especially equities. Year-on-year comparisons are complicated by changes in the banks' group structures, however.

Interest income surged despite narrowing interest margin

Net interest income³ is the commercial banks' largest income item. Other main sources of income are net commissions and trading gains. In 2005, net interest income of the largest commercial banks amounted to 79 b.kr. compared with 46 b.kr. in 2004, a 73% increase year-on-year. Although net income grew, the interest margin⁴ narrowed from 2.2% in 2004 to 1.9% in 2005. Thus the increase in total capital outweighed the increase in net interest income. Growth in foreign currency-denominated lending, mortgage loans and lending by foreign subsidiaries has narrowed the spread.

Hefty trading gains on domestic equities

Net commissions amounted to 48 b.kr. in 2005, compared with 29 b.kr. in 2004, a year-on-year increase of 66%. Trading gains and dividends grew substantially year-on-year. In 2005 they amounted to 59 b.kr., as against 34 b.kr. in 2004 – an increase of 74%. Domestic and foreign equity portfolios produced hefty gains in 2005. This was the third consecutive year of very strong returns on Icelandic equities, and reflected a 65% rise in the ICEX-15 index in 2005 – which was also partly responsible for the growth in commissions. Investments in listed equities in neighbouring countries generated solid gains as well. Other income⁵ also increased substantially year-on-year and totalled 13 b.kr. in 2005.

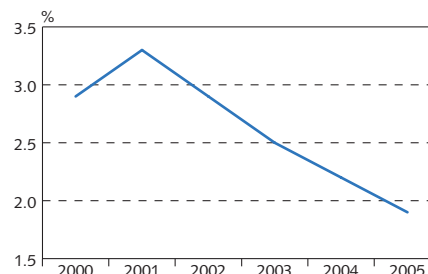
Lower cost/income ratio

In recent years the cost/income ratio⁶ of the largest commercial banks has been decreasing yearly. This pattern continued in 2005, mainly driven by a surge in operating income. The cost/income ratio went down to 36% in 2005, compared with 47% in 2004.

- The largest commercial banks comprise Kaupthing Bank, Glitnir Bank (formerly Íslandsbanki) and Landsbanki. Consolidated figures are quoted here unless otherwise stated. Accounts for the largest commercial banks in 2005 are based on IFRS and comparative figures for 2004 have been revised in line with IFRS as well.
- Interest income less interest expenses.
- The ratio of net interest income (interest income less interest expenses) to the average between total assets at the start and end of the year.
- Net operating income comprises net interest income, net commissions, trading gains and dividends, and other income. Other income comprises net income on insurance activities, earnings from holdings in associates, gains on sale of disposal groups held for sale and sundry operating income. Glitnir Bank (previously Íslandsbanki) did not classify earnings from holdings in associates and gains on sale of disposal groups with net operating income, but under other items, which are not included in other income.
- Operating expenses as a proportion of net operating income.

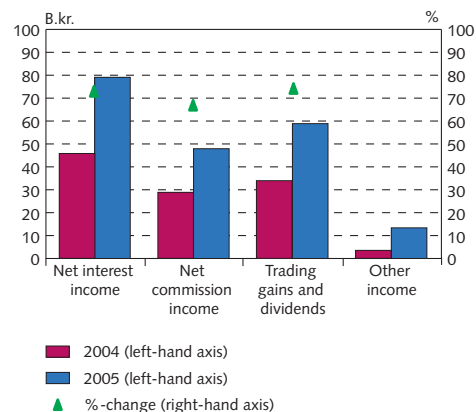
Chart 2
Interest margin 2000-2005¹

Net interest income as a ratio of the average between total assets as the start and end of the period



1. Three largest commercial banks' consolidated accounts. Interest margin for 2000-2004 based on earlier accounting methods. Sources: Commercial banks' annual reports, Central Bank calculations.

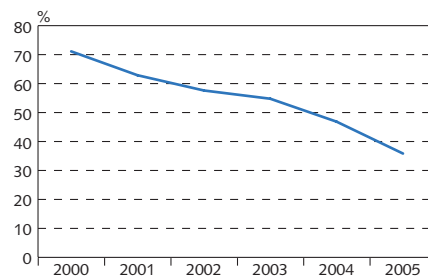
Chart 3
Net operating income 2004 and 2005¹



1. Three largest commercial banks' consolidated accounts. Sources: Commercial banks' annual reports, Central Bank calculations.

Chart 4
Cost/income ratio 2000-2005¹

Operating expenses as a ratio of net operating revenues

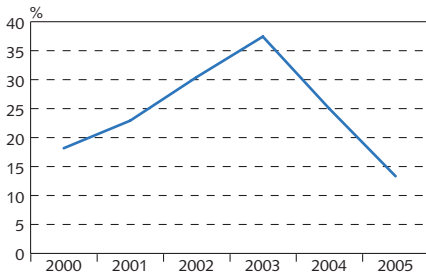


1. Three largest commercial banks' consolidated accounts. Cost/income ratio for 2000-2004 based on earlier accounting methods. Sources: Commercial banks' annual reports, Central Bank calculations.

Chart 5

Impairment of loans 2000-2005¹

Impairment as a ratio of net interest revenues



1. Three largest commercial banks' consolidated accounts. Provisions and net interest revenues for 2000-2003 based on earlier accounting methods.

Sources: Commercial banks' annual reports, Central Bank calculations.

Sharp fall in impairment year-on-year

Impairment on loans and advances⁷ fell year-on-year in absolute terms, despite a surge in lending. In 2005, the largest banks' impairment on loans and advances exceeded 10.5 b.kr., compared with a provision of just under 11.5 b.kr. in 2004. As a proportion of the average balance sheet position, impairment amounted to 0.25% in 2005, the lowest figure ever. The ratio of impairment on loans and advances to net interest income was 13.3% at end-2005. This was the second consecutive year in which the ratio fell, after many years of rising. Lower delinquency, new accounting rules and increased credit quality control have been cited as the reasons for the commercial banks' reduced write-offs.

Core income was quite acceptable

In 2005, trading gains and dividends accounted for almost one-third of the largest commercial banks' net operating income. Although position-taking in securities is a part of investment bank activities, profit on them cannot always be taken for granted. For example, if the banks had shown zero trading book gains and dividends in 2005, their profit before tax would have been 22% instead of 56%, and their cost/income ratio would have risen from 36% to 51%.⁸ Even with no trading book gains and dividends, their profitability in 2005 would have been quite acceptable.

Lending

Continuing expansion in neighbouring countries

The bulk of the commercial banks' assets is in the form of lending. At the end of 2005 their outstanding loan stock totalled 3,965 b.kr., compared with 2,293 b.kr. at the end of 2004. This represents an increase of 1,693 b.kr., or 74%, in the space of a year. It should be underlined that these are consolidated figures and around one-third of the lending growth is explained by acquisitions of foreign subsidiaries. According to data from the FME, the outstanding stock of lending by the largest commercial banks to non-residents at the end of 2005 amounted to 2,504 b.kr., which was 63% of their total lending. The corresponding ratio at the end of 2004 was 60%. A survey of foreign lending by the commercial banks' groups shows that borrowers in the Nordic countries account for the largest share. The largest lenders there are the Danish FIH Bank, which is part of the Kaupthing Bank group, and BNbank of Norway, which is part of the Glitnir Bank group. A fifth of foreign lending is in the UK, headed by Singer & Friedlander in the Kaupthing Bank group. Considerable amounts have also been lent to Benelux – mainly Luxembourg. In all, 95% of the commercial banks' foreign lending is to northern Europe and North America. Thus the bulk of lending is to stable regions where the general economic situation is good.

7. Previously "provisions for loan losses" in the accounting terminology used by Iceland's Financial Supervisory Authority (FME).

8. Other income and expenses remaining unchanged. This is a simplified assumption; for example, remuneration in the investment banking sector is partly performance-related, and net commissions are unlikely to remain unchanged during a downturn in the securities market.

Table 2 Foreign lending by the three largest commercial bank groups at end-2005

Country/region	B.kr.	%
Nordic	1,410	56
UK and Ireland	540	21
Benelux	296	12
North America	70	3
Germany	44	2
Other European countries	20	1
Unclassified/other	124	5
Total	2,504	100

Source: Financial Supervisory Authority (FME).

Huge growth in lending

Lending by the commercial banks' parent companies at the end of 2005 amounted to 1,981 b.kr., having grown by 72% year-on-year. Domestic borrowers accounted for 1,490 b.kr. at end-2005 (an increase of 55%) and foreign borrowers 491 b.kr. (up 160%). Loans to domestic businesses grew by 46% last year and to households by 94%. This figure reveals the surge in mortgage lending to households, part of which was deployed on prepayment of earlier mortgage loans from the Housing Financing Fund (HFF). It therefore reflects a transfer of household debt within the credit system, i.e. from the HFF to commercial banks and savings banks. If increased mortgage lending generates adequate returns, it will strengthen the banks' position, because delinquency and impairment on such loans are low. However, loan-to-value ratios have increased, which can be questionable when housing prices fall.

Table 3 Commercial bank lending

	End of 2004 b.kr.	End of 2005 b.kr.	Increase b.kr.	Increase %
Total lending	1,150	1,981	831	72%
Domestic lending	961	1,490	529	55%
Corporate	714	1,042	328	46%
Household	216	420	203	94%
Foreign lending	189	491	302	160%

Parent companies of the three largest commercial banks.

Source: Central Bank of Iceland.

Sizeable fixed interest risk on lending books at year-end

As a rule, the commercial banks' mortgage loans are CPI-indexed with a fixed interest rate and a maturity of up to 40 years.⁹ So far, the banks have only matched part of their mortgage lending with corresponding funding, so their fixed interest risk has increased.¹⁰ According to data from the FME, the largest commercial banks would have lost 24 b.kr.

9. Some of the mortgage loan stock has a clause on an interest rate review every five years.

10. Among other things, the commercial banks have sold collateralised loans to the HFF and sold mortgage-backed securities to European investors to finance their mortgage lending.

if market interest rates had risen by 1%, based on their lending book positions at the end of the year, or 5% of their statutory capital.

Surge in foreign currency-denominated lending ...

The outstanding stock of foreign currency-denominated loans by parent commercial banks at the end of 2005 stood at 1,109 b.kr., an increase of 458 b.kr. (70%) year-on-year. Some 57% of foreign currency-denominated lending is to Icelandic residents, down from 72% last year. The overwhelming majority of foreign currency-denominated lending to residents is to businesses, which account for 94%, while only 4% is to the household sector, broadly unchanged from 2004. Foreign currency-denominated lending by parent commercial banks to non-residents soared in 2005 to 474 b.kr. at the end of the year, an increase of 162% year-on-year.

Table 4 Commercial bank foreign currency-denominated lending

	End of 2004 b.kr.	End of 2005 b.kr.	Increase b.kr.	Increase %
Total foreign currency-denominated lending	651	1.109	458	70%
Domestic lending	470	634	165	35%
Corporate	436	597	160	37%
Household	18	25	7	37%
Foreign lending	181	474	293	162%

Parent companies of the three largest commercial banks.

Source: Central Bank of Iceland.

... but a larger share is borrowed by currency earners

The bulk of foreign currency-denominated lending¹¹ is to borrowers with sizeable incomes in foreign currency. Thus 41% of foreign currency-denominated lending at the end of 2005 was to non-residents, 24% to residents with more than 2/3 of their total revenues in foreign currency and 6% with between 1/3 and 2/3 of their total revenues in foreign currency. This left 29% of lending to residents who earned less than 1/3 of their total revenues in foreign currency, or none at all.¹²

Table 5 Foreign currency-denominated lending

Foreign currency income or residence	End of 2004 %	End of 2005 %
Foreign currency income <33% of total income, or none	35%	29%
Foreign currency income 33% to 67% of total income	5%	6%
Foreign currency income >67% of total income	35%	24%
Foreign currency-denominated lending to non-residents	25%	41%
Total	100%	100%

Foreign currency-denominated lending and derivatives. Parent companies of the three largest commercial banks.

Source: Central Bank of Iceland.

11. Foreign currency-denominated lending and derivatives. Parent companies.

12. This category includes businesses with a strong enough market position to be able to pass cost resulting from the depreciation of the króna on to prices.

The corresponding figure at the end of 2004 was 35%. Accordingly, the share of foreign currency-denominated lending to borrowers who were most vulnerable to a depreciation of the króna decreased year-on-year.¹³

Delinquency rate at a historical low

According to data from the FME, the delinquency rate¹⁴ on lending by the commercial banks at the end of 2005 was 0.7%, compared with 1.8% at the end of the previous year. This is the lowest delinquency rate recorded since regular compilation of data on arrears began at the end of 2000. Since new lending is unlikely to end up in arrears immediately, the lagged delinquency rate¹⁵ is considered to give a representative picture of the trend. Measured in these terms, arrears have also been trending downwards to 1.1% at the end of 2005, compared with 2.7% at the end of the previous year. The nominal amount of total arrears with commercial banks at the end of 2005 was 14 b.kr., compared with 22 b.kr. at the end of 2004.¹⁶ Total arrears therefore dropped by 8 b.kr., or 36%, in the space of a single year. Classified by duration, the longest and thereby most serious arrears accounted for 38% of total delinquency at the end of 2005, a marginal decrease year-on-year. Lower ratios of delinquency go hand in hand with the favourable economic climate for businesses and households. Business profitability was strong last year, the employment situation was exceptionally robust and real disposable income has been steadily increasing.

Record low ratio of provisions to lending

The combined credit loss allowance account of the largest commercial banks amounted to 35 b.kr. at the end of 2005, an increase of 5 b.kr. (17%) from 30 b.kr. from the beginning of the year.¹⁷ Although they increased in nominal terms, credit loss allowance accounts have shrunk relative to lending growth. As a proportion of total outstanding loan stock, the largest commercial banks' loan-loss provisions were 0.9% at the end of 2005, the lowest ratio ever. They were 1.3% at the end of 2004 and 2.1-2.7% over the period 2000-2003. At the beginning of 2005, the largest commercial banks adopted IFRS accounting principles, as mentioned above. The new rules lower their credit loss allowance accounts by 5 b.kr., largely due to revaluation of provisioning by foreign subsidiary banks. In other words, the new accounting principles have constricted management valuation of impairment. Low levels of delinquency warrant smaller credit loss allowance accounts and imply improved credit quality. However, sharp lending growth in recent times may be seen as conducive to increased loan losses later.

13. Ignoring the possibility that borrowers may hedge against currency fluctuations with derivatives.

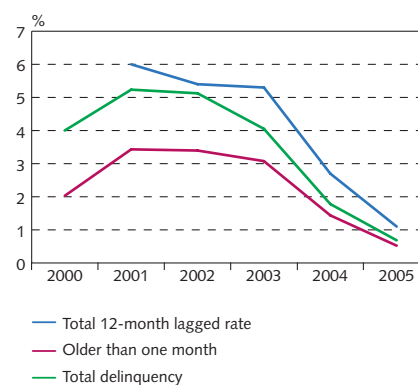
14. Total arrears as a proportion of outstanding loans, including provisions for impairment. Parent companies.

15. Total arrears as a proportion of outstanding loans one year before, including provisions for impairment. Parent companies.

16. Arrears generally decrease in the fourth quarter, due to final write-offs. Arrears within the year may therefore easily exceed the end-of-year figure.

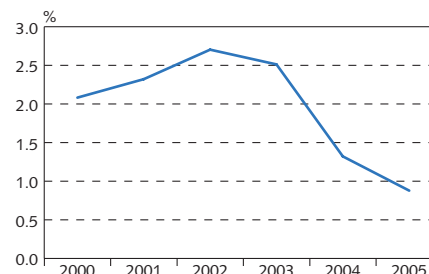
17. Amount of credit loss allowance accounts at the beginning of 2005 under the International Financial Reporting Standards.

Chart 6
Delinquency rate 2000-2005¹



1. Commercial banks' parent companies.
Source: Financial Supervisory Authority (FME).

Chart 7
Loan loss reserves 2000-2005¹
Ratio of total outstanding lending



1. Three largest commercial banks' consolidated accounts.
Sources: Commercial banks' annual reports, Central Bank calculations.

Leveraged stock purchases still increasing

Lending by parent companies of the largest commercial banks, against share collateral, grew by 182 b.kr. year-on-year to 358 b.kr. at the end of 2005. According to the FME, 96% of lending against share collateral had more than 100% margining and 65% more than 150% margining at the end of 2005.¹⁸ This means that the banks have considerable leeway for meeting a drop in equity prices. At the end of 2005, equity-secured lending by parent banks was equivalent to 20% of market capitalisation of listed equities on Iceland Stock Exchange (ICEX). Corresponding ratios for the end of 2004 and 2003 were 16% and 11% respectively. It should be borne in mind that equity-secured lending is deployed on investments in domestic, foreign, listed and unlisted shares. The above implies that equity investments are being leveraged on a growing scale, which could be questionable when share prices fall. Leveraging is almost certainly one cause of soaring Icelandic share prices in 2005.

Decline in ratio of large exposures

According to FME data, total large exposures¹⁹ of the largest commercial banks amounted to 377 b.kr. at end-2005, the equivalent of 76% of their combined statutory capital. Between them, the banks had 16 large exposures at the end of 2005. By comparison, total large exposures at the end of 2004 numbered 25 and their value was 253 b.kr., or 89% of statutory capital. It should be remembered that the swelling of commercial banks' capital in 2005 has naturally reduced their number of large exposures. Since the total amount of large exposures has grown by 124 b.kr. year-on-year, it can be inferred that the largest exposures have been augmented since 2004. However, the reduction in the ratio of large exposures to capital between the years is an important consideration from the perspective of financial stability.

Marketable securities

Increase in marketable securities portfolios

The largest commercial banks' total marketable securities portfolios, derivatives and shareholdings amounted to 1,151 b.kr. at the end of 2005, an increase of 627 b.kr. or 120% year-on-year. The bulk of the marketable securities portfolio is in the form of bonds. Growth of commercial banks' marketable securities exposures must be seen in the context of changes in their group structures after acquisition of foreign subsidiaries, and the rise in share indices in 2005.

Market risk in the risk-weighted base

Market risk of the largest commercial banks, measured according to FME rules on capital adequacy of financial undertakings, showed a

18. Margining indicates the market value of equity collateral for loans in proportion to the loans secured by it. A margining level above 100% indicates that the market value of the shares exceeds that of the loan they secure.

19. An exposure (lending, securities holding, share, guarantee granted, etc.) incurred by a financial undertaking to a client or a group of connected clients, the value of which amounts to 10% or more of the own funds of the undertaking.

slight rise, at 13% according to the risk-weighted base in 2005 compared with 11% in 2004. In volume terms the risk base amounted to 501 b.kr. at the end of 2005, having risen by 249 b.kr. year-on-year. Equity exposures increased more than bond exposures, by 108 b.kr. and 77 b.kr. respectively. The largest banks' currency risk increased sharply by 48 b.kr. last year, and other risks by 16 b.kr.

Until last year the banks faced little exposure to currency risk. At the end of 2005 the banking sector's external balance was positive by 55 b.kr. The bulk of the increased reserves now is due to hedging by banks against the impact of exchange rate movements on their equity and capital adequacy ratios. Hedges have proved beneficial during the recent depreciation of the króna.

Increased equity exposure at own risk

As a result of derivative contracts with their clients, the largest commercial banks' market risk on equity exposures is not the same as their book value. Book value of equities amounted to 396 b.kr. at the end of 2005 but after adjustment for derivatives, their equity exposure at own risk was 202 b.kr.²⁰ A year before, the book value of equities owned by the banks was 165 b.kr., of which 103 b.kr. were at their own risk, after adjustment for derivatives.²¹ Thus the banks' stock of equities at own risk grew by 99 b.kr. Likewise, equities at own risk increased as a ratio of statutory capital to almost 41% at the end of 2005, compared with 36% a year before.

Equity derivative contracts

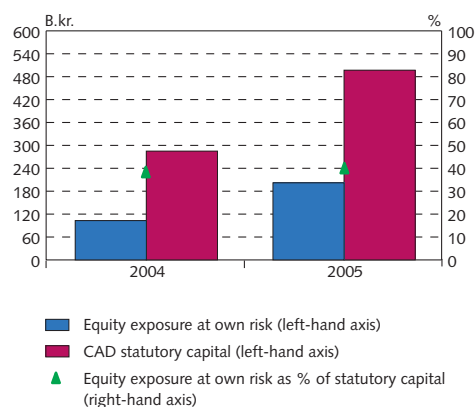
The most common term for equity derivative contracts is 3-6 months, which is often extendable. Derivative contracts reduce the banks' market risk from holding the equities, which in most respects is comparable to a loan secured with collateral in shares. Thus the banks' risk may be underestimated in the event of default on a derivative contract following a fall in the price of the underlying equities. The growth of equity derivative contracts has been one of the drivers of higher share prices in recent years. By the same token, a contraction in derivative trades may cause downward pressure on prices.

Financing

Little change in composition of financing over the year

The financing requirement of the largest commercial bank groups grew substantially in 2005 as their balance sheets almost doubled. However, there was little change in composition of financing over the year. The banks' main channel for financing is borrowing, including securities issuance. At the end of 2005, 59% of the banks' assets were financed with borrowing, which is broadly the same ratio as at the beginning of that year.

Chart 8
Equity exposure 2004 and 2005¹



1. Three largest commercial banks' consolidated accounts.
Sources: Commercial banks' annual reports, Central Bank calculations.

20. Equities included among trading assets and financial assets designated at fair value under IFRS.

21. Equities and other variable-income securities under FME rules.

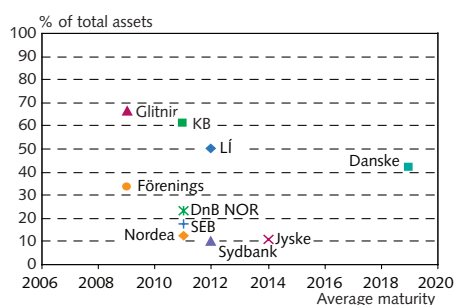
Chart 9
Composition of funding 2005¹



1. Three largest commercial banks' consolidated accounts.
Sources: Commercial banks' annual reports, Central Bank calculations.

Chart 10
Nordic banks' funding

Listed borrowings with regard to total assets and average maturity



Sources: Bloomberg, commercial banks' annual reports.

High foreign currency-denominated securities issuance

At the end of 2005, borrowing by the largest commercial banks amounted to 3,184 b.kr., of which securities issues accounted for 2,803 b.kr.²² Securities issuance increased by 1,330 b.kr., or 90%, year-on-year. Part of the increase was in connection with acquisitions of foreign subsidiaries. Securities issuance by the parent banks grew by 986 b.kr. (102%) year-on-year. At the end of 2005, 94% of the parent banks' securities issues were denominated in foreign currency. An even higher ratio may be expected with the inclusion of activities of foreign subsidiaries in the consolidated accounts.

Large majority of debt instruments listed

Most of the largest commercial banks' borrowing is made in the markets. At the end of 2005, debt instruments of the three commercial banks amounting to 2,567 b.kr. were listed on markets, or 80% of their total borrowing. Only 2.5% of listed instruments were denominated in krónur.

Compared with a sample of Nordic banks (see Chart 10), the Icelandic banks have a higher ratio of listed issues to total assets, but a similar average residual maturity. Thus Icelandic banks rely more heavily on financing in the market than, for example, banks in other Nordic countries.

Large refinancing requirement in 2007

In Q1/2006, the outstanding stock of listed instruments issued by the largest commercial banks grew by 333 b.kr. (11%).²³ Issuance during that quarter was greater, at 419 b.kr., and the difference is explained by maturities over the period. A fairly large share of the banks' listed debt matures in Q2, Q3 and Q4/2006 – 349 b.kr. in all – and an even larger share in 2007, or 962 b.kr. Thus the banks will need to refinance or repay 1,311 b.kr. by the end of 2007, the equivalent of 40% of their listed debt instruments. Part of the refinancing will devolve upon their foreign subsidiaries.²⁴

Table 6 Listed market debt issuance

B.kr.	December 31, 2005	March 31, 2006	Increase in Q1/2006
Glitnir Bank	861	986	125
Kaupthing Bank	1,389	1,530	141
Landsbanki	672	739	67
Total	2,922	3,255	333

Largest commercial bank groups. Position at end of 2005 and end of Q1/2006 at the exchange rate on March 31, 2006.

Source: Bloomberg.

22. Bonds and commercial paper.

23. Based on the exchange rate on March 31, 2006.

24. A negligible part of the refinancing requirement is extendable.

Importance of credit ratings

The commercial banks' easier access to foreign currency-denominated financing has been based on strong credit ratings, although market conditions were also highly favourable until the end of 2005. Good credit ratings have facilitated access to major international markets for debt issuance and reduced the banks' issuer risk spreads. The commercial banks' credit ratings are discussed in more detail in an Appendix on p. 69.

The risks faced by Icelandic banks are more complex now. Their expanding balance sheets in recent years have naturally led observers outside Iceland to focus more closely on their financing arrangements in international markets. Given the scale of their market financing, good credit ratings are crucial. It may be pointed out that increased spreads in credit markets as a result of higher base rates or an adjustment in risk pricing could have a significant impact on the cost of the banks' foreign funding.

Increased share of deposits in funding

Securities issuance has increasingly replaced deposits on the financing side. Deposits with the largest commercial banks amounted to 1,369 b.kr. at the end of 2005, an increase of 98% year-on-year. As a proportion of total liabilities, deposits were 27%, compared with 25% at the end of 2004. The main reason for the increase was Kaupthing Bank's acquisition of the UK bank Singer & Friedlander, which largely funds its operations with deposits. Some agencies that rate the commercial banks have pointed to the low share of deposits in their total financing. Other things being equal, ongoing deposit growth will underpin the banks' ratings.

Liquidity position was well in line with rules

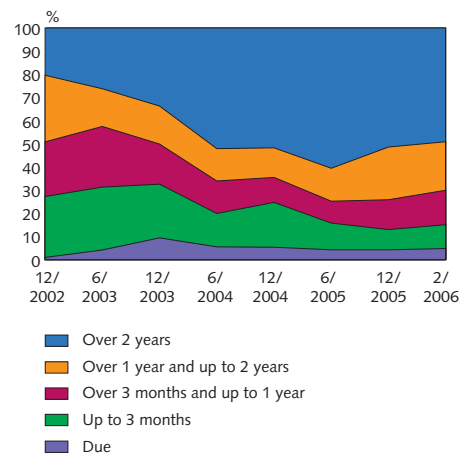
The liquidity position of financial companies, measured according to the Central Bank's liquidity rules, was easy last year.²⁵ At end-2005, weighted net liquid assets of financial companies in the time belt 0-3 months were 463 b.kr., a year-on-year increase of 253 b.kr., or 120%. On the liquid asset side, claims on foreign credit institutions grew by 88% and marketable securities by 93%, while securities issuance increased by 122% on the liquid liabilities side.

Total equity increased ...

Equity of commercial banks and savings banks swelled in 2005. At the end of the year their total equity amounted to 401 b.kr., an increase of 155 b.kr., or 63%, year-on-year. Glitnir Bank (formerly Íslandsbanki) and Landsbanki made new equity offerings during the year, to a total market value of 72 b.kr. Most of this capital was procured by Landsbanki in connection with its merger with Burðarás investment company. Glitnir Bank also issued new capital to a market value of 19 b.kr. at the beginning of 2006.

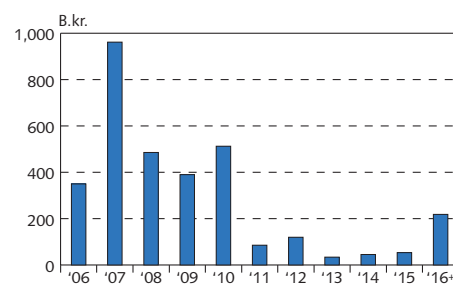
Chart 11
Proportion of claims by foreign entities, by maturity¹

Commercial banks' parent companies



1. Residual maturity not original maturity.
Source: Central Bank of Iceland.

Chart 12
Maturity profile of market financing¹
March 31, 2006



1. Three largest commercial banks' consolidated accounts.
Source: Bloomberg.

25. Central Bank of Iceland Rules on Liquidity Ratio apply to credit institutions subject to minimum reserve requirements.

New capital adequacy rules

Box 1

Financial companies operating in Iceland are subject to capital adequacy rules set by the Financial Supervisory Authority (FME). The FME rules are based on two European Union directives covering issues including capital adequacy. To a large extent, the capital adequacy provisions of the directives are based on the Basel Committee on Banking Supervision's framework for capital measurement and capital standards (Basel I). Over recent years the Basel Committee has been working on a revised framework for cross-border banks (often termed Basel II). Alongside the Basel Committee's work on the revised capital framework, the EC Commission has been reviewing the capital adequacy provisions of the directives in order to harmonise them with it. New EU directives have now been agreed with a wider scope than Basel II, and will apply to all financial undertakings with limited exemptions. The new EU rules take effect as of the beginning of 2007 and stipulate that the Internal Risk-Based (IRB) foundation approach may be used from then and the advanced IRB approach from the beginning of 2008.

Current FME rules present standardised approaches for calculating capital requirements against lending. Treatment of market risk was added later. Main changes to capital requirements under the new rules include the use of a ratings-based approach, internal assessment approach and operational risk measurement methodologies. A number of minimum requirements are proposed that banks must fulfil, especially concerning internal ratings. The new rules provide a range of options for determining the capital requirements for credit risk and operational risk to allow banks and supervisors to select approaches that are most appropriate for their operations and their financial market infrastructure. They also stipulate that supervisors should verify implementation by banks, including minimum requirements. As before, national authorities are free to adopt arrangements that set higher requirements, for example to address potential uncertainties in the accuracy of the measure of risk exposures.

Icelandic financial companies have been monitoring preparations for the new rules at both domestic and international level. Companies fall into two groups according to which part of the rules they intend to use. The three largest commercial banks have all declared their aim of using the internal assessment approach to determine their capital requirement for lending exposures, instead of the standardised rules which will replace those now in force. Banks have set up task forces to prepare for the switchover and have built up detailed knowledge of the new framework. Kaupthing Bank and Glitnir Bank have already applied to use the internal assessment approach to the furthest permissible extent as of the beginning of 2007 and all the largest banks have announced their aim of applying the advanced approach which will first be authorised in the beginning of 2008. Smaller financial undertakings will implement the standardised approach and have been monitoring preparations for it. The new rules will require a considerable degree of adjustment on the part of many financial undertakings, in areas including information systems and work processes.

... and subordinated debt issues soared

There has been a large increase in the commercial banks' subordinated debt in the recent term. Rapidly expanding balance sheets have called for more capital. Subordinated debt that meets certain conditions is considered the equivalent of capital under law. At the end of 2005, subordinated debt of the largest commercial banks stood at 199 b.kr., an increase of 100 b.kr., or 100%, from the previous year. More than

half the additional subordinated debt issued last year was classified as Tier I capital for calculation of mandatory capital adequacy.

Banks' high capital adequacy ratio

As defined under FME rules, the capital adequacy ratio (solvency ratio) of the largest commercial banks was 12.6% at the end of 2005, marginally down from 12.9% in the previous year, which was the highest ratio since 1995. The Tier I capital adequacy ratio was 10.2% at the end of 2005. It can only be said that the capital position of the commercial banks and largest savings banks is sound. A strong equity position and ample liquidity are important preconditions for financial stability.

Savings banks and miscellaneous credit undertakings

Strong operating performance by savings banks

The largest savings banks returned a strong performance in 2005.²⁶ Their combined return on equity reached 39%, compared with 20% in 2004. Like the commercial banks, the main explanations are increased net interest income following a surge in lending and a substantial increase in other operating income, especially trading gains on equities.²⁷ It should be pointed out that some savings banks are shareholders in Exista investment company, which generated large trading gains in 2005.²⁸

In recent years the cost/income ratio²⁹ of the largest savings banks has been falling. This trend continued in 2005, driven in particular by a surge in other operating income. In 2005 the ratio went down to 42% from 54% the previous year.

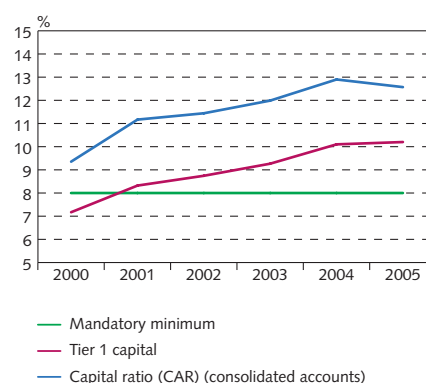
Declining ratio of net interest income

In recent years, net interest income has been decreasing as a proportion of the largest savings banks' net operating income. Net interest income accounted for less than half of their net operating income in 2005 for the second consecutive year. Also, the interest spread narrowed from 3.6% in 2004 to 2.8% in 2005, mainly due to increased mortgage lending. The declining weight of net interest income is surely a cause of some concern to the savings banks, because experience shows that other income, especially trading gains on financial activities, is volatile.

Low impairment provisioning

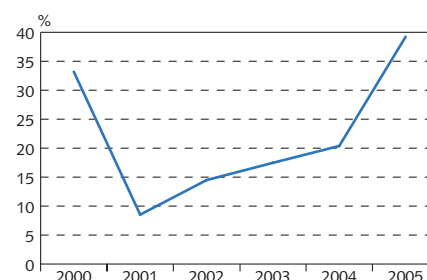
Impairment provisioning of the largest savings banks declined year-on-year in spite of soaring lending growth. Provisions amounted to

Chart 13
Capital ratio 2000-2005¹



1. Three largest commercial banks' consolidated accounts.
Sources: Commercial banks' annual reports, Central Bank calculations.

Chart 14
Return on equity 2000-2005¹



1. The largest savings banks' consolidated accounts.
Sources: Savings banks' annual reports, Central Bank calculations.

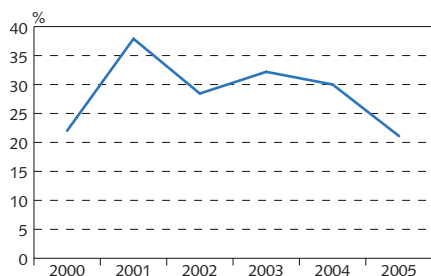
26. The six largest savings banks are Sparisjóður Reykjavíkur og nágrennis (SPRON), Sparisjóður Hafnarfjarðar, Sparisjóður vélstjóra, Sparisjóðurinn í Keflavík, Sparisjóður Kópavogs and Sparisjóður Mýrasýslu. Figures are consolidated unless otherwise stated. As of 2005, companies with consolidated accounts and listed on ICEX must present their accounts in accordance with IFRS. Although this does not apply to savings banks, the largest of them – SPRON – opted to base its 2005 accounts on IFRS principles.

27. Other operating income comprises income on equities and holdings in associates, net commissions, trading gains and sundry income.

28. The portfolio of Exista ehf. includes shares in Kaupthing Bank, Iceland Telecom, Bakkavör Group and others.

29. Operating expenses as a proportion of net operating income.

Chart 15
Impairment of loans 2000-2005¹
Provisions as a ratio of net interest revenues



1. The largest savings banks' consolidated accounts.
Sources: Savings banks' annual reports, Central Bank calculations.

1.4 b.kr. in 2005, but were 1.8 b.kr. the previous year. As a proportion of average total assets, the largest savings banks' loan-loss provisions were 0.6% at the end of 2005, the lowest ratio ever. At 21%, provisioning as a ratio of net interest income was also at the lowest level for many years. It has been reported that low levels of delinquency have reduced the need for impairment provisioning in 2005.

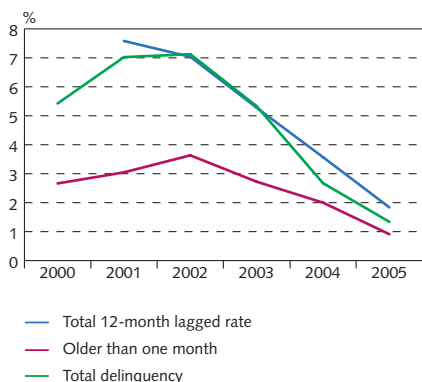
Huge increase in mortgage lending

Lending by savings banks³⁰ at the end of 2005 amounted to 221 b.kr., an increase of 35% year-on-year. Domestic borrowers accounted for 211 b.kr. of the total outstanding loan stock at end-2005 (an increase of 31%) and foreign borrowers 10 b.kr. The lion's share of domestic lending was in the form of mortgage loans to households. If it generates adequate returns, and if moderate loan-to-value ratios are maintained and interest rate risk is kept to a minimum, increased mortgage lending should strengthen the savings banks' position, because delinquency and impairment of such loans are historically low.

Delinquency of savings bank customers has never been lower ...

According to data from the FME, the delinquency rate³¹ on lending by the largest savings banks at the end of 2005 was 1.3%, compared with 2.7% at the end of the previous year. This is the lowest delinquency rate recorded since regular compilation of data on arrears began at the end of 2000. Nonetheless, the customer delinquency rate is higher for savings banks than for the commercial banks. Since new lending is unlikely to end up in arrears immediately, the lagged delinquency rate³² is considered to give a representative picture of the trend. Measured in these terms, arrears have also been trending downwards to 1.8% at the end of 2005, compared with 3.6% at the end of the previous year. The nominal amount of total arrears with the largest savings banks at the end of 2005 was 2.1 b.kr., compared with 3.1 b.kr. at the end of 2004.³³ Total arrears therefore dropped by 1 b.kr., or 32%, in the space of a single year. Lower ratios of delinquency go hand in hand with the favourable economic climate for businesses and households.

Chart 16
Delinquency rate 2000-2005¹



1. Savings banks' parent companies.
Source: Financial Supervisory Authority (FME).

... nor have credit loss allowance accounts relative to total lending

The combined credit loss allowance account of the largest savings banks amounted to 3.2 b.kr. at the end of 2005, an increase of 100 m.kr (3%) from 3.1 b.kr. at the end of the previous year. Although they increased in nominal terms, credit loss allowance accounts shrank sharply relative to lending growth. As a proportion of total outstanding loan stock, the largest savings banks' loan-loss provisions were

30. Parent companies of the savings banks and Sparisjóðabanki Íslands hf. (Icebank).

31. Total arrears as a proportion of outstanding loans, including provisions for impairment. Parent companies.

32. Total arrears as a proportion of outstanding loans one year before, including provisions for impairment. Parent companies.

33. Arrears generally decrease in the fourth quarter, due to final write-offs. Arrears within the year may therefore easily exceed the end-of-year figure.

1.5% at the end of 2005, the lowest ratio ever. The figure was 2.3% at the end of 2004 and in the range 2.5-3.0% over the period 2000-2003. Low levels of delinquency warrant smaller credit loss allowance accounts and imply improved credit quality. However, sharp lending growth in recent times may be seen as conducive to increased loan losses later.

Increase in large exposures relative to capital

According to FME data, total large exposures³⁴ of the largest savings banks amounted to 21 b.kr. at end-2005, the equivalent of 96% of their statutory capital. In all, the savings banks had 37 large exposures at the end of 2005. Total large exposures at the end of 2004 also numbered 37 but their value was 14 b.kr., or 89% of statutory capital. Thus it can be inferred that the savings banks are more vulnerable now to difficulties in the operations of their largest debtors.

Market risk in the risk-weighted base

Market risk of the largest savings banks, measured according to FME rules on capital adequacy of financial undertakings, amounted to 12.7 b.kr. at the end of 2005, up by 5 b.kr. year-on-year. Equity exposures increased most, by 4.2 b.kr., while bond exposures went down by 0.5 b.kr. The largest savings banks' currency risk increased somewhat last year, by 1.3 b.kr. Relative to the risk base, market risk increased to 8% in 2005 from 6% the year before.

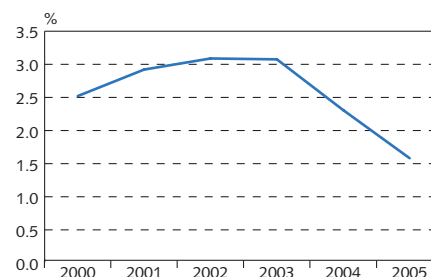
Funding of savings banks

Unlike the commercial banks, the savings banks largely procure their finance in the domestic market. The largest single component of their funding is deposits, although the share has been declining in recent years. At the end of 2005, deposits with savings banks amounted to 147 b.kr., which was 46% of total liabilities.³⁵ Other funding was divided fairly evenly between domestic borrowing – including loans from domestic credit undertakings – domestic securities issuance and foreign plus other borrowing.

Capital adequacy of savings banks

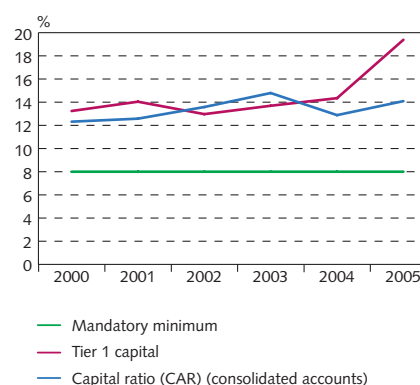
As defined under FME rules, the capital adequacy ratio (solvency ratio) of the largest savings banks was 14.1% at the end of 2005. The Tier I capital adequacy ratio was 19.4%. The main explanation for the discrepancy between the two capital ratios at the end of 2005 was an increase in deductions. Several of the largest savings banks own substantial holdings in other financial companies which are deducted from their own capital when the adequacy ratio is calculated. The savings banks' capital adequacy ratios are higher than those of the commercial banks. This is normal, since the commercial banks' risks are more dispersed.

Chart 17
Loan loss reserves 2000-2005¹
Ratio of total outstanding lending



1. The largest savings banks' consolidated accounts.
Sources: Savings banks' annual reports, Central Bank calculations.

Chart 18
Capital ratio 2000-2005¹



1. The largest savings banks' consolidated accounts.
Sources: Savings banks' annual reports, Central Bank calculations.

34. An exposure (lending, securities holding, share, guarantee granted, etc.) incurred by a financial undertaking to a client or a group of connected clients, the value of which amounts to 10% or more of the own funds of the undertaking.

35. Parent companies of the savings banks and Sparisjóðabanki Íslands hf. (Icebank).

Miscellaneous credit undertakings

Assets of miscellaneous credit undertakings³⁶ at the end of 2005 amounted to 906 b.kr., an increase of 194 b.kr. (27%) year-on-year. The largest individual asset group of miscellaneous credit undertakings is lending, which amounted to 533 b.kr. at end-2005 – an increase of only 5.6 b.kr. from 2004, or 1%. The main reason was a contraction in lending by the Housing Financing Fund (HFF), whose share of the mortgage loan market was eroded by competition from commercial banks and savings banks. At the end of 2005, outstanding loan stock at the HFF stood at 377 b.kr., compared with 428 b.kr. at the end of 2004 – a contraction of 51 b.kr., or 12%. Equities drove asset growth for miscellaneous credit undertakings. Their equity portfolios at the end of 2005 amounted to 153 b.kr., up by 96 b.kr. (171%) year-on-year. Of this figure, the largest investment bank, Straumur – Burðarás Fjárfestingabanki hf., increased its share exposure by 90 b.kr.³⁷ Much of this increase is explained by the merger between Straumur and part of Burðarás investment company.

Since they are not licensed to accept deposits, miscellaneous credit undertakings largely finance their activities with securities issues and borrowing. Their securities issuance at the end of 2005 amounted to 544 b.kr. As usual, the HFF was by far the largest issuer in this group with an outstanding stock of 471 b.kr. at the end of the year, including 393 b.kr. in HFF bonds

Capital of miscellaneous credit undertakings soared in 2005. At 144 b.kr. at the end of the year, it had grown by 73 b.kr. (97%) year-on-year. Straumur – Burðarás Fjárfestingabanki led the way with a capital increase of more than 60 b.kr., of which 53 b.kr. was in connection with the merger with Burðarás.

36. Miscellaneous credit undertakings comprise the Housing Financing Fund (HFF), investment banks, investment credit funds, leasing companies and payment card companies.

37. Equities included among trading assets and financial assets designated at fair value through profit and loss.

The Financial Supervisory Authority (FME) sets rules specifying criteria for assessing the exposure of financial undertakings and decisions on capital adequacy ratios above the statutory minimum.¹ Provisions in the rules include stress testing and risk assessment, focusing on factors such as capital and access to additional equity, asset quality, return on equity, liquidity, sensitivity to market risk, management capability, risk management and internal audit. Scores are given for these factors and exposure is assessed on the basis of the total score.

The FME stress test assumes that a financial undertaking must be in a position to face setbacks that simultaneously may lead to a reduction in share portfolio in companies at own risk (non-domestic 25%, domestic 35%); marketable bond portfolio at own risk (7%); non-performing/impaired loans (20%) and appropriated assets, net (20%); and the influence of a 20% weakening of the króna on the capital base and risk-weighted assets. FME calculations on the capital adequacy ratios for the commercial banks and six largest savings banks at the end of 2005 showed that they all passed the stress test without going below the 8% minimum capital adequacy ratio.

The part of the stress test which relates to loan losses has been based on non-performing/impaired loans, which are currently at a historical low. For this reason the FME decided to compute the impact of an additional shock, based on certain assumptions. Additional impairment/writedown of loans, other than mortgage loans, to domestic customers, is calculated at the highest writedown ratio experienced by the commercial banks in the past ten years (1.8%) and the highest writedown ratio in the past ten years for the largest savings banks (2.0%). It also assumes an additional impairment/writedown of mortgage loans of 0.2%, which is the highest ratio experienced by Housing Financing Fund (HFF) in the past seven years. It should be noted, however, that the HFF's ratio of final loan losses is less than 0.1%. On these assumptions, additional hypothetical loan losses by the commercial banks and six largest savings banks would amount to 24 b.kr., based on their financial position at year-end 2005. This compares to a hypothetical 7 b.kr. loss assuming 20% impairment of non-performing/impaired loans and appropriated assets. Average reduction in capital ratios amounts to 0.5 percentage points for the commercial banks and just over 1.1 percentage points for the largest savings banks. All these financial undertakings passed the stress test with the new assumptions.

An extensive reform to bring capital adequacy rules into line with new EU directives is scheduled for the beginning of next year. One aspect will involve transposing Pillar II of the Basel II rules, whereby the capital requirement will be calculated for all risks not measured under Pillar I. This supplementary test shall be implemented both internally by the financial undertaking in question and by the supervisory authority. Pillar II findings may prompt the supervisory authority to set a higher formal capital adequacy ratio than the official 8% minimum. The new rules will replace current FME rules on stress testing and risk assessment.

Box 2

FME stress testing

1. Rules No. 530/2004 on FME criteria for assessing the exposure of financial undertakings and decisions on capital adequacy ratios above the statutory minimum, with subsequent amendments.

Appendix 1

Estimation of potential loan losses and their effects on commercial banks' balance sheets

Main factors affecting loan losses by the banking sector

An important element in an assessment of the banking sector's resilience to serious shocks involves the impact on debtors and their capacity to honour their obligations towards the banks. Thus an economic recession reflected in higher unemployment and falling disposable income, coupled with a fall in asset prices, could increase household default with the banking sector, which would ultimately be manifested in greater loan losses. Such conditions were at hand during the banking crises in Finland, Norway and Sweden in the early 1990s.

One way to assess this risk is to apply a simple regression analysis similar to the approach used by Norges Bank in its stress testing. The analysis attempts to evaluate the vulnerability of loan losses to household debt, the development of asset prices and interest rates, and the general macroeconomic situation (proxied with the development of unemployment). Using Norwegian data for the period 1978-2003 yields the following result (*t*-values for coefficients are in brackets and log indicates logarithm), see Hagen, Lund, Nordal and Steffensen (2005):

$$(1) \quad \log LOSS_t = 1.5 + 3.6 \log DEBT_t - 1.7 \log PHR_t + 0.104 R_t + 0.286 UR_t - 7.1 D97$$

(0.5)
(4.4)
(4.2)
(3.2)

(4.0)
(21.4)

where *LOSS* is loan losses relative to total household debt, *DEBT* is the debt burden of households relative to disposable income, *PHR* is real house prices, *R* is short-term interest rates, *UR* is the unemployment rate and *D97* is a dummy variable that is equal to 1 for 1997 and 0 otherwise, to correct for especially low losses that year. The regression analysis indicates that banking sector loan losses would increase with greater household indebtedness (or lower disposable income), falling house prices, higher interest rates and higher unemployment.

A corresponding regression analysis for Iceland uses similar variables but also including equity prices, with long-term indexed (real) interest rates replacing short-term nominal rates. The final estimation gives (where $\Delta DEBT$ represents a change in *DEBT*):¹

1. Data on banking sector loan losses are from the Financial Supervisory Authority (FME). Unlike the Norwegian study, the Icelandic analysis is based on total loan losses and not confined to household losses, which would have been preferable but disaggregated data for household and business losses are not available from all banks for the entire period. Data on the debt ratio are from the Central Bank of Iceland, equity prices are from the ISEX Main List since 1993 and VÍB's HMARK index for 1988-1993, real interest rates are the yield on indexed government bonds and unemployment figures are from Statistics Iceland.

$$(2) \quad \text{LOSS}_t = -0.917 + 0.014\Delta\text{DEBT}_t - 0.510\text{DEQPR}_t + 0.108\text{RLV}_t \\
\begin{matrix} (2.5) & (1.9) & (1.9) & (2.4) \end{matrix} \\
+ 0.381\text{UR}_t - 0.899\text{D04} \\
\begin{matrix} (8.2) & (3.3) \end{matrix}$$

where *DEQPR* is the percentage change in real equity prices, *RLV* is the real long-term interest rate and *D04* is a dummy variable that is equal to 1 for 2004 and 0 otherwise, to correct for especially high losses that year on account of commercial bank mergers and settlements connected with bank privatisation. Other variables have the same interpretation as in equation (1). The coefficient signs are as expected: loan losses increase with increased indebtedness (or lower disposable income), falling equity prices, greater unemployment and higher real interest rates.² No statistically significant effects of real house prices were found.³ It should be noted, however, that Iceland has experienced almost continuous house price rises over the period, with no sharp decline in real terms as Norway experienced in 1988-1992. By the same token, mortgage lending by the banking sector was relatively small for most of the period, leaving it less vulnerable to house price volatility. Accordingly, the relationship between house prices and loan losses over the test period should be interpreted with caution.⁴

The effect of economic shocks on banking sector loan losses

The impact of a serious economic shock on banking sector loan losses can be assessed from the above model. For comparison, the impact on loan losses is also shown using the Norwegian model (equation 1). The baseline scenario is based on annual averages for 2005.

The shocks on which the following calculations are based involve a fall in real equity and asset prices, a rise in unemployment, higher real interest rates and a rise in household debt relative to disposable income (e.g. due to a decrease in the latter). Real house prices are assumed to fall by 25% and real equity prices by 50%. The drop in house prices is comparable to those witnessed during the banking crises in Norway and Sweden, but somewhat less than in Finland. On the other hand, the assumed fall in equity prices is broadly the same in all three countries (see von Peter, 2004, and Sandal, 2004). A further assumption is that the unemployment rate will rise by 2 percentage points from 2005, i.e. from just over 2% to just over 4%, which is slightly above the level considered to be compatible with equilibrium in the domestic labour market but some way below the 5% level recorded at the trough of the contraction in 1995. Finally, real interest rates are assumed to rise by 2 percentage points, from 3.7% in 2005 to 5.7%, which is broadly the same rate as in 2001, and the ratio of debt to disposable income by 25 percentage points, from 214% to

2. The equation also provides a reasonably good description of the development of banking sector loan losses over the period, as reflected in the value of R^2 , which is equal to 0.87. Likewise, the equation passes all residual misspecification tests. However, it is important to remember that the estimation is based on few observations – only 18, from annual data for the period 1988-2005. For this reason in particular, the results should be interpreted with caution.
3. In some versions of the model, the estimated effect of real house prices had a reversed sign, i.e. rising real house prices coincided with increased loan losses.
4. The impact of the nominal and real effective exchange rate of the króna on loan losses was also examined. No statistically significant impact was found, probably reflecting the limited amount of foreign currency-denominated household debt over the period.

almost 240% (this ratio increased by more than 30 percentage points year-on-year in 2005). Such an increase in debt burden could reflect, for example, a fall of roughly 10% in disposable income at the same time as household debt remained unchanged.

Table 1 shows the effect of the above shocks on the ratio of loan losses to total debt (*LOSS*) and corresponding losses in b.kr. based on total household debt in 2005. To give some idea of the scale involved, note that loan losses in 2005 amounted to 7½ b.kr., or roughly 0.7% of total household debt. This ratio peaked in 1993 at 1.9%, corresponding to 12 b.kr. at 2005 prices.

According to Table 1, an increase in unemployment of 2 percentage points has a similar effect on banking sector loan losses in both equations: the ratio of loan losses to total household debt could increase by 0.6-0.8 percentage points, to around 1½%, which is roughly the same ratio as in 1995 but somewhat lower than the peak in 1993. An increase of 2 percentage points in real interest rates could likewise increase loan losses by 0.2 percentage points of total household debt, raising the ratio to almost 1%. A 25-percentage-point increase in debt ratio (for example due to a 10% fall in disposable income) could likewise increase loan losses by the equivalent of 0.3-0.4 percentage points of total household debt, pushing the ratio up to roughly 1%

One consequence of a substantial fall in asset prices would be an increase in loan losses. As mentioned above, house prices did not have a statistically significant effect on loan losses in Iceland over the period studied. However, this relation is likely to have changed after the banks entered the mortgage market in the second half of 2004. Given the difficulty of making reliable statistics assessments for such a short period, the obvious approach would be to use the Norwegian findings as a rough indicator of the possible impact of falling house prices on loan losses in Iceland.⁵ The Norwegian study indicates that a 25% decrease in real house prices may be expected to increase the ratio of loan losses to total household debt by half a percentage point to around 1¼%. A comparable fall in real equity prices would be likely

Table 1 Impact of various economic shocks on banking sector loan losses

	<i>Change in ratio of loan losses to total debt (percentage points)</i>	<i>Change in loan losses in b.kr. based on total debt in 2005</i>
Equation (1) (using Norwegian data)		
25% decrease in house prices	0.49	5.3
2 percentage-point increase in unemployment	0.57	6.2
2 percentage-point increase in real interest rates	0.21	2.3
25 percentage-point increase in debt ratio	0.40	4.3
Equation (2) (using Icelandic data)		
50% decrease in equity prices	0.25	2.7
2 percentage-point increase in unemployment	0.76	8.3
2 percentage-point increase in real interest rates	0.22	2.3
25 percentage-point increase in debt ratio	0.34	3.7

5. With the important reservations that Norway has a much longer tradition of banking sector finance for mortgages and of higher loan-to-value ratios than Iceland.

to have less impact on loan losses, since equity holdings are far more limited than housing and have a much lower weight in household balance sheets. Equation (2) shows that a 50% drop in real equity prices could raise the ratio of loan losses to total household debt by just over one-quarter of a percentage point to roughly 1%.

These shocks are unlikely to be independent. If they were all to hit the economy in full and at the same time, they would represent a serious economic shock. Their combined impact on loan losses and the banking sector balance sheet is therefore worth examining. Using equation (2), but incorporating the impact of housing prices from equation (1), the ratio of loan losses to total debt would increase by more than 2 percentage points, from 0.7% to almost 2.8%, which is close to 1 percentage point higher than the previous peak in 1993. Based on total household debt in 2005, the banking sector's loan losses would rise by more than 23 b.kr. to around 30 b.kr., which is a hefty increase from that year and more than double the figure in 1993, measured at 2005 prices. Losses would be equivalent to 3% of GDP in 2005, which is broadly comparable with the Norwegian banking crisis, but rather less than in Finland and Sweden (see von Peter, 2004, and Sandal, 2004).

Measured in terms of commercial banks' balance sheets in 2005, losses would amount to ½% of the banks' total assets, and 6% of their risk-adjusted capital stock. Such an erosion of capital could bring down their capital adequacy ratios by 0.8 percentage points, other things being equal, and also excluding the direct effects of these shocks on the balance sheets of the banks. These results are very similar to the recent stress test update from the Financial Supervisory Authority (FME), using the highest loan losses recorded in the past ten years (see Box 2 on p. 63).

These findings should be interpreted very cautiously. The relatively few observations underlying the regression analysis have already been mentioned. It should also be borne in mind that substantial structural changes have taken place in the Icelandic economy, in particular in domestic financial markets. Thus it cannot be ruled out that the relationship between loan losses and the explanatory variables has altered – the impact of asset prices (including house and equity prices and the exchange rate of the króna) is an obvious candidate. The above findings should therefore be interpreted only as a very rough indication of the possible effect that serious economic shocks could have on domestic financial institutions.

In addition, it should be remembered that these shocks would have a direct impact on the banks' balance sheets through their domestic securities portfolios, which could be eroded by falling equity prices and higher real interest rates.

On the basis of the above findings and those of stress tests conducted by the Financial Supervisory Authority it seems safe to conclude that the equity position of Iceland's commercial banks is strong enough to be resilient towards a significant economic shock in the form of a large fall in real asset prices, increased unemployment and a decline in disposable income.

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Appendix 2

Credit ratings of Icelandic commercial banks

Credit ratings of the Icelandic banks have been in the spotlight recently. Icelandic banks are in the process of expanding in other countries and have sought credit ratings from more rating agencies in order to facilitate funding. They have also been rated by more than one agency in response to market demand. Two ratings agencies – Moody's and Fitch Ratings – rate all three Icelandic commercial banks. So far, Standard & Poor's has only rated Glitnir Bank (formerly Íslandsbanki). The higher profile given to rating agencies in all discussion of the Icelandic commercial banks warrants some explanation of the methodology underlying their ratings. The following overview is divided into two sections. The first addresses terminology and methodology with an explanation of the main ratings given by respective agencies. The second section traces the development of the Icelandic commercial banks' ratings since the first agency was commissioned in 1997.¹

Concepts and methodology

Iceland's three commercial banks – Glitnir Bank (formerly Íslandsbanki), Landsbanki and Kaupthing Bank – have commissioned credit ratings from one or more international agencies. The Republic of Iceland (the Treasury), Landsvirkjun (the national power company), the Housing Financing Fund and Straumur-Burðarás Fjárfestingabanki investment bank are also rated.

Rating agencies perform a vital role in international capital markets. Agencies provide borrowers with ratings which are crucial for the terms of their credit. The main aim behind ratings is to reflect borrowers' ability to honour their obligations on time and in full. They provide a forward-looking indicator of the probability that a borrower will default.

Moody's Investor Service

Moody's Investor Service awarded the first sovereign rating to the Republic of Iceland in 1990 and seven years later Glitnir (which was named Íslandsbanki at that time) became the first Icelandic corporation to be rated. As well as rating all the Icelandic commercial banks, Moody's publishes a comprehensive Banking System Outlook for Iceland.²

Two main bank ratings are given by Moody's: deposit ratings and financial strength ratings.

1. This article is based on rating agencies' websites and rating reports on the Icelandic commercial banks.
2. Moody's Investors Service Banking System Outlook: Iceland, December 2005.

Bank Deposit Ratings

Moody's Bank Deposit Ratings are opinions of a bank's ability to repay punctually its foreign and/or domestic currency deposit obligations. They are intended to incorporate those aspects of credit risk that are relevant to the prospective payment performance of the rated bank with respect to its foreign and/or domestic currency deposit obligations. Included are factors such as intrinsic financial strength, sovereign transfer risk (for foreign currency deposits) and both implicit and explicit external support elements. Moody's Bank Deposit Ratings do not take into account the benefit of deposit insurance schemes that make payments to depositors. Foreign currency deposit ratings are subject to Moody's country ceiling ratings. This may result in the assignment of a different (and typically lower) rating for the foreign currency deposits relative to the bank's rating for domestic currency obligations.

Moody's long-term ratings are opinions of the ability of issuers to honour financial obligations with a maturity of more than 13 months. Table 7 presents a survey of the agencies' ratings for long-term bank obligations.³ Short-term ratings are opinions of the ability of issuers to honour financial obligations with a maturity of less than 13 months.⁴ Table 8 presents a survey of the agencies' ratings for short-term bank obligations.

Bank Financial Strength Ratings (BFSRs)

Alongside its deposit ratings, Moody's Bank Financial Strength Ratings (BFSR) represent its opinion of a bank's intrinsic safety and soundness, which excludes certain external credit risks and credit support elements addressed by its Bank Deposit Ratings.⁵

Unlike its Bank Deposit Ratings, Moody's BFSRs do not address the probability of timely payment. Instead, BFSRs are a measure of the likelihood that a bank will require assistance from third parties such as its owners or official institutions. They do not take into account the probability that the bank will receive such external support, nor do they address risks arising from sovereign actions that may inter-

Table 1 Moody's Bank Financial Strength Ratings

<i>Rating</i>	<i>Definition</i>
A	Superior intrinsic financial strength
B	Strong intrinsic financial strength
C	Adequate intrinsic financial strength
D	Modest intrinsic financial strength
E	Very modest intrinsic financial strength

Where appropriate, a "+" modifier will be appended to ratings below the A category and a "-" modifier to ratings above the E category to distinguish those banks that fall in intermediate categories.

- It should be pointed out that the comparison of different agencies' ratings in Table 7 is a simplification for the benefit of readers. Different agencies' ratings are not fully comparable.
- <http://www.moodys.com/moodys/cust/AboutMoody/AboutMoody.aspx?topic=rdef&subtopic=moodys%20credit%20ratings&title=Short-Term+Ratings.htm>.
- <http://www.moodys.com/moodys/cust/AboutMoody/AboutMoody.aspx?topic=rdef&subtopic=moodys%20credit%20ratings&title=Bank+Financial+Strength+Ratings.htm>.

ferre with a bank's ability to honour its domestic or foreign currency obligations.

Factors considered in the assignment of Bank Financial Strength Ratings include elements such as financial fundamentals, franchise value, and business and asset distribution. Although BFSRs exclude certain external credit risks and credit support elements, they do take into account other risk factors in the bank's operating environment, including the strength and prospective performance of the economy, as well as the structure and relative fragility of the financial system and the quality of banking regulation and supervision.

Outlook

A Moody's rating is often accompanied by an outlook about the likely direction that it will take over the medium term. Rating outlooks fall into the following four categories: positive, negative, stable and developing.⁶ A positive outlook implies a fairly high probability that the rating will be upgraded within the next 18 months; likewise, a negative outlook implies a fairly high probability that the rating will be downgraded within the next 18 months. A stable outlook implies a negligible probability that the rating will be changed within the next 18 months. A developing rating is contingent upon an event that may affect it.

Fitch Ratings

The Republic of Iceland received a sovereign rating from Fitch in 2000. Fitch Ratings rated Glitnir Bank and Landsbanki in 2001, and Kaupthing Bank was rated in November 2005.

Fitch awards three main ratings for banks. The first are Short-term and Long-term Issuer Default Ratings, which reflect the ability of an issuer to meet its financial commitments on a timely basis. Long-term Issuer Default Ratings are thus a "probability of default" rating and do not reflect any assessment of potential loss in the event of

Table 2 Fitch Individual Ratings

Rating	Definition
A	A very strong bank. Characteristics may include outstanding profitability and balance sheet integrity, franchise, management, operating environment or prospects.
B	A strong bank. There are no major concerns regarding the bank. Characteristics may include strong profitability and balance sheet integrity, franchise, management, operating environment or prospects.
C	An adequate bank which, however, possesses one or more troublesome aspects. There may be some concerns regarding its profitability and balance sheet integrity, franchise, management, operating environment or prospects.
D	A bank which has weaknesses of internal and/or external origin. There are concerns regarding its profitability and balance sheet integrity, franchise, management, operating environment or prospects. Banks in emerging markets are necessarily faced with a greater number of potential deficiencies of external origin.
E	A bank with very serious problems, which either requires or is likely to require external support.

Gradations may be used among the five ratings, i.e. A/B, B/C, C/D and D/E.

6. <http://www.moodys.com/moodys/cust/aboutmoodys/aboutmoodys.aspx?topic=rdef&subtopic=other%20ratings%20policies%20and%20procedures&title=rating%20outlooks.htm>.

default.⁷ These ratings are fully comparable with Moody's Long-Term and Short-Term Deposit Ratings. (See definitions of ratings in Tables 7 and 8). Fitch also awards individual ratings and support ratings.

Individual rating

Individual Ratings are assigned only to banks. These ratings attempt to assess how a bank would be viewed if it were entirely independent and could not rely on external support.⁸ They are designed to assess a bank's exposure to, appetite for and management of risk, and thus represent Fitch's view on the likelihood that it would run into significant difficulties such that it would require support. The principal factors analysed to evaluate the bank and these ratings include profitability and balance sheet integrity (including capitalisation), franchise, management, operating environment and prospects. Size (in terms of equity capital) and diversification (in terms of involvement in a variety of activities in different economic and geographical sectors) are also important considerations.

Support Ratings

Support ratings offer Fitch's judgement of a potential supporter's (either a sovereign state's or an institutional owner's propensity to support a bank and of its ability to support it.⁹ Its ability to support is set by the potential supporter's own Fitch Long-term debt rating, both in foreign currency and, where appropriate, in local currency. Support ratings have a direct link to Long-term debt ratings, but do not assess the intrinsic credit quality of a bank. Rather they communicate Fitch Ratings' judgement on whether the bank would receive support should this become necessary.

Table 3 Fitch's Support Ratings

<i>Rating</i>	<i>Definition</i>
1	A bank for which there is an extremely high probability of external support. The potential provider of support is very highly rated in its own right and has a very high propensity to support the bank in question. This probability of support indicates a minimum Long-term rating floor of 'A-'.
2	A bank for which there is a high probability of external support. The potential provider of support is highly rated in its own right and has a high propensity to provide support to the bank in question. This probability of support indicates a minimum Long-term rating floor of 'BBB-'.
3	A bank for which there is a moderate probability of support because of uncertainties about the ability or propensity of the potential provider of support to do so. This probability of support indicates a minimum Long-term rating floor of 'BB-'.
4	A bank for which there is a limited probability of support because of significant uncertainties about the ability or propensity of any possible provider of support to do so. This probability of support indicates a minimum Long-term rating floor of 'B'.
5	A bank for which external support, although possible, cannot be relied upon. This may be due to a lack of propensity to provide support or to very weak financial ability to do so. This probability of support indicates a Long-term rating floor no higher than 'B-' and in many cases no floor at all.

7. Fitch Ratings: Fitch Assigns Issuer Default Ratings to Financial Institutions, press release issued on February 23, 2006.

8. http://www.fitchratings.com/corporate/fitchResources.cfm?detail=1&rd_file=ind.

9. http://www.fitchratings.com/corporate/fitchResources.cfm?detail=1&rd_file=spprt.

Fitch's Support rating definitions are predicated on the assumption that any necessary support, either in foreign currency, or where appropriate, local currency, is provided on a timely basis. The definitions are also predicated on the assumption that any necessary support will be sufficiently sustained so that the bank being supported is able to continue meeting its financial commitments until the crisis is over. Unless otherwise specified, support is also deemed to be in terms of foreign currency.

Rating outlook

Like Moody's, Fitch provides an outlook indicating the direction a rating is likely to move over a one- to two-year period. Fitch's outlooks may be positive, stable or negative, and are defined in the same terms as by Moody's. Fitch states a timeframe for a conceivable change in the rating on the basis of the outlook, e.g. if the outlook is positive the rating might be upgraded over the next 12-24 months and the opposite applies if the outlook is negative. However, a rating is by no means certain to change after a change in the outlook.

Bank Systemic Risk Reports

In August 2005, Fitch Ratings announced a new product for assessing bank systemic risk.¹⁰ Two ratings are given. The Banking System Indicator (BSI) measures intrinsic bank systemic risk on a scale of A (very high quality) to E (very low quality). It assesses the strength of the banking system based on the banks' own ratings, together with a country-specific analysis of systemic risk. The Macro-prudential Indicator (MPI) highlights vulnerability to potential systemic stress that often follows periods of rapid credit growth associated with asset price bubbles and/or major currency appreciation. Vulnerability is measured on a scale from 1 (low) to 3 (high).

When the first indicators were published in August 2005, the Icelandic banking system was rated BSI C and MPI 2. In a new assessment published in February 2006, the BSI was upgraded to B but the MPI downgraded to 3.

Standard & Poor's

The Republic of Iceland was rated by Standard & Poor's in 1989. In March 2006, Glitnir became the first Icelandic company to be rated by Standard & Poor's. The agency's long-term issue credit ratings are based on the following considerations:¹¹

- Likelihood of payment – capacity and willingness of the obligor to meet a financial commitment on an obligation in accordance with the terms of it.
- Nature and provisions of the obligation.
- Protection afforded by, and relative position of, the obligation in the event of bankruptcy, reorganisation or other arrangement under the laws of bankruptcy and other laws affecting creditors' rights.

10. FitchRatings. Sovereigns. Special Report. Assessing Bank Systemic Risk: A New Product. 4 August 2005.

11. Standard&Poor's. RATINGSDIRECT. Research. Standard & Poor's Ratings Definitions. 29. March, 2006.

Standard & Poor's long-term issue ratings are expressed in terms of default risk. Credit analysis of a bank includes a wide range of quantifiable and non-quantifiable factors.¹² The weight given to each in the analysis of a particular institution will vary, depending on the economy in which it operates and main risks. Standard & Poor's also gauges a bank's management, accounting and financial reporting, credit risk and its management, market position, funding, liquidity and profitability.

Standard & Poor's short-term issue ratings are defined in the same terms as those of the other agencies (see Table 8).

Outlook

Standard & Poor's uses comparable definitions for changes in outlook to those of Moody's and Fitch Ratings. A timeframe is also defined whereby, for example, the rating might be upgraded over the next 6-24 months if the outlook is positive or downgraded if it is negative.

Credit ratings of Icelandic commercial banks

The following is a brief account of the Icelandic commercial banks' rating histories. Comprehensive details of how their ratings have evolved are given in Table 9.

Glitnir Bank

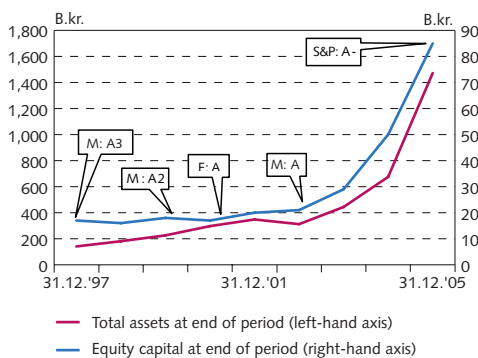
In December 1997, Glitnir Bank (then named Íslandsbanki) became the first Icelandic commercial bank to have its position in the credit markets assessed by an international rating agency. This milestone in the history of Icelandic commercial banking was undertaken by Moody's. Íslandsbanki was awarded a long-term deposit rating of A3, a short-term deposit rating of P-2 and D+ for financial strength.

In February 2001, Glitnir Bank (then named Íslandsbanki-FBA) also became the first Icelandic private corporation to be rated by a second international agency, Fitch Ratings. Fitch awarded a long-term credit rating of A, short-term credit rating of F1, individual rating of C and support rating of 2.

Then in March 2006, Glitnir Bank became the first Icelandic bank to be rated by Standard & Poor's, and thereby by all three major international rating agencies. S&P awarded Glitnir Bank A- for long-term obligations and A-2 for short-term obligations.

Glitnir Bank's current credit ratings are shown in Table 4.

Chart 1
Ratings history of Glitnir Bank hf.
Relative to balance sheet figures



M: Moody's, F: Fitch, S&P: Standard and Pooers.
Sources: Annual accounts, rating agencies' announcements.

Table 4 Credit ratings of Glitnir Bank

	Moody's	Fitch Ratings	Standard & Poor's
Long-term	A1	A	A-
Short-term	P1	F1	A-2
Financial strength	C+		
Individual rating		B/C	
Support rating		2	

Ratings from Moody's were affirmed on 04.04.2006 but the outlook for financial strength was changed

12. Standard&Poor's. FI Criteria: Rating Banks. 18 March, 2004.

Kaupthing Bank

Kaupthing Bank (then Búnaðarbanki Íslands) was first rated in June 1999, by Moody's. It received a long-term deposit rating of A3, short-term deposit rating of P-2 and rating of D for financial strength.

In November 2005, Kaupthing Bank received a rating from Fitch. Fitch awarded Kaupthing Bank a long-term credit rating of A, short-term credit rating of F1 and individual rating of B/C.

Kaupthing Bank's current credit ratings are shown in Table 5.

Table 5 Credit ratings of Kaupthing Bank

	Moody's	Fitch Ratings
Long-term	A1	A
Short-term	P-1	F1
Financial strength	C+	
Individual rating		B/C
Support rating		2

Moody's reviewed Kaupthing Bank's financial strength rating for possible downgrade on 04.04.2006, while other ratings were affirmed. The outlook from Fitch Ratings is stable as of 23.02.2006.

Landsbanki Íslands

Landsbanki Íslands was first rated by Moody's in February 1998. Landsbanki was awarded a long-term deposit rating of A3, a short-term credit rating of P-2 and D for financial strength.

Fitch first rated Landsbanki in May 2001. Fitch awarded Landsbanki a long-term credit rating of A, short-term credit rating of F1, individual rating of C and support rating of 2.

Landsbanki Íslands' current credit ratings are shown in Table 6.

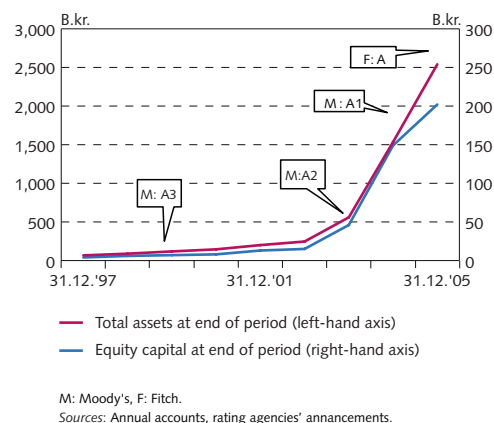
Table 6 Credit ratings of Landsbanki Íslands

	Moody's	Fitch Ratings
Long-term	A2	A
Short-term	P-1	F1
Financial strength	C	
Individual rating		B/C
Support rating		2

Moody's affirmed its credit ratings on 04.04.2006 but changed the outlook for financial strength from stable to negative. The outlook from Fitch Ratings is stable as of 23.02.2006.

Chart 2

Ratings history of Kaupthing Bank hf.
Relative to balance sheet figures

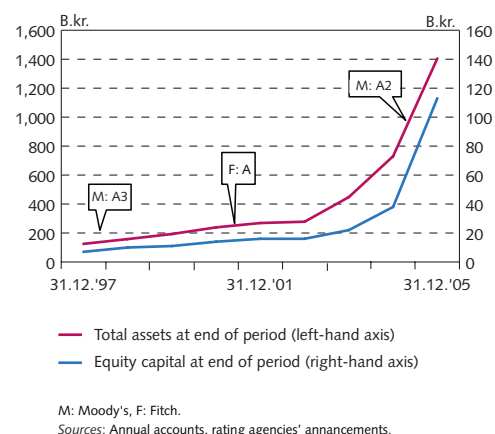


M: Moody's, F: Fitch.

Sources: Annual accounts, rating agencies' announcements.

Chart 3

Ratings history of Landsbanki Íslands
Relative to balance sheet figures



M: Moody's, F: Fitch.

Sources: Annual accounts, rating agencies' announcements.

Table 7 Bank long-term credit ratings by Moody's, Fitch Ratings and Standard & Poor's

Moody's	Fitch Ratings and Standard & Poor's	Definition
Aaa	AAA	Highest rating and minimum risk. Banks with this rating for deposits offer exceptional credit quality. While the credit quality may change, such changes can be visualised and are most unlikely to impair the banks' strong positions.
Aa	AA	High rating and low risk. Excellent credit quality, but these banks are rated lower than the AAA banks because their susceptibility to long-term risk appears greater.
A	A	Good credit quality and relatively little risk. However, elements may be present that suggest a susceptibility to impairment over the long term.
Baa	BBB	Medium rating and adequate risk. However, certain protective elements may be lacking or may be characteristically unreliable over any great length of time.
Ba	BB	Credit quality is likely but questionable. Often the ability of these banks to meet deposit obligations punctually may be uncertain and therefore not well safeguarded in the future.
B	B	Some credit quality but risk of delinquency. Banks with this rating offer generally poor credit quality. Assurance of punctual payment of deposit obligations over any long period of time is small.
Caa	CCC	Extremely poor credit quality with an obvious risk of delinquency. Such banks may be in default, or there may be present elements of danger with regard to financial capacity.
Ca	CC	Very dubious credit quality. Usually in default on their deposit obligations.
C	C	Lowest rating. Usually in default on their deposit obligations and potential recovery values are low.

Moody's appends the numerical modifiers 1, 2 and 3 to each generic rating category from Aa to Caa. The modifier 1 indicates that the bank is in the higher end of its letter-rating category; the modifier 2 indicates a mid-range ranking; and the modifier 3 indicates that the bank is in the lower end of its letter-rating category. Fitch may append the modifiers "+" or "-" to a rating in the range between AA and CCC to denote relative status within major rating categories.

Table 8 Bank short-term credit ratings by Moody's, Fitch Ratings and Standard & Poor's

Moody's	Fitch Ratings and Standard & Poor's	Definition
P-1	F1	Highest rating, minimum risk.
P-2	F2	High rating, low risk.
P-3	F3	Medium rating, adequate credit quality.
	B	Credit quality probably reliable but some uncertainty.
	C	High liquidity risk, relies on favourable conditions.
NP	D	Lowest rating. Particularly poor outlook for repayment or delinquency.

Table 9 Development of the Icelandic commercial banks' credit ratings 1997-2006

Date	Bank	Rating agency	Long-term obligations	Short-term obligations	Moody's Financial strength	Fitch	
						Individual Rating	Support Rating
12.12.1997	ISB	Moody's	A3	P-2	D+		
2.2.1998	LI	Moody's	A3	P-2	D		
5.1.1999	FBA	Moody's	A3	P-2	D		
29.6.1999	BI	Moody's	A3	P-2	D		
2.6.2000	ISB-FBA	Moody's	A2	P-1	C		
2.6.2000	LI	Moody's	A3	P-2	D+		
2.6.2000	BI	Moody's	A3	P-2	D+		
26.2.2001	ISB-FBA	Fitch	A	F1		C	2
10.4.2001	LI	Moody's	A3	P-2	C		
10.4.2001	BI	Moody's	A3	P-2	C		
4.5.2001	LI	Fitch	A	F1		C	2
8.4.2003	ISB	Moody's	A1	P-1	B-		
10.4.2003	BI	Moody's	A3	P-1	C		
10.4.2003	LI	Moody's	A3	P-1	C		
27.5.2003	KB	Moody's	A3	P-1	C		
15.12.2003	KB	Moody's	A2	P-1	C+		
3.11.2004	KB	Moody's	A1	P-1	C+		
7.3.2005	LI	Moody's	A2	P-1	C		
10.5.2005	ISB	Moody's	A1	P-1	C+		
22.11.2005	ISB	Fitch	A	F1		B/C	2
22.11.2005	KB	Fitch	A	F1		B/C	2
29.11.2005	LI	Fitch	A	F1		B/C	2
28.3.2006	GLB	S&P	A-	A-2			

Abbreviations: GLB: Glitnir Bank; KB: Kaupthing Bank; LI: Landsbanki Íslands, BI: Búnaðarbanki Íslands, now Kaupthing Bank; FBA: Fjárfestingabanki Atvinnulífsins, now Glitnir Bank; ISB: Íslandsbanki, now Glitnir Bank; ISB-FBA: Íslandsbanki-FBA, now Glitnir Bank.

Payment and settlement systems

Disciplined framework and procedures

Efficient and reliable payment systems are a precondition for secure payment intermediation, which in turn is one precondition for financial stability. Payment systems are therefore one of the factors included in financial stability assessments. Central Bank payment intermediation measures reflect its role and responsibilities, which are to promote safe and efficient system operation with the aim of enhancing and maintaining financial stability. The Central Bank works on the development and enhancement of its own real-time gross settlement (RTGS) system and also has an oversight role towards other important payment systems which are owned by other parties and operated on their responsibility. In 2005, technical locks were activated in the RTGS system, user fees were introduced and a formal agreement was signed with the Icelandic Banks' Data Centre (RB) on operation and development of RTGS system software. A review of internal organisation of RTGS system operation is now under way. Contingency plans for payment intermediation have also been reviewed. The activation of technical locks in the netting system is being prepared, and a system functionality assessment and contingency exercises will be arranged.

Universal role of payment intermediation

All private individuals and businesses take advantage of payment intermediation in one way or another. Every time a payment is made by debit card, credit card or home bank, either money is transferred between accounts or a liability is recorded for later payment. If the payer and payee are not customers of the same credit institution, payment is also made between their respective institutions in accordance with the payment order. All interinstitutional payments are finally settled through their accounts in the Central Bank of Iceland. Settlements through the Central Bank entail neither credit risk nor liquidity risk for the institutions involved. Participants in the RTGS system also have the opportunity to improve their liquidity positions by using Central Bank loan facilities.

Payment infrastructure in Iceland

A very high and steadily increasing proportion of payments in Iceland is made electronically. Increased electronic payments contribute to security and reduce the cost to users and service providers. Iceland's payment infrastructure is highly centralised and linked in various ways to the activities of RB. This long-established arrangement is founded on decades of cooperation between commercial banks and savings banks. Its advantages include increased coordination, overview and operating efficiency. However, the arrangement may entail an operating risk of contagion between systems if a problem arises. Payment intermediation uses different but interrelated systems, all based on infrastructure owned by RB. Responsibility for operation of the three most important payment systems lies with the Central Bank, which operates the RTGS system; Fjölgreiðslumiðlun hf. (FGM), which operates the netting system; and Icelandic Securities Depository, which operates the securities settlement system.

Types of payment systems¹

Two types of payment system are in operation in Iceland, both of them settlement systems. Securities settlements are made through one of them. Individual payments are processed by different systems depending upon their amount and nature. The largest sums are handled directly in the RTGS system, where individual payment orders are settled in real time. Owned by the Central Bank, the RTGS is the largest payment system in Iceland in terms of turnover, while the FMG netting system handles more transactions.

Smaller payments are handled by the FMG netting system. A netting system calculates the net credit/debit of each credit institution towards the others, which at a given point in time is registered in its account in the Central Bank. Final settlement is made through the Central Bank's RTGS system at the end of each business day. A similar methodology is used for settlement of securities transactions, i.e. payment orders between banks are netted and the balance is settled in the RTGS system when it opens on the day following the transaction. Delivery of securities is made at the same time as payment from buyer to seller is completed.

Payment system turnover

Turnover in the Central Bank's RTGS system increased by 79% in 2005. Monthly turnover (deposits and withdrawals) averaged 2,721 b.kr. in 2005, equivalent to 129 b.kr. per day, compared with 73 b.kr. in 2004. A total of 195 thousand transactions (deposits and withdrawals) were made in 2005, a 30% increase from 2004.

By comparison, almost 66 million transactions took place in the netting system, which is some increase on the previous year. Turnover was up by 7.8% year-on-year over the last eight months of 2005. Roughly 70 thousand transactions were made through the Icelandic Securities Depository (ISD) system to the value of 560 b.kr. and settled in the RTGS system. A further 112 thousand transactions were made in connection with off-exchange trading and asset transfers relating to the winding-up of estates, etc. A large share of transaction types which were settled outside the system in 2005, including trading with Housing Financing Fund (HFF) bonds, will be settled in the system in the second half of 2006.

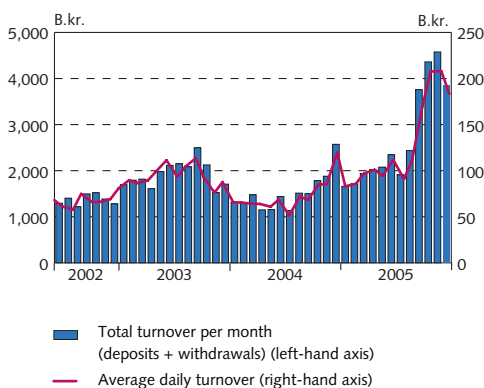
Responsibilities and duties

The owners and operators of respective payment systems are responsible for their operation and are obliged to ensure their reliable infrastructure and functionality. This includes the structuring, development, analysis and management of the system in question, so that the parties responsible for it are equipped to handle the risks that payment system operation entails.

Payment intermediation risks

Like all other financial system activities, payment intermediation and system operation entail risks. Several areas of risk may be identified.

Chart 1
RTGS system turnover
June 2002 - December 2005



Source: Central Bank of Iceland.

1. See further Box 1.

RTGS system

The Central Bank's real-time gross settlement (RTGS) system entered service in December 2000. It handles final settlement of individual payment orders between participants of 10 m.kr. or above as soon as the deposit in the payer's account allows this to be done. The system thereby transfers payment orders which are above the minimum needed to qualify for the RTGS system directly to or from participants' current accounts with the Central Bank. Administration of the RTGS system has been assigned to the Central Bank, whose duty is to strengthen the security, efficiency and independence of the system, in line with prevailing international practice. The RTGS system is subject to the provisions of Central Bank Rules No. 788/2003.

Netting system

The Central Bank has taken part in development of the Fjöl-greiðslumiðlun (FGM) netting system. FGM is jointly owned by the commercial banks, payment card companies and the Central Bank. It handles netting of accumulated payment orders between participants lower than 10 m.kr. Real-time netting positions between system participants are visible so that they can monitor and manage payment intermediation risks. Customers have access to money deposited in accounts as soon as payment is made. Participants negotiate authorisations for netting positions between them and pledge securities as collateral for the highest intraday overdraft. They can also deposit liquid funds in dedicated accounts to meet temporary imbalances in payment positions between them. Settlements are made on participants' RTGS accounts in the Central Bank at 17.00 hrs. on banking days. The netting system is subject to the provisions of Central Bank Rules No. 789/2003.

Securities settlement system

In most countries, central banks are assigned the role of promoting development of reliable and efficient securities settlement systems. The Icelandic securities settlement system plays a key role for the domestic securities market, financial system and financial stability. Also, the Central Bank uses the settlement system in its own transactions with securities. The Icelandic securities settlement system is operated on the basis of an agreement between the Central Bank, Icelandic Securities Depository (ISD) and Iceland Stock Exchange (ICEX). It includes all institutional arrangements for confirmation, determination of rights and obligations, clearance and settlement of securities trades and safekeeping of securities. Securities settlement includes the final transfer of securities (delivery) and funds (payment) between the buyer and the seller.

In the Icelandic securities settlement system the different components are divided between the three institutions in the following manner:

- ICEX confirms the terms of securities trades (confirmation);
- ISD calculates and records the mutual obligations of market participants for the exchange of securities and money (clearing) and carries out the final transfer of securities (delivery);
- The Central Bank executes the final transfer of funds (payment), through its RTGS system, based on payment orders calculated by ISD;
- ISD handles custody/safekeeping of the securities.

Box 1**Icelandic payment and settlement systems**

The first is *credit risk*, i.e. the risk of default on an original payment that has already been settled with a bank or customer. It is a long-established practice in Iceland that the recipient of a payment has in effect immediate access to funds paid in both the RTGS and netting systems. However, the systems have different opening times and arrangements for the finality of payment order settlements, including this risk. There is no credit risk in the RTGS system, but it may be present in the netting system, and collateral is pledged as a guarantee against it. If two credit institutions are involved, the risk lies in the fact that the customer of the recipient bank receives access to the transferred amount before the bank itself receives the corresponding amount. The bank does not gain access to the funds until the next netting system settlement is made.

The second risk is *liquidity risk*, which may prevent the settlement of a payment obligation. Ample and flexible intraday overdrafts in the payment systems, and access for participants to liquid funds from the Central Bank against acceptable collateral, substantially reduce liquidity risk in payment intermediation. The merger of credit institutions' current accounts and required reserves into a single account in the Central Bank has also freed up system liquidity. A growing focus internationally and in Iceland is *operational risk*, i.e. the risk of damage due to errors or abuses in payment or information systems, organisation or management. The Central Bank of Iceland has recently been addressing these risks and ways of reducing them. The probability of serious damage such as contagion between systems is generally fairly small, but the effect could be sizeable if it occurs. *Environmental (legal) risk* relates to damage that could occur due to changes in the operating environment, including regulation, technology, implementation and confidence. *Settlement risk* involves the failure to complete a settlement due to default, inadequate collateral, natural catastrophe, an act of terrorism, technical failures or the cancellation of a payment order. Finally, *systemic risk* is when financial stability is threatened because the payment system is rendered largely or entirely unserviceable by technical shocks, a shock to the banking sector or market conditions. It is important to be clearly aware of the above risks, identify them in operations of individual systems and manage them with the aim of minimising or, ideally, eliminating the risk.

Settlement collateral

Adequate collateral for payment system settlement is vital for ensuring the sound and efficient operation of the financial system in the event that a credit institution cannot honour its settlement obligations. At the beginning of 2005, collateral of all credit institutions totalled 18.5 b.kr. in the RTGS system and 3.2 b.kr. in the FGM netting system. Collateral amounts were revised in mid-2005 and set at 18.4 b.kr. in the RTGS system and 3.1 b.kr. in the FGM netting system. A further review set total collateral at 29.2 b.kr. for the beginning of 2006, divided between 23.3 b.kr. in the RTGS system and 5.9 b.kr. in the FGM netting system.

Agreements on settlement collateral for payment systems were amended when they were renewed on December 29, 2005. The main

change involved extending the eligible collateral that credit institutions can pledge. Besides securities that qualify for repo transactions, institutions may now pledge electronic bonds issued by local governments, central or local government-owned enterprises and companies listed on ICEX. Foreign securities that are eligible as Central Bank foreign reserve investments may also be pledged.

Also on December 29, 2005, agreements with credit institutions on payments systems were split into separate agreements on the RTGS system and FGM netting system. FGM, which is responsible for operation of the netting system, thereby became a direct party to the agreement on overdrafts and settlement guarantees in the netting system. This change is a step in the further development and differentiation of the payment systems, aimed at sharpening the focus and responsibility of individual system participants.

The Central Bank reviews collateral amounts on the basis of the highest daily settlement exposure that it has recorded for each credit institution. Credit institutions may not exceed the intraday overdraft limit that their collateral covers. They aim to arrange their cash management in such a way as to reduce the amount of funds tied up as collateral. The Central Bank has also tried to reduce the collateral requirement by lowering the minimum payment amount that qualifies for the RTGS system and by combining reserve accounts and RTGS settlement accounts. If necessary, RTGS system participants can raise their intraday overdraft limits provided that adequate additional collateral is pledged.

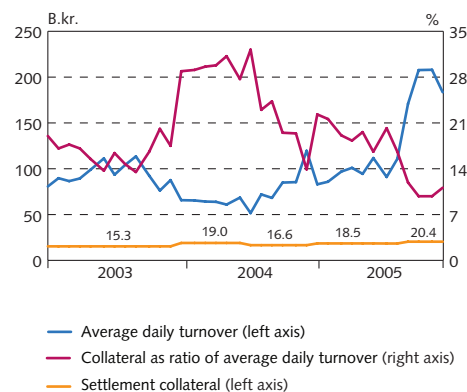
Preparations were made during the year for technical locks on the RTGS system, which were activated on September 16, 2005. From that time on, the RTGS system automatically rejects all payment orders which would entail an uncollateralised overdraft. It is planned to introduce the same kind of locks in the FGM netting system in 2006, along with further system development. The commercial banks and savings banks will need to prepare their customers for the introduction of overdraft locks.

Cost of payment system operation – collection of participation fees

Fees for participation in payment systems are lower in Iceland than the international norm. Participants in other countries pay for the entire operation and development of payment systems, while fees in Iceland have not reflected real costs. Hitherto, FGM netting system fees have primarily covered the variable annual operating costs of the system but only a small part of the overheads. A review of the FGM fee structure can be expected shortly taking account of total system operating costs.

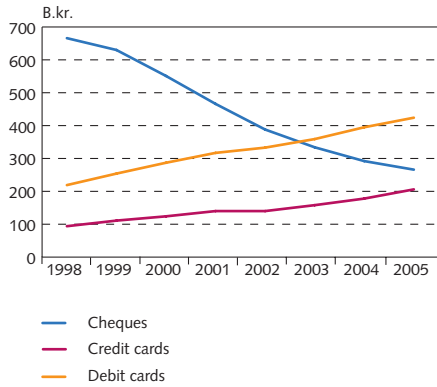
The Central Bank commenced operation of the RTGS system in December 2000. It began collection of participation fees in 2005; prior to that, participants were required to pay only the charge made by RB. However, the current fee structure still does not reflect the real cost of operating the RTGS system. Further adjustment of fees is aimed for so that participants will meet all system operating and development costs.

Chart 2
Average daily turnover in the RTGS system and settlement collateral
January 2003 - December 2005



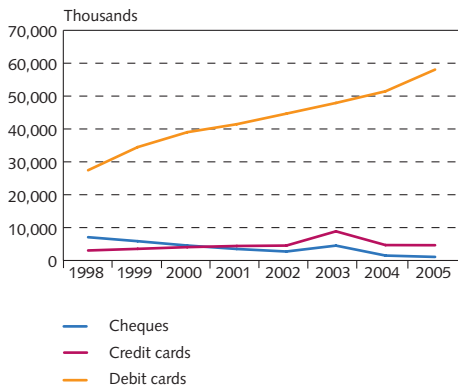
Source: Central Bank of Iceland.

Chart 3
Turnover: cheques and payment cards
1998 -2005



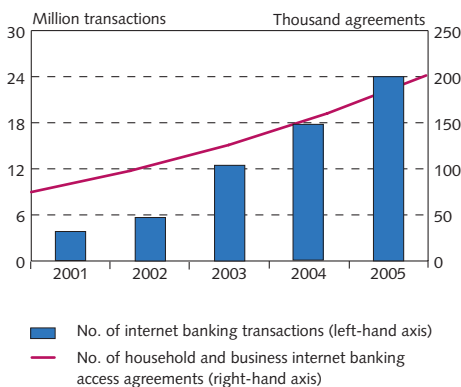
Source: Central Bank of Iceland.

Chart 4
Number of transactions 1998 - 2005



Source: Central Bank of Iceland.

Chart 5
Internet banking access agreements and
transaction numbers 2001-2005



Source: Central Bank of Iceland.

It is not easy to calculate the exact total cost of payment intermediation. International studies indicate that the cost may lie in the range 1-3% of GDP.² A rough estimate on the basis of these figures would put the total cost of payment intermediation in Iceland in the range 10-30 b.kr. for 2005. Given the substantial sums involved, it would be useful to obtain a clearer picture of the real cost of payment intermediation. Pricing of services on the basis of real cost also encourages efficiency and economical operation.

Evolving use of payment instruments

Use of payment instruments has evolved rapidly in Iceland in recent years. The boom in electronic payments has not reduced the use of notes and coin over the past two decades. At the end of 2005, notes and coin in circulation outside the Central Bank amounted to 13.2 b.kr., an increase of 1.6 b.kr. from 2004. This large increase is noteworthy given the growing use of other payment instruments. Credit and debit card turnover is still growing year-on-year but the contraction in cheque turnover is slowing down. Credit card turnover increased by 28 b.kr. (15.5%) in 2005, to 206 b.kr. The increase in credit card transaction volume was divided between 21 b.kr. in domestic transactions and 7 b.kr. outside Iceland. Debit card transaction volume increased by 7.4% from 395 b.kr. in 2004 to 424 b.kr. in 2005, with domestic transactions accounting for the bulk of the growth. Cheque transaction volume decreased by just under 9% year-on-year and amounted to 266 b.kr. at the end of 2005. The number of domestic transactions increased year-on-year by 11.1% for debit cards and 12.8% for credit cards. The number of cheque transactions fell by 28%.

Internet banking use has increased by leaps and bounds in recent years, from just under 4 million transactions in all in 2001 to 24 million in 2005. Year-on-year transaction growth in 2005 was 36%, and internet banking customer numbers increased by 26%.

Charts 6-12 show various developments in the use of payment instruments in Iceland in recent years.

The Central Bank's role and policy for payment and settlement systems

The Central Bank performs an important function in promoting reliable and efficient operation of payment systems and the securities settlement system in Iceland. This function may be divided into policy-making, regulatory, catalyst, operational and oversight roles. Furthermore, the Central Bank has representatives on the boards of the companies involved in implementation of payments and settlements, i.e. RB, FGM and the Iceland Stock Exchange (ICEX) and ICD holding companies, which work towards furtherance of the Bank's objectives in this field.

2. Hancock, Diana, and David B. Humphrey (1997): Payment Transactions, Instruments, and Systems: A Survey, *Journal of Banking and Finance*, vol. 21, no. 11-12, December, 1573-1624; Gresvik, O. and G. Øwre (2002): Banks' Costs and Income in the Payment System in 2001, *Norges Bank Economic Bulletin*, 73:125-33

Iceland is a member of the Financial Action Task Force on Money Laundering (FATF) which was established by the G-7 Summit in Paris in 1989. In 1990 the FATF issued 40 Recommendations to provide a comprehensive plan of action to combat money laundering, which member countries undertake to comply with. After the terrorist attacks on the US in September 2001, a further 9 special recommendations were added to combat financing of terrorist groups. The FATF's main tools for ensuring its members' compliance with the recommendations are detailed assessment reports and mutual evaluation reports.

In Iceland, the Ministry of Commerce Committee on Money Laundering was resurrected just over a year ago. One of its main tasks has been preparation for the FATF evaluation which will be made in Iceland in 2006. When the committee began work it was clear that neither the legislative framework nor established procedures in government or the financial sector fulfilled all FATF requirements. The committee has therefore been engaged on the necessary legal amendments. A bill is currently before Parliament based on the EU's third Directive on money laundering¹ which transposed the 40+9 FATF recommendations into European law.

The main innovations in the bill include the following:

- The legislation is no longer based on the activities of the institutions and persons obliged to report under the law, but on their identity; they are now identified as being obliged to report and their number is increased from earlier legislation.
- Increased demands are made on reporting bodies to apply customer due diligence, including verification of the beneficial owner where appropriate.
- More detailed provisions are set for appraising the reliability of information about customers; however, different risk assessments may now be made depending upon how much information is needed about them in each instance.
- More stringent demands are made about procuring information in circumstances where there is generally considered to be more risk of money laundering or terrorist financing.
- Attorneys at law will be exempt from the general reporting obligation when examining the legal status of a client and in connection with court proceedings.
- Wider exemptions are proposed from the ban on providing information in connection with suspicions of money laundering or financing of terrorist activities. Institutions and persons with reporting obligations, and monitoring agencies, will be allowed to pass on notification of an actual or possible examination within a corporate group, and between lawyers and accountants of the same legal person or corporate network.
- Institutions and persons with reporting obligations should set themselves written procedures.
- Legal persons will be obliged to maintain a system enabling them to respond promptly to enquiries from the police or other competent authorities.
- The Financial Supervisory Authority (FME) will actively supervise financial companies, pension funds, insurance brokers and others engaged in financial activities. Supervision entails authorisation to request any kind of documentation and to conduct on-site checks.

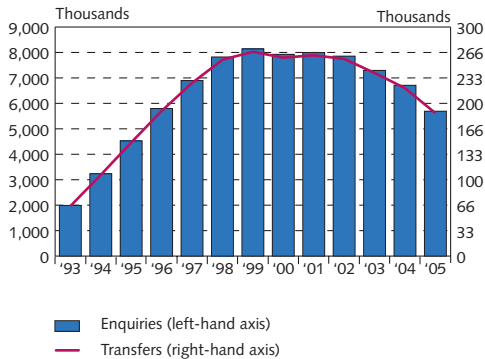
Money laundering is a growing global problem that needs to be countered, but there are no indications that it is more widespread in Iceland than in neighbouring countries.

1. Directive 2005/60/EC of the European Parliament and of the Council of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing.

Box 2

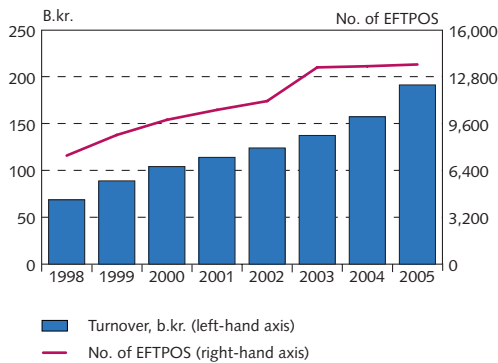
Measures to combat money laundering and financing of terrorist activities

Chart 6
Commercial banks' and savings banks' telebanking 1993-2005



Source: Central Bank of Iceland.

Chart 7
EFPTOS: Domestic turnover and volume 1998-2005



Source: Central Bank of Iceland.

The Central Bank has formulated a policy on these issues aimed at bringing the domestic payment and settlement systems into line with international requirements. In doing so it has taken particular account of an assessment made by the International Monetary Fund in 2000, on the extent to which Iceland's payment systems fulfil international standards. The reference standards are the Bank for International Settlements' Core Principles for Systemically Important Payment Systems and the CPSS/IOSCO recommendations for securities settlement systems.

Central Bank responsibility for payment system oversight

The Bank for International Settlements (BIS) sets out four principles for the national central banks' role in relation to systemically important payment systems:

- The central bank should define clearly its payment-system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.
- The central bank should ensure that the systems it operates comply with the Core Principles.
- The central bank should oversee compliance with the Core Principles by systems it does not operate and it should have the ability to carry out this oversight.
- The central bank, in promoting payment system safety and efficiency through the Core Principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities.

The above principles are set out so that other stakeholders involved in payment systems shall know and be aware of the Central Bank of Iceland's role. Provision is also made for the Central Bank to disclose publicly payment intermediation as a whole and its objectives for individual payment systems. Public disclosure of the Bank's objectives gives other participants the opportunity to take measures on their own initiative to ensure that that their own systems comply with the stated objectives and requirements. Central Bank systemic oversight of payment systems is conducted in collaboration with other public bodies with mandatory involvement in payment intermediation. One reason is to ensure a consistent assessment by participants of system security and functionality.

Central Bank oversight

The Central Bank of Iceland cooperates closely with operators of other payment systems and oversees the safety, efficiency and cost-effectiveness of payment and settlement systems. In doing so, the Central Bank focuses in particular on system structure, operational risk and the main operational inputs such as software, hardware, human resources and telecommunications. Furthermore, the Bank monitors compliance with legal and regulatory provisions on payment system operations. Competition issues or consumer protection are not a particular focus of the Central Bank. Nonetheless, Central Bank involvement does not

limit the responsibility of individual owners and parties responsible for payment systems.

Above all, Central Bank oversight extends to the payment systems themselves, but not to the infrastructure or organisation of individual participants. This is the responsibility of the Financial Supervisory Authority (FME), which performs supervision of individual participants' implementation of the rules applying to those systems. The Central Bank and FME have signed a collaboration agreement which includes specification of the division of tasks between them and exchange of information.

Systemically important payment systems

The Central Bank oversees only systemically important payment systems. In order to qualify as systemically important, a payment system must fulfil at least one of the following definitions by BIS. A payment system is regarded as systemically important:

- if it is the only payment system in the country, or the principal system in terms of the aggregate value of payments;
- if it handles mainly payments of high individual value; or
- if it is used for the settlement of financial market transactions or for the settlement of other payment systems in the same currency.

The Central Bank is obliged to oversee its RTGS system, which meets all the above conditions, as well as other systemically important domestic payment systems. Also, the mere fact that the RTGS system is owned by the Central Bank of Iceland reinforces its requirement to fulfil all international standards and principles. RTGS system operation must be arranged in such a way that the Central Bank distinguishes day-to-day system operation and monitoring from oversight and development.

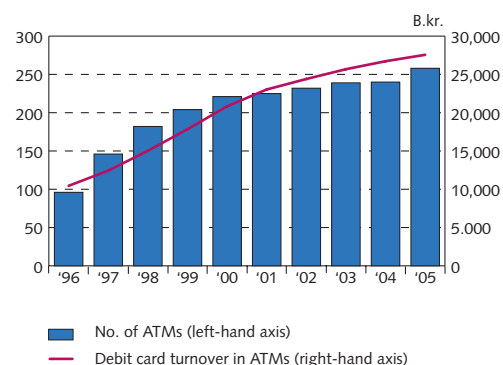
Thus the Central Bank is responsible for its own payment system's compliance with the 10 Core Principles, and must also ascertain that other systemically important payment systems do the same.

Evolution of payment systems

Payment intermediation is in a process of constant evolution with a growing emphasis on integration and economies of scale. An ongoing assessment is needed of the extent to which payment systems fulfil current regulatory requirements and standards. The Central Bank of Iceland underlines the need for ongoing system development and introduction of new solutions aimed at greater flexibility and enhanced system functionality without compromising the security of payment intermediation. International developments are taken into account as well as domestic arrangements as far as possible.

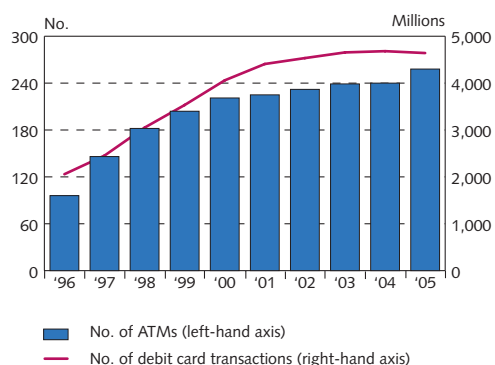
A number of enhancements were made to payment intermediation arrangements in 2005. Highlights included the activation of technical locks on the RTGS system and the signing of a formal agreement on software operation and development for it with RB. Fees were introduced for the RTGS system and steps were taken to

Chart 8
Debit card turnover in ATMs 1996 - 2005



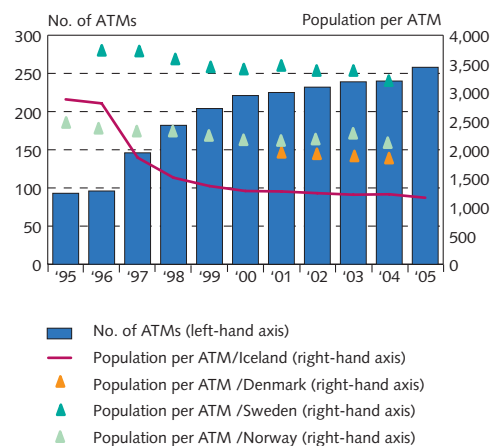
Source: Central Bank of Iceland.

Chart 9
Debit card use in ATMs 1996-2005



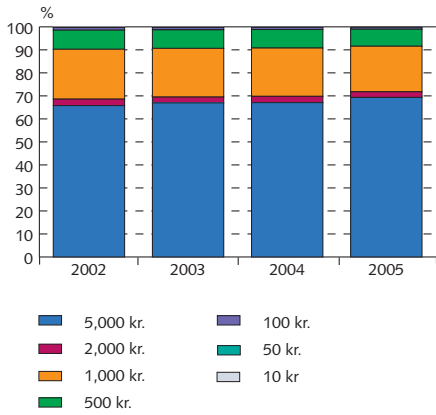
Source: Central Bank of Iceland.

Chart 10
No. of ATMs and access to them 1995-2005



Source: Central Bank of Iceland.

Chart 11
Banknotes by denomination at end of year

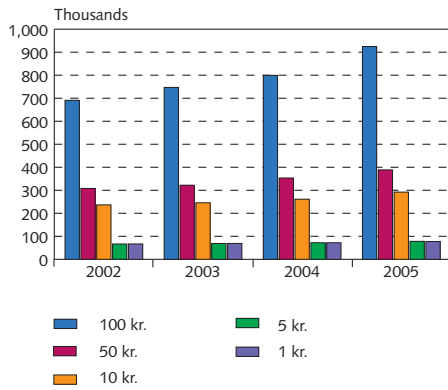


Source: Central Bank of Iceland.

separate it from the netting system, in order to reduce operating risk. Furthermore, the agreement between the Central Bank and the FME on payment and settlement systems has been renewed and contingency plans have been reviewed.

Tasks scheduled for 2006 include activation of technical locks in the netting system, a review of fees based on real costs, evaluation of system functionality and a system contingency exercise.

Chart 12
Coin by denomination at end of year



Source: Central Bank of Iceland.

Contingency plans and cooperation by government authorities

The Financial Stability report for 2005 contained a separate article defining financial stability and the Central Bank's task of promoting the efficiency and safety of the financial system as a whole. It included discussion of the legal provision permitting the Central Bank to act as a lender of last resort, and described the diverse tasks of the Central Bank and the Financial Supervisory Authority (FME) and arrangements for cooperation between them. That discussion is continued here with an account of cooperation by government authorities on financial stability issues and contingency plans.

The strengthening of the Icelandic banks in recent years and the transformation of their business character has increased demands for cooperation by government authorities, both domestically and internationally. The three largest commercial banks have subsidiaries and branches in other countries and raise the bulk of their funding in international markets. Under normal conditions, problems should not arise in funding and other activities of sound banks that employ effective liquidity and risk management strategies. However, this can never be ruled out entirely. Liquidity may tighten due to sudden changes in international credit markets or to a downgrading of the sovereign credit ratings or banks' ratings. The banks' computer networks or national payment and settlement systems may also suffer disruptions. Central Banks must always be prepared for such contingencies.

Legal and regulatory framework

One consequence of Iceland's membership of the European Economic Area is that its legal and regulatory framework for financial markets is based on that of the European Union. This also applies to financial supervision and oversight, which in principle have the same foundation as supervision and oversight of financial activities in all Community countries. Iceland's legal, regulatory and supervisory arrangements are therefore in line with best international practice. This has been recognised by the International Monetary Fund and international rating agencies, which have cited advances in the legal, regulatory and supervisory framework for financial activities as factors supporting the high credit ratings they have awarded to Iceland.

Iceland's cross-border banks

Iceland's banking sector has undergone a radical structural transformation in recent years. For decades, the commercial banks had borrowed abroad for relending to domestic customers, but until quite recently their direct participation in banking activities in other countries was very limited. In 1995 the banks began investing in foreign securities and from 1998 they began to provide direct foreign lending from Iceland and provision of other financial services such as market trading, underwriting, consultancy and asset management. Development of operations in other countries began the same year when Kaupthing established a subsidiary in Luxembourg. The history of overseas expansion and acquisitions of foreign financial companies therefore only goes back seven years and state involvement in commercial banking did not end completely until 2003. Over the past two years, the three banks have taken their largest steps in overseas expansion so far. Today, around half of the income and total assets of Icelandic banking groups originate abroad, and their combined assets are more than five times GDP.

Through their foreign investments, the Icelandic banks have changed their focus and spread their risks. They are now classified as cross-border banks, but headquartered in Iceland where their liquidity and risks are managed. A cross-border bank's management and owners bear responsibility for resolving any difficulties it may run into. It is unethical to operate a bank in the faith that the government will bail it out, and it is a fundamental principle that the private owners of a bank, who benefit from the profits on its operation, should also meet such setbacks as may occur.

Nonetheless, the experience of financial shocks in other countries shows that the government must make contingency plans, regardless of how little risk there is of them occurring. In the event, little time could be available for considering the most prudent responses to unexpected circumstances, and careful preparation could prove crucial.

International cooperation

Liberalisation of international trade and cross-border banking activities make new demands on government authorities. In international fora such as the Bank for International Settlements (BIS) and International Monetary Fund (IMF), a growing dialogue is taking place on responses to this situation. Initial moves have mainly involved studies, more open exchange of information and clearer definition of tasks and responsibilities. The same applies to cooperation within the EEA and Nordic cooperation.

Besides its information and research work, BIS is an important forum for central bank consultation. In recent years it has increasingly focused on the activities and security of financial institutions and markets. Central Bank of Iceland representatives take part in a number of BIS meetings. In 1999, the IMF and World Bank undertook a Financial Sector Assessment Program (FSAP) which examined the financial sectors of their member countries, their structure, risks and legal framework. A comprehensive FSAP on Iceland's financial sector was delivered in May 2001, and followed up with a visit by an IMF delegation in April 2003. On the agenda in 2006 is the IMF's Nordic-Baltic financial sector surveillance exercise. Special attention will be paid to cross-border integration of banks and securities markets, as well as supervision and contingencies, especially regarding cross-border banks.

In recent years the EU has been enhancing practical arrangements for cooperation in potential cross-border crisis situations. It has embarked on systematic sharing of information and arrangement of contingency plans for shocks. A milestone in this work was reached in May 2005 when EU finance ministers signed a memorandum of understanding (MoU) on cooperation between the banking supervisors, central banks and finance ministries in financial crisis situations.¹ Two years previously, EU banking supervisors and central banks had agreed on principles of cooperation.² The supervisory responsibilities

1. Memorandum of Understanding on co-operation between the Banking Supervisors, Central Banks and Finance Ministries of the European Union in Financial Crisis situations, July 2005, http://www.ecb.int/press/pr/date/2005/html/pr050518_1.en.html.

2. Memorandum of Understanding on high-level principles of co-operation between the banking supervisors and central banks of the European Union in crisis management situations, March 2003, http://www.ecb.int/press/pr/date/2003/html/pr030310_3.en.html

are interpreted in accordance with the applicable Community directives, including the role of consolidated supervision. Central banks' responsibilities are interpreted with regard to their capacity as monetary authorities and overseers of payment systems, as well as their overall responsibility for contributing to the stability of the financial system as a whole. Finance Ministries' responsibilities are interpreted with regard to their public accountability for the management and resolution of systemic crises. EU countries have held joint contingency exercises. EEA members can apply for inclusion in the two MoUs.

The Basel Committee on Banking Supervision³ has emphasised in its reports the primary responsibility of the home supervisor in cooperation with the host supervisor. Cooperation between financial supervisory authorities in the EEA is based on this foundation.⁴ A lower profile has been given to central bank cooperation and no agreement has been reached on a corresponding division of tasks for possible central bank liquidity measures, i.e. that the central bank in a cross-border bank's home country would play a more important role than the central bank in the host country. Discussions of joint action by the authorities to address solvency problems in systemically important banking groups have not produced concrete results either. The EU's May 2005 MoU represented an important step in that direction, however. Regional agreements such as those in the Nordic countries and Benelux serve the same aim.

The Nordic countries have taken a leading role in discussions on the position of cross-border banks and the authorities' contingency plans in connection with them. The merger of large Nordic banks into the Nordea Group in the 1990s prompted cooperation in this field by Nordic FSAs and central banks. In particular, Nordic FSAs have intensified their cooperation with regard to financial groups operating in most or all of the Nordic countries. In 2000, Nordic central banks appointed a joint working group on liquidity risk in Nordic banking groups, which has acted since then in a consultative capacity for the governors. The working group held a joint contingency exercise with Nordic FSAs in 2002 and central bank governors signed an MoU on responses to liquidity problems at a meeting in Iceland in June 2003.⁵ Nordic FSAs have concluded a similar agreement. The underlying principle in all these agreements is sharing of information and home-country leadership in the event of a shock to a bank operating in more than one Nordic country. Specific MoUs are in effect between central banks and FSAs in the respective countries, while trilateral MoUs were also signed last year between them and ministries in Denmark⁶ and Sweden.⁷

3. Basel Committee on Banking Supervision, *The Supervision of Cross Border Banking*, 1996, Report on consolidation in the financial sector, 2001.

4. Committee of European Banking Supervisors, *Guidelines for cooperation between consolidating supervisors and host supervisors*, 2005.

5. Memorandum of Understanding (MoU) between the central banks of Denmark, Finland, Iceland, Norway and Sweden, June 2003, <http://www.seclabanki.is/uploads/files/NordiskMoUGenerellslutligENG.pdf>.

6. Samarbejdsaftale om finansiel overvågning mellem Danmarks Nationalbank, Finansministeriet og Økonomi- og Ervervsministeriet, April 8, 2005, [http://www.nationalbanken.dk/C1256B730054214F/sysOakFil/MoU_april2005/\\$File/MOU_april2005.pdf](http://www.nationalbanken.dk/C1256B730054214F/sysOakFil/MoU_april2005/$File/MOU_april2005.pdf).

7. Memorandum of Understanding between the Government Offices (Ministry of Finance), Sveriges Riksbank and Finansinspektionen regarding co-operation in the fields of financial stability and crisis management, June 2005, http://www.riksbank.com/upload/Dokument_riksbank/Kat_AFS/samradskris_eng_0602.pdf.

The Central Bank of Iceland and FME participate actively in international cooperation on financial sector stability and development and surveillance of financial institutions, markets and payment systems. As a rule they have divided these tasks between them, but in exceptional cases they participate side by side, for example in the Committee of European Banking Supervisors (CEBS), of which the FME is a member while the Central Bank sends an observer, like other central banks in the EEA which are not responsible for financial supervision. A Joint Task Force on Crisis Management has been active for almost two years under the auspices of the CESB and the ESCB's Banking Supervision Committee (BSC) and the Central Bank of Iceland has taken part in its work. In autumn 2005, the central banks and FSAs of Iceland and Norway were invited to participate in the BSC's discussions of financial sector contingency plans. A representative from the Central Bank of Iceland has attended its meeting accordingly. Important information on international cooperation is also shared between the Central Bank and FME at regular consultations and meetings of experts.

Cooperation between the Central Bank and FME

In recent years the Central Bank and FME have developed contingency plans for meeting conceivable difficulties in the financial markets. A joint task force comprising experts from both bodies discussed systemic risk and moral hazard in 2000 and 2001, and gathered information on contingency work in neighbouring countries. Subsequently, they drew up respective contingency plans in accordance with their responsibilities and legal mandates. In 2003, the cooperation agreement between the Central Bank and FME was revised to strengthen their contingency work. One aspect of this cooperation was to present these measures to the relevant government ministries and request their collaboration on further action.

The two institutions cooperate closely on the basis of the Agreement.⁸ Provisions include sharing of information, reciprocal warnings and assurances for coordinated responses to conceivable systemic risk in the financial markets. A separate agreement covers payment and settlement systems with contingency provisions.⁹ The Board of Governors of the Central Bank and the Director General of the FME hold quarterly consultations and experts from both institutions also hold regular meetings.

Joint Central Bank and FME contingency exercises

Contingency plans and exercises are a normal part of Central Bank and FME activities. Such exercises imply nothing about whether a request for government support would be more or less likely to be accepted. However, the exercises do leave both institutions better equipped to make a careful, coordinated response in such an event, and to shorten the decision-making process. This should reduce the risk of mistakes.

8. Cooperation Agreement between the Financial Supervisory Authority and Central Bank of Iceland March 2003, <http://www.seclabanki.is/uploads/files/Agreements1.pdf>.

9. Agreement between the Financial Supervisory Authority and Central Bank of Iceland on Payment and Settlement Systems March 2003, <http://www.seclabanki.is/uploads/files/Agreement2.pdf>.

Joint contingency exercises were held in January 2004 and again in January 2006. Aimed at the financial markets, the exercises tested communications within and between the Central Bank and FME. The latter exercise was based on a scenario of shocks to the operations and environment of the banks, an insurance company, pension funds, etc., resulting in problems in liquidity, capital adequacy, payment systems and other communication shocks. After the exercise the events were reviewed and a report was produced identifying scope for improvement. There has been talk of addressing payment system contingencies in the next separate exercise, while ministries will take part in the next joint exercise in accordance with the agreement presented below.

Icelandic authorities' MoU on financial stability and contingency plans

In order to respond swiftly to unexpected conditions in the Icelandic financial system, and to bring Iceland's financial markets and economy into line with best international practice, the government authorities need to make contingency plans. Plans need to be drawn up in case of serious difficulties in the financial markets caused either by failures in the domestic financial market or by changes in external conditions. At the beginning of 2004, the Office of the Prime Minister, Ministry of Finance, Ministry of Commerce, Financial Supervisory Authority and Central Bank of Iceland established a joint task force to consider further elaboration of the authorities' contingencies in this respect. Formal consultation between the Central Bank, the FME and the above ministries on contingency plans for financial market shocks was established in February 2006. The MoU signed between them was one of the task force's proposals (see Box 1).¹⁰

10. Memorandum of Understanding between the Office of the Prime Minister, Ministry of Finance, Ministry of Commerce, Financial Supervisory Authority and Central Bank of Iceland, on consultation concerning financial stability and contingency plans, February 2006, <http://www.sedlabanki.is/lisalib/getfile.aspx?itemid=3668>.

Objective

Since its establishment in the beginning of 1999, the Financial Supervisory Authority (Fjármálaeftirlitið, FME) has cooperated closely with the Central Bank on tasks related to financial stability, including contingency plans for meeting conceivable financial shocks. Over the past two years, the Office of the Prime Minister, Ministry of Finance, Ministry of Commerce, FME and Central Bank have also been engaged in informal consultation on the same issues. The purpose of this Memorandum of Understanding (MoU) is the formal confirmation of their consultation in this area, in an effort to sharpen their division of tasks, prevent duplication and enhance transparency. This MoU does not override the respective signatories' scope for independently deciding measures on the basis of their roles and responsibilities.

Consultation, advisory group

An effective legal, regulatory and supervisory framework for financial companies and markets is fundamental to financial stability, and a sound and efficient financial sector is an important precondition

Box 1

Memorandum of Understanding between the Office of the Prime Minister, Ministry of Finance, Ministry of Commerce, Financial Supervisory Authority and Central Bank of Iceland, on consultation about financial stability and contingency plans

for economic growth and prosperity. Parties to this MoU contribute jointly to such an environment, in keeping with their mandatory roles and tasks. They also seek to coordinate their handling of conceivable financial crises.

The forum for this cooperation is the advisory group on financial sector conditions and contingency plans, comprising representatives from the Office of the Prime Minister, Ministry of Finance, Ministry of Commerce, FME and Central Bank. The advisory group shall meet at least twice a year. However, it shall convene immediately if proposed by the Director of the FME and/or Board of Governors of the Central Bank on account of events involving the position of financial companies or markets. The representative of the Office of the Prime Minister shall chair the group's work. In their preparatory work and discussions, all parties shall honour the confidentiality by which they are bound.

At its meetings, the advisory group shall address issues including:

- The situation and outlook in the financial sector
- Major changes in financial market legislation, regulation and practices
- International cooperation issues, in particular in the European Economic Area.

Contingency plans, procedures

The advisory group is a forum for the exchange of information and views. It acts in a consultative capacity and does not decide on measures. The group compiles and maintains a contact list. It may arrange and take part in contingency exercises such as those undertaken in cooperation between the FME and Central Bank.

If conditions arise in which the financial system is considered to be at risk from a shock to a financial company or market, the issue shall be discussed by the advisory group immediately. While responses to such challenges depend on the circumstances at any given time, a fundamental principle is that the owners and management of financial companies, and market participants, should resolve their problems themselves.

Review of the MoU

The MoU shall be reviewed at the request of a party to it.

Further cooperation between the FME and Central Bank of Iceland

The FME and Central Bank monitor closely and aim to promote the soundness of the Icelandic financial sector, in their respective ways in accordance with their separate roles. Their cooperation is governed by an official agreement, first made in 1999 and currently dating from 2003, which specifies objectives that include ensuring coordinated responses by the FME and Central Bank to conceivable systemic risks in financial markets.

February 21, 2006

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Prudential regulation on liquidity ratio and foreign exchange balance

Prudential regulation in financial markets broadly aims to contribute to secure and reliable practices in financial services. This is a fairly broad concept, including regulations on requirements for management practices in financial companies, their liquidity, consumer protection and effective internal and external supervision of their activities. Prudential regulation also aims to contribute to financial and economic stability. By law, the Central Bank of Iceland sets rules for the liquidity ratio of credit institutions and for their foreign exchange balance.¹ Other prudential regulations in financial markets are either sanctioned by law, or set by a government minister or the Financial Supervisory Authority.² Financial companies have also set their own internal prudential rules, such as for risk management. The main content of the Central Bank's rules on liquidity ratio and foreign balance is as follows:

Liquidity ratio

A credit institution's liquidity ratio may be defined as the ratio between its liquid claims and liquid liabilities. Central Bank Rules No. 317 of April 25, 2006 (cf. Article 12 of the Central Bank Act No. 36/2001) stipulate the liquidity ratio of credit institutions. The regulation aims to ensure that credit institutions always have sufficient liquidity to meet foreseeable and conceivable payment liabilities over a specified period. They are obliged to submit a monthly report to the Central Bank containing data on which calculation of the liquidity ratio is based. Claims and liabilities included in these calculations are classified according to their nature, maturity and risk. The ratio is calculated for four periods, namely liquidity within one month, from one and up to three months, from three and up to six months, and from six and up to twelve months. The ratios of claims to liabilities which fall due or can be liquidated within one month and three months shall not be lower than 1. If an institution fails to fulfil these requirements, the Rules provide for per diem penalties which are levied on the shortfall. Credit institutions must also report their liquidity ratios for other periods, although no specific levels are required to be maintained.

The Central Bank's Rules on liquidity were recently reviewed. One of the aims of the review was to preclude intra-group transactions aimed at circumventing the Rules. To this end, the Central Bank decided to request further information on claims and liabilities towards foreign subsidiaries, together with other items, on a separate form on their liquidity reports. These changes entered into force as of May 1, 2006.

Foreign exchange balance

A credit institution's foreign balance may be defined as the difference between its foreign currency-denominated assets and liabilities, on

1. These Rules are published on the Central Bank of Iceland website, <http://www.sedlabanki.is>.

2. See the websites of the Ministry of Commerce, <http://eng.idnadarraduneyti.is/laws-and-regulations/> and Financial Supervisory Authority, <http://www.fme.is/fme-eng.nsf/Pages/index.html>.

and off the balance sheet. Foreign balance is therefore a measurement of an institution's foreign exchange risk. Rules No. 318 of April 25, 2006 (cf. Article 13 of the Central Bank Act No. 36/2001) stipulate the foreign balances of credit institutions and financial intermediaries. The regulation aims to limit foreign exchange risk by preventing the foreign balance from exceeding certain limits. Two types of limit are stipulated. One is exposure in individual currencies, and the other applies to the total foreign exchange position in all currencies, which is the sum of positions in individual currencies. The total foreign exchange position may neither be long nor short by more than 30% of equity according to the most recently published financial statements. Credit institutions are obliged to submit regular monthly reports on their foreign balances to the Central Bank. Credit institutions with a balance exceeding the limits shall take immediate measures to adjust it, and it shall be brought inside the permissible limits within three business days. If an institution fails to correct its balance within this time limit, the rules provide for periodic penalty payments (per diem penalties).

The Central Bank's Rules on foreign exchange balance were recently reviewed. Two main changes were made. First, uniform exposures for individual currencies were introduced, i.e. set at 20% for all currencies instead of the previous 20% in US dollars and the euro, but 15% in other currencies. Second, a new item (item 3) was added to Article 4 of the Rules, allowing financial institutions to maintain a separate positive foreign balance outside their total foreign balance as a hedge against the effect of exchange rate movements on their capital adequacy ratios. These changes entered into force as of May 1, 2006.