FINANCIAL STABILITY

2016 • 1

Contents

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 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 focus the Central Bank's work and contingency planning;
- to explain how the Central Bank carries out the mandatory tasks assigned to it with respect to an effective and sound financial system.

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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.

Foreword by the Governor

Premises for financial system stability have strengthened further

This issue of *Financial Stability* contains the usual analysis of factors that could affect the stability of the Icelandic financial system. These factors centre mainly on the economic environment in Iceland and abroad; the assets and liabilities of the national economy, households, firms, and financial institutions; and the activities and efficacy of the markets.

When *Financial Stability* 2015/1 was published a year ago, the premises for stability were considered to have continued improving alongside the advancing economic recovery, declining private sector debt-to-income ratios, an improved external position, and stronger financial institutions. The planned liberalisation of the capital controls entailed substantial risk, however, as a large share of non-residents' domestic assets were locked in by the controls, and the balance of payments problem was therefore unresolved. For this reason, emphasis was placed on preserving the resilience of the economy and the financial system during the prelude to liberalisation.

The analysis appearing in this publication finds that the premises for financial system stability have strengthened still further. Most important in this context is the settlement of the failed banks' estates in a manner consistent with economic and financial stability. The largest single obstacle to general liberalisation of capital controls has therefore been removed. With the fulfilment of the stability conditions through the transfer of the estates' króna-denominated assets, the conversion of their foreign-denominated banking system deposits into long-term loans, and the reimbursement of the credit facilities issued upon the establishment of the new banks, the balance of payments risk associated with the estates has been eliminated. This measure has also brought about a reduction of Iceland's net foreign debt by about a fifth of GDP. Treasury debt will also decline substantially as a result. This outcome has already generated increased confidence in Iceland and improvements in its sovereign credit ratings.

Additional factors support the conclusion that the premises for financial stability have improved. The economic recovery has continued and, as yet, is coupled by relatively good balance in the economy and increased resilience among households and firms. The ratio of private sector debt to GDP has fallen back to turn-of-the-century levels. The banks' capital position has improved still further, and their funding has grown more diversified.

At present, risk in the financial system is linked primarily to the next steps towards capital account liberalisation, uncertainty in the global economy, and growing economic tension domestically.

There are risks associated with the planned auction of offshore krónur, but they are much less pronounced than the risks attached to the settlement of the failed banks' estates. The amounts involved are smaller, and the successful settlement of the estates and the Bank's recent foreign currency purchases reduce the balance of payments problem associated with liberalisation, including the release of offshore krónur. Nonetheless, it is important that the next steps in the liberalisation process limit the risk to the balance of payments and to financial stability without undermining Iceland's reputation and credit ratings. The risk associated with the general liberalisation of controls on residents differs in some ways from the risk stemming from winding up the failed banks' estates and releasing the offshore krónur because it is not possible to control the outcome with the same precision. On the other hand, these outflows will result in foreign financial assets held by Icelanders themselves.

The preparation for general liberalisation of controls on residents has focused on reducing the likelihood of disorderly capital flight. Normal outflows aimed at changing the composition of households', businesses', and pension funds' assets will not be a problem, however. As the domestic economy and financial system strengthen, the likelihood of capital flight will decline. In this respect, conditions for liberalisation could hardly be better than they are now. Actually, it has become extremely important to

begin lifting capital controls on residents because the controls cause increasing distortion in the domestic economy, as can be seen, for example, in upward exchange rate pressure and rising asset prices. Furthermore, capital inflows have begun, exacerbating this distortion and making liberalisation more important than it would be otherwise.

In this context, it is important to complete the regulatory reforms designed to reduce the financial system risk that accompanies unrestricted movement of capital. Particularly noteworthy in this regard is the authorisation to restrict foreign lending to residents without income or assets in the borrowed currencies. A bill of legislation authorising the Central Bank to restrict this type of lending in order to preserve financial stability is currently before Parliament. It is important that this authorisation be passed into law before controls on residents are lifted. Also under consideration are capital flow management tools that the Central Bank can use to counteract excessive carry trade-related inflows. As experience has shown, such inflows can both reduce the effectiveness of monetary policy and undermine financial stability.

Outlook and key risks

Financial system risk has diminished since the publication of the autumn 2015 issue of *Financial Stability*, primarily because of the conclusion of the failed financial institutions' composition agreements. Settling the banks' estates through composition agreements eliminated the potential adverse effects of winding-up on both the exchange rate and financial stability. Capital inflows have increased markedly, and the Central Bank's net foreign currency purchases over the past twelve months total about 350 b.kr. Strong foreign exchange reserves financed domestically will prove important when the next steps are taken towards liberalising the capital controls. An auction of offshore krónur is forthcoming, and afterwards it will be possible to start lifting controls on residents. Increased capital inflows, a positive interest rate differential with abroad, and positive economic developments have created conditions conducive to lifting the capital controls without a major risk to financial stability.

Improved private sector position

As a share of GDP, total private sector debt contracted in 2015, reaching turn-of-the-century levels by the end of the year. The reduction in the ratio has been driven largely by increased GDP. Private sector debt to domestic lenders increased year-on-year in real terms, for the first time since the collapse of the financial system. The contraction in household debt has slowed markedly (adjusted for the Government's debt relief measures), and real growth in corporate debt somewhat exceeded GDP growth, measuring 6%. Households' and businesses' arrears continue to decline. The large commercial banks' 90-day default ratio was 1.7% at the end of 2015, down from the end-2010 peak of 18%.

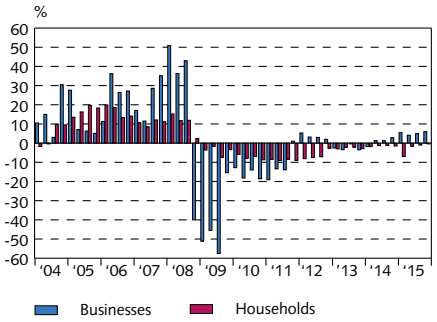
Net household wealth is more than five times annual disposable income, and rising house prices concurrent with declining debt levels have yielded lower loan-to-value ratios than have been seen in recent decades. Households' improved position gives borrowers scope to take on additional debt in the coming term.

Companies' position has improved as well. Investment grew by 30% in 2015, and the ratio of general business investment to GDP was broadly in line with the twenty-year high. Firms' demand for new credit increased during the year, and corporate debt to domestic lenders grew by 6% in real terms. Loans to tourism companies constitute now about 10% of the commercial banks' loan portfolio. The tourism industry's operating performance depends in part on the exchange rate of the króna. The króna has been relatively stable in recent years because of the current account surplus, the capital controls, and the Central Bank's intervention in the foreign exchange market. Uncertainty about developments in the exchange rate after liberalisation therefore exacerbates the banks' credit risk.

Chart 1

Year-on-year change in households' and businesses' real debt[1]

2004-2015

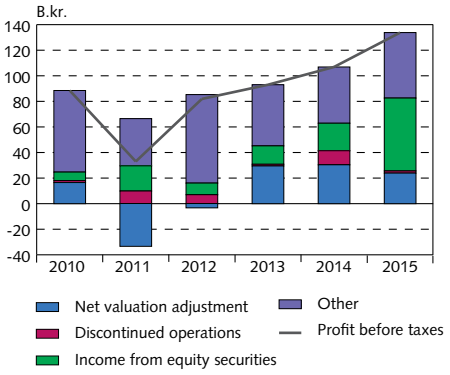


1. Total debt to domestic financial institutions plus domestic market funding. Excluding Government debt relief measures.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2

The three largest commercial banks' profit before tax and irregular and estimated items[1]



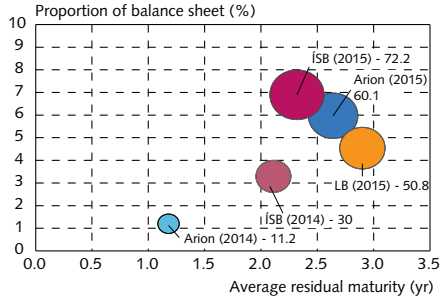
1. Consolidated figures. Irregular income and estimated items; income from equity securities, discontinued operations, and value adjustments. Income from equity securities in 2014 and 2015 includes income from sale and valuation adjustments of the largest affiliates. Other items; other income items net of operating cost.

Sources: Commercial banks' annual accounts, Financial Supervisory Authority, Central Bank of Iceland.

Chart 3

Comparison of banks' foreign funding[1]

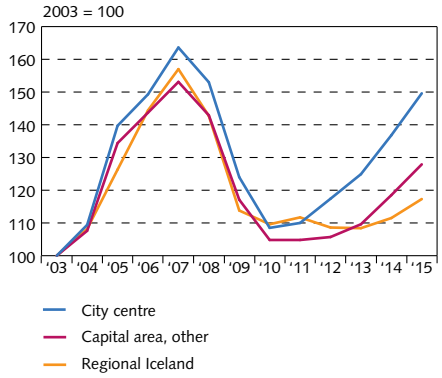
Listed foreign funding, relative to total assets and by average residual maturity[2]



1. The three large commercial banks. 2. The size of the circle indicates the scope of foreign funding in b.kr.

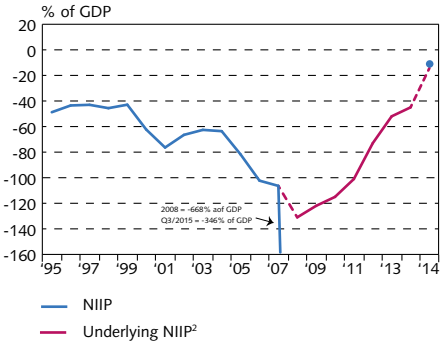
Sources: Nasdaq Iceland, Central Bank of Iceland.

Chart 4
Real house prices[1]



1. Price per sq.m. at constant prices.
Sources: Registers Iceland, Central Bank of Iceland.

Chart 5
Net international investment position[1]



1. At the end of 2015, the estates of the failed financial institutions reached composition agreements entailing the write-off of a large portion of their debt. As a result, there was no difference in the NIIP and the underlying NIIP at year-end 2015. 2. Adjusted for the effects of settlement of the deposit institutions in winding-up proceedings, assuming equal distribution of assets to general creditors until Q4/2015.
Sources: Statistics Iceland, Central Bank of Iceland.

Banks step up market funding but must keep dividend payments in check

Iceland's large commercial banks generated strong profits in 2015. About two-thirds of the profits stemmed from one-off items. Their core operations strengthened year-on-year. Restructuring of asset portfolios is nearly complete; therefore, in the near future, valuation adjustments of loans should be negative in the amount of net loan impairment.

The largest commercial banks' funding changed with the conclusion of the old banks' composition agreements. Their foreign funding has been lengthened, and the estates' króna-denominated deposits were for the most part paid out in the form of stability contributions. The banks increased their market funding during the year. Domestic covered bond issuance grew, and foreign market-based borrowing rose to the highest level since the banks were established. However, unrest in foreign markets and increased risk premia on bank securities in the wake of weak year-2015 earnings reports from large foreign banks, together with the deteriorating global GDP growth outlook, could affect the Icelandic banks' access to foreign credit in the coming term.

The commercial banks all satisfy the Central Bank's liquidity requirements, but their liquidity ratios have fluctuated in recent months, partly in connection with the settlement of the failed banks' estates. In paying dividends, the banks must take into account their liquidity position and the composition of their liquid assets. A large share of their liquid assets are obligations connected with the reconstruction of the banking system, which can only be converted to liquidity through collateralised Central Bank facilities. It should be noted in particular that the capital contribution from the State is in the form of a bond maturing in 2018. The dividends paid by the banks to the State could be used to reduce this debt, thereby preserving the banks' cash position while reducing the State's refinancing risk in connection with these maturities.

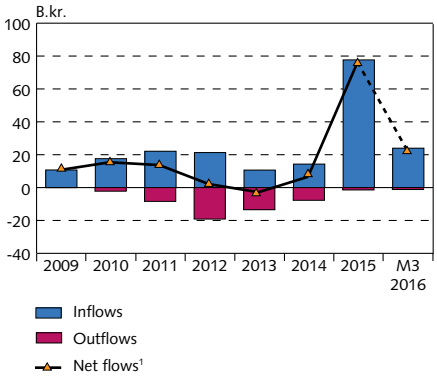
Rising asset prices and growing tension in the domestic economy

Capital area house prices rose by nearly 7% at constant prices in 2015 and by another percentage point in the first two months of 2016. At the end of 2015, the price per square metre of residential housing in central Reykjavík was 38% above the trough from five years ago. The rise in house prices does not appear to be driven by increased household debt. It is important, however, to authorise a cap on loan-to-value ratios for macroprudential reasons before debt-driven housing inflation begins. A bill of legislation providing for such an authorisation is now before Parliament.

There are clear signs of increased tension in the domestic economy, with growing risk of financial imbalances thereafter. Alongside the rise in house prices, share prices have soared. Domestic demand grew by 6.3% in real terms last year, purchasing power has grown at an almost unprecedented rate, and the outlook is for more than 4% GDP

growth this year. A persistent current account surplus, reimbursements and write-offs of debt, and the settlement of the failed banks' estates have improved Iceland's international investment position by more than one GDP since 2009, to -14.3% by year-end 2015.

Chart 6
Non-residents' new investment in Iceland
Price level March 2016



1. Net new investment is the difference between inflows and outflows due to new investments.
Source: Central Bank of Iceland.

Capital inflows on the rise …

Net capital inflows through the Bank's Investment Programme totalled 76 b.kr. in 2015, a sign of increased confidence in the Icelandic economy and the authorities' capital account liberalisation strategy. Increased new investment in the bond market has caused a drop in long-term interest rates, and the Treasury yield curve is virtually flat. Later on, low long-term rates could lead to reduced saving and increased debt accumulation by the Government and by businesses and households. Increased debt exacerbates the risk that a reversal of capital flows will jeopardise financial stability. It is difficult to project future developments in capital inflows from abroad, but given the positive economic developments in Iceland and the low interest rates in other countries, inflows are likely to increase.

… but must not be allowed to increase systemic risk

The Central Bank has implemented prudential rules to counteract the adverse effects of excess capital inflows on the banks' resilience. There is still the risk, however, that inflows will have a negative effect on municipalities, firms, and households in connection with foreign-denominated borrowing not offset by income or assets in the currencies concerned. A bill of legislation authorising the Central Bank to restrict such lending so as to preserve financial stability has been introduced before Parliament. It is important that this authorisation be passed into law before the capital controls are lifted. There is also a need to develop capital flow management tools that could be used, among other things, to reduce foreign investors' short-term incentive to invest in domestic securities.

I The economic environment

Unrest in foreign markets – increased activity at home

Major share price indices fell sharply at the beginning of the year, and risk aversion appears to have increased. Capital has flowed from emerging markets to safer investments in developed countries. Yields on long-term government bonds have fallen, and central bank interest rates are now negative in the eurozone, as well as in Denmark, Sweden, Switzerland, and Japan. Global oil prices have fallen once again, and emerging countries' currencies have continued to depreciate. In the US, banks' share prices led the decline in a falling market at the beginning of the year, while shares in European and Japanese banks declined even further. The International Monetary Fund's (IMF) global GDP growth forecast has been revised downwards again, to 3.2% as of April. According to the first figures from Statistics Iceland, GDP growth measured 4% in Iceland in 2015. Domestic demand grew by 6%, but in spite of robust export growth, the contribution of net trade to GDP growth was negative during the year. Yields on the Treasury's foreign bond issues fell slightly during the year but have hovered at about 1.5 percentage points above yields on comparable US and German bonds. Treasury debt has fallen, in part because a portion of the stability contributions from the failed banks' estates has been used to reduce debt. Turnover in the financial markets increased between 2014 and 2015. Real estate prices have continued to rise at a rapid pace, particularly in greater Reykjavík. The yield curve on Treasury bonds is more or less flat following a rise in short-term rates last spring, while long-term rates fell at the same time. Share prices rose steeply in 2015. The Central Bank has continued to intervene in the foreign exchange market and has used new foreign currency inflows to accumulate reserves; however, the króna has appreciated in spite of these efforts.

Foreign economic affairs and financial markets

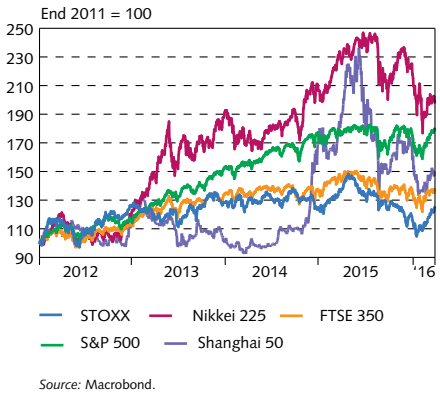
There has been considerable unrest in global financial markets in the recent past. At the beginning of the year, share prices tumbled in major markets, when it became obvious that the slump in China continued. This exacerbated concerns about other emerging economies. The Shanghai share price index fell 21% in the first four weeks of the year, and other major indices fell as well. The Nikkei index in Japan fell by over 10%, and leading indices in Europe, the UK, and the US declined by 5-8% at the same time. Prices rallied for the most part in February and March, although in China they only recovered about half of the decline.

The American VIX implied volatility index measures stock price volatility and gives an indication of investors' risk aversion. The index rose somewhat at the beginning of the year, reflecting the growing unrest in the global markets. It did not rise as high as it did last summer, however, when it rose concurrent with a drop in Chinese share prices and weakening GDP growth in the country.

The US Federal Reserve Bank raised its policy interest rate by 0.25 percentage points, to 0.5%, in mid-December. It was the first policy rate change in the US in seven years and the first step towards a more normal interest rate level. Early on, there appeared to be little response in the markets.

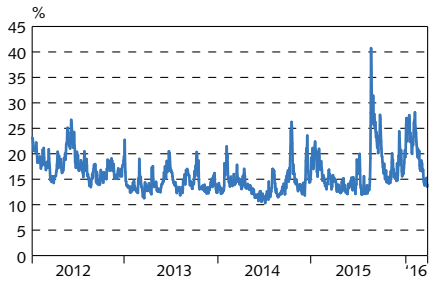
In the UK, the policy rate is still 0.5%, where it has been since March 2009. In late January, the Bank of Japan lowered rates on banks' non-regulatory deposits to below zero. The European Central Bank (ECB) lowered its policy rate to 0% in March, after having held

Chart I-1
Share price indices



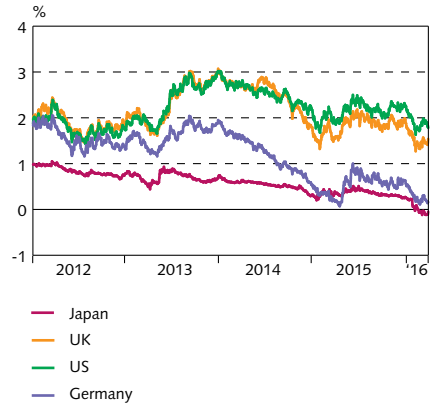
Source: Macrobond.

Chart I-2
VIX implied volatility index
Implied volatility of S&P 500 index options



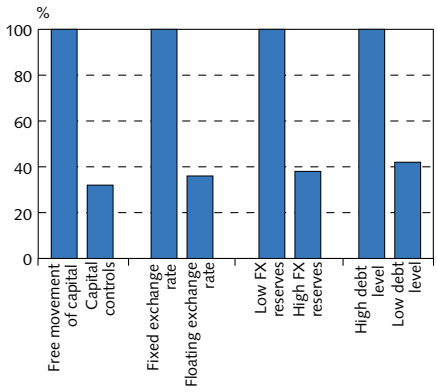
Source: Federal Reserve Bank of St. Louis.

Chart I-3
Yields on 10-year government bonds



Source: Macrobond.

Chart I-4
Share of variation in gross capital inflows explained by global factors



Source: IMF.

it at 0.05% since September 2014. At the same time, interest on overnight deposits were lowered to -0.4%. They had been negative since June 2014. The rationale for negative central bank rates is to encourage banks to loan money out rather than hold it in central bank accounts, thereby stimulating the economy and counteracting the risk of deflation. Central banks in Sweden, Switzerland, and Denmark also have negative rates on banks' deposits, and in Sweden repo rates have been negative for over a year.

Yields on ten-year Treasury bonds have continued to fall in Germany and the UK. At the end of March, they were close to their spring 2015 low, at only 0.2% and 1.5%, respectively. Yields on ten-year US Treasury bonds are low as well, at 1.8%, which is close to the end-2012 trough. Yields on ten-year Treasury bonds in Japan have also continued to fall steadily over the past five years, dropping below zero after the Bank of Japan implemented a negative policy rate in January.

Capital flows to emerging countries have slowed in recent years, in line with the worsening GDP growth outlook in those countries and the increased likelihood of rising interest rates in the US. Last year, net inflows to emerging economies contracted faster than they had before, owing to increased outflows from residents and reduced inflows from non-residents. This is due in part to the increased role of cash accumulation by pension funds that diversify risk by investing abroad. Foreign assets have grown faster than foreign liabilities in recent years, reducing the currency mismatches in many countries' accounts, although some imbalances still exist in certain sectors. Fluctuations in capital flows have been more moderate in countries with low public debt levels, more restrictions on capital flows, and larger foreign exchange reserves (see Box II-2).[1]

Currency exchange rates have continued to fall in emerging countries, particularly against the US dollar. The Chinese renminbi also began to fall against the US dollar last year, after having stood out from the rest and appreciated against the dollar from 2010 until well into 2015. Since December 2015, the exchange rate of the renminbi has been based on a currency basket, whereas before that it was determined vis-à-vis the dollar.

Oil prices continued to fall in the second half of 2015, and early in 2016 global crude oil prices fell below USD 30 per barrel. The drop in oil prices stems from the interaction between supply and demand factors. Strong supply is due in part to US oil production, with heavily leveraged companies using new methods, possibly stepping up production in order to service their debt.[2] The decline in oil prices and the depreciation of the renminbi and other emerging countries' currencies reflects concerns about the worsening global GDP growth outlook. There is a link between this trend, the strengthening of the US dollar, and the decline in long-term interest rates in developed economies, as investors scale down their saving in emerging countries and direct it towards safer assets in developed countries.

1. International Monetary Fund, *World Economic Outlook*, April 2016.
2. Bank for International Settlements, *Quarterly Review*, March 2016.

Protracted low interest rates and the continued drop in market rates has also given rise to concerns in the markets about financial companies' earnings prospects.[3] Banks' share prices – particularly in Europe and Japan – have fallen during the year, leading the plunge in share price indices. European banks' CDS spreads also rose steeply at the beginning of the year. Several large European banks recorded operating losses in Q4/2015. The probability of a difficult operating environment for banks in coming years has increased with negative policy rates and flatter yield curves, prompting investors to be concerned that no interest would be paid on the banks' subordinated loans. The price of bank shares in Europe, Japan, and the US has fallen steeply in the recent past, leading the drop in share prices. In March, the twelve-month drop in shares in Deutsche Bank, Santander, and Unicredit was 45-50%.

Global GDP growth outlook

Global GDP growth is still expected to be positive in coming years, even though forecasts have repeatedly been revised downwards. The IMF now projects global GDP growth at 3.2% this year and 3.5% in 2017.

GDP growth has slowed in China, to a two-decade low of 6.9% in 2015. Chinese exports have contracted sharply, and investment has slowed markedly as well. Capital flows to China have contracted and outflows increased. This has been addressed to a large degree by tapping the foreign exchange reserves, which were reduced by USD 300 billion between August 2015 and February 2016.

GDP growth in the eurozone has picked up in recent years, to an annualised rate of 2% in Q4/2015, which is similar to that seen in the US and the UK. Growth slowed again in Japan at the end of 2015 but remained positive for the third quarter in a row.

The domestic economy

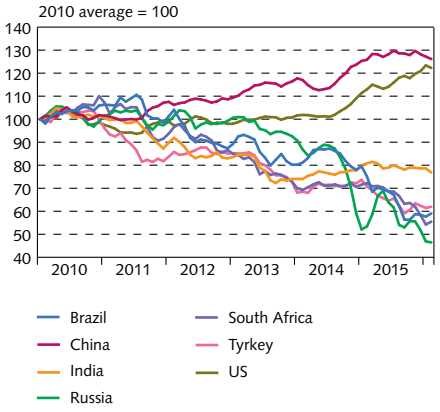
Domestic demand

Domestic demand grew strongly in 2015. The contribution of public and private consumption and investment to GDP growth measured 6%. Import growth outpaced export growth during the year, however, and the contribution of net trade to output growth was negative by 2%. At the time the February issue of *Monetary Bulletin* was published, the Central Bank estimated that the slack in output that had lasted since 2009 had turned into a positive output gap.

Real exchange rate, terms of trade, and exports

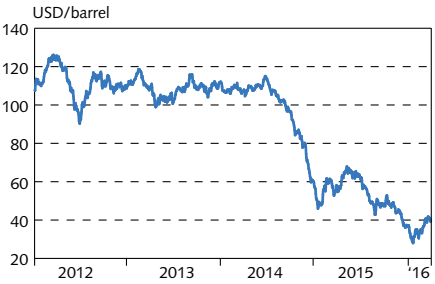
The real exchange rate has continued to rise in recent months. At the end of 2015, it was nearly three percentage points below the average for 1980-2014 and virtually on a par with the average over the past 25 years. The króna appreciated markedly in summer 2015 and has continued to appreciate since. At the end of March, it was nearly 9% stronger in trade-weighted terms than it was a year ago, and about 5% stronger against the euro. Terms of trade have improved

Chart I-5
Currency exchange rates[1]



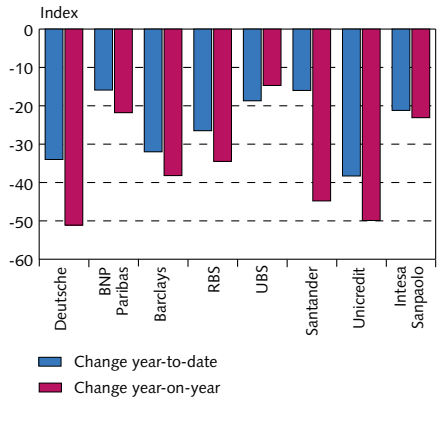
1. BIS nominal indices.
Source: Macrobond.

Chart I-6
Global oil prices, Brent crude
1 January 2012 - 31 March 2016



Source: Macrobond.

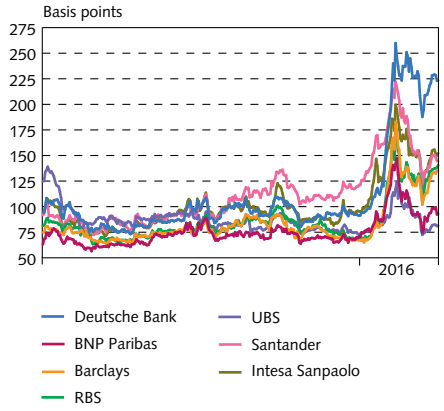
Chart I-7
Share prices in European banks
31 March 2016



Source: Bloomberg.

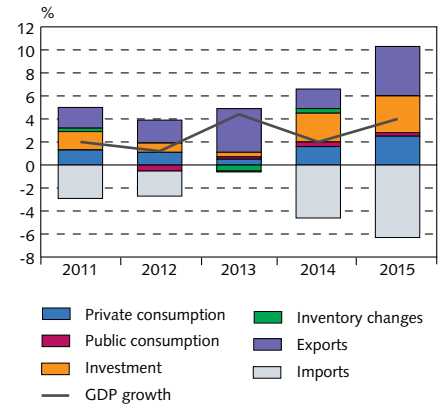
3. Bank for International Settlements, *Quarterly Review*, March 2016.

Chart I-8
CDS spreads on general and subordinated bonds
1 January 2015 - 31 March 2016



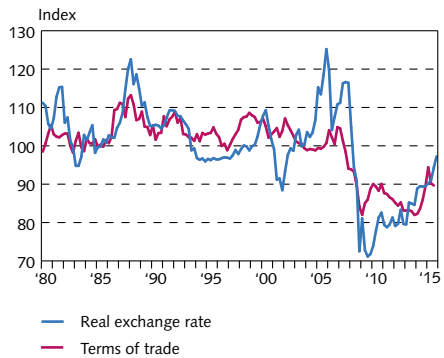
Source: Bloomberg.

Chart I-9
Contribution of expenditure components to GDP growth 2011-2015



Source: Statistics Iceland.

Chart I-10
Real exchange rate and terms of trade



Source: Central Bank of Iceland.

considerably in the recent term, offsetting the impact of a higher real exchange rate. The improvement in terms of trade supports the external trade surplus. The current account surplus has been used to pay down public debt and shore up the foreign exchange reserves (see Chapter II).

Growth in money holdings

M3 has grown rather rapidly in recent years. Annualised growth measured 7.5% in Q4/2015, after adjusting for the effects of the deposits of the failed banks. The failed banks' money holdings have increased even more rapidly in recent years, but early in 2016 the trend turned around when the failed banks' estates tapped their monetary assets to pay stability contributions to the State. After adjusting for the effects of the failed banks' assets, annualised growth in money holdings was 7.1% in Q4/2015.

Yields on Treasury foreign issuance

The interest rate differential between bonds issued by the Icelandic Treasury in US dollars and US Treasury bonds with a comparable maturity has narrowed significantly since the bonds were first issued. The spread widened slightly at the beginning of 2016, however, when capital shifted from emerging countries to safer returns on US bonds. The yield on US Treasury bonds maturing in 2022 was just over 2% at the end of 2015 but fell to below 1.4% early in February. In the recent past, the yield on these bonds has been around 1.6%, while the yield on the Icelandic bonds is about 3.2%. The same movement can be seen in Lithuanian bonds with a comparable maturity date: a temporary rise in the interest premium early in the year, owing mainly to a decline in the yield on the US bonds. The spread between the Icelandic Treasury's eurobond maturing in 2020 and a comparable German Treasury bond has remained relatively stable in the past year but has narrowed slightly in recent weeks. The spread between the Icelandic bond and Latvian Treasury bonds issued in euros has remained very stable in the past several months. Standard & Poor's upgraded the Republic of Iceland's credit rating for foreign currency obligations to BBB+ in January, and Fitch Ratings affirmed the same rating.

Treasury debt position

Treasury debt has declined relative to GDP in recent years (Chart I-12). Treasury debt totalled 1,330 b.kr. at the end of February. By year-end 2015, it was down to 65% of GDP, a reduction of 11% of GDP since year-end 2014. At the beginning of March, 25 b.kr. from the failed banks' stability contributions were paid on Treasury debt, reducing it to 1,306 b.kr. Further reductions of government debt can be expected in the near future, as the stability contributions are used for further deleveraging.

Domestic markets

Turnover increased in the markets in 2015. The largest proportional increase, 85%, was in the foreign exchange market, where turnover

has trebled in two years. In the equity market, turnover was up 42%, while bond market turnover rose 30% and real estate market turnover 24%.

Real estate market

Capital area house prices rose nearly 9% in 2015 and another percentage point in the first two months of 2016. Last year, the price per square meter of residential property in central Reykjavík was 38% higher at constant prices than at the trough five years earlier, and only 8.6% below the 2007 peak. The price per square metre at constant prices has also risen relatively quickly in other parts of the greater Reykjavík area. It is now 22% higher, on average, than it was five years ago but is still 16.5% below the previous peak. Outside the greater Reykjavík area, house prices have now risen in the past two years, also at constant prices, but are still about a quarter below the peak from eight years ago. Household debt adjusted for the Government's debt relief measures continues to contract, measuring just under 83% of GDP at the end of January. The last time the ratio was this low was in 1999. Rising house prices and debt reduction have created additional collateral capacity, and it is clear that households have increased scope to take on more debt. It is important that there be an authorisation in place to impose ceilings on loan-to-value ratios for macroprudential reasons if needed. A bill of legislation on such an authorisation is currently before Parliament.

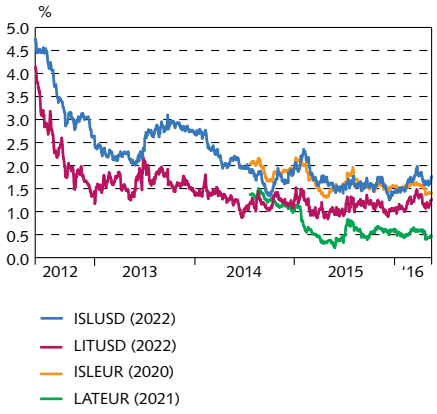
Bond market

The bond market was relatively volatile in 2015. Early in the year, yields on nominal Treasury bonds rose in the wake of strong selling pressure arising from uncertainty about wage settlements. Treasury bond yields turned around again in the latter half of the year, following the presentation of the capital account liberalisation strategy. In the wake of that announcement, rating agencies Moody's, Fitch, and Standard & Poor's upgraded the Republic of Iceland's sovereign credit ratings, owing to the prospective reduction in Treasury debt concurrent with the payment of stability contributions by the failed banks' estates. The credit rating upgrade generated significant interest in long-term nominal Treasury bonds among foreign investors. The Treasury yield curve flattened out at mid-year, and there has been very little difference in yields on short- and long-term Treasury bonds in recent months. The improved outlook for the domestic economy and the wide interest rate spread between Iceland and its main trading partners stimulated non-residents' demand for Treasury bonds.

Equity market

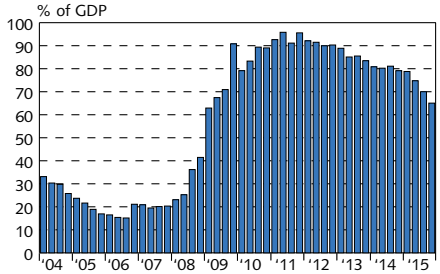
Nasdaq Iceland's OMXI8 index fell by about a percentage point in the first quarter of the year. It fell early in the year, just as many foreign markets did around the same time. The drop in the OMXI8 reversed in a few weeks' time, however, whereas many foreign markets have fallen further. The OMXI8 rose by 43.2% in 2015, but at the end of March it was only 0.3% above its end-2015 value. At the end of 2015, there were 17 listed companies with a market value of 1,029

Chart I-11
Government bond spreads[1]



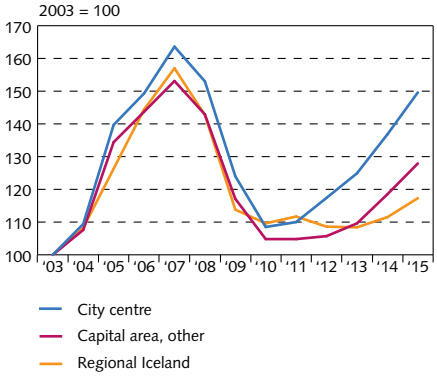
1. Difference between yields on Icelandic and US bonds maturing in 2022, Lithuanian and US bonds maturing in 2022, Icelandic and German bonds maturing in 2020, and Latvian and German bonds maturing in 2020.
Source: Bloomberg, Central Bank of Iceland.

Chart I-12
Government debt



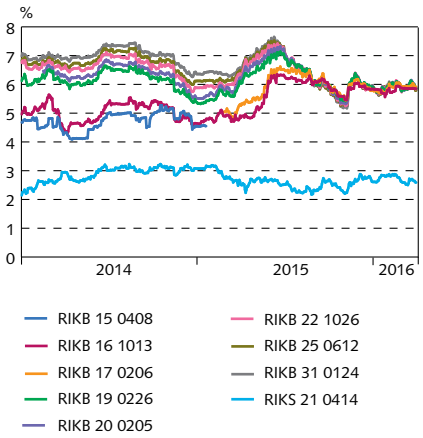
Source: Statistics Iceland.

Chart I-13
Real house prices[1]



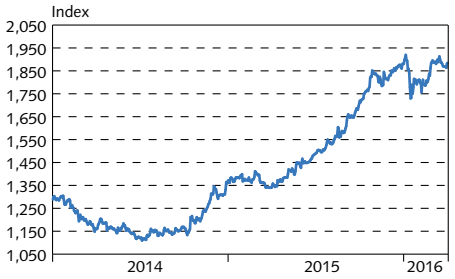
1. Price per sq.m. at constant prices.
Sources: Registers Iceland, Central Bank of Iceland.

Chart I-14
Yields on government bonds



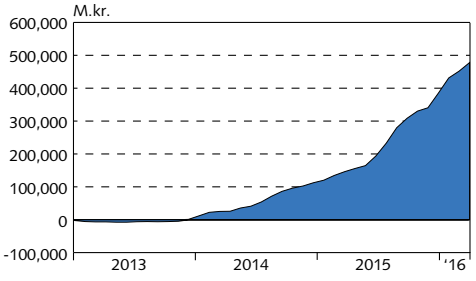
Source: Central Bank of Iceland.

Chart I-15
OMXI8 share price index
1 January 2014 - 31 March 2016



Source: Nasdaq Iceland.

Chart I-16
Accumulated Central Bank intervention in the FX market from January 2013



Source: Central Bank of Iceland.

b.kr., as opposed to 674 b.kr. at the beginning of the year. No new companies were listed on the market during the first quarter of 2016, but three were listed in 2015: Síminn and two real estate companies, Reitir and Eik.

Foreign exchange market

The króna appreciated by 1.7% in trade-weighted terms in the first quarter of 2016 and was 9% stronger at the end of the quarter than at the end of Q1/2015. In 2015 as a whole, the króna appreciated by 7.9%, and volatility of the exchange rate index was similar to that in the previous year. The Central Bank's intervention in the foreign exchange market reduced volatility, as the Bank bought currency for 96.9 b.kr. in Q1/2016, as opposed to 33.7 b.kr. during the same quarter of 2015. In all, the Bank bought 272.4 b.kr. worth of currency in the interbank market in 2015, or 12.5% of GDP. The purpose of the currency purchases was to offset the appreciation of the króna due to strong foreign exchange inflows and to build up the foreign reserves. There has been considerable scope to accumulate reserves in recent years, owing to the need to build up reserves financed domestically in krónur before liberalising the capital controls. That scope has now diminished. Furthermore, the Bank has been able to sterilise the intervention in order to limit the impact of the purchases on the money supply, in part by selling ESÍ assets.

In mid-2015, foreign capital began to flow into Iceland through the Central Bank's Investment Programme (see Chapter II). The interest this entails is due in part to the positive interest rate differential with abroad and reduced uncertainty in Iceland, with the liberalisation of the capital controls seemingly in sight. Capital has also flowed in because of the surplus on services trade.

Interbank market for krónur

Turnover in the interbank market for krónur was somewhat stronger than in 2014. Just under half of interbank market transactions were overnight, and just over half were one-week transactions. There were no longer-term transactions. During the first months of 2016, turnover has been somewhat greater than in the same period in 2015. Interbank market interest rates have been below the centre of the interest rate corridor for quite some time, averaging 0.25 percentage points above the floor.

II External position

Robust current account surplus and improved external debt position

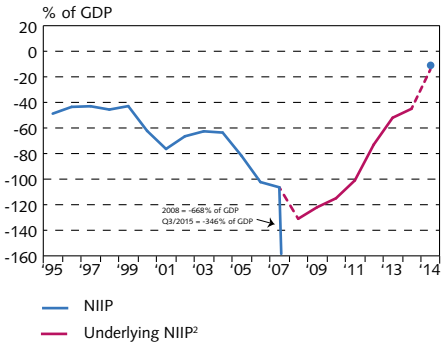
The outlook is for a continued positive current account balance in coming years, owing primarily to improvements in terms of trade and increased tourism-generated export revenues. Residents' contractual debt service appears relatively manageable in the context of the year-2015 current account balance and domestic borrowers' improved access to foreign credit markets. At the end of 2015, the Icelandic courts approved the composition agreements for the estates of the failed financial institutions. The payment of stability contributions and other mitigating measures eliminated the risk that the settlement of the estates posed for financial stability and the balance of payments. Iceland's foreign debt declined thereafter, and the net international investment position (NIIP) was negative by 14.3% at the end of the year, the best position since the 1960s. There were strong inflows of foreign currency during the year, owing both to the increase in foreign tourists and to increased purchases of long-term Treasury bonds and Icelandic equity securities by foreign investors. The Central Bank has therefore had the latitude to accumulate foreign exchange reserves, thereby facilitating the liberalisation of capital controls. With increased inflows, a positive interest rate differential, and relatively favourable economic developments domestically, conditions are good for liberalisation.

NIIP the best in decades

At the end of 2015, the estates of the failed financial institutions entered into composition agreements, and with that, Iceland's underlying external position improved by just over 20 percentage points, to -14.3% of GDP. It is the best position Iceland has had since the 1960s. The stability contributions paid by the estates improved the NIIP by 17 percentage points. The settlement of the failed banks' estates is discussed in Appendix I. With the composition agreements, debts not offset by any assets were written off, so that information on assets and liabilities according to international standards now gives an accurate view of the position.[1]

Iceland's NIIP relative to GDP is now similar to that in Chile, the UK, and France. It is estimated that just after the collapse of the financial system, or at year-end 2008, the underlying position was similar to that in Greece and Cyprus today, or around -130% of GDP. Iceland's position has improved rapidly in recent years, however, while comparison countries have seen theirs deteriorate or remain unchanged. Of the 115 percentage point improvement in the NIIP, approximately 40 percentage points are due to the current account surplus and GDP growth during the period. The remainder is due to write-offs, debt restructuring, and other factors.

Chart II-1
Net international investment position[1]



1. At the end of 2015, the estates of the failed financial institutions reached composition agreements entailing the write-off of a large portion of their debt. As a result, there was no difference in the NIIP and the underlying NIIP at year-end 2015. 2. Adjusted for the effects of settlement of the deposit institutions in winding-up proceedings, assuming equal distribution of assets to general creditors until Q4/2015.
Sources: Statistics Iceland, Central Bank of Iceland.

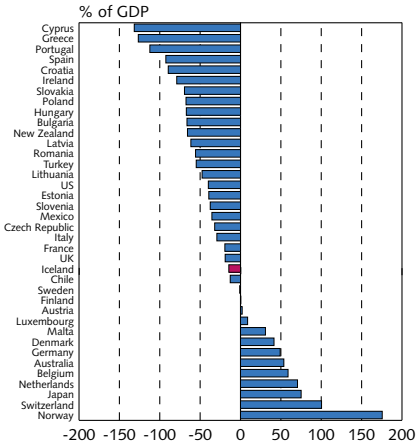
Current account balance

In 2015, the current account balance was positive by 108 b.kr., or 4.9% of GDP, after declining by 0.1 percentage point between years.

1. Since year-end 2008, Iceland's NIIP as calculated according to international standards has given an inaccurate view of the actual position, as it contained the debts of the deposit institutions in winding-up proceedings at claim value, even though it was clear that they would be paid only in part. As a result, the so-called underlying NIIP has been used, which takes account of the estimated impact of settling the failed banks' estates, until year-end 2015.

Chart II-2

Net international investment position[1]

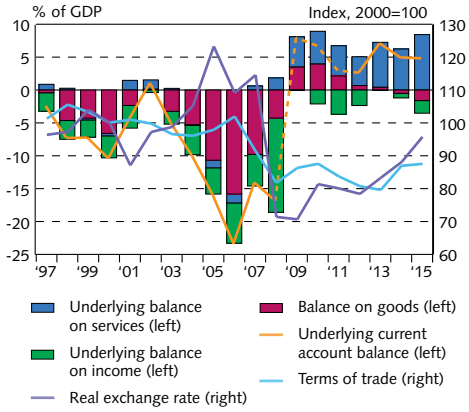


1. Based on Q3/2015 figures for countries other than Iceland (Q4/2015), Croatia and Luxembourg (Q2/2015), and the United States, Chile, Japan, Mexico, New Zealand, Switzerland, and Turkey (Q4/2014).

Sources: Eurostat, Macrobond, Central Bank of Iceland.

Chart II-3

Components of the underlying current account balance, real exchange rate, and terms of trade[1]



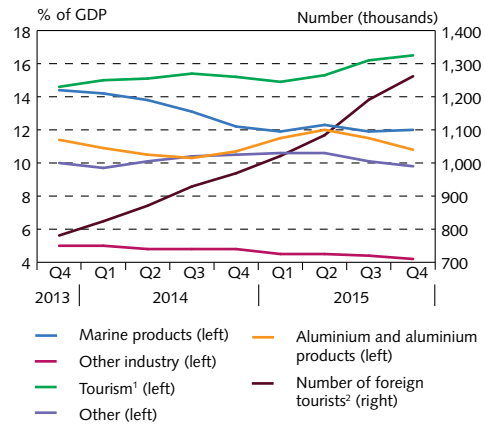
1. Adjusted for the effects of DMBs in winding-up proceedings on factor income and the effects of these DMBs' financial intermediation services indirectly measured (FISIM) on the balance on services from Q4/2008. Secondary income is included in factor income. From 2009 through 2012, the balance on income was also adjusted for the effects of Actavis, owing to inaccurate data during the period.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart II-4

Goods and services exports

Four-quarter moving total



1. Revenues from foreign tourists in Iceland and Icelandic airlines' revenues from transporting foreign passengers to and from Iceland and other destinations. 2. Number of foreign tourists travelling via Keflavík Airport.

Sources: Icelandic Tourist Board, Statistics Iceland.

The goods account balance has been negative in the past two years. In 2015 it was negative by 36 b.kr., or 1.6% of GDP, in part because of strong growth in imports in the latter half of the year. Strong growth in tourism has boosted the balance on services and thereby kept the current account balance afloat, whereas the balance on income has been negative, as before. The services account was positive by 186 b.kr., or 8.4% of GDP, during the year, an increase of 2.2 percentage points between years. Primary and secondary income combined were negative by 1.9% of GDP, as compared with 0.7% in 2014.

Increased tourism-generated export revenues

In the past two years, tourism-generated revenues have increased relative to GDP, while other items, such as marine product export values and aluminium and aluminium product export values, have either contracted or remained unchanged. The number of foreign tourists departing from Iceland via Keflavík Airport rose from 969,000 in 2014 to 1,262,000 in 2015, a year-on-year increase of 30%. Tourist numbers rose by 24% during the summer season (June-August) and by 34% over the other months of the year. Tourist traffic is therefore distributed more evenly over the year. In the first three months of 2016, tourist numbers were up 35% year-on-year, and in March 2016, there were more tourists in Iceland than in June 2014.

At the end of 2015, the export value of tourism was estimated at 364 b.kr., or nearly 17% of GDP and 31% of total goods and services exports. In comparison, it was just under 15% of GDP at the end of 2013 and about 26% of total exports.

The increase in foreign tourist visits has given rise to a positive payment card balance in recent years. In 2015, the card turnover balance was positive by 51 b.kr., about twice the surplus seen in 2014. In January and February, it was positive by 9 b.kr., whereas until 2014 it was always negative in the first two months of the year.

The Central Bank of Iceland's foreign exchange reserves

There has been considerable scope to accumulate reserves in recent years, owing to the need to build up and expand the reserves before liberalising the capital controls. At the end of March, the foreign exchange reserves totalled 735 b.kr., including 396 b.kr. financed domestically. Based on the position in March, the reserves financed domestically have increased by 341 b.kr. between years, and it is not long since this balance was negative. Until now, the Central Bank has sterilised its intervention in the foreign exchange market in order to limit the effect of its purchases on the money supply; for instance, by issuing certificates of deposit and by selling the Central Bank of Iceland Holding Company's (ESÍ) assets.

The Bank's net currency purchases in the foreign exchange market totalled 272 b.kr. in 2015, as compared with 111 b.kr. in 2014. In the first three months of 2016, the Bank bought foreign currency in the market for 97 b.kr. The foreign reserves have increased because of the Bank's foreign exchange market transactions and ESÍ's foreign-

denominated recoveries. On the other hand, the Bank has tapped the reserves to pay off foreign loans taken by the Treasury and the Bank and to make distributions in connection with the failed banks' composition agreements.

The foreign reserves are now strong in historical context, as is indicated by the aforementioned 396 b.kr. in domestically financed reserves. Furthermore, the ratio of foreign exchange reserves to short-term liabilities was 138% at the end of 2015, in terms of the stricter definition of this ratio, which reflects the potential position upon capital account liberalisation. Short-term ISK assets held by non-residents and maturing within twelve months are included with foreign short-term liabilities. This ratio should be at least 100%, but it was just below that level two years ago. Other measures of the reserve position also indicate that the reserves have strengthened.

The large amount of reserves financed domestically has substantially reduced Iceland's foreign liquidity risk. However, because of the differential between foreign returns on the reserves and domestic interest rates, the reserves have a negative impact on the Central Bank's operating performance. Based on the end-2015 position, the negative interest rate differential on the Bank's foreign exchange balance totalled 18 b.kr. on an annualised basis, as the Governor stated in his speech at the Bank's annual general meeting.[2]

Iceland's balance of payments

Iceland's balance of payments problem in recent years has primarily been of two kinds. First of all, access to foreign credit markets for the purpose of refinancing foreign debt has been limited. In the second place, Iceland's foreign currency revenues have not been sufficient to release over a short period of time the potentially volatile króna-denominated assets held by non-residents, both creditors of the failed banks and owners of offshore krónur.

Residents' access to foreign credit has improved significantly in the recent term, and there is no longer a substantial risk attached to their foreign repayment profile. An important step in this was the agreement made at the end of 2014, to lengthen the so-called Landsbanki-LBI bond. Now the problem relating to the winding-up of the failed banks' estates has been solved (see Appendix I), and as soon as it became clear that the solution to that problem was forthcoming, Iceland's sovereign credit ratings were upgraded to BBB+.

It now remains to solve the problem centring on ISK assets held by foreign investors – the offshore krónur – which are restricted by the capital controls but are likely to be converted to foreign currency when the controls are lifted.

Foreign debt service burden manageable

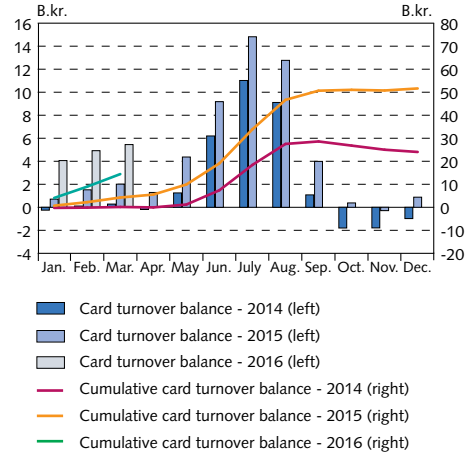
A positive underlying current account balance and improved access to foreign credit markets has enabled resident borrowers to pay off foreign debt. At the end of 2015, the Central Bank of Iceland finished

2. See the speech by Governor Már Guðmundsson: http://www.cb.is/publications/speeches/speech/2016/03/17/Governor-Mar-Gudmundssons-speech-at-the-Annual-General-Meeting-of-the-Bank/

Chart II-5

Payment card turnover balance[1]

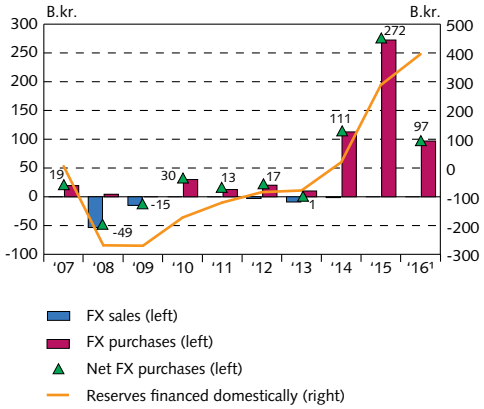
2016 price level



1. The card turnover balance shows the difference between foreign payment card use in Iceland and Icelanders' payment card use abroad.
Source: Central Bank of Iceland.

Chart II-6

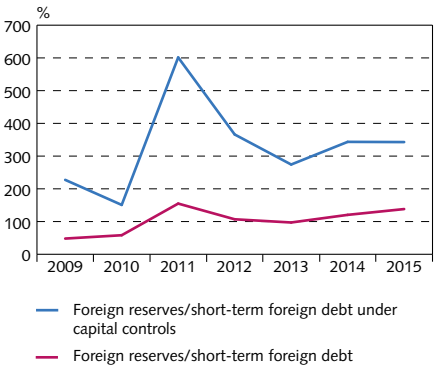
Central Bank intervention in the foreign exchange market



1. Reserves as of end-March 2016 and CBI transactions in Jan-Mar 2016.
Source: Central Bank of Iceland.

Chart II-7

Foreign reserves/short-term foreign debt[1]

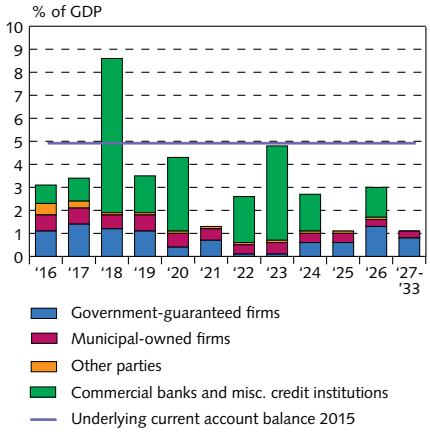


1. Short-term debt to underlying non-residents, in FX and ISK (excluding FX deposits, subject to 100% reserve requirements under CBI liquidity rules).
Source: Central Bank of Iceland.

Chart II-8

Contractual debt service on foreign debt, excluding the Treasury[1]

Instalments on foreign long-term loans and foreign-denominated debt to the failed banks

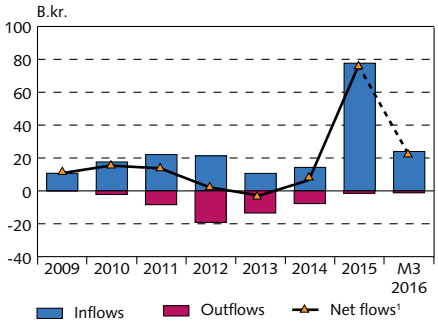


1. Based on position at year-end 2015 and exchange rate of 24 February 2016, plus commercial banks' foreign issuance in Q1/2016.
Sources: Statistics Iceland; financial information from Glitnir hf., Kaupthing hf., and Landsbankinn hf.; Central Bank of Iceland.

Chart II-9

Non-residents' new investment in Iceland

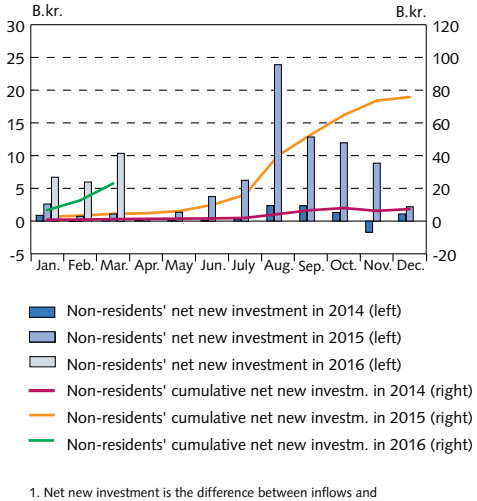
At March 2016 prices



1. Net new investment is the difference between inflows and outflows due to new investments.
Source: Central Bank of Iceland.

Chart II-10

Non-residents' net new investment in Iceland[1]



1. Net new investment is the difference between inflows and outflows due to new investments.
Source: Central Bank of Iceland.

paying its foreign debt, including debt to the IMF, and the Icelandic Government prepaid the bilateral loan from the Polish government, paid down the Avens bond, and prepaid specific foreign bond series.[3] And in January, the Government paid off the so-called Children's Loan.[4] The Government's foreign debt totalled 292 b.kr. at the end of March, almost all of it in the form of marketable bonds. Some municipalities have finished repaying the outstanding balance of foreign debt as well. Municipality-owned companies and State-guaranteed companies still have nearly 340 b.kr. in foreign debt, however.

The debt owed by commercial banks and miscellaneous credit undertakings, most of it the debt of the three large commercial banks, totalled 355 b.kr. at the end of 2015. The commercial banks' debt with a fixed payment profile increased slightly upon the approval of the failed banks' composition agreements, as the estates' foreign-denominated deposits were converted to medium-term marketable bonds and a lengthened repayment profile was negotiated. Commercial banks commonly fund themselves for three years at a time; therefore, their payments due in 2018 are substantial. However, it can be assumed that they will have ready access to foreign credit markets and can therefore refinance their debt. In addition, the refinancing risk on Treasury debt is considered negligible under normal circumstances, as the debt was taken on so as to finance the Central Bank's foreign exchange reserves, which are invested in foreign assets. In assessing Iceland's potential refinancing risk, it is therefore appropriate to ignore the repayment profile of the commercial banks and the Treasury.

Examining the contractual debt service profile of domestic borrowers other than the Treasury and the commercial banks over the next five years (2016-2020) reveals that refinancing risk is relatively little. Annual contractual payments average 1.9% of GDP over the period, or 3 percentage points less than the underlying current account balance in 2015, which was 4.9% of GDP. Relatively good access to foreign credit markets increases the likelihood that refinancing can be obtained, thereby further reducing the risk attached to debt service. Residents' contractual debt service appears relatively manageable in the context of the year-2015 current account balance and domestic borrowers' improved access to foreign credit markets.

Increased capital inflows from non-residents

Foreign investment in Iceland increased in 2015. At mid-year, foreign capital began to flow in through the Investment Programme, and net inflows for the year totalled 76 b.kr. Total inflows through the Investment Programme, net of outflows from the time the programme was introduced in October 2009, amount to 145 b.kr. in real terms. Since mid-2015, new investment has been concentrated mainly in long-term Treasury bonds, which account for 70% of the total. About a fourth of the inflows have been invested in equities, including

3. For a more detailed discussion of the Government's prepayments of foreign debt, see the chapter entitled External Position in *Financial Stability* 2015/2.
4. For a discussion of the Children's Loan, see Government Debt Management's Market Information newsletter: http://www.lanamal.is/GetAsset.ashx?id=8444.

only about a third in listed shares. The increased interest among non-residents is due in part to the positive interest rate differential with abroad and reduced uncertainty in Iceland, with the liberalisation of the capital controls seemingly in sight. New investment figures for the first three months of 2016 indicate that inflows have continued unabated. Box II-2 includes a discussion of the risk that can stem from fluctuations in capital inflows and outflows.

Stock of offshore krónur unchanged year-on-year

Non-residents' ISK assets – the so-called offshore krónur locked in by the capital controls – amounted to 290 b.kr. at the end of February 2016, or 13% of GDP. The balance of offshore krónur therefore remained unchanged between years, as the Central Bank held its last foreign currency auction in February 2015 and interest payments are exported as soon as they are made.

The Bank changed the reinvestment authorisations for owners of offshore krónur in March 2015, with the result that they are now only authorised to invest in Treasury bills when their current holdings mature, or deposit the funds to a deposit account. When this change was made, non-residents' deposits increased marginally, but most have opted to invest in Treasury bills. At the end of February, offshore krónur deposited with domestic commercial banks totalled 95 b.kr. and investments in Treasury bonds totalled 153 b.kr., whereas only 20 b.kr. were invested in Treasury bills. Investments in Treasury bond series RIKB 16 and RIKB 19 amounted to 102 b.kr. combined, with roughly equal distribution between the two bonds. The former of these bonds matures in October 2016. After it matures, an estimated 72% of offshore krónur will be held either in deposit accounts or in Treasury bills, other things being equal.

If offshore krónur are added to Iceland's foreign debt repayment profile, it is clear that payments to non-residents will increase somewhat, particularly in 2016. However, it is not entirely certain that all owners of offshore krónur will want to export their capital; for example, a portion of the offshore krónur are owned by Icelandic individuals who have a foreign legal address and are therefore considered non-residents. If these are excluded, the size of the stock of offshore krónur is still such that it is considered necessary to take targeted action to ensure a successful liberalisation process.

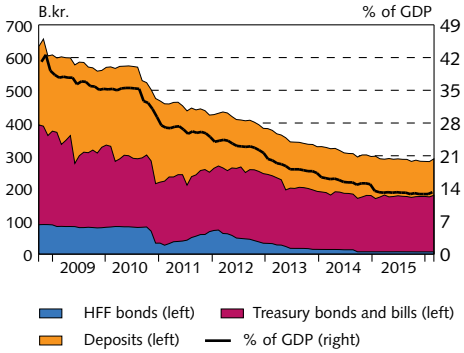
Capital account liberalisation in sight

It is planned to reduce the potential balance of payments problem associated with the offshore krónur by holding an auction. According to the capital account liberalisation strategy, the next step will be to begin lifting controls on residents. It is difficult to give an accurate estimate of potential outflows from residents seeking to diversify the risk in their asset portfolios when the controls are lifted. It is likely, however, that residents' investments abroad for risk diversification purposes will be relatively sensitive to the exchange rate of the króna, and this reduces the risk associated with such capital flows. The pension funds have already been granted a special authorisation to export capital for investment in foreign assets, in the total amount of 30 b.kr.

Chart II-11

Offshore króna assets[1]

October 2008 - February 2016



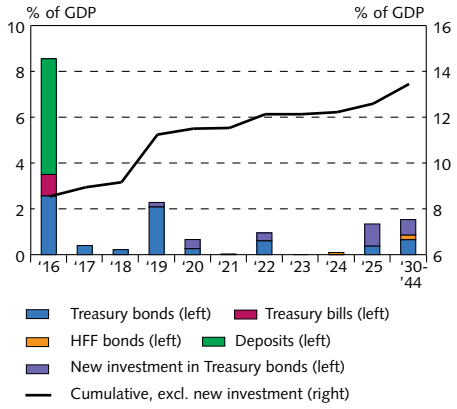
1. ISK assets held by non-residents and locked in by the capital controls. Adjusted for new investment in Treasury bonds during the period. Possibly underestimated because of outflows relating to new investment. The Central Bank is currently working on improving data on outflows so as to make it possible to account for this.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart II-12

Short-term ISK assets held by non-residents

Nominal value as of February 2016

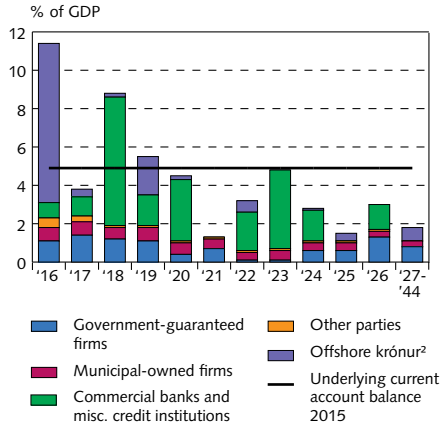


Source: Central Bank of Iceland.

Chart II-13

Contractual debt service on foreign debt, excluding the Treasury[1]

Instalments on foreign long-term loans and foreign-denominated debt to the failed banks



1. Based on position at year-end 2015 and exchange rate of 24 February 2016, plus commercial banks' foreign issuance in Q1/2016.
2. Based on balance of offshore krónur in February 2016.

Sources: Statistics Iceland; financial information from Glitnir hf., Kaupthing hf., and Landsbankinn hf.; Central Bank of Iceland.

since mid-2015. This will reduce their accumulated need for foreign investment by a corresponding amount (see Box II-1).

The liberalisation of the capital controls and the improved position of the domestic economy could prove a source of risk, such as the risk of excessive capital inflows. If inflows related to new investment increase at a pace similar to that in the last year, it may affect domestic asset markets. The inflows that have already taken place have caused interest rates on long-term Treasury bonds to fall, with the result that the Treasury yield curve is now virtually flat. Later on, low long-term rates could lead to reduced saving and increased debt accumulation by the Government and by businesses and households. Increased indebtedness could cause the repercussions of a sudden stop in capital inflows to be more serious than they would be otherwise. As is mentioned in Chapter V, there are no real signs of increased indebtedness as yet. But the increase in households' collateral capacity as a result of rising asset prices and rapid deleveraging, together with firms' improved equity position, could pave the way for increased indebtedness.

Box II-1

Pension funds' foreign investment

Since the capital controls were introduced, Icelandic pension funds, like other resident entities, have been authorised to reinvest capital that they held abroad before 28 November 2008, provided that the reinvestment is carried out within six months of the date the underlying assets are released. In addition, the pension funds have been authorised to honour contractual agreements already made. However, the capital controls prevent the pension funds from investing abroad in excess of these authorisations.

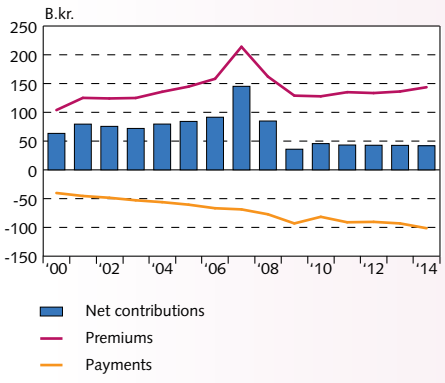
The authorities presented their updated capital account liberalisation strategy in June 2015. At that time, objectives were presented so as to address residents' pent-up need for foreign investment. One of the objectives was to expand the pension funds' authorisations to invest in foreign currency. It was assumed that, in addition to the current authorisations, the pension funds would be permitted to invest abroad for 10 b.kr. per year through 2020. This is equivalent to about a fourth of the pension funds' net inflows during the period. This authorisation should enable the pension funds to at least maintain the ratio of foreign assets in their portfolios.

In mid-2015, the Central Bank of Iceland granted the pension funds and other custodians of third-pillar pension savings an exemption from the Foreign Exchange Act, thereby permitting them to invest in financial instruments issued in foreign currency in the amount of 10 b.kr., the equivalent of the above-mentioned objective. The authorisation was to be exercised in the latter half of 2015. Foreign exchange inflows in 2015 and the approval of the failed financial institutions' composition agreements, which greatly reduced the uncertainty about developments in the balance of payments, created additional scope for exemptions. Therefore, the Central Bank granted these same parties an exemption from the Foreign Exchange Act, enabling them to invest abroad in the amount of 20 b.kr., to be distributed over the first four months of 2016.

As is stated above, these authorisations are intended to reduce the pension funds' pent-up need for foreign investment before the

Chart 1

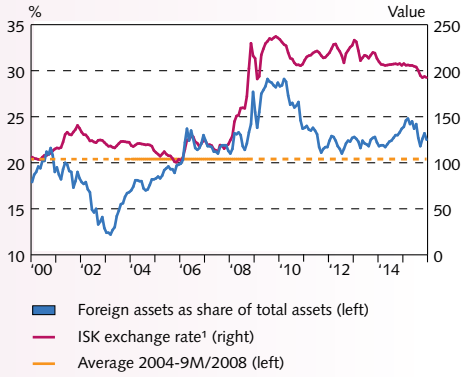
Pension fund premiums, payments, and net contributions[1]



1. All figures are in real terms, at 2014 prices.
Source: Central Bank of Iceland.

liberalisation of the capital controls and to increase their options for risk diversification. Examining the pension funds' ratio of foreign assets to total assets reveals that since 2011, they have maintained their ratios and even increased them. At the end of 2015, foreign assets accounted for 22.5% of total assets, up from 21.7% at the end of 2011, in spite of the 10.8% appreciation of the króna in the past two years. Since the collapse of the financial system, the ratio has always been above the average for the period from 2004 through September 2008. Chart 2 shows that the pension funds' foreign asset ratios rose from 2003 through 2006, but from then until the crash the increase in the share of foreign assets in the portfolio was in line with developments in the exchange rate of the króna. During the period from 2011 onwards, the share of foreign assets peaked at 24.8% of total assets in March 2015. Because equity securities constitute such a large share of the pension funds' foreign assets, it is clear that developments in foreign stock markets have a strong impact on the ratio of foreign assets to total assets.

Chart 2
Icelandic pension funds' foreign assets



1. Narrow trade-weighted index, 1%.
Source: Central Bank of Iceland.

Free movement of capital promotes value creation and general welfare, in part by increasing competition in and deepening the domestic financial markets. It also leads to improved factor utilisation and more effective risk diversification. The benefits can be particularly strong if non-residents choose to invest in long-term projects that promote increased GDP growth for the future.

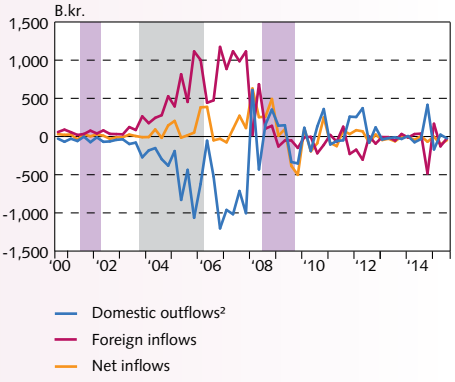
But capital flows can be unstable, and research shows that investment by non-residents goes more or less hand-in-hand with uncertainty in the financial markets. Capital flows increase when uncertainty is limited and growth possibilities are abundant.[1] Then, when uncertainty escalates, as in the 2008 financial crisis, there is the risk of a reversal in capital flows or a sudden stop. This can be accompanied by capital flight, with residents exporting capital in greater measure if they consider uncertainty to be greater at home than abroad. A sudden increase in capital outflows can have a profound impact on a country's economy; for instance, due to the effects of currency depreciation on private sector balance sheets and the effects on domestic asset markets. These effects can be exceptionally pronounced following a period of strong inflows and cheap foreign credit. Households and businesses that view this as a permanent situation are at risk of overleveraging, perhaps even borrowing in foreign currencies at low interest rates without considering the associated exchange rate risk. Their balance sheets can therefore be vulnerable to refinancing risk when capital flows turn around. An element in maintaining financial stability is therefore to counteract the adverse effects of excessive capital flows to and from the country, which can prove procyclical, as is explained in the authorities' official financial stability policy.[2]

1. Forbes, K. J., and Warnock, F. E. (2012). Capital Flow Waves: Surges, Stops, Flight and Retrenchment. *Journal of International Economics*, 88, 235-251.
2. See the purpose and objectives of the Financial Stability Council: https://www.fjarmalaraduneyti.is/fjarmalastodugleiki/nr/18668.

Box II-2

Non-residents' capital movements

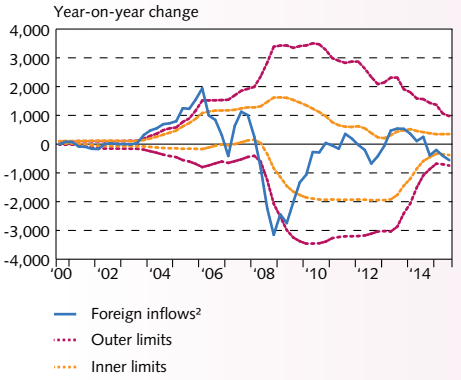
Chart 1
Capital flows[1]
Foreign inflows as an indicator of excessive capital flows



1. The grey area shows episodes of increased foreign capital inflows (surge/bonanza), and the purple area shows episodes of increased outflows (sudden stop), using moving average and standard deviation as measures of excessive capital flows. 2. Negative signs indicate outflows.
Source: Central Bank of Iceland.

Chart 2

Excessive capital flows, non-residents[1]



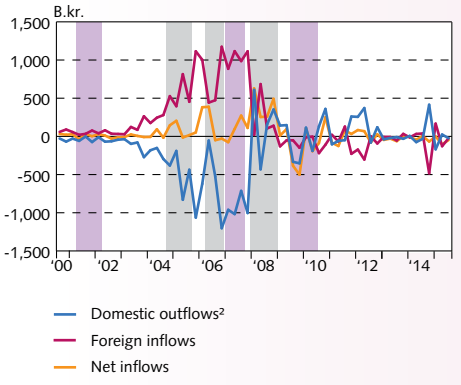
1. Capital flows are considered excessive when the year-onyear change in flows is more than one standard deviation above the moving average (inner limit), provided they eventually exceed two standard deviations above the mean (outer limit) during the time they are in excess of the inner limit. 2. Year-on-year change in the amount of foreign capital inflows in the last four quarters.

Source: Central Bank of Iceland.

Chart 3

Capital flows[1]

Net inflows as an indicator of excessive capital flows



1. The grey area shows episodes of increased net capital inflows (surge/bonanza), and the purple area shows episodes of increased outflows (sudden stop), using moving average and standard deviation as measures of excessive capital flows. 2. Negative signs indicate outflows.

Source: Central Bank of Iceland.

Net flows can be misleading

Considering only the net flows of capital to and from the country – i.e., non-residents' inflows net of residents' outflows (the yellow line in Charts 1 and 3) – as an indicator of risk due to capital flows could result in an underestimation of risk. Increased capital flows can entail elevated systemic risk even without a marked change in net flows. Residents' outflows, for instance, could offset a strong increase in inflows from non-residents that invest in highly liquid assets. Excessive capital inflows from non-residents engaging in short-term investment therefore create substantial risk over time. As Chart 3 indicates, residents' outflows largely offset non-residents' inflows during the period 2003-2006. Therefore, net flows in and of themselves are not a reliable enough indicator of risk due to capital flows.

Unusually large inflows are often referred to as a surge or bonanza (see the grey-shaded are in Chart 1), with excessive flows defined as two standard deviations above the year-on-year change in capital flows.[3] The shaded areas in Chart 1 appear to capture effectively the developments during this period and the risk generated by the large volume of foreign capital flowing into the country. During the upswing from year-end 2003 until the beginning of 2006, foreign capital entered the country, only to exit suddenly two years later, when uncertainty began growing both domestically and in global financial markets, as can be seen in the VIX implied volatility index (Chart 4).[4] If net capital flows had been used as the only indicator of risk created by capital flows in and out of the country, the warning bells would have sounded much later.

During the period just after the financial crisis struck, an examination of net capital flows would have indicated a possible inflow problem (Chart 3). What actually transpired, however, was a severe outflow problem caused by a turnaround in flows from non-residents, as can be seen in their capital outflows. This problem caused a severe depreciation of the Icelandic króna and introduction of capital controls, which prevented further outflows.

Other possible criteria for excessive capital flows

In the above-described calculations of capital inflows and outflows, the moving average and the standard deviation are used to determine when flows are considered excessive.[5] The boundaries are affected by the newest datapoints during the run-up to the crisis, which means that fluctuations in capital flows that would be considered excessive under normal circumstances are not measured as such. This diminishes the usefulness of this method of identifying excessive capital flows. As a result, it is also desirable to consider other criteria for excessive flows, such as a given share of GDP. If year-on-year changes in capital flows exceeding 25% of GDP are considered excessive, the results obtained are very similar to those

3. See the definition of bonanzas and sudden stops in Forbes, K. J., and Warnock, F. E. (2012). Capital Flow Waves: Surges, Stops, Flight and Retrenchment. *Journal of International Economics*, 88, 235-251. A bonanza is defined as a change in non-residents' annual capital inflows in excess of two standard deviations above the moving average of changes in annual inflows. The beginning of the bonanza is defined as the point in time when the change exceeds one standard deviation, providing that it eventually exceeds two standard deviations.

4. The VIX implied volatility index measures the volatility of the S&P 500 index according to the pricing of options related to it. If the VIX index rises above 30, it is a sign of uncertainty in the markets, whereas a period when the index is below 20 indicates reduced uncertainty.

5. According to the methodology in Forbes, K. J., and Warnock, F. E. (2012). Capital Flow Waves: Surges, Stops, Flight and Retrenchment. *Journal of International Economics*, 88, 235-251.

above in terms of non-residents' capital flows.[6] The surge of foreign inflows started at the beginning of 2004 and continued virtually unabated until the end of 2007. The episode is therefore longer than according to the first method, albeit with a two-quarter pause, and begins one quarter later. The episode of increased outflows began in Q2/2008, as in the first method, but lasted two quarters longer. Also discernible is an episode of increased inflows starting at year-end 2013, but it lasted only two quarters and perhaps should not fall into the category of a surge.

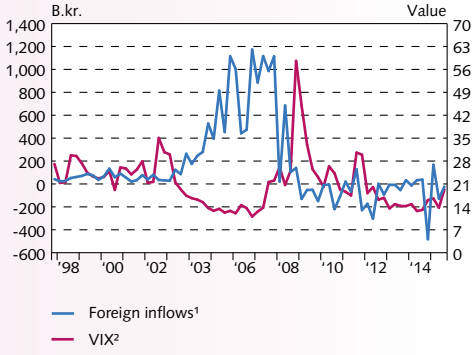
Composition of flows an important factor

The composition of non-residents' inflows is important in connection with the risk of a sudden stop. Chart 7 shows the composition of capital inflows from non-residents from 1995 onwards. In the analysis above, for instance, it would be possible to consider non-residents' inflows net of foreign direct investment, which is generally considered relatively stable and less susceptible to a sudden stop.[7] From the turn of the century until 2006, the vast majority of the capital flows into the country took in the form of securities. A large portion of these flows were due to the purchase of debt instruments issued by resident entities such as the commercial banks. There were also strong inflows for other investments, such as cash and deposits related to the Icelandic banks' deposit collection abroad. Inflows for investments in Treasury bonds and other low-risk investments could be due to carry trade, where non-residents borrow money in low-yielding currencies and invest in secure assets in high-yielding currencies so as to profit on the interest rate differential. This is a risky form of speculation generally involving short-term investment. This capital is therefore volatile and increases the risk of reversals. Non-residents' short-term investments are also residents' short-term liabilities. When uncertainty mounts and reversals occur, it can prove difficult to refinance foreign short-term liabilities. Under such conditions, reversals in capital flows can cause a financial shock, often with a severely negative impact on the general public's standard of living.

In order to assess the potential risk due to capital flows in the future, both the scope of non-residents' inflows and their composition will be considered, among other things. Recent developments in this indicator do not suggest that foreign capital inflows are excessive at present, even in spite of the Central Bank's increased foreign currency purchases, the wider interest rate differential with abroad, and moderate uncertainty in Iceland and elsewhere, because other factors also affect capital flows, including economic activity, global liquidity, and restrictions on movement of capital.[8] In 2015, however, net inflows from non-residents through the Central Bank's Investment Programme totalled 76 b.kr., or 3.4% of GDP (see Chapter II). Presumably, this indicates foreign investors' increased confidence in the Icelandic economy and the capital account liberalisation strategy. It is difficult to project future developments in capital inflows from abroad, but given the positive economic developments in Iceland and the low interest rates in other

Chart 4

Foreign capital flows and market uncertainty



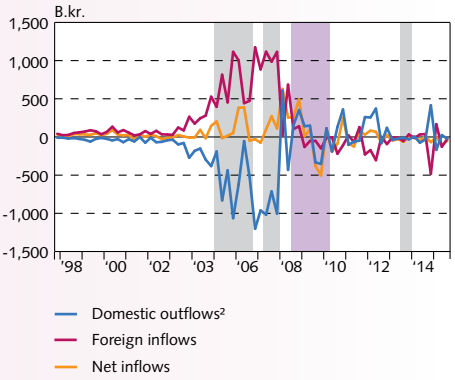
1. Positive foreign capital inflows depict non-residents acquiring more domestic assets. The VIX index is a commonly used measure of market uncertainty.

Sources: Federal Reserve Bank of St. Louis, Central Bank of Iceland.

Chart 5

Capital flows¹

Foreign inflows as an indicator of excessive capital flows

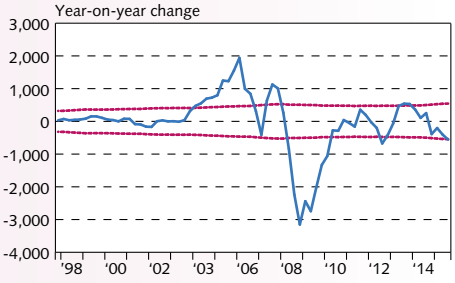


1. The grey area shows episodes of increased foreign capital inflows (surge/bonanza), and the purple area shows episodes of increased outflows (sudden stop), using 25% of GDP as the criterion for excessive capital flows. 2. Negative signs indicate outflows.

Source: Central Bank of Iceland.

Chart 6

Excessive capital flows, non-residents¹



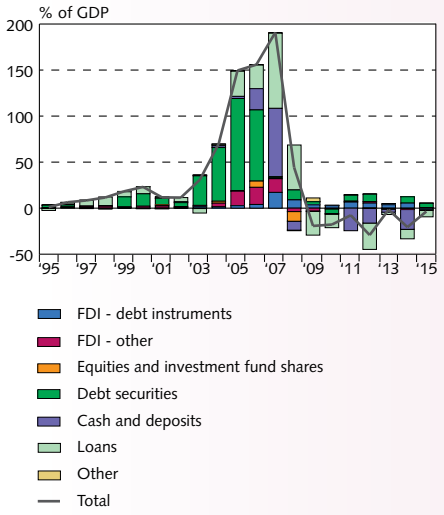
1. Capital flows are defined as excessive when they exceed 25% of GDP. 2. Year-on-year change in total inflows from non-residents in the past four quarters.

Source: Central Bank of Iceland.

6. No theoretical research defines the percentage that should be used; in this instance, it is set so as to ensure that it would have signalled excessive inflows at the beginning of 2004, to be in line with the previous method. Further research needs to be done to determine the most appropriate percentage of GDP. In order for the inflows to be defined as a bonanza, the change must exceed the limits for more than one quarter.
7. As can be seen in Chart 7, inflows related to foreign direct investment (FDI) have been limited in recent years. If FDI is excluded, however, it should always be examined separately.
8. Forbes, K. J., and Warnock, F. E. (2012). Capital Flow Waves: Surges, Stops, Flight and Retrenchment. *Journal of International Economics*, 88, 235-251.

Chart 7

Components of capital inflows from non-residents



1. Year-end 2015 figures adjusted for irregular one-off items; e.g., the effects of the settlement of DMBs in winding-up proceedings.
Source: Central Bank of Iceland.

countries, inflows are likely to increase. On the other hand, some outflows can be expected when the capital controls are lifted.

The Central Bank report entitled *Prudential rules following capital controls*, issued in 2012, discusses the prudential rules that must be in place before the controls can be lifted in full.[9] The majority of the reforms mentioned in the report have already been implemented, particularly those aimed at the banking system.[10] Restrictions on foreign lending to unhedged borrowers – i.e., those without assets or income in the borrowed currencies – have yet to be imposed. Without such rules, there is the risk that the banks' balance sheets will become bloated with foreign funding that is loaned onwards to resident borrowers without assets or income in the currencies concerned. Such practices could severely weaken the resilience of the financial system and of households and businesses, with the associated impact on financial stability. Currently before Parliament is a bill of legislation authorising the Central Bank to set rules restricting lending to unhedged borrowers so as to safeguard financial stability. Capital flow management tools also have yet to be developed. Examples of such tools are special reserve requirements or taxes on inflows. The capital flow management tools and the rules that have already been implemented or are currently before Parliament are all designed to counteract the negative effects of excessive capital flows from non-residents, which can exacerbate systemic risk and amplify the business and financial cycles. Developments in the financial cycle are discussed in Box V-1.

9. See: http://sedlabanki.is/library/Skraarsafn/S%C3%A9rrit/S%C3%A9rrit%20nr%20%206%20_Var%C3%BA%C3%B0arreglur%20-%20Copy%20(1).pdf.
10. See the Box entitled "Prudential rules following capital controls" in *Financial Stability* 2015/1.

III Operations and equity[1]

Strong capital position and introduction of capital buffers

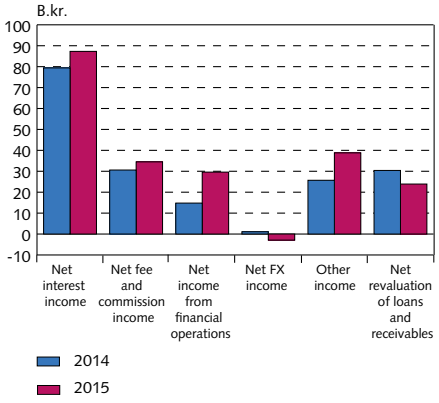
Iceland's large commercial banks generated strong profits in 2015. Their returns increased from the prior year, and their cost-to-assets ratios were unchanged. A significant portion of the profit stems from temporary items such as write-ups and sales of holdings in companies and valuation increases in loans; however, net interest income and commission and fee income rose year-on-year. Restructuring of asset portfolios is nearly complete, and in the near future, valuation adjustments of loans will be negative in the amount of net loan impairment. Other things being equal, this will have a marked impact on the banks' operating results. The large commercial banks continued to strengthen their capital position in 2015, and their capital ratios remained strong. The implementation of capital buffers has recently begun. It is clear that the future banking system architecture, ownership structure, and capital position will be under discussion in the coming term.

Iceland's large commercial banks generated solid profits in 2015. Their combined after-tax profit was nearly 107 b.kr., as opposed to just over 81 b.kr. in the prior year. Yet again, a variety of estimated and irregular income items affected the banks' annual accounts, as is explained in greater detail below. These factors should be considered in any assessment of operating results and financial ratios.

Core income increased in 2015

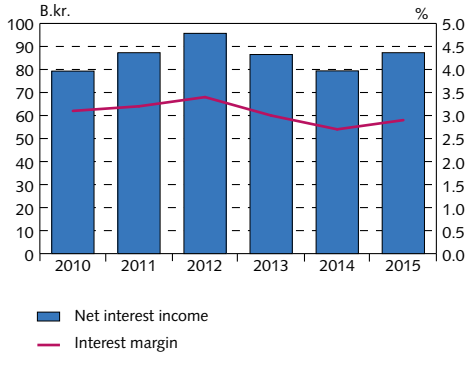
In 2015, the banks' combined calculated return on equity was 16.8%, and returns on total assets were 3.5%, a significant increase from the previous year. Icelandic banks' return on total assets is high relative to Nordic banks, whose ratios commonly lie in the 0.4-0.7% range.[2] In 2015, net interest income totalled 87 b.kr., an increase of 10% b.kr. year-on-year. Interest income rose by 7% and interest expense by 3%. The combined calculated interest rate spread was 2.9%, an increase of just under 0.2 percentage points. The wider spread was due to an increase in interest-bearing assets and deleveraging of expensive financing. The large commercial banks' combined indexation imbalance is considerable. In the comparison year 2014, inflation was somewhat lower than the banks had projected, narrowing interest rate spreads in that year. Icelandic banks' spreads are considerably larger than those of Nordic banks. In 2015, the commercial banks' net commission and fee income totalled about 34 b.kr., an increase of 3.9 b.kr., or 13%, year-on-year. Commissions for payment intermediation and payment cards rose most, and asset management fees rose considerably as well. Despite the increase in net interest income and fees and commissions, these items declined as a share of operating income. Core income as a share of operating income totalled 58%, a decrease of 6 percentage points between years.[3] The decline is due to

Chart III-1
The three largest commercial banks' income[1]



1. Consolidated figures.
Sources: Commercial banks' annual accounts.

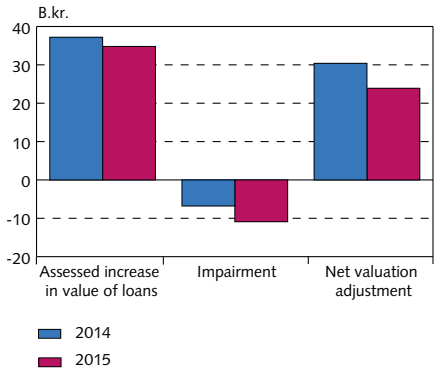
Chart III-2
The three largest commercial banks' net interest income and interest margin[1]
Ratio of net interest income to average total assets during the year



1. Consolidated figures.
Sources: Commercial banks' annual accounts.

1. The discussion in this chapter is based on the consolidated accounts of Iceland's three largest commercial banks for 2015 and comparison figures for 2014. Figures represent the aggregate position of the commercial banks unless otherwise stated. The aggregate position may diverge from that of individual financial companies.
2. The Nordic comparison is based on data from Bankscope. See Appendix V.
3. Core income (net interest and commission income) as a share of operating income, excluding discontinued operations.

Chart III-3
The three largest commercial banks' income and expenses due to revaluation of loans and receivables[1]



1. Consolidated figures.
Sources: Commercial banks' annual financial statements.

a strong increase in income from financial activities and other operating income.

Loan valuation increases still considerable

The net loan valuation increase in 2015 was significant, at 23.9 b.kr. The valuation increase in loans totalled nearly 35 b.kr., primarily due to reversed impairment as a result of improved loan quality. Loan impairment totalled 10.9 b.kr., an increase of 4.1 b.kr. year-on-year, in part due to impairment of loans to companies engaged in services related to the search for oil. Net changes in loan values since 2009 total about 198 b.kr., excluding charges for contingent bonds and capitalisation through interest income (see also Table III-1). In general, corporate loans have risen in value, while household loans have fallen. In the near future, loan valuation changes will flip from being positive, as they have been in recent years, to being negative in the amount of net loan impairment. Other things being equal, this will have a marked impact on the banks' operating results.

Table III-1 The three large commercial banks' income and expenses due to loan revaluation

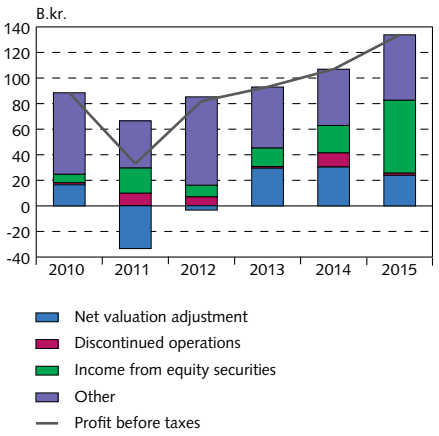
M.kr. *Large commercial banks*	*2014*	*2015*	*Total 2009-2015*
Increase in value of loans	37,186	34,835	506,892
Loan impairment	-6,799	-10,940	-309,249
Revaluation of contingent bonds	0	0	-128,591
Total impact on income	30,387	23,895	69,052
Profit for the year	81,081	106,717	468,526

Sources: Commercial banks' annual accounts, Central Bank of Iceland, Financial Supervisory Authority.

Strong income from shareholdings

The banks' net income from financial activities doubled year-on-year in 2015, rising to a total of 29.6 b.kr. The vast majority of the income, 25 b.kr., was from equity securities. The profit on equity securities derived largely from capital gains in sales and marking holdings to market following listing on the exchange; however, returns on shares were strong, as the OMXI8 share price index rose by 43% during the year. Other income rose steeply between years, to a total of 39 b.kr., including miscellaneous income from affiliates. Combined income from equity securities, sales and valuation adjustments of the largest affiliates, and income from discontinued operations amounted to nearly 59 b.kr. If this is added to the income from loan valuation increases, irregular and estimated income items total some 62% of the total pre-tax profit.

Chart III-4
The three largest commercial banks' profit before tax and irregular and estimated items[1]



1. Consolidated figures. Irregular income and estimated items; income from equity securities, discontinued operations, and value adjustments. Income from equity securities in 2014 and 2015 includes income from sale and valuation adjustments of the largest affiliates. Other items; other income items net of operating cost.
Sources: Commercial banks' annual accounts, Financial Supervisory Authority, Central Bank of Iceland.

Developments in expense ratios

The banks' combined operating expenses totalled 77 b.kr. in 2015, an increase of 3% from the prior year.[4] The ratio of costs to operating income declined from the prior year, to 42%.[5] The banks' core income rose sharply between years, and their expense ratios were

4. Operating expenses net of bank tax.
5. Operating income excluding income due to changes in loan values and discontinued operations.

strongly affected by increased income from financial activities and other income from affiliates. Because of increased core income, the ratio of costs to net interest and commission income declined by about 4 percentage points. The ratio of costs to total assets was unchanged year-on-year, at 2.5%. The Icelandic banks' operating expenses as a share of total assets are high in comparison with Nordic banks.

Wage costs account for just over half of the banks' operating expenses. Combined wage costs amounted to 42.5 b.kr., a year-on-year increase of just over 4%. The increase in wage costs is due, among other things, to collective bargaining agreements, charges due to termination agreements, and acquisition of savings banks. In addition, two of the commercial banks' charges due to performance-based payments amounted to 977 m.kr. On the other hand, the banks' staffing levels continued to decline. The banks have announced their intention to continue streamlining and cutting costs.

Core operations at the large commercial banks

In simplified terms, the commercial banks' operating income can be divided into three categories: core income, income from financial activities, and other income. Core income includes net interest and commission income. Income from financial activities generally consists of the combined gains or losses on financial assets held for trading and financial assets at fair value, plus exchange rate gains or losses. Other income comprises the remaining income items. Expenses can be divided into regular expenses and irregular expense items, but this classification is always a matter of opinion. In recent years, the largest commercial banks' operating results have been coloured by an unusually large number of estimated items and calculated variables, as well as write-ups of shareholdings in companies. For example, net interest income during the years just after the crisis included discounts due to transferred loan portfolios, and fluctuations within the item "net changes in loan values" have been significant. Furthermore, in the recent past, some of the write-ups of holdings in companies have been entered to other income items than "income from financial activities". The above has been reflected in the banks' returns and other key ratios. Under such circumstances, it can be difficult to assess the banks' core operations solely from the figures published in their annual accounts.

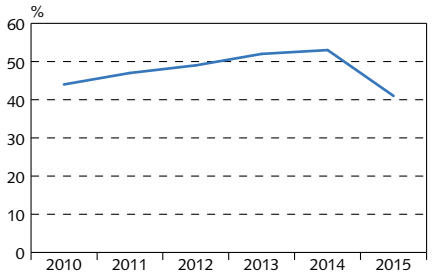
The table shows the largest commercial banks' estimated core operations in 2014 and 2015, presented in two scenarios based on different assumptions, as was done in *Financial Stability* 2015-1. It should be noted that the premises underlying core operations scenarios are always subject to debate. The scenarios do not include tax payments. Therefore, the calculated profit is presented on a pre-tax basis and does not include discontinued operations. *Scenario I* is based on a 3% calculated interest rate spread, 1% net loan impairment, fee and commission income according to the annual accounts, and half of other operating income according to the annual accounts.[6] *Scenario II* is based on a 2.8% calculated interest rate spread, 0.8% net loan

6. In 2015, other income was adjusted for sales and changes in value of the largest affiliates.

Chart III-5

The three largest commercial banks' cost-to-income ratios[1]

Operating expenses as a share of operating income, excluding loan revaluation adjustments and discontinued operations and adjusted for major irregular items

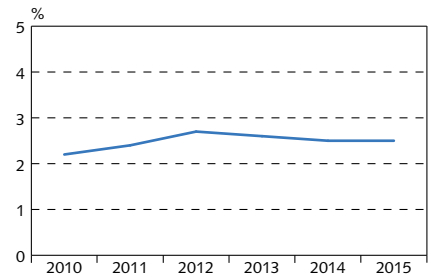


1. Consolidated figures.
Sources: Commercial banks' annual accounts.

Chart III-6

The three largest commercial banks' cost-to-assets ratios[1]

Operating expenses as a share of total assets, adjusted for major irregular items

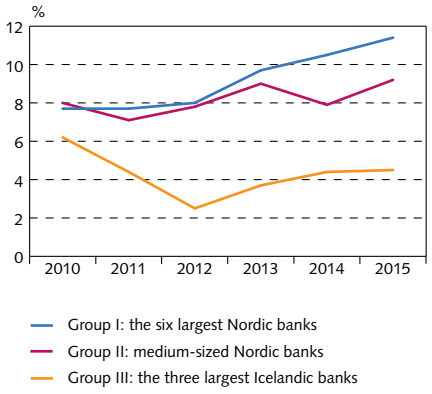


1. Consolidated figures.
Sources: Commercial banks' annual accounts.

Chart III-7

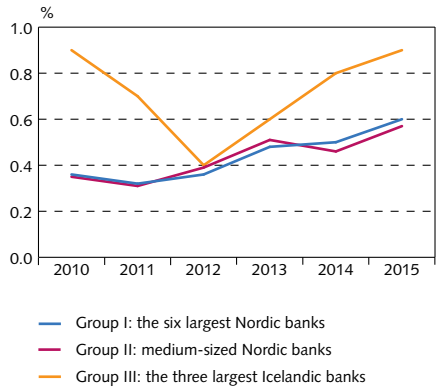
Return on equity, core operations[1]

Nordic comparison



1. 20 Nordic banks. Group III contains the three largest Icelandic banks according to Scenario II.
Sources: Bankscope, commercial banks' annual accounts, and Central Bank calculations.

Chart III-8
Return on total assets, core operations[1]
Nordic comparison



1. 20 Nordic banks. Group III contains the three largest Icelandic banks according to Scenario II.
Sources: Bankscope, commercial banks' annual accounts, and Central Bank calculations.

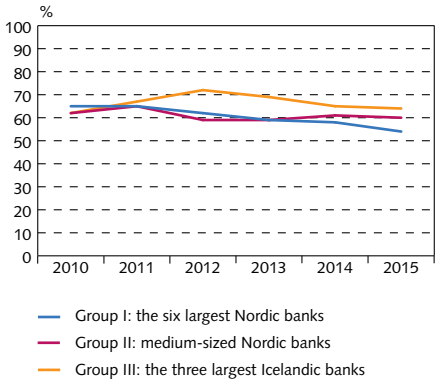
impairment, and fee and commission income according to the annual accounts. Scenario II is therefore considerably narrower than Scenario I. In both scenarios, operating expenses for the year are adjusted for the largest irregular items.[7] For comparison purposes, the interest rate spread during the period 2010-2012 lay in the 3.1-3.4% range, and it stemmed partly from the redemption of discounts due to transferred assets. During the period from 2013 to 2015, the interest rate spread has been in the 2.7-3% range. The scenarios assume loan impairment of 1% and 0.8%, respectively. It is difficult to estimate impairment. In the future, impairment will depend on developments in the composition of the banks' loan portfolios and the economic environment. For example, impairment could decline if the ratio of residential mortgages to total lending rises, as impairment on such loans is generally lower than for general loans.

Table III-2 Scenarios - the three largest commercial banks' core operations

Profit and loss account and financial ratios:	*2015*			*2014*		
M.kr.	*Accounts*	*Scenario I*	*Scenario II*	*Accounts*	*Scenario I*	*Scenario II*
Net interest income	87,326	91,784	85,665	79,398	88,497	82,597
Net change in loan values	23,895	-20,791	-16,633	30,387	-19,358	-15,487
Net commission income	34,495	34,495	34,495	30,628	30,628	30,628
Net income from financial operations	26,684	0	0	15,853	0	0
Other income	37,118	7,918	0	14,755	7,378	0
Operating expenses	-77,386	-77,029	-77,029	-75,115	-73,915	-73,915
Tax	-27,101	0	0	-25,794	0	0
Profit from discontinued operations	1,686	0	0	10,969	0	0
Profit	106,717	36,377	26,498	81,081	33,230	23,823
Return on equity, %	16.8	6.1	4.5	14.0	6.0	4.4
Return on total assets, %	3.5	1.2	0.9	2.7	1.1	0.8
Expenses as % of net interest and commission income, %	64	61	64	68	62	65
Expenses as % of total assets, %	2.5	2.5	2.5	2.5	2.5	2.5

Sources: Commercial banks' annual accounts, Central Bank of Iceland calculations.

Chart III-9
Operating expenses as a share of core income[1]
Nordic comparison



1. 20 Nordic banks. Group III contains the three largest Icelandic banks according to Scenario II.
Sources: Bankscope, commercial banks' annual accounts, and Central Bank calculations.

Improvement in calculated returns on core operations

According to Scenario I, the calculated return on equity and total assets would total 6.1% and 1.2%, respectively, in 2015. According to Scenario II, however, they would total 4.5% and 0.9%, respectively.[8] A comparison of Scenario I between 2015 and 2014 reveals that core operations strengthened markedly in 2015, due in particular to higher commission and fee income; furthermore, net interest income rose considerably, as a result of an increase in total assets, and other income increased marginally. On the other hand, there were greater loan impairment reductions as a result of lending growth, and operating expenses rose as well. Returns according to Scenario I were therefore higher in 2015 than in 2014. Comparing 2015 and 2014 in terms of Scenario II gives the same result. It can therefore be concluded that the banks' core operations improved last year.

7. Further information on the scenarios can be found in *Financial Stability* 2015-1.
8. Profit before tax and excluding discontinued operations.

Foreign comparison

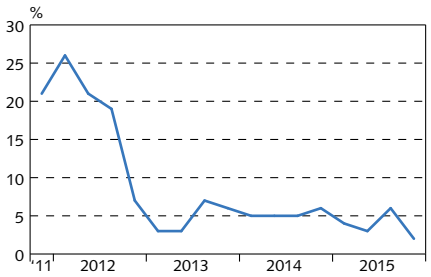
The comparison of the Icelandic banks' core operations with those of Nordic banks is based on the above-described Scenario II for the Icelandic banks and comparable annual accounts items for other Nordic banks. [9] The large Nordic banks' (Group I) returns on equity from core operations lay in the 7.7-11.4% range during the period 2010-2015, as opposed to 7.1-9.2% for medium-sized Nordic banks (Group II). The Icelandic banks' calculated core returns according to Scenario II (Group III) ranged between 2.5% and 6.2% during the period. They declined through 2012 and then rose again in 2013-2015. The main reason for the Icelandic banks' lower return on equity is their capital position, which is stronger than that of their Nordic counterparts. The reverse is true if the banks' returns on total assets from core operations are examined: the Icelandic banks' calculated returns according to Scenario II are stronger than those of other Nordic banks. The large Nordic banks' (Group I) returns on core operations were 0.3-0.6% during the period, similar to those of medium-sized Nordic banks (Group II). The Icelandic banks' calculated core returns according to Scenario II (Group III) ranged between 0.4% and 0.9% during the period. They declined through 2012 and then rose again in 2013-2015. One explanation for the Icelandic banks' higher returns on total assets may be the lower proportion of residential mortgage loans in their asset portfolios. In terms of either return on equity or return on total assets, the Icelandic banks' calculated core returns according to Scenario II declined in 2010-2012 and then rose in 2013-2015.

Among large Nordic banks (Group I), the ratio of costs to income from core operations ranged between 59% and 65% during the period, and it was similar for medium-sized Nordic banks (Group II). For the Icelandic banks, costs relative to calculated income from core operations according to Scenario II (Group III) ranged between 62% and 72% during the period, rising through 2012 and then falling in 2013-2015. From 2013 through 2015, estimated core income rose by 12%, while costs adjusted for major irregular expenses rose by 4%.

Chart III-10

The three largest commercial banks' foreign exchange imbalances[1]

Mismatches in exchange rate-linked assets and liabilities as a share of the capital base



1. Parent companies.
Source: Central Bank of Iceland.

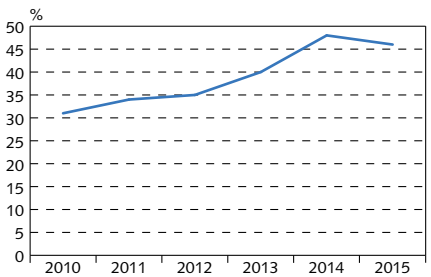
Foreign exchange and indexation imbalances

In Q4/2015, the large commercial banks' combined foreign exchange imbalances declined, both in terms of amount and as a share of the capital base, although individual banks' foreign exchange imbalances developed in differing ways. The large banks' combined indexation imbalances rose slightly in terms of amount in 2015 but declined as a share of the capital base. The mismatch in indexed assets and liabilities was positive by 307 b.kr. at the end of 2015, as opposed to 304 b.kr. at year-end 2014, but it declined by 2 percentage points relative to the capital base. As before, the banks' indexation imbalances vary: Landsbankinn stands out with a year-end mismatch of 64% of its capital base, while Arion's was 49% and Íslandsbanki's 20%.

Chart III-11

The three largest commercial banks' indexation imbalances[1]

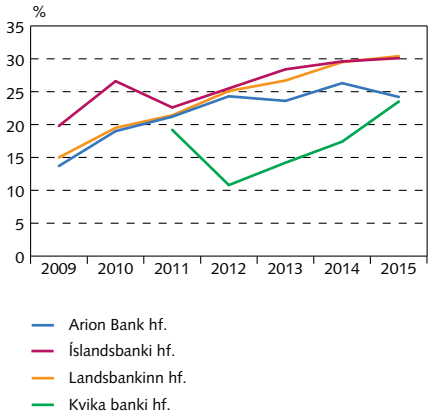
Mismatches in indexed assets and liabilities as a share of the capital base



1. Consolidated figures.
Sources: Commercial banks' annual accounts.

9. Twenty Nordic banks were divided into two groups: Group I consisted of the six largest banks in the region, and Group II consisted of medium-sized banks. Source: Bankscope. Group III consisted of Iceland's three largest banks according to Scenario II.

Chart III-12
Commercial banks' capital adequacy ratios[1]



1. Consolidated figures. Capital base as % of risk-weighted base. CAR for MP Bank 2009-2014.
Sources: Commercial banks' annual accounts.

Strong capital position and introduction of capital buffers

The large commercial banks continued to strengthen their capital position in 2015, and their capital ratios remained strong. Their combined capital ratio declined by 0.3 percentage points between years, to 28.2% as of end-2015, but their combined Tier I capital ratio increased by 1.2 percentage points, to 27.4%.[10] Their capital base totalled 670 b.kr. at the end of 2015, after increasing by 31 b.kr., or 5%, from the previous year. The capital base consists primarily of share capital and accumulated operating income, while subordinated loans amounted to only 3% and declined year-on-year, mainly due to debt retirement. The banks use the standardised approach to calculate the risk base for credit and market risks, but they use the basic indicator approach to calculate their operational risk. Credit risk is the banks' most salient risk factor, comprising over 85% of the risk base, as opposed to 82% in 2014.

A strong capital position and sizeable operating profits in 2014 prompted the large commercial banks to pay out dividends totalling nearly 46 b.kr., or 56% of the year's profit, in 2015. Two of the large banks now plan to pay dividends on year-2015 profits in the amount of 39 b.kr., or 50% of Íslandsbanki's profit and 78% of Landsbankinn's profit. Furthermore, Landsbankinn has been authorised by its shareholders' meeting to purchase up to 10% of its own shares, which is considered the equivalent of a dividend payment. In 2015, the banks' ratio of capital to liabilities continued to rise. At the year-end, their leverage ratio (book value of equity as a share of debt) was 27%, as opposed to 26% at the end of 2014.

At the beginning of 2016, the Financial Stability Council recommended that the Financial Supervisory Authority impose three capital buffers: a capital buffer for systemically important financial institutions, a systemic risk buffer, and a countercyclical capital buffer. The capital conservation buffer that took effect at the beginning of the year does not require a recommendation from the Council.[11] More specifically, the Council recommended (1) that a 2% capital buffer be imposed on systemically important financial institutions as of 1 April 2016; (2) that a systemic risk buffer amounting to 3% of risk-weighted domestic assets be imposed on systemically important deposit-taking institutions as of 1 April 2016 (the systemic risk buffer on other deposit-taking institutions will rise in increments); and (3) that a 1% countercyclical capital buffer be imposed on all financial institutions, effective 12 months after the date of the Financial Supervisory Authority's decision.[12] On 1 March 2016, the Financial

10. The capital ratio is defined according to the Act on Financial Undertakings and the FME Rules on Capital Requirement and Risk-Weighted Assets of Financial Undertakings. Tier 1 capital consists of share capital, retained earnings, etc., and deductions; cf. Article 84 of the Act on Financial Undertakings.

11. The provisions of the Act on Financial Undertakings, no. 161/2002, on capital conservation buffers entered into force on 1 January 2016. The buffer is subject to a maximum of 1% until 1 June 2016, 1.75% from 1 June 2016 through 1 January 2017, and 2.5% thereafter.

12. Systemically important financial institutions are Arion Bank hf., Íslandsbanki hf., and Landsbankinn hf., as defined at the Financial Stability Council meeting in April 2015. Systemically important deposit-taking institutions are Arion Bank hf., Íslandsbanki hf., and Landsbankinn hf. Other deposit-taking institutions are Kvika banki hf., Sparisjóður Austurlands hf., Sparisjóður Höfðhverfinga ses., Sparisjóður Strandamanna ses., and Sparisjóður Suður-Þingeyinga ses The 1% countercyclical capital buffer applies to all

Supervisory Authority took a decision in accordance with the Council's recommendations. Capital buffers may only include Tier 1 capital. It does not appear that the decision on the capital buffers will require that the large commercial banks increase their capital. Further discussion on capital buffers can be found in Box III-1.

The Treasury recently acquired all share capital in Íslandsbanki; therefore, it is a majority owner of two of the three commercial banks. It is clear that the future banking system architecture, ownership structure, and capital position will be under discussion in the coming term.

financial institutions except those exempt from capital buffers according to Article 84(d), Paragraph 4 of the Act on Financial Undertakings, no. 161/2002. The capital buffers apply to the aforementioned entities on a consolidated basis. For further information, see the Financial Stability Council's 25 January 2016 press release on the first meeting of 2016.

Box III-1

Financial Stability Council recommendations on capital buffers

After the Financial Stability Council (FSC) held its first meeting of 2016, it recommended to the Financial Supervisory Authority (FME) that capital buffers be imposed on Icelandic financial institutions. The recommendations provided for three capital buffers: a capital buffer for systemically important financial institutions, a systemic risk buffer, and a countercyclical capital buffer. Each of the buffers has its own purpose, and all of them are intended to strengthen financial institutions' resilience, thereby reducing risk in the financial system. The FSC's recommendations are based on the analysis and recommendations of the Systemic Risk Committee, including a detailed analysis of the rationale for imposing each of the buffers.[1] The FME confirmed the FSC's recommendations on 1 March, and the capital buffers will all take effect within a year, in accordance with the recommendations.

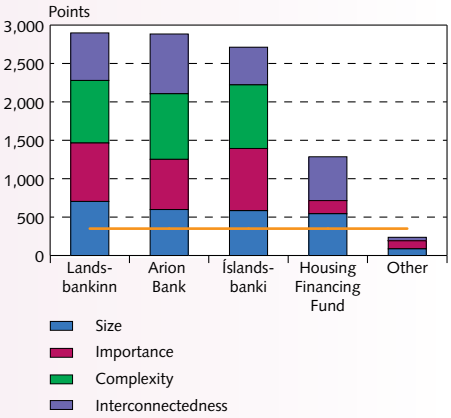
Capital buffer for systemically important institutions

Systemically important financial institutions are those financial institutions that, due to their size or the nature of their activities, could have a significant negative impact on financial stability and on the real economy.

There is the risk that systemically important financial institutions display increased risk appetite due to moral hazard. This moral hazard is based on the belief that if the institution ends up in financial difficulties, the authorities will rescue it so as to forestall more widespread damage to the financial system and limit the negative impact on the real economy. Even if no explicit State guarantee is involved, such an expectation could exist. In order to counteract the potential negative impact of systemically important entities on the financial system, a capital buffer for systemically important financial institutions has been imposed. The FSC confirmed the systemic importance of Arion Bank, Íslandsbanki, Landsbankinn, and the Housing Financing Fund (HFF) in April 2015.[2] The analysis of the rationale for applying the capital buffers, which is based

Chart 1

Assessment of other systemically important institutions in Iceland[1]

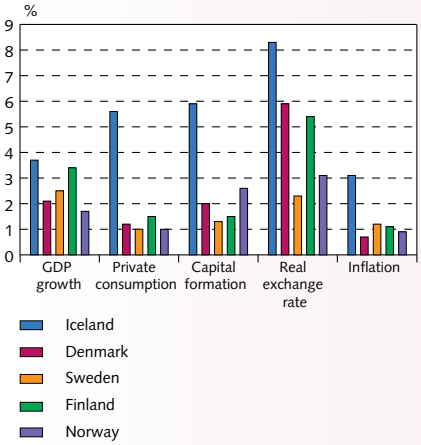


1. The yellow line shows the 350-point threshold suggested by the EBA.
Source: The Financial Supervisory Authority.

1. The rationale behind the capital buffers and the recommendations of the Financial Stability Council can be found on the Council's website: https://www.ministryoffinance.is/news/first-meeting-of-the-financial-stability-council-in-2016
2. Financial Stability Council (2015). Criteria for decision on systemically important supervised entities https://www.ministryoffinance.is/media/frettatengt2016/en_Eiginfja%CC%81rauki-vegna-kerfislegs-mikilvaegis_final.pdf

Chart 2

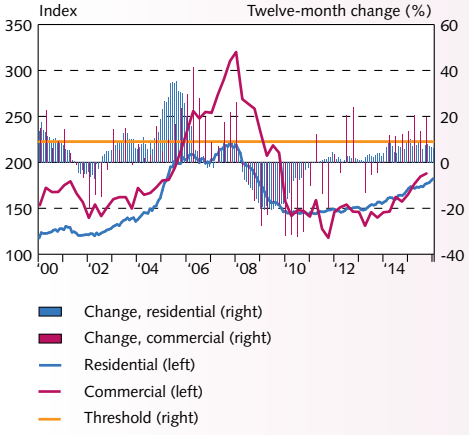
Standard deviation of some economic variables in the Nordic countries



Sources: Eurostat, Statistics Iceland, Central Bank of Iceland, World Bank.

Chart 3

Real property prices[1]



1. Price indices for the greater Reykjavík area, deflated with the CPI. Commercial property prices are the average of industrial, retail, and office property. Data are subject to uncertainty due to sparsity and divergence of measurements. The 9% threshold is based on international research.

Source: Statistics Iceland, Central Bank of Iceland.

on guidelines from the European Banking Authority (EBA), clearly indicated the systemic importance of the three banks and the HFF, all of which were well in excess of the minimum criteria according to the guidelines.[3] The FSC recommended that a capital buffer for systemic importance be imposed on the three commercial banks. The statutory provisions on capital buffers do not apply to the HFF. The FSC recommendations assumed that the capital buffer would be set at 2%, which is the maximum permitted by law.

Systemic risk buffer

The purpose of the systemic risk buffer is to prevent or limit the impact of long-term non-cyclical systemic risk that could face the financial system and could have serious negative consequences for the financial system and the real economy.[4] Iceland is a small, open economy with an independent currency, and international comparison shows that economic variables fluctuate much more in Iceland than in neighbouring countries. Iceland is characterised by a lack of diversity in resources and economic sectors, and the level of concentration is high. Shocks affecting specific sectors could therefore have a proportionally stronger impact on the overall economy. Volatility of economic variables exacerbates uncertainty and complicates households' and businesses' operating environment. This is reflected in increased variability of bankruptcy and default, which increases financial institutions' credit risk. A strong correlation can be discerned between changes in private consumption and corporate insolvencies, and variability of private consumption is four times greater in Iceland than in the other Nordic countries.

The FSC recommended that a 3% systemic risk buffer be applied to all deposit-taking institutions in Iceland. The buffer applies only to domestic exposures, as the risk it is intended to address is limited to the Icelandic economy. The systemic risk buffer is immediately applied in full to those institutions that are defined as systemically important. Other deposit-taking institutions' systemic risk buffers are set at 1% of risk-weighted domestic assets as of 1 April 2016 and will rise incrementally, as follows: to 1.5% as of 1 January 2017, to 2.0% as of 1 January 2018, and to 3% as of 1 January 2019.

Countercyclical capital buffer

The main purpose of the countercyclical capital buffer is to increase the resilience of the financial system, thereby mitigating financial fluctuations. The buffer is built up concurrent with growth in systemic risk and is then lifted if the risk materialises and/or during a downturn in the financial system. In assessing the value of a countercyclical capital buffer, consideration is given to whether systemic risk related to the business cycle is accumulating.

The FSC's assessment takes account primarily of the core indicators defined by the Council for financial stability intermediate objective 1.[5] These include real growth in private sector debt and real increases in residential and commercial property prices. Upon considering other indicators of developments in disposable income, housing market turnover, share prices, and the financial system and markets in other respects, it can be seen that a financial upswing

3. European Banking Authority (2014). Guidelines: On the criteria to determine the conditions of application of Article 131(3) of Directive 2013/36/EU (CRD) in relation to the assessment of other systemically important institutions (O-SIIs), (EBA/GL/2014/10).
4. Article 84(b), Paragraph 2 of the Act on Financial Undertakings, no. 161/2002.
5. Intermediate financial stability objective 1 is to combat excessive lending growth, indebtedness, and imbalances in asset markets. The FSC decision can be found here: https://www.fjarmalaraduneyti.is/fjarmalastodugleiki/fundargerdir/nr/19482

has already begun. The increase in households' real disposable income, increased collateral capacity because of rising asset prices and declining debt, and positive forecasts of developments in economic variables also indicate that debt levels could rise rapidly in the near future.

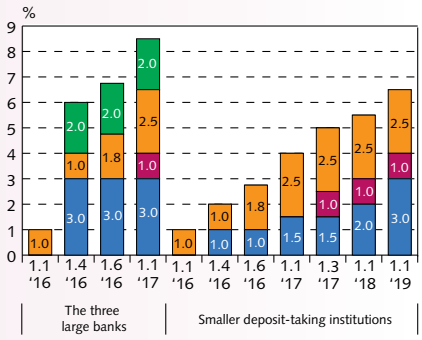
With reference to the analysis of the above-mentioned indicators, the FSC recommended to the Financial Supervisory Authority that a 1% countercyclical capital buffer be applied to Icelandic financial institutions. The recommendations were also based on the strong capital position of the financial system. Because of the strong position, it is considered unlikely that the countercyclical capital buffer requirement will restrain lending in an undesirable way. The value of the countercyclical capital buffer will be reviewed on a quarterly basis. An increased requirement can be expected at a later date, in line with the financial cycle position.

Conclusion

Given the strong capital position of the Icelandic financial system, the capital buffers recommended by the FSC are not expected to prove onerous. Based on the most recent figures on the capital position as published in the deposit institutions' annual and interim accounts, the necessary capital buffer for Q1/2017 will total only half a billion krónur, which is negligible in the context of the entire financial system.

Chart 4

Activation of capital buffers in Iceland[1]



1. The chart shows only dates when a change is made in the value of one or more capital buffers.

Sources: Statistics Iceland, Central Bank of Iceland.

IV Funding and liquidity

Commercial banks step up market funding

The largest commercial banks' funding has changed following the settlement associated with the failed banks' composition agreements. The banks' foreign funding has been lengthened, and the estates' króna-denominated deposits were for the most part paid out in the form of stability contributions. The Icelandic banks and savings banks are still funded primarily with deposits, although their market funding has increased in recent years. Last year, the banks issued more securities in foreign credit markets than at any time since their establishment, and terms have been improving. The three largest banks received investment-grade credit ratings last summer, when Standard & Poor's issued BBB- ratings for all of them. Unrest in foreign markets and increased risk premia on banks in general could affect the Icelandic banks' access to capital markets in the coming term, however. To an increasing degree, the banks fund their mortgage lending portfolios with covered bond issues, and covered bonds now account for a larger share of their total funding. The banks must at all times have liquid assets to offset a portion of their liabilities, as is provided for in the Central Bank liquidity rules; therefore, it is important that dividend payments and credit growth take account of the liquidity position.

Changes in the banks' funding during the year

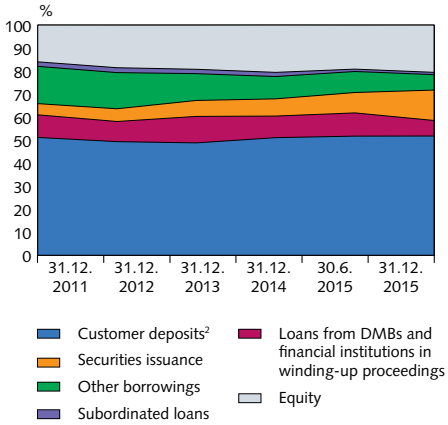
Deposits and capital

The composition agreements of the failed banks' estates entailed changes in the funding of currently operating commercial banks. The estates' króna-denominated deposits were withdrawn, and the maturities of a portion of their foreign deposits were lengthened with bond issuance and long-term deposits. Deposits held by financial institutions in winding-up proceedings accounted for just over 7% of the commercial banks' funding at the end of 2014. By the end of 2015, the share had fallen to 5%, and in the first two months of 2016 it fell still further, to roughly 3% as of end-February.

Icelandic banks and savings banks are still funded primarily with deposits, however. Customer deposits accounted for some 52% of total commercial bank funding at year-end 2015, about the same as at the end of 2014. The share of deposits held by non-residents declined by about 1 percentage point in 2015, to 6% at the year-end. The vast majority of these deposits (92%) were denominated in krónur. The three largest banks' combined ratio of customer deposits to lending is similar to that among Nordic commercial banks of comparable size; however, the ratio of capital to funding is higher for the Icelandic banks (Chart IV-3).

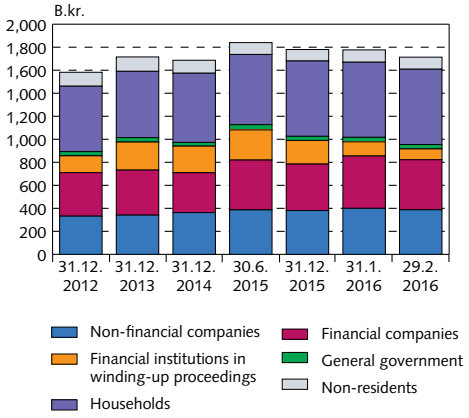
The banks' capital was equivalent to 21% of their funding at the end of 2015, after increasing by a percentage point from the prior year. Subordinated loans declined by 1 percentage point, as Arion Bank paid 20 b.kr. on a 30 b.kr. subordinated loan from the State during the year, bringing the share to 1% of total funding. The banks all paid dividends in 2015 on their profits in the previous year. Landsbankinn paid 23.7 b.kr. in dividends, Arion 12.8 b.kr., and Íslandsbanki 9 b.kr. Two of the banks have announced plans to pay dividends this year in the amount of just under 39 b.kr. Íslandsbanki has approved a dividend payment equalling 50% of its 2015 profit,

Chart IV-1
Commercial banks' funding[1]



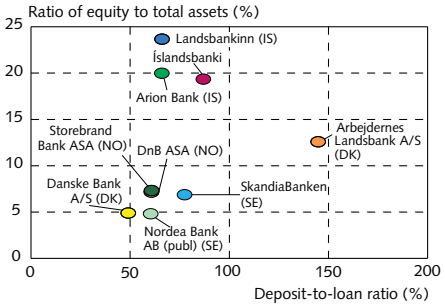
1. Parent companies. 2. Including pension fund deposits.
Source: Central Bank of Iceland.

Chart IV-2
Depositors[1]



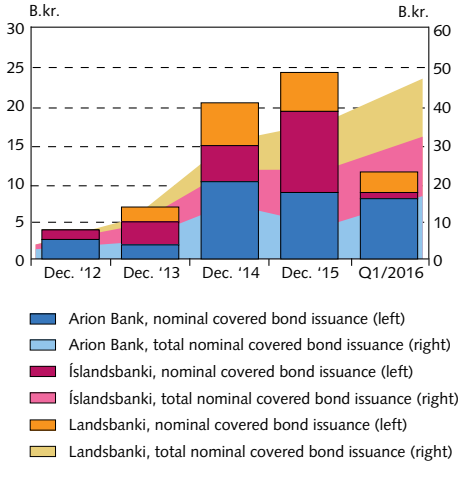
1. Parent companies, commercial banks.
Source: Central Bank of Iceland.

Chart IV-3
Nordic banks' funding



Source: Bankscope.

Chart IV-4
Commercial banks' nominal covered bond issuance[1]



1. New issues (columns) and total outstanding (shaded areas).
Source: Nasdaq Iceland.

or 10.3 b.kr., and Landsbankinn has approved a dividend payment of 78% of last year's profit, or 28.5 b.kr. Furthermore, Landsbankinn has been authorised by its shareholders' meeting to purchase up to 10% of its own share capital, which is considered the equivalent of a dividend payment. Íslandsbanki is offering the possibility of an extraordinary shareholders' meeting, where a proposal for an additional dividend may be presented. It is important that dividend payments take into account the banks' liquid assets; otherwise, they will cut into the banks' ability to grant loans. With this in mind, dividend payments entailing, for instance, a reduction in owners' debt to the banks (currently in the form of capital contributions) would be preferable to payments of liquid assets.

Increased covered bond issuance

The banks have continued to increase their share of market funding by issuing covered bonds and bills, as well as by issuing bonds abroad. All of the large commercial banks issued covered bonds to fund mortgage lending during the year. Total issuance in 2015 amounted to just over 62 b.kr., 38 b.kr. of it in indexed bonds and 24 b.kr. in nominal bonds. The banks issue covered bonds upon receiving authorisation from the Financial Supervisory Authority (FME) concerning the total issuable amount. At the end of 2015, they were authorised by the FME to issue a total of 160 b.kr.[1] Landsbankinn issued covered bonds in the amount of 14.6 b.kr. in 2015, including its first indexed covered bond issue, which totalled 9.6 b.kr. Arion Bank issued 23.6 b.kr., and Íslandsbanki issued 24.1 b.kr. and bought its own bonds in the amount of 0.5 b.kr. In the first three months of 2016, Arion issued covered bonds for 12.4 b.kr., Íslandsbanki issued 5.7 b.kr., and Landsbankinn issued 6.8 b.kr.

Issuance of indexed covered bonds increased strongly last year. By the end of the year, some 75 b.kr. of indexed bonds were outstanding, about twice as much as at the end of 2014. At year-end 2015, the total outstanding stock of covered bonds issued by the three large banks was 110.7 b.kr., an increase of 64% year-on-year. Covered bonds now account for 3.6% of the banks' funding. The ratio of covered bonds to the banks' real estate-backed mortgages was roughly 32% at the end of the year, including the covered bonds acquired by Arion Bank with the purchase of Kaupthing's loan portfolio in 2011. This ratio differs greatly from one bank to another, however. Turnover with the banks' covered bonds has been limited in the past years but grew strongly last autumn. Monthly turnover of outstanding bonds rose by 1 percentage point in December 2014 to almost 6% in December 2015, or from 0.5 b.kr. to 6.5 b.kr. The banks concluded market making agreements for their issues last year, and several funds were established whose objective was to invest in covered bonds. The market appears to be deepening and can be expected to continue in this vein as the banks' issuance grows at a time when the stock of outstanding Housing Financing Fund (HFF) bonds is shrinking.

1. The bonds are issued in accordance with the Act on Covered Bonds, no. 11/2008, and the Rules on Covered Bonds, no. 528/2008.

Íslandsbanki has the largest stock of outstanding covered bonds and bills, as it began issuing earlier than the other two banks did. This is partly because the other two banks had already pledged a portion of their loan portfolios as collateral for other debt, mainly Landsbankinn's debt to LBI and the covered bonds that Arion Bank took over from Kaupthing in 2011.

Encumbrance ratios have declined

The commercial banks' encumbrance ratios[2] declined during the year. Landsbankinn's encumbrance ratio fell by 7 percentage points, to 18%, mainly because of the refinancing of the bonds to LBI hf. In October 2015, Landsbankinn issued an unsecured bond in the amount of 42.4 b.kr. and prepaid the 2016 and 2018 instalments on the LBI bond. The bank's encumbrance ratio has fallen by about 12 percentage points in two years, increasing its scope for covered bond issuance commensurably. Íslandsbanki has pledged just over 10% of its assets for funding. The bank's encumbrance ratio declined by a percentage point between years but has remained relatively stable in recent years. At the end of 2014, Arion Bank's ratio had declined by 3 percentage points between years, to 24%. Arion's high encumbrance ratio stems largely from the mortgage loan portfolio it acquired from Kaupthing in 2011, which is pledged against covered bonds, but also from foreign-denominated loan it received from the Central Bank upon its establishment. In early 2016, Arion's encumbrance ratio declined still further, from 24% to 18%, after the loan from the Central Bank was refinanced with the issuance of unsecured bonds in connection with the failed banks' composition agreements.

Foreign market funding

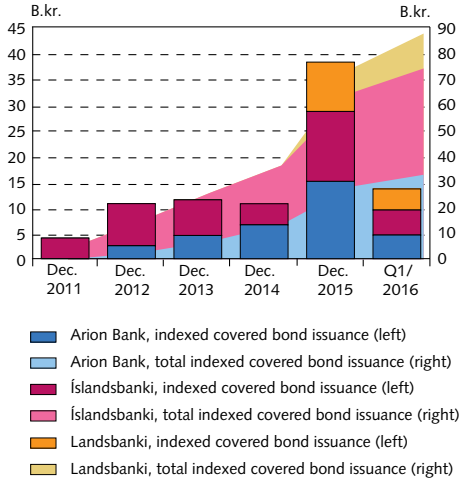
Last year's credit rating upgrades placed the commercial banks in the investment-grade category and increased their access to funding in foreign credit markets. The banks all received BBB- ratings with a stable outlook from Standard & Poor's in July 2015, but the agency changed Arion's outlook to positive in January 2016. Íslandsbanki had received a BBB- rating from Fitch Ratings in April 2015. The banks have issued mainly in euros, Norwegian kroner and Swedish kronor, and in 2016 they added issues in US dollars (see Table IV-1).

In 2015, Landsbankinn issued unsecured bonds in the amount of nearly 50 b.kr. through its European medium-term note (EMTN) programme. The main share was refinancing of the secured bonds to LBI hf. Íslandsbanki's issues under its global medium-term note (GMTN) programme totalled just under 49 b.kr. in 2015, but it also bought back 7 b.kr. worth of its own eurobonds. Arion Bank also greatly increased its foreign market funding last year. In March 2015, the bank issued eurobonds worth 45 b.kr., and in June and November it issued five-year bonds in Norwegian kroner for NOK 800 million, or nearly 13 b.kr. At the same time, the bank bought back NOK 75 million of its 2013 issue.

In 2016, the banks continued to expand their EMTN and GMTN issues. In the first quarter, Íslandsbanki issued a 4.4 b.kr. bond in US

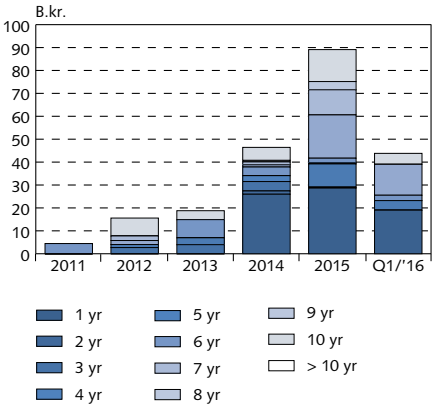
2. The ratio of the banks' assets that are pledged as collateral for funding.

Chart IV-5
Commercial banks' indexed covered bond issuance[1]



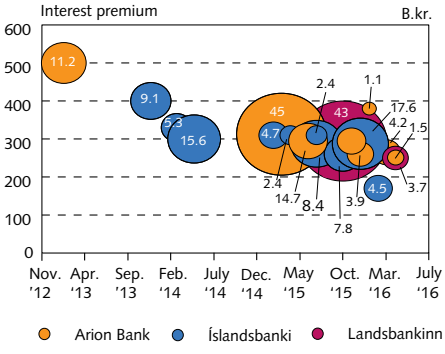
1. New issues (columns) and total outstanding (shaded areas).
Source: Nasdaq Iceland.

Chart IV-6
Domestic securities issuance, by original residual maturity[1]
The three largest commercial banks



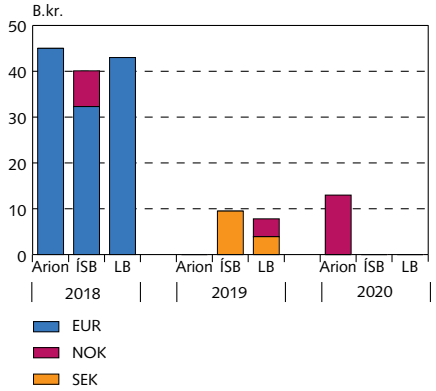
1. Issuance of covered bonds and bills. At constant prices.
Source: Nasdaq Iceland.

Chart IV-7
Commercial banks' foreign issues since 2008[1]



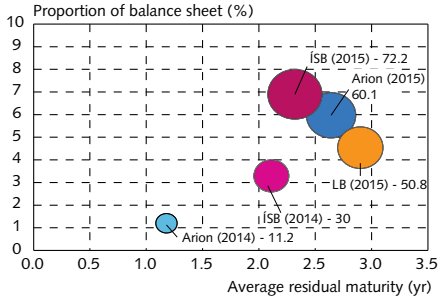
1. Interest premium on interbank interest. The issues are in EUR, SEK, NOK and USD.
Source: Nasdaq Iceland.

Chart IV-8
Foreign bonds issued in 2015
By maturity and currency[1]



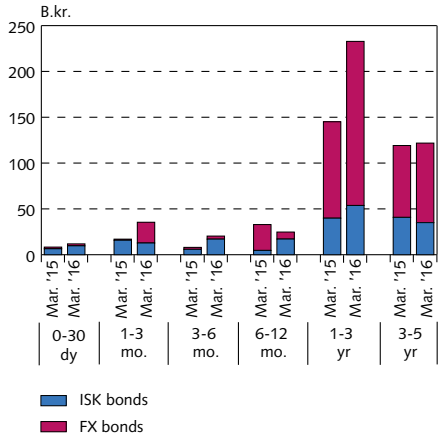
1. At exchange rate on date of issuance.
Source: Nasdaq Iceland.

Chart IV-9
Comparison of banks' foreign funding[1]
Listed foreign funding, relative to total assets and by average residual maturity[2]



1. The three large commercial banks. 2. The size of the circle indicates the scope of foreign funding in b.kr.
Sources: Nasdaq Iceland, Central Bank of Iceland.

Chart IV-10
Bond maturities[1]
The three largest commercial banks[2]



1. Instalments and interest. 2. Consolidated figures.
Source: Central Bank of Iceland.

dollars, with a maturity of one-and-a-half years. Arion's issue totalled 5.3 b.kr., in addition to the bond it issued in January, in the amount of USD 747 million, or about 97 b.kr. The bond was issued in connection with the estates' composition agreements, as is discussed below.

The Icelandic banks' bonds have been listed on the exchanges in Norway, Ireland, and Luxembourg. The yield on the issues has fallen as the banks' credit ratings have risen, but developments in the yield appear to track developments in yields on other European banks' bond issues. For example, the yield rose at the beginning of 2016 but fell again in March. As yet, however, trading with the Icelandic banks' bonds has been sparse.

Table IV-1 Commercial banks' foreign bond issues 1.1.2015 - 31.3.2016

Issuer	*Date*	*Curreny*	*Amount (b.kr.)*	*Year*	*Premium on interbank rate[1]*
Arion Bank	Mar.15	EUR	45.0	3.0	3.10%
Arion Bank	Jun. and Nov. 15	NOK	13.0	5.0	2.95%
Arion Bank	Jan.16	RON	1.1	3.0	3.8% fixed
Arion Bank[2]	Jan.16	USD	97.0	7.0	2.60%
Arion Bank	Mar.16	SEK	4.2	3.0	2.65%
Íslandsbanki	Feb., Apr., Jul. 15	SEK	9.5	4.0	3.10%
Íslandsbanki	Jul. and Dec. 15	EUR	32.3	3.0	2.875% fixed
Íslandsbanki	Oct. 15	NOK	7.8	3.0	2.60%
Íslandsbanki	Feb.16	USD	4.4	1.5	1.70%
Landsbankinn[3]	Oct. 15	EUR	43.0	3.0	3% fixed
Landsbankinn	Dec. 15	NOK	3.9	3.5	2.60%
Landsbankinn	Dec. 15	SEK	3.9	3.5	2.60%

1. Interest premium on three-month interbank rate in the relevant currency unless otherwise specified. 2. Issuance in connection with Kaupthing Bank composition agreement. The bond bears floating LIBOR interest plus a 2.6% premium for the first two years. At the end of that period, the interest premium will reflect market rates. 3. Issuance in connection with the prepayment of Landsbankinn's LBI bond.
Source: Nasdaq Iceland.

Restructured funding in connection with composition agreements

The banks' foreign funding changed in the wake of the refinancing connected with the composition agreements of the failed banks' estates. The measures proposed by the estates as part of their composition agreements needed to take account of the commercial banks' liquidity position, as all of the estates had substantial deposits with the commercial banks. The main effect on the banks was the conversion of a portion of the FX deposits to longer-term loans. In addition, the estates' ISK loans were withdrawn and, among other things, used as part of the estates' stability contributions. Among other things, the lengthening of foreign loans entailed refinancing in the form of issuance or potential issuance of bonds under the banks' EMTN and GMTN programmes.

In January, as a part of these measures, Arion Bank issued a US dollar bond for the equivalent of 97 b.kr., as is mentioned above. The bond has a seven-year maturity, with the interest premium fixed for the first two years and then reviewed based on market rates. The bond was issued to net out the foreign-denominated loan from the Central Bank of Iceland and Kaupthing's foreign-denominated deposits.

In October 2015, Landsbankinn refinanced the majority of its 2016 and 2018 payments on the Landsbankinn-LBI bonds. At year-end 2015, the total outstanding balance of the Landsbankinn-LBI

debt was just over 125 b.kr., as opposed to nearly 200 b.kr. at the end of 2014.

As part of the settlement, Glitnir bought Íslandsbanki's subordinated loan from the Treasury, but the terms of the debt are unchanged and do not affect the bank's funding. Glitnir also lengthened the maturity of its deposits with Íslandsbanki.

The banks' funding ratios in foreign currencies have risen

As of March 2016, the largest commercial banks' foreign-denominated debt consisted mainly of 254 ma.kr. in deposits held by customers and financial institutions, 275 ma.kr in unsecured bonds, and 121 ma.kr in secured funding. Subordinated loans totalled just under 30 b.kr. Nearly 90% of financial institutions' deposits and bonds mature in more than one year, and 48% mature in more than three years. A year earlier, 61% of the funding matured in more than one year and 33% in more than three years. The next five years' instalments and interest on foreign-denominated loans total about 60 b.kr. per year, on average, or roughly 11% of the banks foreign-denominated loans.

The banks' foreign funding ratios according to Central Bank rules have risen from 137% at year-end 2014 to 153% at the end of March 2016. This is because of both the conversion of the estates' deposits to longer-term funding and the banks' foreign market funding during the past year. The rules on funding ratios are intended to ensure a minimum level of stable one-year funding in foreign currencies and therefore restrict the degree to which the commercial banks can rely on unstable short-term funding to finance long-term foreign-denominated lending. According to the rules, three-year funding is also considered in an assessment of the banks' funding risk. According to the Rules on Funding Ratios in Foreign Currencies, the minimum ratio is 90% but will rise to 100% at the beginning of 2017.[3]

The banks' liquidity

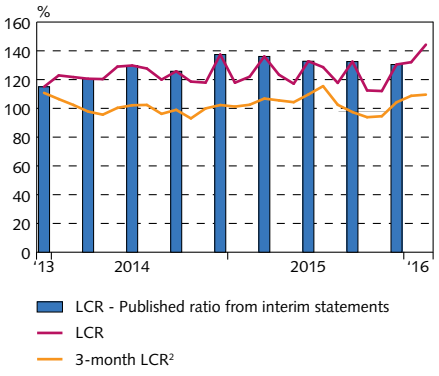
Liquidity position must be considered in deciding on dividend payments

The Central Bank's liquidity rules are based on international criteria issued by the Basel Committee on Banking Supervision.[4] According to the rules, credit institutions must always have sufficient high-quality assets to cover net outflows over the coming 30 days under stressed conditions. The liquidity coverage ratio (LCR) may not fall below 100% for foreign currencies and may not fall below 90% overall. The minimum total ratio will rise to 100% at the beginning of 2017. The commercial banks all meet the Central Bank's liquidity requirements.

Liquid assets as defined by the liquidity rules are primarily cash and deposits with the Central Bank, Treasury bonds, and foreign

Chart IV-11

The three large commercial banks' liquidity coverage ratio[1]

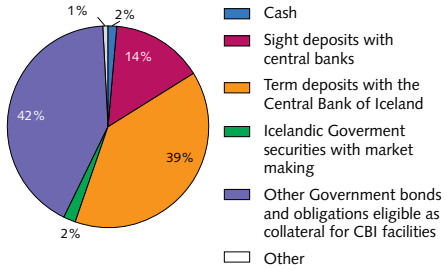


1. Consolidated figures. 2. In accordance with liquidity rules, the Central Bank also monitors three-month liquidity coverage ratios.
Sources: Commercial banks' interim financial statements, Central Bank of Iceland.

3. Maturity transformation between assets and liabilities is one of banks' key contributions to the economy; however, refinancing debt upon maturity involves some risk. The Central Bank mitigates this risk by providing ISK liquidity to the banking system, but its ability to provide such liquidity in foreign currencies is limited. As a result, the Bank has adopted rules on funding ratios for one year in foreign currencies in order to limit maturity mismatches between assets and liabilities in foreign currencies. The new rules are based on guidelines from the Basel Committee on Banking Supervision.

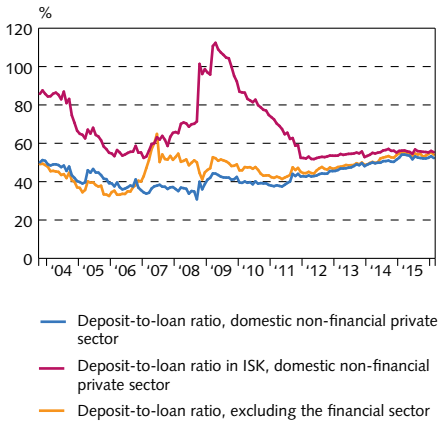
4. Bank for International Settlements. "Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools", January 2013.

Chart IV-12
The three large commercial banks' liquid assets[1] as of 31 March 2016[2]



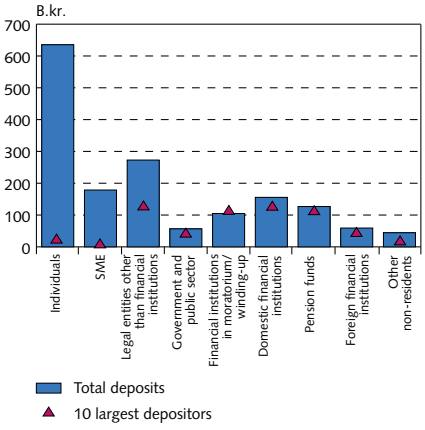
1. Liquid assets in Icelandic krónur. 2. Parent companies.
Source: Central Bank of Iceland.

Chart IV-13
Deposit-to-loan ratios[1]



1. Deposit money banks, parent companies.
Source: Central Bank of Iceland.

Chart IV-14
Breakdown of deposits and share of the 10 largest depositors[1]
The three largest commercial banks[2] as of 31 March 2016



1. Total deposits, irrespective of maturity. The 10 largest depositors in each commercial bank. 2. Consolidated figures.
Source: Central Bank of Iceland.

bonds with high credit ratings. At present, no domestic corporate bonds are classified as liquid assets. In Iceland, the definition of liquid assets in Icelandic krónur is relatively strict, partly because of the small size of the market. At the end of March, the banks' liquid ISK assets consisted of cash and sight deposits with the Central Bank of Iceland, which comprised 16% of the total; term deposits in the Central Bank, which accounted for 39%; bonds eligible as collateral and with market making, which accounted for only 2%; and bonds or other obligations related to the reconstruction of the banking system, which comprised 42%. Liquid assets that banks may only convert to cash through collateralised transactions with the Central Bank and not through market-based sales therefore account for 42% of the large commercial banks' liquid assets.

In paying dividends, the banks must take into account their regulatory liquidity position and the composition of their liquid assets. It should be noted in particular that the capital contribution from the State is in the form of a bond maturing in 2018. This bond is eligible as collateral for transactions with the Central Bank and is included with the banks' liquid assets. The total amount of the bond is 213 b.kr., most of it owned by Landsbankinn, as the State's holding in that bank was originally the largest. As a result, it could be advisable to use the banks' dividend payments to the State to reduce this debt, which would also reduce the State's refinancing risk.

The estates' composition agreements affected the banks' liquidity

The failed banks' estates all held substantial deposits with currently operating commercial banks, but the banks needed to hold liquid assets to cover them, to the extent that they were available on demand or had short maturities. Because of changes in financing structure during settlement in connection with the old banks' composition agreements, the liquidity requirements in connection with these deposits have been reduced or eliminated, as the maturities have been lengthened significantly. In other cases, deposits were paid out and liquid assets and claims have declined as a result. Measures in connection with the composition agreements caused a rise in the banks' liquidity ratios in foreign currency but had litle effect on their total ratios.

Liquidity also assessed over longer horizon

As is mentioned above, the commercial banks are funded primarily with deposits, nearly 69% of which are liquid within a month. Some 84% are liquid within three months, and almost 90% are liquid within six months. The Central Bank of Iceland's liquidity rules set stringent requirements for liquid assets to offset deposits with a maturity of up to 30 days, providing an increased incentive for term deposits. There is a certain risk, however, of a so-called cliff effect on day 31, if financial institutions have a large share of term deposits with a 31-day maturity. The Central Bank's liquidity rules therefore take into account the three-month liquidity ratio, which is naturally lower than the 30-day ratio but is also somewhat more stable.

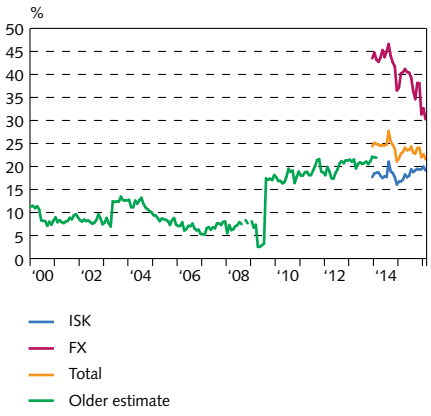
Liquidity requirements for deposits increase as the risk associated with them grows greater. Therefore, the deposit classes that the

banks are required to offset in full with liquid assets generally include risky deposits, including those held by financial institutions. In general, there is considerable concentration of ownership within these deposit classes. The largest 10 depositors in some of these classes hold up to 100% of total deposits. This is the case for deposits held by financial institutions in winding-up proceedings, other financial institutions, and pension funds. In other classes – for instance, individuals' deposits and SMEs' deposits – the concentration is much less: the 10 largest depositors in those classes hold about 3.1% of the deposits in their class, or about 1.5% of total commercial bank deposits.

The liquidity rules work together with the funding rules to make funding with wholesale deposits and other short-term funding more expensive for banks, as liquid assets must be held to cover deposits from institutional investors. As a result, the banks choose to finance their lending activity with deposits from individuals and small companies, term deposits, and not least, market funding with a maturity longer than one year.

Examining the ratio of liquid assets to total assets shows a steep rise after the new banks were established in 2008. In general, banks' liquidity fluctuates somewhat, and in the run-up to the financial crisis, the banks relied on the interbank market or on Central Bank facilities to address such volatility. During the financial crisis, however, a large number of banks needed liquidity at the same time, causing interbank markets to seize up. Banks that did not have access to central bank facilities in the currencies in which they were obligated found themselves in great difficulty, Icelandic banks among them. In the wake of the crisis, banks chose to hold more liquidity in order to cover fluctuations. This is reflected in the international liquidity requirements published in 2013, which make strict requirements that the banks have liquidity to offset their obligations, with the aim of keeping liquidity problems from spreading.

Chart IV-15
Ratio of liquid assets to total assets[1]



1. DMBs, parent company data. From October 2013 onwards, the estimate is based on liquid assets as specified in LCR reports. The older estimate is based on liquidity reports according to the previous liquidity rules. Two data points from 2008 are missing.
Source: Central Bank of Iceland.

The banks must maintain their liquidity position

In the coming term, the banks' funding environment can be expected to change as the capital controls are lifted. A foreign currency auction offering owners of offshore krónur the opportunity to export their assets is planned, but the details have not yet been publicised. The banks hold liquid assets to cover the majority of non-residents' deposits, in accordance with the liquidity rules. They are well funded, and their medium-term foreign refinancing risk is not substantial. They fulfil the requirements set forth in the Central Bank of Iceland's rules on liquidity ratios and funding ratios. Some uncertainty exists, however, in part because institutional investors could opt for the bond market instead of deposits in the future, which could increase the banks' funding costs. The banks must therefore ensure that they maintain a strong liquidity position, and their dividend payments and lending growth must take account of this.

V Financial system assets

Demand for credit on the rise

Private sector debt to domestic lenders rose year-on-year for the first time since the collapse of the financial system. Annualised real growth in private sector debt to resident entities measured 2.4% in Q4/2015. The contraction in household debt has slowed markedly, and real growth in corporate debt somewhat exceeded GDP growth over the same period, measuring 6%. Growth in corporate debt is due in part to an increase in companies' issuance of marketable bonds, which have been purchased by pension funds. Private sector borrowers' default vis-à-vis deposit institutions and the Housing Financing Fund (HFF) has continued to decline. Net growth in deposit institutions' new lending to households and businesses grew by 80% in 2015. Deposit institutions' new mortgage lending totalled 83 b.kr., almost twice the total for the previous year. At the HFF, new lending continued to contract, and prepayments and excess payments doubled between years, to nearly 50 b.kr. in 2015. By the end of 2015, only four savings banks were still in operation. Two savings banks merged with commercial banks during the latter half of the year. Pension funds' shareholdings continued to grow, and loans to pension fund members grew in late 2015.

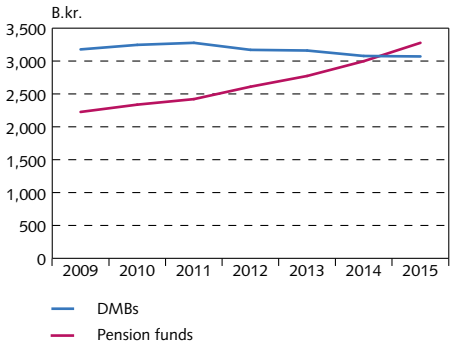
Financial system assets

Financial system structure broadly unchanged between years

Total financial system assets grew in real terms by 2.8% year-on-year in 2015. At the end of 2015, four commercial banks and four savings banks were in operation in Iceland, comprising just over a third of the financial system.[1] In September, Sparisjóður Norðurlands merged with Landsbankinn, and in October, the number of operating savings banks fell to four, when AFL savings bank merged into Arion Bank. According to end-2015 figures, the assets of these deposit money banks (DMB)[2] totalled just under 3,186 b.kr., or about one-and-a-half times GDP. Pension funds account for another third of the financial system, with assets totalling just under 3,279 b.kr. as of year-end 2015. The final third of the financial system consists of other financial institutions, predominantly miscellaneous credit undertakings.[3] The assets of the HFF, which account for about 80% of this segment, totalled some 804 b.kr. at the end of 2015.

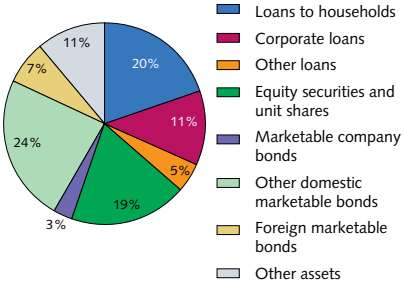
Loans comprised the largest single financial system asset category at the end of 2015, accounting for 37% of total assets. Of that total, household loans accounted for 20 percentage points and corporate loans 12 percentage points. Marketable bonds accounted for 34% of total assets and equity securities about 19%. The main changes in the composition of total assets in 2015 were that the household loans declined by nearly 2 percentage points as a share of total assets and marketable bonds fell by just over 1 percentage point, while corporate loans rose by 1 percentage point and equity securities and mutual fund unit shares rose by about half a percentage point.

Chart V-1
Total assets of DMBs and pension funds[1]
At 2015 price level



1. Parent companies.
Source: Central Bank of Iceland.

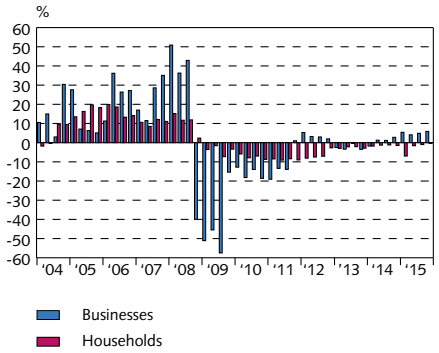
Chart V-2
Financial system assets, by asset class[1]
December 2015



1. Parent companies.
Source: Central Bank of Iceland.

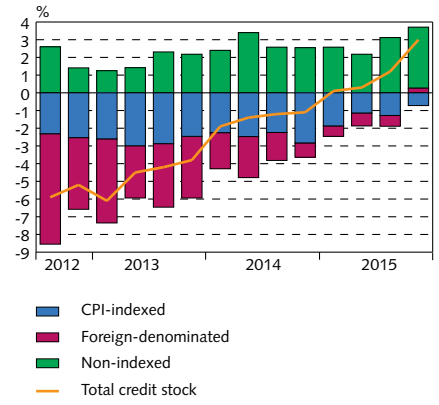
1. The financial system consists of the banking system, miscellaneous credit undertakings (including the Housing Financing Fund), pension funds, insurance companies, mutual funds, investment funds, and institutional investment funds, and Government credit funds.
2. Deposit money banks (DMBs) are commercial banks and savings banks.
3. Miscellaneous credit institutions are the Housing Financing Fund, Kreditkort hf., Valitor hf., Borgun hf., Lýsing hf., the Icelandic Regional Development Institute, and Municipality Credit Iceland Plc.

Chart V-3
Year-on-year change in households' and businesses' real debt[1]
2004-2015



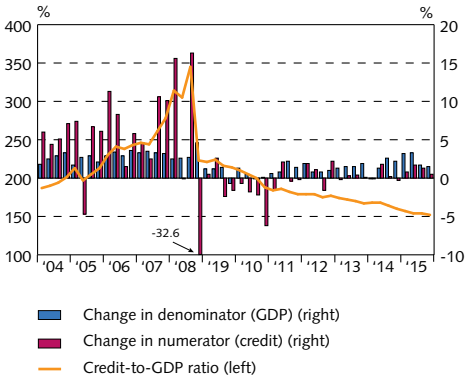
1. Total debt to domestic financial institutions plus domestic market funding. Excluding Government debt relief measures.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-4
Year-on-year change in the total credit stock of households and businesses[1]
Exchange rate- and price-adjusted



1. Book value of debt to domestic financial institutions plus domestic market funding. Excluding Government debt relief measures.
Source: Central Bank of Iceland.

Chart V-5
Developments in credit-to-GDP ratio[1]



1. Total household and corporate debt to domestic financial institutions plus domestic market funding. Excluding Government debt relief measures.
Sources: Statistics Iceland, Central Bank of Iceland.

Private sector debt

Total private sector debt to the domestic financial system amounted to 3,456 b.kr. in terms of claim value at the end of 2015, or 157% of GDP. The increase in private sector debt to the domestic financial system was just under a percentage point during the year. Household debt is estimated to have declined by 3.5 b.kr. in 2014 and 66.5 b.kr. in 2015 as a result of Government debt relief measures, both direct write-downs and the authorisation to channel third-pillar pension savings towards mortgage loans. Without these measures, total private sector debt would have amounted to 3,526 b.kr. at the end of 2015, or 160% of GDP.

Credit growth

Private sector debt to domestic lenders totalled 3,360 b.kr. at book value after adjusting for the Government's debt relief measures.[4] After a long contraction in debt, demand for new financing appears to be picking up. Real growth in private sector debt to domestic lenders turned positive in Q4/2014 and measured 2.4% on an annualised basis in Q4/2015. Household debt has been contracting ever since the financial crisis of 2008, even after adjusting for the Government's household debt relief measures (see Chart V-3). The contraction has slowed markedly, however, and has now nearly come to a halt. The twelve-month change in real corporate debt first turned positive at year-end 2011 and then turned negative again at the beginning of 2013. It turned positive again in Q2/2014 and has gained pace ever since. On an annualised basis, it measured 6% at the end of 2015. Growth in corporate debt is due in part to issuance of marketable bonds, which increased by 62 b.kr. in 2015. About two-thirds of that amount is due to an increase in pension funds' purchase of corporate bonds. Real growth in DMB lending to companies was similar, at about 60 b.kr. in 2015; therefore, the current growth in total private sector debt is driven by companies' demand for new credit.

Inflation and exchange rate movements have affected the nominal value of debt in Iceland. When assessing growth in total debt, it is therefore possible to adjust for inflation and exchange rate movements and identify the increase stemming from new credit financing. Private sector debt grew by 3% in 2015, after adjusting for price and exchange rate changes and the Government's debt relief measures.

The EU financial market legislation (CRDIV/CRR) that has been incorporated into Icelandic law specifies the deviation of the credit-to-GDP ratio from trend (the credit-to-GDP gap) as an indicator to be considered in an assessment of credit growth. A positive gap is defined as an indicator of the accumulation of systemic risk and imbalances in the financial markets. The credit-to-GDP ratio,[5] which is defined as debt relative to GDP, has declined almost without interruption since the financial crisis struck in 2008. Early on, the decline

4. The examination of credit growth includes only debt to resident entities, as debt to non-residents is still uncertain. For example, debt to non-residents pertains to companies that have become insolvent, but in some instances, the debts have not been written down accordingly. As a result, changes in the stock of corporate debt to resident entities are a more reliable measure of developments in debt.

5. Total household and corporate debt at nominal value as a share of nominal GDP.

was driven by a contraction in total credit, but once growth in credit and GDP picked up, GDP has been the main driver of the reduction in the credit to GDP ratio. Even though credit growth has picked up, the ratio will continue to fall as long as GDP grows faster than total credit. As a result, this indicator is not suitable for Icelandic conditions, as the trend is skewed upwards after the financial crisis and an abnormally strong protracted period of credit growth would be needed to push the credit ratio above trend and cause the indicator to signal the accumulation of systemic risk. Therefore, this indicator is not yet used in analysing risk stemming from credit growth in Iceland; instead, attention has been focused on developments in the credit-to-GDP ratio, irrespective of trend, and on real growth in private sector debt. As has emerged previously, private sector debt to resident entities has begun to grow in real terms.

DMB assets

Asset categories

At the end of 2015, total DMB assets amounted to 3,186 b.kr., and savings banks' assets accounted for 0.7% of the total. DMB assets grew by 4.3% year-on-year in real terms, to 145% of GDP at the end of the year, as opposed to 187% of GDP at the end of 2009; therefore, DMB assets have declined significantly in proportional terms in recent years.

The DMBs' balance sheets consist mainly of cash and bonds and claims, which now account for some 25.3% of the combined balance sheet, and loans, which account for the vast majority of the combined asset portfolio, or 69%, as of year-end 2015. The book value of loans totalled 2,183 b.kr. and had increased in value terms by 5.7% year-on-year.

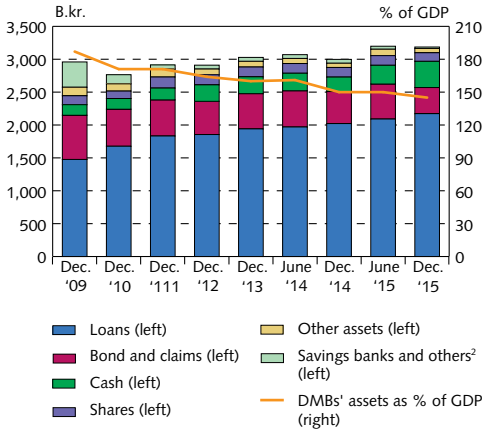
Net growth in deposit institutions' new lending to households and businesses totalled 264 b.kr. in 2015, an increase of 78% from the prior year. Net new corporate loans totalled 156 b.kr., including 92 b.kr. to service companies, about half of it to real estate firms. The growing stream of tourists visiting Iceland has had a positive impact on real estate firms and tourism operators, which shows in an increase in lending to these companies. Net new loans to households totalled 108 b.kr. during the year, including net new residential mortgage lending in the amount of 83 b.kr. Some 63% of net new mortgage loans were indexed in 2015, after adjusting for the Government's debt relief measures. Indexed loans are therefore the most popular form of household loan, particularly among mortgages. Net new DMB loans to households totalled 30 b.kr. in Q4/2015 and 15 b.kr. in the first two months of 2016, after adjusting for the Government's debt relief measures.

Quality of commercial banks' loans

Since the collapse of the financial system, the commercial banks have undertaken extensive restructuring of their household and corporate loan portfolios. Default ratios therefore declined more or less steadily from the collapse until the latter half of 2015. In terms of the cross-default method, which defines all of a customer's loans as being in default if one loan is in arrears, frozen or payment is deemed unlikely,

Chart V-6

Total DMB assets, % of GDP[1]

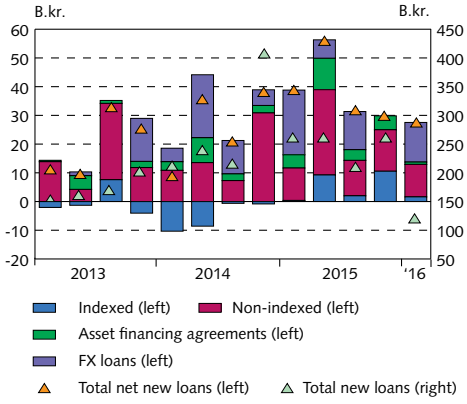


1. Parent companies. Asset classes (e.g., loans) include commercial banks. 2. Others are deposit divisions of cooperative societies and Postgiro (total assets 2.4 b.kr. as of 31 Dec 2015).
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-7

Net new lending from the three commercial banks to firms, by loan form[1]

Q1/2013 - February 2016

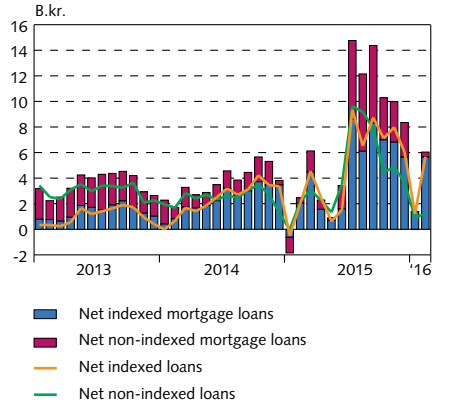


1. New loans net of prepayments. Prepayments are payments in excess of contractual payments.
Source: Central Bank of Iceland.

Chart V-8

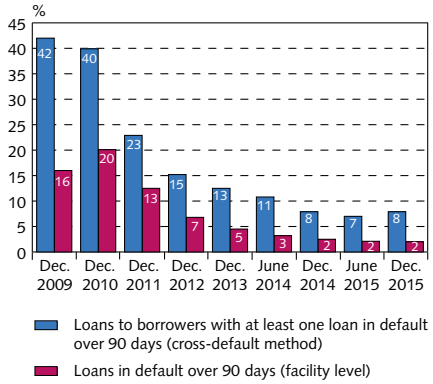
Net new mortgage lending, DMBs[1]

January 2013 - February 2016



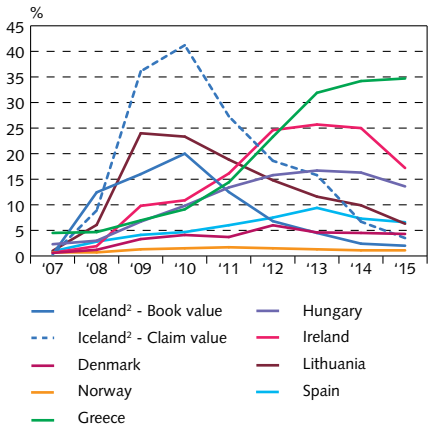
1. Commercial banks and savings banks.
Source: Central Bankf of Iceland.

Chart V-9
Default ratios of the three largest commercial banks[1]



1. Parent companies, book value.
Sources: Financial Supervisory Authority, Central Bank of Iceland.

Chart V-10
Default ratios in European comparison[1]



1. Year-end figures except for Denmark, Norway, Greece, and Ireland in year 2015, using Q3 data. Banks' non-performing loans as a percentage of gross loan portfolio w/o write-downs. 2. 2007: Figures estimated from the annual accounts of the failed banks. 2008: CentralBank estimates.
Sources: International Monetary Fund, World Bank, Financial Supervisory Authority, Central Bank of Iceland.

the large commercial banks' combined non-performing loan ratio was unchanged year-on-year at 7.9% at the end of 2015.The ratio declined to 6.2% by the end of September but then rose again later in the year. The rise is due mainly to increased arrears among fishing and industrial companies; however, listings have improved following the Financial Supervisory Authority's review of the banks' loan portfolio reports, and loans previously classified as performing are now considered non-performing.[6] At the end of 2015, some 53% of non-performing loans were listed as frozen, up from 33% at the end of 2014 and 16% at the end of 2012. The non-performing loan ratio among frozen loans was 4.1% at the end of 2015, an increase of 1.7 percentage points during the year. The share of loans falling into other default categories (i.e., in collections or in restructuring) declined at the same time.

Another way of measuring default is to consider each loan separately; i.e., when a customer has one loan in arrears by 90 days or more, that customer's other loans are not defined as non-performing. Frozen loans are not included with non-performing loans according to this method. By that criterion, 1.7% of the large commercial banks' loans were in default (in terms of book value) at year-end 2015, after declining by 0.8 percentage points between years. In terms of claim value, the non-performing loan ratio was 5% and had declined by 1.8 percentage points between years. The book value of loans has been used in calculating private sector default, but internationally, default is usually calculated in terms of claim value. However, as has been discussed previously in *Financial Stability*, the actual claim value of non-performing loans is uncertain; therefore, book value has been used instead. On the other hand, the difference between claim value and book value of non-performing loans is now very small, and it is noteworthy that the large commercial banks' non-performing loan ratios in terms of claim value are now similar to those in comparison countries. Non-performing loan ratios are now much lower in Iceland than in other countries hit hard by the financial crisis of 2008.

Concentration in the commercial banks' loan portfolios has declined markedly in recent years. The amount of the ten largest exposures declined by 60 b.kr., or 34%, in 2015. As Chart V-11 indicates, large exposures have declined sharply since 2009. By end-2015 they amounted to 17% of the capital base, having declined by about 11 percentage points year-on-year. At present, there is no difference between the commercial banks' five largest exposures and all of their large exposures.

Pension funds[7]

Pension fund assets increased by 9.4% in real terms between end-2014 and end-2015. They totalled 3,277 b.kr.[8] at the end of 2015.

6. http://www.fme.is/utgefid-efni/frettir-og-tilkynningar/gagnsaeistilkynningar/nidursta-da-athugunar-a-umfangi-veittra-ivilnana-hja-islandsbanka-hf and http://www.fme.is/utgefid-efni/frettir-og-tilkynningar/gagnsaeistilkynningar/nidurstada-athugunar-a-umfangi-veittra-ivilnana-hja-arion-banka-hf.
7. Based on pension funds' balance sheet summaries, collected by the Central Bank of Iceland. Monthly data are compiled from samples from the largest pension funds in Iceland, and total assets are estimated from these data. Based on preliminary figures.
8. In addition, assets held by custodians of pension savings are estimated at 178 b.kr. as of end-2015.

About 90% of pension fund assets are held by coinsurance divisions, and about 10% of that total consists of third-pillar pension savings held in custody by them.

The largest year-on-year increase in any asset class was in equity securities holdings, which now account for about 20% of the pension funds' total assets. The rise is due to an increase in pension funds' opportunities to invest in shares, which stems partly from new company listings on the market. The 20 largest owners of shares in Icelandic companies listed on the OMX Iceland exchange held nearly 80% of all share capital at the end of 2015. Of that total, the pension funds' direct holdings – excluding assets held via mutual funds or the Enterprise Investment Fund (EIF) – accounted for just under 45%. Their real returns in 2015 are estimated at 8.1%, far above the 3.5% actuarial threshold. The pension funds' foreign assets amount to 736 b.kr., just under a fourth of total assets, about the same as in 2014 (see also Box II-1).

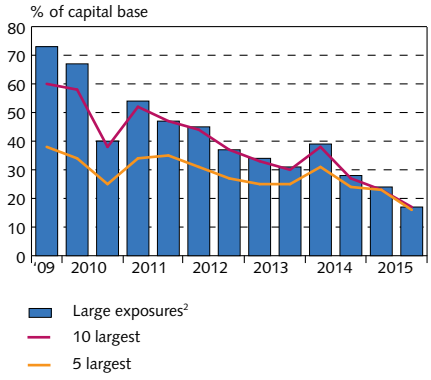
At the end of 2015, several of the largest pension funds began offering non-indexed mortgage loans and raised their maximum loan-to-value ratio to 75%. The lending rates offered by the pension funds have been somewhat below the rates offered by the banks. The pension funds' loans to fund members began to grow modestly in late 2015, but it will take more time to see how this increased competition from the pension funds affects the residential mortgage market. At the end of 2015, loans to pension fund members totalled 172 b.kr., as opposed to 176 b.kr. at the end of 2014. After adjusting for the Government's debt relief measures, the increase in loans to pension fund members was 3-4 b.kr. in 2015. In 2014 and 2015 combined, the debt relief measures reduced the claim value of loans to pension fund members by an estimated 7-8 b.kr. New loans increased in 2015, particularly in the latter half of the year, as can be seen in Chart V-13. They increased still further in the first two months of 2016 and were 280% more than in the same period of 2015.

Housing Financing Fund

The HFF's total assets amounted to 804 b.kr. at the end of 2015, having declined between years by 2.5% in nominal terms and 4.4% in real terms. The decline was due mainly to an 80 b.kr. reduction in loans. This steep contraction is due in part to the Government's debt relief measures. In order to reduce its indexation imbalance, the HFF bought covered bonds backed by residential mortgages from the Central Bank of Iceland Holding Company (ESÍ) in the amount of 70 b.kr. at the end of 2015 and 13 b.kr. in March 2016.

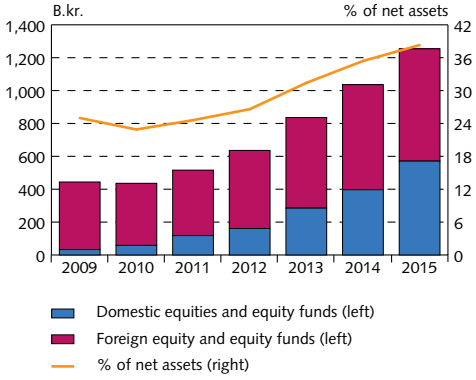
The HFF generated an operating profit of 1.8 b.kr. in 2015, as opposed to a profit of 3.2 b.kr. in 2014. The 2015 profit is due mainly to an increase in the assessed value of assets. At the end of the year, the Fund's capital totalled just under 20 b.kr., and the capital ratio was 5.5%, up from 4.5% at the end of 2014. Its capital ratio is now above the 5% threshold for the first time since 2007. The HFF did not issue any bonds last year. No HFF bonds have been issued since January 2012. The future role and existence of the Fund remain uncertain. A bill of legislation on a new institution called Íbúðastofnun, which

Chart V-11
Large exposures[1]



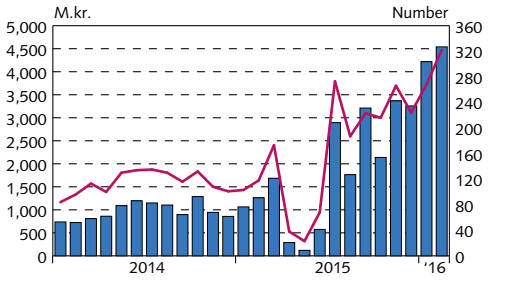
1. Consolidated figures. Large exposures to a client or group of clients may not exceed 25% of a financial undertaking's capital base. 2. An exposure incurred by a financial undertaking to a client or a group of connected clients the value of which amounts to 10% or more of the undertaking's capital base.
Source: Financial Supervisory Authority.

Chart V-12
Pension funds' equity holdings[1]



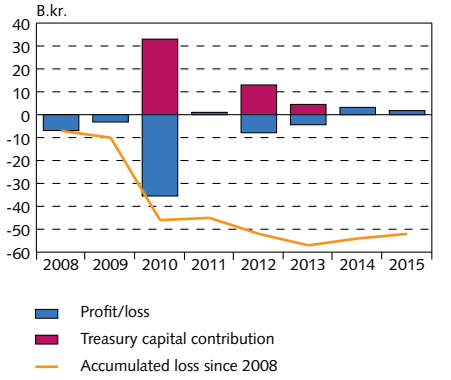
1. Figures are based on pension funds' summaries of assets and liabilities, which are gathered by the Central Bank of Iceland. Monthly data are collected from a sample of the largest Icelandic pension funds and used to estimate total pension fund assets. Based on preliminary figures.
Source: Central Bank of Iceland.

Chart V-13
Loans to pension fund members[1]



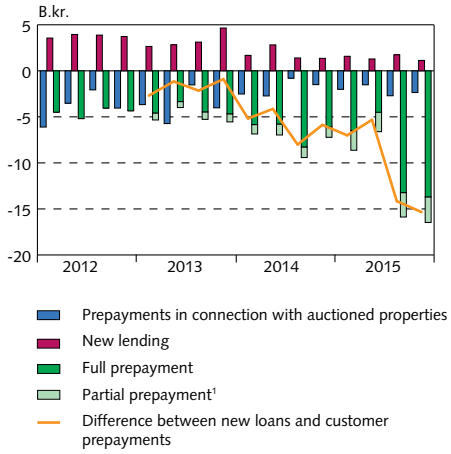
1. Figures are based on pension funds' summaries of assets and liabilities, which are gathered by the Central Bank of Iceland. Monthly data are collected from a sample of the largest Icelandic pension funds and used to estimate total pension fund assets. Based on preliminary figures.
Source: Central Bank of Iceland.

Chart V-14
HFF profit/loss and Treasury capital contribution



Source: HFF annual accounts.

Chart V-15
HFF customer prepayments and new loans



1. Data for 2012 not available.
Source: Housing Financing Fund.

would take over some of the tasks of the HFF, was to be presented before Parliament at the autumn legislative session, but was not. There are plans to submit it at the spring session, which is currently underway. Presented at the autumn session, however, was a bill on the structure of subsidised rental housing with initial capital contributions from the State and the local authorities. The Housing Financing Fund will implement the new law.

Prepayments and extra payments by HFF customers totalled just under 47.6 b.kr. in 2015, as opposed to just under 30.5 b.kr. in 2014. This does not include direct write-downs of mortgage loans in connection with the Government's debt relief measures. Rising property prices and the Government's debt relief measures have caused loan-to-value ratios to fall, giving more borrowers the possibility of paying off their HFF loans and refinancing on more favourable terms. The Fund's prepayment problem is therefore still escalating, due in part to the aforementioned debt relief package. Alongside increased prepayments, new HFF lending contracted by 1.5 b.kr. in 2015, to a total of 5.7 b.kr. for the year. To compensate for increased prepayments because of the debt relief measures and to offset the negative interest rate differential, the fiscal budget for 2015 includes an allocation of 1.24 b.kr. for the Fund. The loss that has been created as a result of prepayments and will not be compensated for has been recognised as impairment in 2013-2015, in the estimated amount of 1.36 b.kr.

The share of non-performing loans to individuals was 3.47% at the end of 2015, a reduction of 4.7 percentage points since year-end 2014. Non-performing corporate loans also declined in 2015. The non-performing corporate loan ratio fell by 5.7 percentage points during the year, to 11.9% by the year-end. Non-performing and frozen HFF loans accounted for just over 7.2% of the Fund's total loan portfolio at the end of 2015, a reduction of 2.8 percentage points since end-2014.

Box V-1

The financial cycle in Iceland

The last financial crisis was an eloquent reminder of the strong, negative impact that financial system imbalances can have on the economy. Since then, research on the financial cycle has increased, as the crisis showed its importance in the formation of economic and macroprudential policies.[1]

A clear distinction must be made between the financial cycle and the business cycle, the latter of which is generally described as the underlying cyclical co-movement of key macroeconomic variables. There is no broad consensus on the definition of the financial cycle. Borio (2014) defines it as the underlying co-movement of the financial system, which emerges in "self-reinforcing interactions between perceptions of value and risk, attitudes towards risk and financing constraints, which translate into booms followed by busts." Drehmann *et al.* (2012) define it as the co-movement of credit and property prices over the medium term (8-30 years). In a new study of the financial cycle in Iceland by Einarsson *et al*. (2016), other financial variables are considered as well, including the size and composition of banks' balance sheets, and the financial cycle is defined as medium-term co-movement of a set of financial variables, both quantities and prices, just as the business cycle is defined as short-term co-movement of a set of macroeconomic variables.

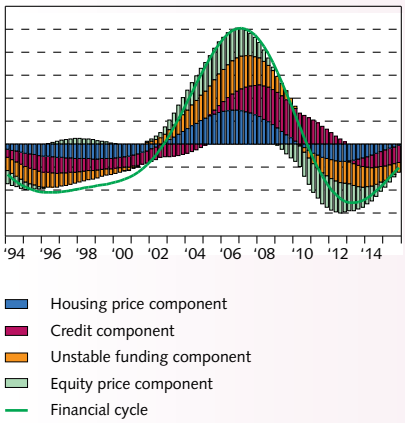
Characteristics and importance of the financial cycle

Borio (2014) lists the main characteristics of the financial cycle, according to research. First, credit and property prices appear to be central to it, providing a reliable approximation. Second, the financial cycle has a much lower frequency than the business cycle. The business cycle usually lasts less than eight years, while the average length of the financial cycle is 16-20 years, with the upper limit referring to the period after the liberalisation of the markets in the 1980s. In Einarsson *et al*. (2016), the average duration of financial variable cycles in Iceland during the period 1980-2013 is estimated at about 16 years. Third, systemic financial crises generally occur when the financial cycle is close to its peak. The expansionary phase of the financial cycle can therefore give an early warning signal of the accumulation of systemic risk and imminent crises. Economic contractions also tend to be twice as deep when they coincide with the contractionary phase of the financial cycle. The findings of Einarsson *et al*. (2016) support this. In Iceland, broad-based financial crises have almost always occurred following the peak of the financial cycle, which appears to be a more accurate leading indicator for financial crises than the cycles of individual variables. Furthermore, Iceland's average rate of GDP growth is about three times higher during the expansionary phase of the financial cycle than in the contractionary phase. Fourth, Borio (2014) points out that the duration and amplitude of the financial cycle depend on the policy regime at any given time.

If economic policy is formulated without consideration of the financial cycle, the risk reflected by the financial cycle will be overlooked. Such policy, although it may help contain economic volatility in the short term, could exacerbate the risk of a deeper recession in the medium term, in what Drehmann *et al.* (2012) and Borio (2014) refer to as the "unfinished recession" phenomenon. Macroprudential policy is intended to take account of the financial cycle position in the determination of countercyclical capital buffers, which are capital buffers imposed on financial institutions with the aim of mitigating the effects of the financial cycle. The Financial Stability Council is required to decide the value of the capital buffers four times a year.

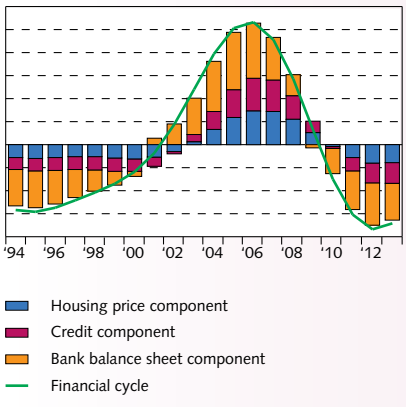
1. See, for instance, Claessens, C. *et al.* (2011) and Aikman, D. *et al.* (2014).

Chart 1
Financial cycle 1994-2015[1]
Quarterly data, estimation method of Einarsson *et al.* (2016)



1. All variables in the credit component are base on credit at claim value.
Source: Statistics Iceland, Central Bank of Iceland, Registers Iceland.

Chart 2
Financial cycle 1994-2013
Annual data, estimate by Einarsson *et al.* (2016)



Source: Einarsson, B.G., Gunnlaugsson, K., Ólafsson, Th.T. and Pétursson, Th.G. (2016). The long history of financial boom-bust cycles in Iceland. Part II: Financial cycles. *Working Paper*, forthcoming. Central Bank of Iceland.

Therefore, there is reason to apply the method of Einarsson *et al.* (2016) to quarterly data over a shorter period. This gives enhanced insight into the driving forces of the last cycle and provides an opportunity to include additional variables in the analysis.

Quarterly assessment of the Icelandic financial cycle

Each cyclical component is obtained using a band-pass filter with a frequency range of 8-30 years. To facilitate comparison, the cycle is also normalised to zero mean and unit variance. Drehmann *et al*. (2012) characterise the financial cycle as the simple average of the cyclical components of the underlying variables, but Einarsson *et al*. (2016) conduct a principal component analysis, where the first principal component is identified as the financial cycle. This method of identifying the co-movement of a set of variables is well known in macroeconomics, in measuring the business cycle. A comparison of the two methods reveals similar results for the quarterly Icelandic data, but as is mentioned above, principal component analysis is used here. To simplify the graphic presentation, twelve variables are placed in four categories or components: housing prices, credit, equity prices, and unstable banking system funding.[2] The contribution of each component to the aggregate financial cycle is approximated by assigning a weight to each variable within it, based on the factor loading it received in the principal component analysis.

The findings indicate that the beginning of the last financial cycle was in Q2/1996. The expansionary phase is estimated to be 10½ years long, peaking in Q1/2007. The contractionary phase then began and lasted for six years and one quarter, until Q2/2013. The contribution from each component provides insight into what drives the cycle. Equity prices lead in terms of time, peaking in Q1/2006 and bottoming out in Q1/2012. Housing prices are next, peaking in Q3/2006 and bottoming out at year-end 2012. Unstable funding also peaks in Q3/2006 but does not hit bottom until Q1/2013. Credit comes last, with a considerable lag, peaking in Q1/2009, and apparently it has yet to hit bottom. This indicates that rising asset prices and increased unstable banking system funding are precursors to credit growth. Recent developments in asset prices and funding indicate that a period of credit growth is probably in the offing.

Annual assessment of the Icelandic financial cycle

The new assessment is very similar to Einarsson *et al.'s* (2016) assessment of the last financial cycle. The timing is slightly different, however, probably due to differences in the selection of data and their frequency. The authors used annual data in order to cover as long a period as possible, and their study covers the period from 1875 through 2013. As can be seen in Chart 2, their findings indicate that the last financial cycle began in 1995. The upward phase concluded in 2006 and was followed by a sharp contraction lasting six years, or until 2012.[3]

2. Unstable funding contains two variables: total non-core funding and foreign funding. Housing prices includes real residential and commercial property prices plus the ratios of house prices to disposable income, wages, and construction costs, respectively. Credit includes the ratio of total credit to GDP, real household debt, and real corporate debt. The fourth and last component is real equity securities prices, which are estimated with the real value of the Nasdaq Iceland main list index.

3. It is not necessary to determine whether the cycle is above or below zero in the charts. The financial cycle has no scale, as the underlying variables are rescaled to a common mean and standard deviation. The charts are intended primarily to time previous financial cycle extrema, and determine the rapidness of the turnaround from one phase of the cycle to another.

The expansionary phase has begun

The assessment of the length of the expansionary and contractionary phases of the last cycle is comparable in the quarterly assessment and in Einarsson *et al.* (2016), although in the former, the highest and lowest values occur at least 1-2 quarters later. To a large extent, this is due to differences in selection of data and frequency, as is mentioned above. It should be noted, however, that the quarterly assessment is only the first attempt at such an analysis and that work on the underlying dataset is still underway. Not all of the time series in the dataset cover 30 years, even though the band-pass filter used identifies cycles ranging up to 30 years. Measurements of effective price formation in the Icelandic equity market, for instance, extend only back to 1993. Therefore, the assessment of the cyclical component of that variable could be inaccurate.

It is notable how rapid the turnaround is from the last contractionary phase to the current expansion, following a boom-bust cycle as extreme as that experienced in Iceland. The quarterly assessment supports the findings in Einarsson *et al*. (2016) as regards the length of the last contractionary phase, which is relatively short compared to previous such phases in Iceland. The quarterly assessment also includes the sudden onset of the current expansionary phase as compared with the beginning of the previous one. These two factors are possible indications of successful policy responses in the wake of the 2008 financial crisis, as the authors discuss in their paper. Also, this emphasises that systemic risk is accumulating again.

A reliable assessment of the financial cycle position at any given time is important in identifying the accumulation of systemic risk. Therefore, the fact that different datasets should give such similar results is positive. The findings indicate that the expansionary phase of the current financial cycle has begun and has been underway for nearly three years.

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VI Households and businesse

Households‘ and businesses‘ position has improved markedly in the past year

Private sector financial conditions continue to improve. Household and corporate debt fell throughout 2015, reaching turn-of-the-century levels by the end of the year in terms of the ratio of debt to GDP. Rising asset prices and the will to deleverage have therefore led to an increase in net private sector wealth. Purchasing power has seldom risen as much as in 2015, and a similar increase is expected this year. The improvement in households' situation is reflected in reduced household arrears. Both the number of individuals on the default register and the number of personal bankruptcies are still considerably higher than before the financial crisis, however, indicating that many are still in difficulties. Firms' position has also developed favourably, as can be seen in rising levels of optimism among executives about the economic outlook. Business investment has picked up in the past two years and appears likely to continue growing. Firms' improved position can also be seen in a steep year-on-year decline in corporate bankruptcies. Loans in arrears increased towards the end of the year, however, owing primarily to increased arrears among fishing and industrial companies and to improvements in data collection.

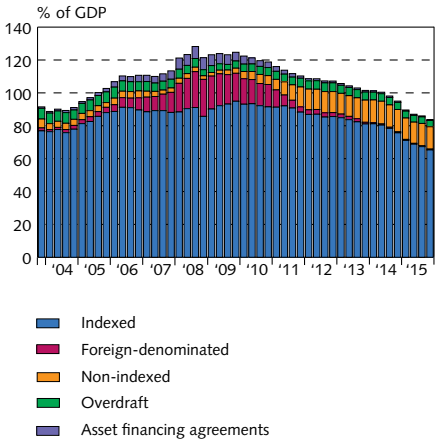
Households

Household debt continues to decline

Household debt fell by 11 percentage points of GDP in 2015, to 83.8% at the year-end, following a 6.5-point decline in 2014. The household debt-to-GDP ratio is now similar to that in 1999. In real terms, household debt declined by just under 5% in 2015. The decline in the debt ratio is due to increased GDP and a substantial reduction in nominal debt, which stems mainly from the Government's measures to reduce households' indexed mortgage loan principal. Household debt is estimated to have declined by 70 b.kr. in 2014 and 2015, due to direct write-downs and to the authorisation to channel third-pillar pension savings towards mortgage loans. Without these measures, the household debt ratio would have been just over 87% at the end of 2015. In January 2016, the last phase of the direct write-down took effect, when 19 b.kr., or 25% of the write-down, was posted to individuals' mortgage loans. This measure brought household debt down to just under 83% of GDP by the end of January.

In 2015, all types of loans declined as a share of GDP, apart from non-indexed loans, the ratio of which remained unchanged. In real terms, non-indexed debt increased by nearly 8% year-on-year, while indexed debt declined by nearly 7%.

Chart VI-1
Household debt as % of GDP
Q4/2003 - Q4/2015



Sources: Statistics Iceland, Central Bank of Iceland.

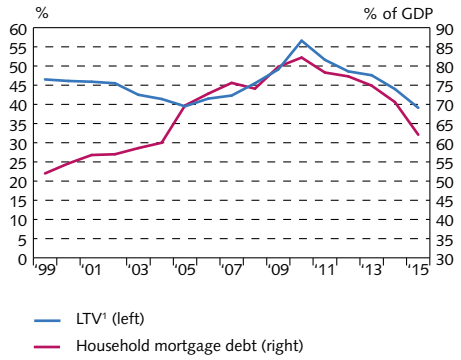
Loan-to-value ratios continue to decline

Real estate prices rose by nearly 9% in 2015 and 10% in 2014.[1] The rise in house prices combined with the decline in debt levels caused loan-to-value ratios for residential mortgages to fall to 39.1% by year-end 2015, a reduction of 5 percentage points between years.

Collateral capacity has therefore increased, providing homeowners with the scope to take on additional debt. Wages and disposable

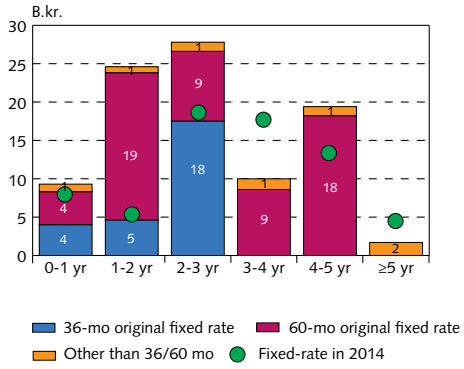
1. According to the capital area house price index.

Chart VI-2
Household mortgage debt as % of real estate value and GDP
1999-2015



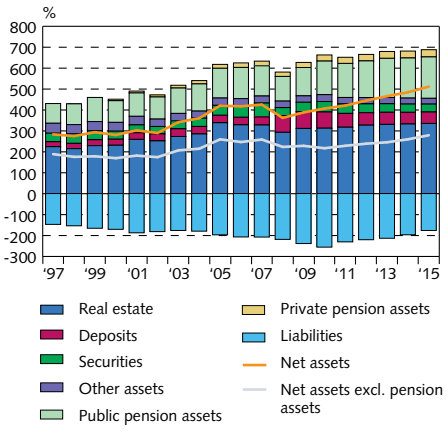
1. Household mortgage debt as % of households' total real estate assets.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-3
Interest rate review of fixed-rate mortgage debt at year-end 2015¹



1. Amount of fixed-rate mortgage, classified by time to interest rate review. Differentiated by original fixed-rate period. Based on book value of the three largest commercial banks' loans.
Source: Central Bank of Iceland.

Chart VI-4
Household assets and liabilities as share of disposable income¹
1997-2015



1. Pension fund assets based on payouts after deduction of 30% income tax.
Sources: Statistics Iceland, Central Bank of Iceland.

income have increased strongly, enabling households to service more debt. In spite of this, the stock of loans to households, adjusted for price and exchange rate movements and the Government's debt relief measures, contracted slightly during the year. The reduction in 2015, after adjusting for the debt relief measures, was greatest in the fourth quarter of the year. Central Bank of Iceland data support this development and show that households have been making extra payments on their loans. It is possible that households are less willing to take on debt in the aftermath of the financial crisis.

The amount paid towards mortgage loans in January 2016 in connection with the debt relief measures is not included in the year-end figures discussed here. Furthermore, it is estimated that mortgage loans could decline by another 22-24 b.kr. because of the authorisation to channel third-pillar pension savings towards mortgage debt.

Increase in fixed-rate non-indexed mortgages

Of roughly 1,370 b.kr. in real estate-backed household debt at year-end 2015, non-indexed mortgages accounted for just under 210 b.kr., as opposed to only 2 b.kr. at the end of 2009. The share of non-indexed mortgages has therefore grown from near zero to 15.3% of total household mortgage debt in only six years.

Non-indexed loans most commonly feature variable interest rates or fixed-rate periods of 36 or 60 months. Since the Central Bank began monitoring patterns in fixed mortgage interest rates, short fixed-rate mortgages have become more common. At the end of 2015, 55% of non-indexed mortgages issued by the large commercial banks bore variable interest, down from 63% a year earlier. As of year-end 2015, about 30% of non-indexed mortgages had fixed interest rates with an original fixed-rate period of 60 months, and another 15% had an original fixed-rate period of 36 months. It is therefore most common that rates are fixed for a period of five years.

The spread between variable rates and rates that are fixed for 36 or 60 months has narrowed in the past six months as the yield curve has flattened out. Over that same period, nearly all of the increase in non-indexed mortgages has been in fixed-rate loans. This indicates that individuals are choosing in greater measure to reduce the uncertainty associated with the expectation of a continued rise in short-term interest rates.

Households' position continues to improve

Households' position has improved year-by-year since 2010. In terms of developments in key economic indicators, households' position has seldom been better. As is mentioned above, asset prices have risen and debt levels have fallen. Furthermore, GDP growth has been robust, the real exchange rate has risen, and unemployment has declined, measuring 3.1% at the end of 2015 after falling by 1 percentage point year-on-year. Real wages rose by 7.6% in 2015, for instance, resulting in the largest twelve-month improvement and the highest index value recorded to date. The Central Bank estimates that real disposable income will rise by 8.7% this year, but it is unlikely that such a pace can be sustained.

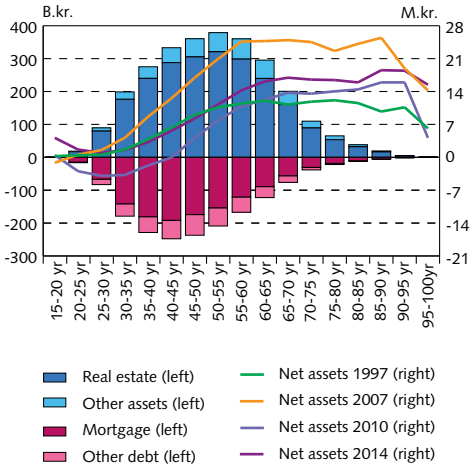
Increased disposable income has stimulated private consumption, which grew last year by nearly 5%, the largest increase since the collapse of the financial system, and is expected to grow by more than 5% this year. In 2015 and 2016, however, growth in disposable income somewhat outpaces private consumption growth, indicating that households have stepped up saving, as can be seen in a stronger equity position. The premises for households' improved position are therefore much more sustainable than before because debt has fallen markedly and equity has risen. As a result, households are better prepared to respond to shocks that may occur in the future.

Net household wealth relative to disposable income rose by 27 percentage points in 2015, to 512% at the year-end. The rise in this ratio is due mainly to reduced debt but is also attributable to pension assets, which have risen relative to disposable income. Excluding pension assets, households' net wealth amounted to 280% of disposable income, an increase of 20 percentage points during the year. Household debt is estimated at 177% of disposable income as of end-2015, about the same as at the turn of the century. The ratio of household debt to disposable income is now considerably lower in Iceland than in countries that have been known for high household debt levels. At the end of 2014, the ratio was 305% in Denmark and 274% in the Netherlands. Iceland's ratio is similar to Sweden's, which was 174% at the end of 2014. The ratio of household debt to disposable income was 225% in Norway and 127% in Finland.

Chart VI-5

Assets, debt, and net assets of individuals with mortgage debt[1]

Year 2014



1. Only individuals with mortgages are included. Left axis shows total assets and debt and right axis shows net assets in 2014 prices.
Sources: Statistics Iceland, Central Bank of Iceland.

Improved equity position among individuals with mortgage debt

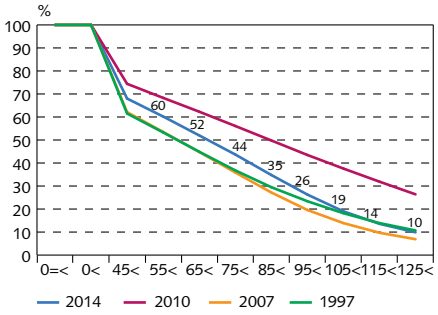
Chart VI-5 shows that all age groups of individuals with mortgage debt had a positive equity position at the end of 2014. The net position of individuals under age 55 is similar to that at the end of 2014 and 1997, whereas individuals over 55 are in a much better position now. The equity position was worst among individuals in the 25-30 age group at year-end 2010, when equity was negative by 3.8 m.kr. at 2014 prices. By the end of 2014, however, this group's net equity was positive by 1.1 m.kr.

Because younger individuals tend to carry more debt, their equity position fluctuates more than that of older individuals. Equity in real estate also accounts for a larger share of total assets among younger people. At year-end 2014, real estate accounted for about 89% of total assets in the 25-35 age group, as compared with 81% for the 60-65 group. Young individuals are therefore more vulnerable to external shocks such as fluctuations in asset prices or income and have fewer liquid assets to tap in response to such shocks.

At the end of 2010, about 44% of individual income tax filers with mortgage debt had a negative equity position (i.e., owed 95% or more of their assets), and 26% owed more than 125% of their assets. Since end-2010, however, the situation has improved markedly. At the end of 2014, about 26% of individuals had negative equity and 10% owed more than 125% of their assets. This radical change since 2010 is due to higher asset prices, court decisions on the illegality of exchange rate linkage, Government debt relief measures, and debt write-offs. The position of those with mortgage debt improved even

Chart VI-6

Share of taxpayers with mortgages whose debt/asset ratio exceeds specified levels[1]

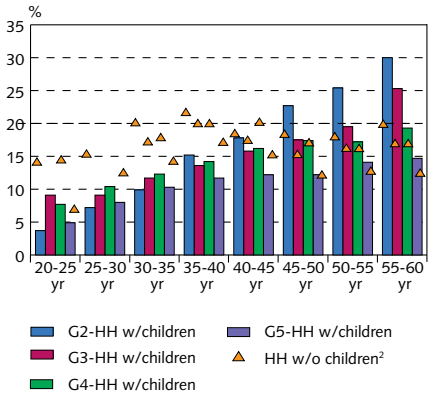


1. Cumulative. For taxpayers with mortgages in 2014: 100% of taxpayers are in debt, 60% owe 45% or more relative to assets, etc.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-7

Interest burden by income group, age group, and family type[1]

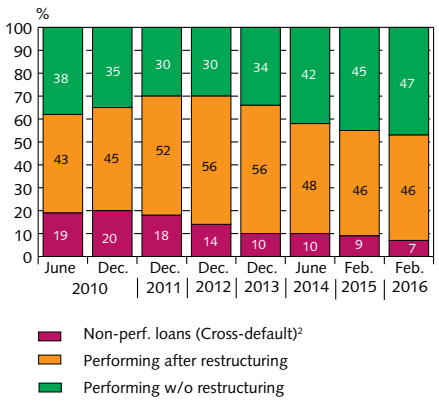
2014, includes only individuals with mortgage debt



1. Total net interest expense relative to disposable income; i.e., adjusted for mortgage interest allowance. The lowest-income group, G1, is omitted.
2. May include married or cohabiting couples.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-8

Status of loans to households from the Housing Financing Fund and the three largest commercial banks[1]



1. Parent companies, book value. 2. Non-performing loans are defined as loans in default for over 90 days, frozen or deemed unlikely to be paid. The cross-default method is used; i.e., if one loan taken by a customer is non-performing, all of that customer's loans are considered non-performing.
Source: Financial Supervisory Authority.

further in 2015, as house prices rose steeply and the bulk of the effect of the debt relief measures emerged during that year.

Individuals without mortgage debt generally fall into two groups: those who own their homes outright and those who are not homeowners and are most likely in the rental market. Individuals who own their homes debt-free are likely to have a positive equity position and a low debt ratio. As a result, it is most likely that individuals without mortgage debt and with negative equity are renters. The position of this group has changed little since 2010: the share of individuals without mortgage debt and with negative equity was 28% at the end of 2010 and 27% at the end of 2014. The share who owed more than 125% of their assets was 26% at year-end 2010 and 25% at the end of 2014.

For homeowners with children, interest burden rises with age

Financial Stability 2015/1 contained an analysis of interest burdens on loans, classified by income group, age, and family type. According to the analysis, which was based on all income tax filers, the interest burden of individuals with children was higher than that for childless individuals, across age and income groups. Year-2014 tax return data for individuals with mortgages were processed specially by Statistics Iceland. Examining this group's interest burden by income group, age, and family type reveals a different situation. It can be said that individuals with children (married or cohabiting couples or single parents) now have a lower interest burden up to age 40 than do childless individuals. The main reason young people with children have a lower interest burden than young childless people is that people without children are more likely to be single, and single people have only one income with which to pay mortgage debt. Mortgage interest allowances are not the reason, as people with children do not seem to have proportionally higher mortgage interest allowances than childless individuals. In terms of the total amount, however, a larger proportion of mortgage interest allowances are paid to individuals with children.

Older borrowers with children – those in the 45-60 age group – have the heaviest interest burden. It is interesting to see how the interest burden of people with children grows with the age of the borrower, whereas childless individuals' interest burden does not vary with their age. Many indicators imply that those with the highest interest burden are parents who took on substantial debt in 2004-2008, when credit was more readily available, in order to acquire roomier housing.

Household default ratios continue to fall

Using book value and the cross-default method, about 6.8% of total loans granted to households by the three largest banks and the Housing Financing Fund (HFF) were in default at the end of February 2016.[2] The share of loans in default has fallen by 3.3 percentage points since year-end 2014. The main reason for the decline in default

2. According to the cross-default method, if one loan taken by a customer is non-performing, all of that customer's loans are considered non-performing.

ratios is that the monetary amount of loans classified as in collections, other types of non-fulfilment, and frozen has fallen.

The number of individuals on the default register, those declared bankrupt, and those subject to unsuccessful distraint measures has continued to fall. At the end of March, there were 25,226 individuals on the default register. The peak, in July 2013, was 28,307. Since year-end 2014, the number of individuals on the default register has fallen by 6%. At the end of February, a total of 6,459 individuals were registered as bankrupt or having been subjected to unsuccessful distraint, a reduction of 3% since the end of 2014 despite an increase last December in the amount of 760 individuals.

In 2015, a total of 456 individuals were declared bankrupt, or 84 fewer than in 2014 and 87 more than in 2013. The reason for the significant increase in personal bankruptcies and unsuccessful distraint in December 2015 is probably the same as in 2014 – i.e., that many individuals expected the two-year expiry of bankruptcy claims, passed into law in December 2010, to be revoked at the end of the year. The expiry provision has not been revoked, however.

Improvements in households' position vary from one group to another

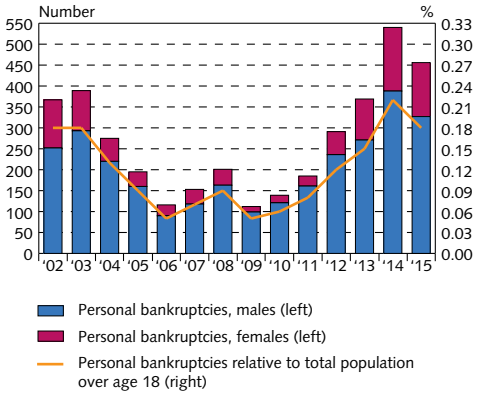
The discussion above focuses on improvements in households' position that stem largely from reduced debt and rising asset prices. A number of measures have been adopted so as to reduce household debt, and court rulings on illegality of certain loan types have been beneficial to many households. These measures and the aforementioned rise in asset prices have only benefited those individuals who are homeowners, however. It can be said that the others – the vast majority of them individuals in the rental market (either the private market or subsidised housing) – have been left behind. The percentage who live in their own homes declines with falling age and income. As a result, it can be said that the improvements in households' situation have affected older and wealthier individuals.

According to figures from Statistics Iceland, about 77.5% of individuals lived in their own homes at the end of 2014 and 22.5% lived in rental property.[3] The proportion of renters has risen by 8 percentage points since onset of the financial crisis. Therefore, about one-fourth of households are renters, and the greater difficulty they face could affect stability, as renters can also be in debt (i.e., consumer debt, motor vehicle loans, and student loans), and if their housing costs rise, their consumption will be reduced. Furthermore, many renters are future homeowners. The status of renters is therefore important for the health of the housing market as a whole.

According to the median response in the EU Quality of Life Survey, housing costs relative to disposable income at year-end 2014 was 24.3% for renters in the general market, 18.7% for renters benefiting from subsidies, and 16.3% among homeowners with mortgages.[4] In 2010, however, these percentages were 22.6%, 14.2%,

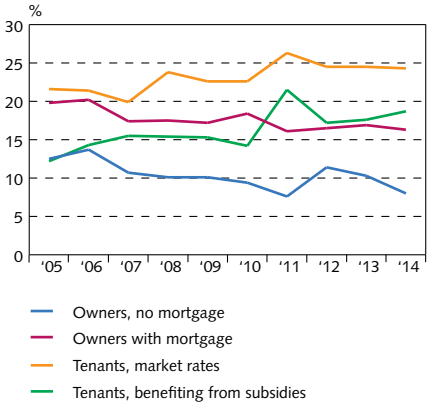
3. https://hagstofa.is/utgafur/nanar-um-utgafu?id=55323.
4. https://hagstofa.is/media/49251/hag_151112.pdf.

Chart VI-9
Personal bankruptcies[1]



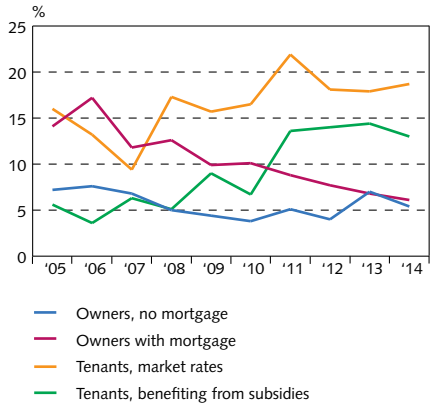
1. Total for entire year.
Sources: Council of District Court Administration, Statistics Iceland.

Chart VI-10
Median ratio of housing costs to disposable income
EU Quality of Life Survey



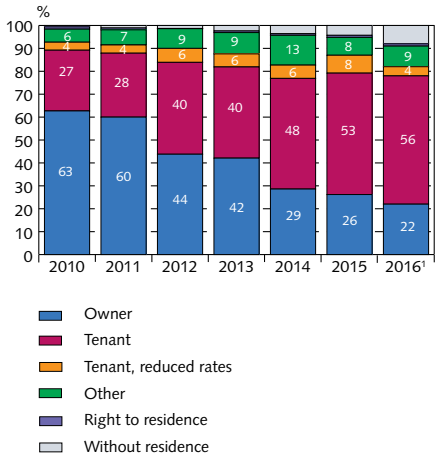
Source: Statistics Iceland.

Chart VI-11
Share of individuals with housing cost overburden[1]
EU Quality of Life Survey



1. A housing cost overburden is defined as housing costs in excess of 40% of disposable income.
Source: Statistics Iceland.

Chart VI-12
Residence type of applicants for payment mitigation[1]



1. January and February.
Source: Debtors' Ombudsman.

and 18.4%, respectively. In other words, the median ratio of housing costs to disposable income rose by 1.7 percentage points for renters in the general market and 4.5 percentage points for renters receiving subsidies or other assistance, but declined by 2.1 percentage points for homeowners with mortgages.

Renters benefiting from subsidies (social assistance in most cases) now pay a larger share of their disposable income on housing than homeowners living in mortgaged property. This is a relatively new development; for example, the housing costs of renters receiving benefits are similar to those of homeowners without mortgage debt in 2005. The difference is even greater if the analysis focuses on individuals with a housing cost overburden; i.e., those in the greatest financial difficulties.[5] At the end of 2014, 6.1% of households living in mortgaged homes were faced with a housing cost overburden, as opposed to 18.7% of renters in the general market and 13% of renters receiving subsidies. At the end of 2006, these percentages were entirely different: 17.2% of households living in mortgaged homes were overburdened by housing costs, as opposed to 13.2% of renters in the general market and 3.6% of renters receiving subsidies.

Data from the Debtors' Ombudsman also support this analysis of renters' position. In 2010, some 63% of those who applied for debt mitigation were homeowners, and 27% were renters. In January and February 2016, however, 22% of debt mitigation applicants were homeowners and 56% renters.

Many households have trouble making ends meet

The general discussion on households' improved position is based on real data. Clearly, such average figures show a strong improvement in households' situation in the recent past. Individuals' own assessment of their position is not as positive, however. According to the EU Quality of Life Survey, 48% of households had difficulty making ends meet in 2014, a decline of 4 percentage points from the previous year. This proportion averaged 33% during the period 2005-2007 but then rose rapidly after the collapse of the financial system in 2008. It can be assumed that the share of households experiencing difficulties fell last year and will fall again this year; however, it is still well above the pre-crisis level.

It is certainly noteworthy how many consider it difficult to make ends meet – almost half of survey participants, which is virtually the same as in 2010, when households' position was at its worst. Iceland is not the only country where a large share of individuals consider it difficult to make ends meet. In 2014, the share experiencing difficulties was 74% in Ireland and 95% in Greece; i.e., in countries that have suffered severe financial shocks. It has also been high in countries with relatively stable economies, such as France, with 62% in 2014. It is more common, however, that the ratio is lower in countries with less economic volatility. For instance, the difference between Iceland and Sweden is striking, as only 14% of Swedish households considered it difficult to make ends meet in 2014.

5. A housing cost overburden is defined as housing costs equalling at least 40% of disposable household income.

Housing costs still burdensome

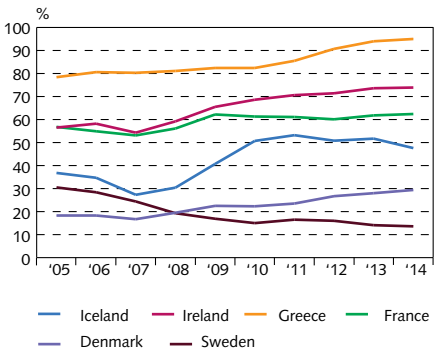
According to the 2014 EU Quality of Life Survey, 27% of individuals considered housing costs burdensome. This represents a decline of 1 percentage point between years and about 7 percentage points from the 2011 peak. In 2005-2008, however, just over 10% of respondents considered housing costs onerous; therefore, it is clear that assessments have changed substantially. The percentage is also high in countries such as Ireland and Spain, whose housing markets suffered during the financial crisis. It is difficult to link housing cost burdens and household indebtedness. For example, the proportion of individuals who consider their housing costs onerous is much lower in Denmark and the Netherlands than in Iceland, even though households in those countries are much more heavily in debt.

Icelandic individuals' assessment of housing cost burdens as compared with real burdens – that is, housing costs relative to disposable income – is very different than in Denmark, Norway, and Sweden. The EU survey indicates that the ratio of housing costs to disposable income in Iceland was about 21.3% in 2014, and that 27% of respondents considered their housing costs burdensome.[6] In Denmark and Sweden, the ratio of housing costs to disposable income was similar to that in Iceland, but only half as many Danes and a fourth as many Swedes considered their housing costs onerous. This is particularly interesting in view of the fact that in 2005, the ratio of housing costs to disposable income was about 25% in both Iceland and Sweden, and the proportion who considered housing costs onerous in 2004 was similar as well, at 13% in Iceland and 14% in Sweden. These figures are well in line with one another, but by the end of 2014, Icelanders and Swedes with comparable debt levels assessed their financial situation very differently.

Chart VI-13

Share of households having difficulty making ends meet[1]

EU Quality of Life Survey

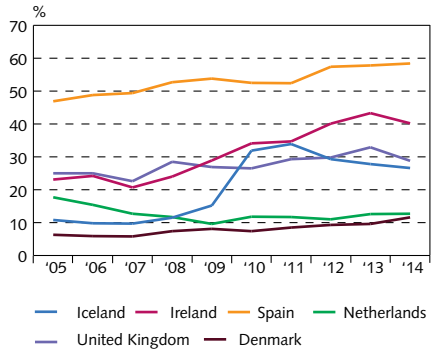


1. Three groups of households having difficulty making ends meet: a) great difficulty, b) difficulty, c) some difficulty.
Source: Eurostat.

Chart VI-14

Households with heavy financial burden due to housing costs

EU Quality of Life Survey



Source: Eurostat.

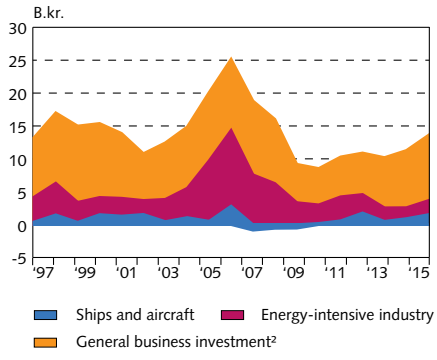
Businesses

Executives show increased optimism about the economic outlook

Business investment has picked up in the past two years. In 2015, it grew by 30% year-on-year, and relative to GDP it grew by 2.3 percentage points. General business investment (excluding investment in ships and aircraft and the energy-intensive sector) has increased strongly in the recent term. The years 2009-2012 appear to have been characterised by minimum investment and necessary maintenance of operational assets. In 2015, general business investment grew 23% year-on-year, which is the average rate of increase over the past three years. This is considerably larger than the average increase in 2011-2012 (8%) and similar to that in 2003-2005. The outlook is for a continuing increase in general business investment. According to a Deloitte survey carried out in November 2015 among the chief financial officers of Iceland's 300 largest firms, over half of respondents said they expected to invest in tangible operational assets in the near future, and nearly 20% plan other types of investment; for instance, acquisitions of other companies or operational units. This appears to go hand-in-hand with the increased optimism expressed by the direc-

Chart VI-15

Components of business investment[1]

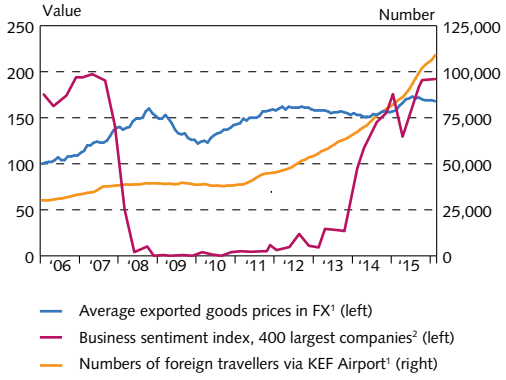


1. Using data from the QMM database. Amounts at 2005 price level.
2. Business investment excluding energy-intensive industry and ships and aircraft.
Sources: Statistics Iceland, Central Bank of Iceland.

6. See http://ec.europa.eu/eurostat/en/web/products-datasets/-/ILC_MDED01.

Chart VI-16

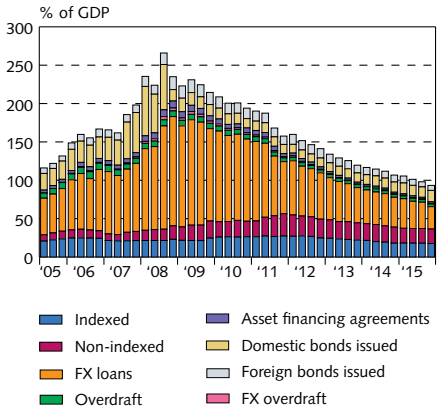
Developments in exported goods prices, number of foreign visitors via Keflavík Airport, and the business sentiment index



1. Twelve-month moving averages are used for export goods and the number of foreign visitors. 2. The business sentiment index indicates Iceland's 400 largest companies' assessment of the current state of the economy.
Sources: Gallup, Icelandic Tourist Board, Statistics Iceland, Central Bank of Iceland.

Chart VI-17

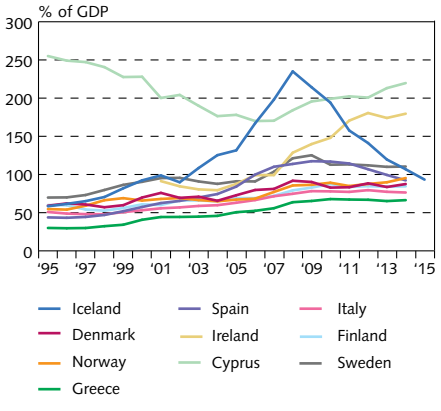
Corporate debt as % of GDP[1]
Q1/2004 - Q4/2015



1. Debt owed to domestic and foreign financial undertakings and market bonds issued. Excluding debt owed by holding companies.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-18

Corporate debt as percentage of GDP in international comparison[1]



1. Debt owed to domestic and foreign financial undertakings and market bonds issued.
Sources: Eurostat, Statistics Iceland, Central Bank of Iceland.

tors of Iceland's largest companies, as the business sentiment index is at its post-crisis high.[7] The index measured 191 at the beginning of 2016, slightly below its all-time high of 197 (from May 2007), but was close to zero during the first years after the crisis.

Firms' economic environment has improved since year-end 2014. Terms of trade improved by 0.7% during the year, in part because of declining global oil prices and rising marine product prices. The growth of tourism has also had a positive impact. Tourist arrivals in Iceland rose by 29% year-on-year, to nearly 1.3 million in 2015. The sector is expected to continue growing. (For a more detailed discussion of the rise in tourism and the increased share of tourism in Iceland's export revenues, see Chapter II). On the other hand, the GDP growth outlook for Iceland's main trading partners has deteriorated slightly. GDP growth is now expected to average 1.9% for the next two years, which could result in reduced demand for Icelandic exports.[8]

Corporate debt declines year-on-year

Icelandic firms' debt to domestic and foreign financial institutions and issued marketable bonds totalled about 93% of GDP at year-end 2015, a year-on-year decline of nearly 14 percentage points. In real terms, it declined by 5.6%. Corporate debt is now similar to the level seen at year-end 2000, around the end of the high-tech boom. It rose to a local high of 100% of GDP at the end of 2001. In comparison, debt declined by 6.5% in real terms in 2014, and by nearly 13 percentage points relative to GDP. The weight of foreign-denominated loans and foreign bonds has declined markedly in recent years, after peaking following the financial crisis. At the end of 2015, this foreign debt comprised 39% of total corporate debt, down from 52% at year-end 2014. According to surveys of corporate investment plans, firms intend to continue emphasising internal growth and to deleverage and finance new projects with equity instead of taking on additional debt.[9] Changes in the stock of corporate debt are discussed in Chapter V.

Net new lending to services companies

Net new loans from the three large commercial banks to firms – i.e., new loans net of prepayments in excess of contractual requirements – totalled about 156 b.kr. in 2015. Lending to services companies was significant in comparison with other sectors, with net new loans to the services sector totalling 92 b.kr., or 60% of net new corporate loans. Of that total, over half was to real estate companies, and given the growth in tourism, it can be assumed that a large share also went to that sector. Lending to fishing companies was significant as well, at 20 b.kr., nearly all of it in foreign currency. Net new lending to utilities companies was negative during the year.

7. The index is calculated from the Gallup corporate expectations survey, in which executives from Iceland's 400 largest firms are asked questions on their assessment of the current state and future outlook for the economy.
8. See the forecast of the GDP growth outlook for Iceland's trading partners in *Monetary Bulletin* 2016/1.
9. See, for instance, the Deloitte survey carried out in November 2015 among chief financial officers from Iceland's 300 largest firms: https://www2.deloitte.com/content/dam/Deloitte/is/Documents/finance/CFOkonnun/Fjarmalastjorakonnun_november_2015.pdf.

Lending to tourism companies

It is difficult to estimate how large a share of lending in recent years is due to growth in tourism, as the sector's impact can be felt throughout the economy. An example is air and sea transport of foreign tourists to Iceland, which is classified as transport and transit.[10] It can also be assumed that a large share of lending to retail and services companies in Iceland is due to trade with foreign tourists, not to mention hotel construction, which affects figures on lending to building and construction firms. Until now, total lending to the tourism industry has not been analysed separately. The rapid growth of the sector in recent years and its current importance, as can be seen in its increased weight in goods and services exports (see Chapter II), calls for increased attention, however. In collaboration with the commercial banks, the Central Bank has begun compiling data on lending to companies in the tourism industry. The first dataset was compiled at year-end 2015. The results show that the estimated book value of loans to tourism companies was 127 b.kr. in Q3/2015, or about 10% of total loans to operating and holding companies. In comparison, lending to fishing companies accounts for 22% of the total and lending to retail companies 9%. Lending to tourism companies therefore accounts for a relatively large share of the commercial banks' loan portfolios, which is unsurprising given the rapid growth in the sector. Tourist numbers are forecast to continue rising, and investment in the sector can be expected to keep rising as well. In recent years, the exchange rate of the króna has held relatively stable, both because capital controls have been in effect in Iceland and because the Central Bank has intervened in the market in order to bolster its foreign exchange reserves in preparation for lifting the controls. Uncertainty about developments in the exchange rate after liberalisation exacerbates the banks' credit risk.

Bankruptcies decline, but arrears rise

Slow decline in number of firms on default register

In March 2016, there were 5,977 companies on the CreditInfo default register, or 14.5% of all companies in Iceland, down from the mid-2012 peak of just over 6,500. The largest proportion of companies on the default register were in the construction, retail, and services sectors, at 15-25% each. A number of real estate firms were on the register as well (13% of the total).

Steep decline in corporate bankruptcies and changed age composition

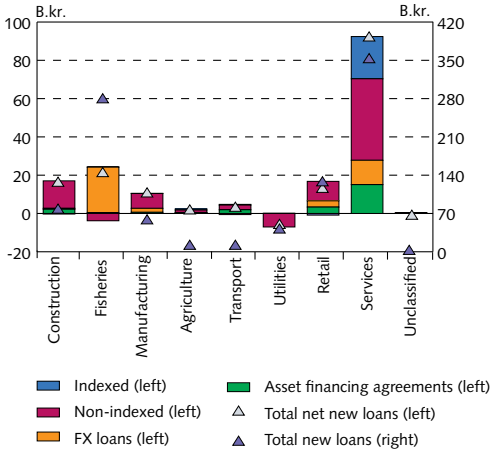
In 2015, a total of 587 firms were declared bankrupt, or 1.5% of all companies in Iceland, and unsuccessful distraint measures totalled 4,213, a reduction of just over 800 year-on-year. Corporate bankruptcies totalled 799 in 2014 and therefore declined by 27% year-on-year in 2015. The number of registered bankruptcies in 2015 was similar to that in 2006, but as a share of the total number of firms in the country, it was similar to figures seen around the turn of the century. Bankruptcies declined in number in all major industries, but in propor-

10. According to the ISAT 2008 sectoral classification.

Chart VI-19

Net and total new corporate lending from the three commercial banks in 2015, by industry and loan form[1]

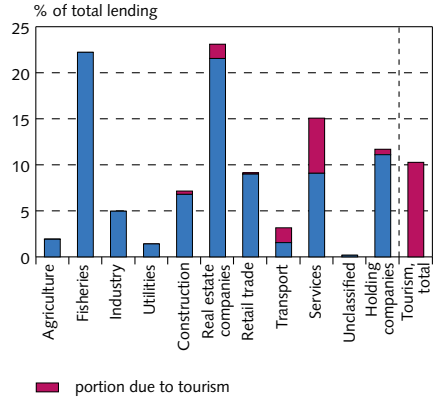
Net new corporate loans totalled 156 b.kr.



1. New loans net of prepayments. Prepayments are payments in excess of contractual payments.
Source: Central Bank of Iceland.

Chart VI-20

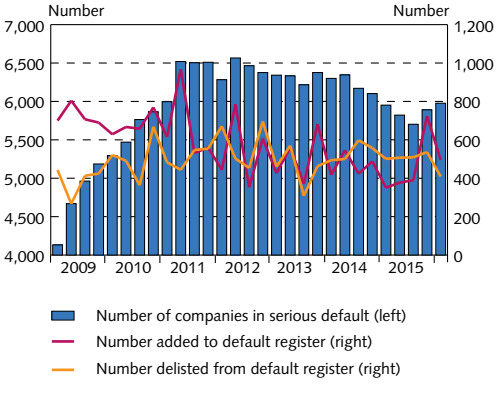
Sectoral classification of commercial bank lending[1]



1. Arion Bank, Íslandsbanki, Kvika, and Landsbankinn. Loans to each sector as a share of total lending to operating companies and holding companies.
Source: Central Bank of Iceland.

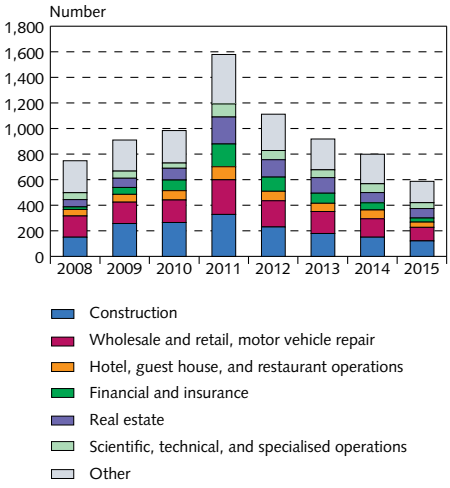
Chart VI-21

Companies in default[1]



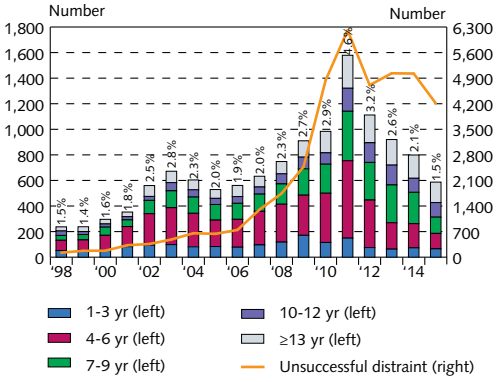
1. In March 2016, a total of 5,977 firms, or about 14.5% of the total, were listed on the CreditInfo default register.
Source: CreditInfo.

Chart VI-22
Corporate bankruptcies, by sector



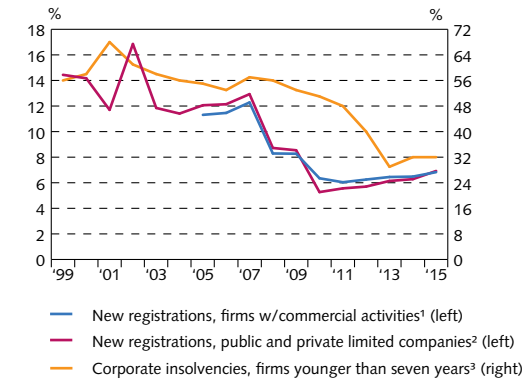
Sources: Registers Iceland, Statistics Iceland.

Chart VI-23
Corporate bankruptcies and unsuccessful distraint, by age[1]



1. The percentages show corporate bankruptcies as a share of the total number of firms.
Sources: Registers Iceland, Statistics Iceland.

Chart VI-24
New company registrations and bankruptcies of firms under seven years old



1. New registrations of public and private limited companies, plus other company forms commonly used by firms engaged in commercial activities, such as sf. slhf., and slf. Share of total number of firms of the same type. 2. Share of total number of firms of the same type. 3. Share of total number of corporate insolvencies.
Sources: Statistics Iceland, Central Bank of Icealnd.

tional terms they fell most in the financial and insurance sector and the hotel and restaurant sector, each of which recorded a decline of over 40%. Most company failures were among construction firms (121, or 21% of the total) and among companies in retail and wholesale and motor vehicle repair (106, or 18% of the total).

The age composition of failed firms has changed somewhat in recent years. Just over half of firms declared bankrupt during the period 1998-2010 were less than seven years old. This changed after the financial crisis, however, and by 2015 these companies accounted for only a third of company failures. Early in the period, it was most common that four- to six-year-old companies were declared bankrupt, but by 2015 bankruptcy was most common among firms 13 years old and older.

Since the financial crisis, the number of registered new companies has been proportionally lower than it was before the crisis, which may explain why bankruptcies are distributed more equally across age groups.

Increased arrears on loans from the largest commercial banks

In February 2016, some 8.7% of corporate loans from the large commercial banks were non-performing according to the cross-default method, which assumes that all of a customer's loans are in arrears if one loan is. This percentage rose by 2.5 percentage points towards the end of 2015, owing both to a rise in arrears among fishing and industrial companies and to improved recordkeeping following the Financial Supervisory Authority's (FME) examination of the banks' loan portfolio reports. According to the FME's examination, six firms in a sample of fifteen were incorrectly recorded by Arion Bank and two of fifteen were incorrectly recorded by Íslandsbanki.[11] The rise in default was due mainly to loans to large companies, 10.4% of which were in arrears in February 2016, up from 7.2% in October 2015. About 5.5% of loans to medium-sized companies and 6.2% of loans to small companies were in arrears in February 2016, as opposed to 7.5% and 8.1%, respectively, at the end of 2014. Default among these companies has therefore declined between years.

About 69% of non-performing corporate loans were listed as frozen, and a small proportion, 2%, were listed as in enforcement proceedings. Another 7% were in collections, and about 12% were undergoing restructuring. The large proportion of firms with frozen loans is due mainly to large firms, as 80% of these companies' non-performing loans were frozen. At the same time, a very small share of large firms' non-performing loans were in collections or enforcement proceedings, or just under 1%. As before, holding companies accounted for the largest share of default, with about 30% of total loans in arrears. Excluding loans to holding companies and public sector firms, non-performing corporate loans accounted for about 6.6% of all corporate loans in February 2016.

11. See the results of the FME examination of concessions granted by Arion Bank and Íslandsbanki: http://www.fme.is/utgefid-efni/frettir-og-tilkynningar/gagnsaeistilkynning-ar/nidurstada-athugunar-a-umfangi-veittra-ivilnana-hja-arion-banka-hf; http//www.fme.is/media/gagnsaei/ISB-gagnsaeistilkynning-7.3.2016.pdf.

Improved position among the 500 largest firms[12]

The financial position of Iceland's 500 largest firms has improved in recent years, and their debt level continues to fall.[13] Their equity ratio rose by nearly 3 percentage points, to just over 43% in 2014. By the same token, the ratio of long-term debt to capital (the sum of long-term debt and equity) fell by about 5 percentage points year-on-year, to 47% in 2014.[14] The 500 largest firms' debt level is therefore at its lowest since the turn of the century. Furthermore, firms' position appears stronger if their debts are examined in the context of their operating performance for the year. For instance, the ratio of net debt to EBITDA was 4.4, about the same as in 1997.[15] Moreover, the number of firms with negative EBITDA declined slightly between years, to 8% of the sample studied as of 2014. It appears, then, that firms' ability to service their debt has improved substantially, as can be seen in the ratio of profit to interest expense. The number of firms with a ratio under 1 declined by 30 between years, or by 7 percentage points relative to the total number of firms in the sample.

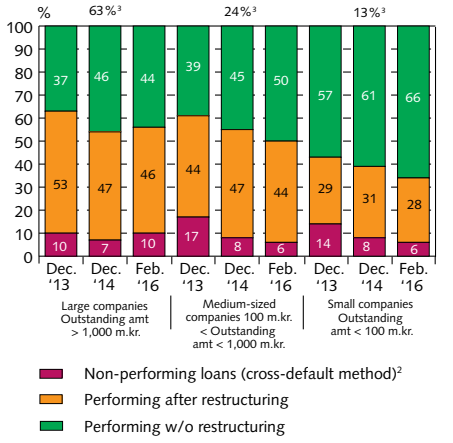
Table VI-1 Financial ratios for selected years

	1997	*2000*	*2004*	*2007*	*2008*	*2013*	*2014*
Equity ratio, %	30.4	30.8	33.5	31.9	17.5	39.5	43.2
Long-term debt/Capital, %	53.7	56.4	54.7	59.6	78.5	51.9	46.9
Total debt/EBITDA	6.7	10.5	6.8	9.3	12.0	6.3	6.1
Net debt/EBITDA	4.4	7.3	4.8	7.2	10.2	4.7	4.4
Long-term debt/EBITDA	3.4	6.0	4.1	6.4	9.3	4.4	4.1
Current ratio	1.18	1.21	1.26	1.09	0.87	1.10	1.26
Liquid ratio	0.79	0.86	0.89	0.70	0.60	0.73	0.85
EBIT/Interest expense	1.42	0.49	1.93	1.40	0.69	1.80	2.92
Number of firms with negative EBITDA	38	58	42	55	62	43	41
Number of firms with a current ratio < 1	185	203	156	164	209	155	156
Number of firms with a ratio of EBIT to interest expense < 1	182	239	142	179	208	144	114

Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-25

Status of the three largest commercial banks' corporate loans, by claim amount[1]

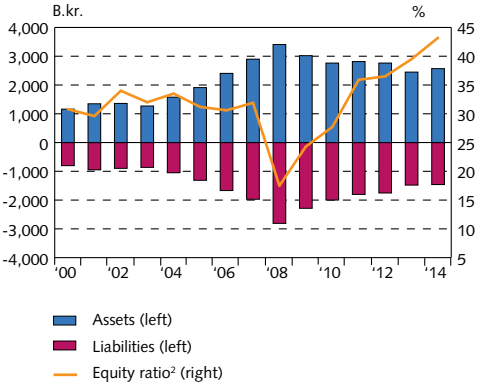


1. Parent companies, book value. 2. Non-performing loans are defined as loans in arrears for more than 90 days, those that are frozen, or those deemed unlikely to be paid. The cross-default method is used; that is, if one loan taken by a customer is non-performing, all of that customer's loans are considered non-performing. 3. Percentage of total loans.

Source: Financial Supervisory Authority.

Chart VI-26

Assets and liabilities at 2014 price level and equity ratio[1]



1. The 500 largest firms in terms of operating revenues. 2. The equity ratio is the ratio of total equity to total assets.

Sources: Statistics Iceland, Central Bank of Iceland.

12. Only firms with actual commercial activities were included. Financial companies and utilities were also omitted, as were holding companies. The data were taken from corporate income tax returns. For further information on the position of the 500 largest firms in recent years, see *Economic Affairs* no. 7: The capital structure and financial position of Iceland's 500 largest firms [in Icelandic].
13. Firms with the largest operating revenues at any given time.
14. Debt to related parties is included with long-term debt.
15. The ratio of net debt to EBITDA excluding debt to related parties was about 3.1 at year-end 2014.

Box VI-1

A simple household debt model

Excessive credit growth is an indication that systemic risk is accumulating and financial system resilience is weakening. It can also contribute to price bubbles in asset markets, thereby posing a threat to financial stability. With the establishment of the Financial Stability Council and the Systemic Risk Committee, the need for analysis of credit growth has increased. One of the Council's objectives is to combat excessive credit growth and indebtedness. Until now, analysis of private sector debt has been largely limited to assessing the current situation rather than projecting probable developments. It is important to develop a model to forecast private sector credit growth. This Box outlines the first steps towards such a model.

Determinants of indebtedness

Indebtedness is determined, among other things, by the borrower's income and assets and by borrowing costs. Other factors can make a difference as well, including the labour market situation and other factors that are difficult to quantify, such as lenders' access to capital and how developed and unrestricted the financial market is.[1] This Box focuses mainly on borrowers' income and assets and assumes that long-term debt is determined by these variables. Indebtedness is assumed to vary directly with the borrower's income and assets, both because of demand-side effects, in accordance with the permanent income hypothesis,[2] and because of supply-side effects, as rising income means that borrowers can service increased debt and an improved equity position allows borrowers to provide more collateral and/or more valuable collateral, which should enhance lenders' willingness to lend to them.

The data

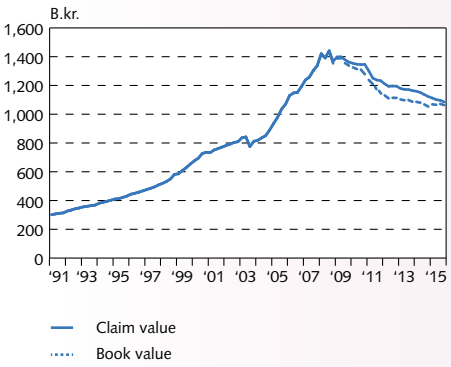
Quarterly data at constant prices in terms of the private consumption index are used, extending from Q1/1991 through Q3/2015. Household debt is at book value. Explanatory variables in the model come from the Central Bank's QMM database.[3] Households' wage income is used, and the asset position is estimated based on total financial wealth. Finally, the yield on long-term indexed Treasury bonds is used to estimate borrowing costs, and the unemployment rate is used to approximate the labour market situation.[4]

A model for household debt

A simple error correction model is estimated which assumes a long-term relationship between debt, on the one hand, and income and assets, on the other.[5] The variables in the long-term relationship are all stationarised at the first time difference and integrated.

The estimated equation for household debt is (the t-variables for the hypothesis that the parameter is zero are in parentheses; the lower-case letters represent logarithms; and Δ represents the change from the previous quarter):[6]

Chart 1
Household debt[1]
Q1/1991 - Q4/2015



1. 2005 prices.
Sources: Statistics Iceland, Central Bank of Iceland.

1. Nieto, F. (2007). The Determinants of Household Credit in Spain. Banco de España.
2. Friedman, M. (1957). The Permanent Income Hypothesis. In *A Theory of the Consumption Function* (p. 20-37). Princeton University Press.
3. Ásgeir Daníelsson *et al*. (2015). A Quarterly Macroeconomic Model of the Icelandic Economy. Central Bank of Iceland. *Working Paper* no. 71.
4. Yield on five-year indexed Treasury bonds, see Ásgeir Daníelsson *et al*., (2015). A Quarterly Macroeconomic Model of the Icelandic Economy. Central Bank of Iceland. *Working Paper* no. 71.
5. The long-term relationship is estimated with a simple ordinary least squares (OLS model), which gives the following: $d_t = \underset{(4.7)}{-3.3} + \underset{(7.9)}{0.94} y_t + \underset{(8.2)}{0.45} w_t$, where d is household debt, y is average wage income over the past four quarters, and w is gross financial wealth.
6. The model's goodness of fit is as follows: The adjusted R^2= 70.0% and the standard deviation of the regression is 1.3%. The results of the residuals of the tests are as follows (p values in parentheses): Jarque-Bera test of normal distribution: JB = 0.37 (0.83);

$$\Delta d_t = \underset{(2.0)}{-0.14} + \underset{(4.8)}{0.30}\Delta d_{t-4} - \underset{(3.3)}{0.33} UR_{t-1} + \underset{(4.3)}{0.18}\Delta w_{t-1} \underset{(3.0)}{-0.87}\Delta R_{t-2}$$

$$\underset{(2.33)}{-0.049}(d - 0.94y - 0.45w)_{t-1} + \varepsilon_t$$

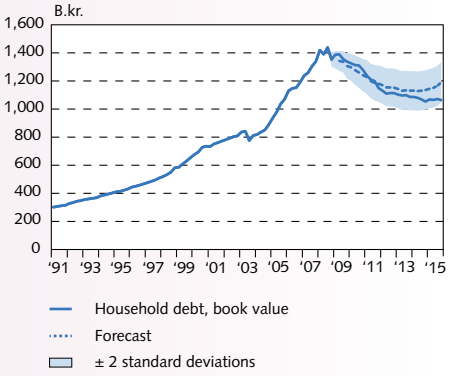
where *d* is household debt at book value, *UR* is the unemployment rate, *w* is gross financial wealth, *R* is the real interest rate, and *y* is average wage income over the past four quarters.[7] The lower line shows the deviation from long-term equilibrium, and the parameter before the parenthesis shows how much of the deviation is corrected each quarter (4.9%). In the long run, a one percentage point increase in wage income leads to a 0.94 percentage point increase in debt, and a one percentage point increase in financial wealth leads to an increase in debt of 0.45 percentage points.

The effect on indebtedness of changes in the variables of the long-term relationship, however, takes a relatively long time to emerge in full, as 4.9% of the deviation is corrected each quarter. In the short run, unemployment and interest rates have a negative effect on debt, while the effect of gross financial wealth is positive. Chart 2 shows that the model describes post-crisis developments in debt quite accurately. In the latter half of the period, however, the forecast is marginally higher than actual indebtedness, which is probably due to the Government's household debt relief measures.

Increased household debt expected in the next two years

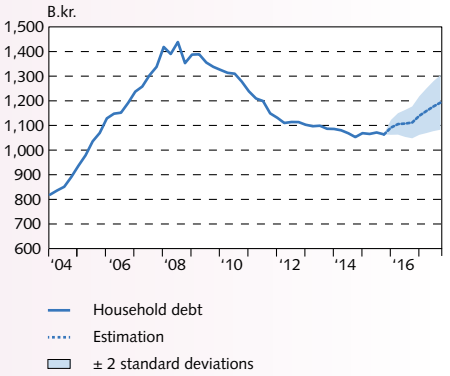
It is possible to extrapolate household debt based on the estimated relationship above. The extrapolation is based on the baseline forecast in the Central Bank's *Monetary Bulletin* 2016/1. According to the model, lending to households will grow in real terms by 4.6% in 2016 and 7.3% in 2017, somewhat outpacing GDP growth according to the most recent forecasts. In recent years, a number of things have changed that the model does not capture. Today the commercial banks must maintain much higher capital ratios with the introduction of capital buffers, liquidity requirements are more extensive, and access to foreign credit is more limited. Furthermore, it is likely that the financial crisis and its impact on households has curbed the desire to take on debt. The model may therefore overestimate credit growth for the next several years. Furthermore, the time period under examination features unusually wide financial fluctuations, which could affect the estimation. Nonetheless, it is clear that households' position has improved markedly in recent years, whereas debt levels have been declining. As a result, there is increased scope to take on debt. As is stated above, the model is still under development. The next steps will involve, among other things, a more in-depth examination of the supply side, including examining the effects on credit growth of lenders' liquidity position and access to capital.

Chart 2
Actual and forecasted developments in household debt[1]



1. At 2005 price level. Forecast from Q4/2008 through Q4/2015.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 3
Household debt [1]



1. At 2005 price level. Estimation from Q1/2016 to Q4/2017.
Sources: Statistics Iceland, Central Bank of Iceland.

the LM test of autocorrelation: F value = 0.75 (0.48); and the Breusch-Pagan-Godfrey test of heteroskedasticity: F value = 0.48 (0.84). The residual of the model is therefore normally distributed, does not contain autocorrelation, and is not heteroskedastic.

7. The model also contains two dummies. One of them takes the value 1 in Q3/2003, as a result of changes in the compilation of data on credit, but is otherwise zero, and the other takes the value of 1 in Q4/2008 but is otherwise zero.

Box VI-2

Reduction of households' indexed mortgage principal

In accordance with the policy statement of the current Government, two bills of legislation were introduced in 2014, with the aim of achieving a reduction in households' indexed mortgage principal. The bills provide for a direct write-down financed by the Treasury and an authorisation for borrowers to allocate third-pillar pension savings tax-free towards mortgage debt.[1] At the end of June 2015, the Minister of Finance and Economic Affairs presented to Parliament a report on these measures.[2] After the final 25% of the direct write-down was posted to mortgage loans at the beginning of January 2016, the Central Bank requested information on the debt relief measures from deposit money banks (DMB), the Housing Financing Fund (HFF), and the twelve largest pension funds, as it is not possible to classify the write-downs according to loan type based on information from the Directorate of Internal Revenue, which processes the data relating to the measures. This Box summarises the information from the above-specified lenders.

Direct write-downs

The total amount of the direct write-down was 79.2 b.kr. at the beginning of February, according to information from the Directorate of Internal Revenue. Of that total, 73.3 b.kr. had been allocated towards mortgage loans and 5.9 b.kr. to personal income tax deductions from 2015 through 2018. The lenders' responses to the Central Bank's query accord with Directorate of Internal Revenue figures. As a result of the debt relief measures, the claim value of mortgage loans declined by 1.6 b.kr. in 2014, by 52.9 b.kr. in 2015, and by 18.8 b.kr. in 2016. Based on the lenders' responses, direct mortgage write-downs benefited 68,000 borrowers.[3] The claim value of these loans totalled 655 b.kr. before the write-downs took effect. Based on the amount of the direct write-down, the claim value of the loans was reduced by 11.2%.

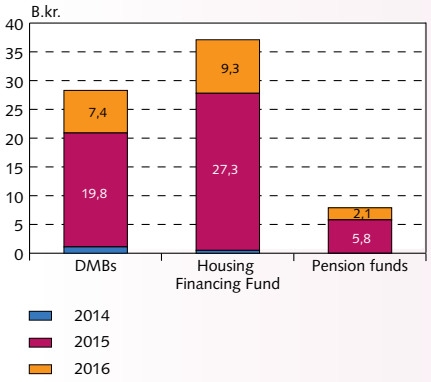
The proportional reduction in mortgage loans varies by credit institution;[4] i.e., pension fund loans declined by an average of 15.2%, HFF loans by an average of 12%, non-indexed DMB loans by an average of 10.9%, and indexed DMB loans by 9.3% (Chart 2). Direct write-downs therefore had a proportionally greater impact on pension fund and HFF loans than on DMB loans, although the amounts posted to each loan are higher for the DMBs. This is unsurprising, given that there were limitations on the amount of new HFF and pension fund loans and pension fund loans have long been used as bridge loans to fill gaps in funding. The allocation of the write-down towards the reduction of mortgage principal depends on the lien priority of the loans outstanding on each property. For this reason, 6.3 b.kr. were allocated towards non-indexed loans, even though the measures were supposedly aimed at indexed mortgages. All of the non-indexed loans that were written down were from DMBs, and 22% of the amount allocated by these institutions was posted to non-indexed loans.

Third-pillar pension savings

The third-pillar pension savings option is of two types: on the one hand, third-pillar savings can be channelled towards mortgage loans, and on the other, they can be used tax-free to buy property. The Central Bank's query extended only to the allocation of third-pillar savings to existing mortgages.

Chart 1

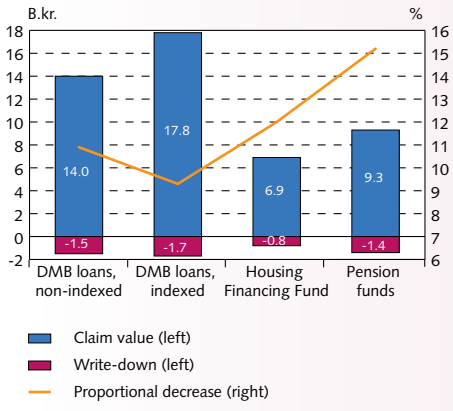
Direct write-downs of mortgage debt, by lender and year



Source: Central Bank of Iceland.

Chart 2

Mortgage claim value and direct write-down for each borrower[1]



1. Based on average values and assuming that each borrower has one mortgage.
Source: Central Bank of Iceland.

1. Information on the debt relief measures can be found here: https://eng.forsaetisraduneyti.is/debt-relief/.
2. See http://www.althingi.is/altext/144/s/1486.html.
3. Defined here as an individual, a couple, or jointly taxed individuals.
4. Assuming that the direct write-down is posted to one loan for each borrower.

Allocation of third-pillar pension savings to mortgage loans began in November 2014, and by the end of January 2016, a total of 15.8 b.kr. had been so allocated, which accords with the figures from the Directorate of Internal Revenue.

The distribution of third-pillar savings allocations across lenders differs from that for the direct write-downs, as 7.4 b.kr., or 48% of the total, was allocate to DMB loans, as opposed to 39% of the direct write-downs. Of the 7.4 b.kr., about 3.6 b.kr. were used to pay down non-indexed debt, or 24% of the total allocated towards debt reduction. Payments on non-indexed loans were higher, on average, than payments on indexed loans. During the 15 months covered by the query, the average payment per non-indexed DMB loan was 640,000 kr., as opposed to 560,000 kr. per indexed DMB loan, 470,000 kr. per pension fund loan, and 450,000 kr. per HFF loan.[5] It is also noteworthy that the claim value of non-indexed loans is considerably lower than the claim value of indexed loans, or 6.5 m.kr., as opposed to 9 m.kr. The proportional reduction in non-indexed debt through the third-pillar savings option is therefore much greater than the reduction in indexed debt.

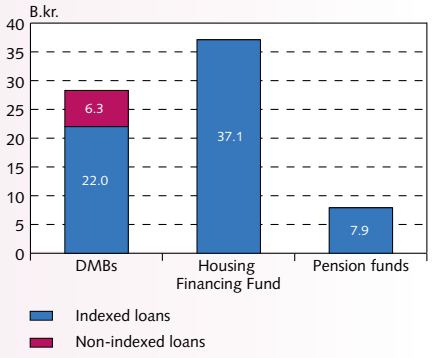
Those who take advantage of the third-pillar option are authorised to allocate their 4% employee premium plus 2% of the employer contribution towards mortgage debt. The size of the payments is governed by the individual's wages, subject to an annual ceiling of 750,000 kr. for couples and jointly taxed individuals and 500,000 kr. for individuals. Therefore, income could range up to 12.5 m.kr. for couples and 8.3 m.kr. for individuals without hitting the ceiling. The allocation of third-pillar savings towards mortgage debt indicates that those who have allocated their savings towards non-indexed debt have higher income than those who have allocated it towards indexed debt. This is in accordance with the information received from the Bank's 2014 query on new mortgage lending; i.e., borrowers who took non-indexed mortgages had higher income than borrowers who took indexed loans (see Box V-1 in *Financial Stability* 2014/1).

It is clear that the Government's debt relief measures have made a marked impact on households' debt position. As of January 2016, mortgage debt has been reduced by a total of 89 b.kr. through direct write-downs and the third-pillar option. Allocation of third-pillar savings has been distributed relatively equally over the 15 months covered by this analysis; i.e., there are no signs of an increase in the latter half of the period. If this amount is similar over the remaining 19 months of the period, it can be estimated that third-pillar savings will be used to reduce household debt by about 40 b.kr., after adjusting for expected wage increases. The original estimates assumed that household mortgages would be reduced by about 70 b.kr. as a result of the third-pillar option; therefore, it is clear that participation is less than originally projected. On the whole, the Government's measures will have reduced households' mortgage debt by an estimated 113 b.kr. In addition to this is the 5.9 b.kr. allocated towards personal income tax deductions. The total scope of the measures will therefore be about 120 b.kr., whereas the original estimates assumed 150 b.kr.

5. Assuming that each borrower has one loan to which third-pillar savings are allocated.

Chart 3

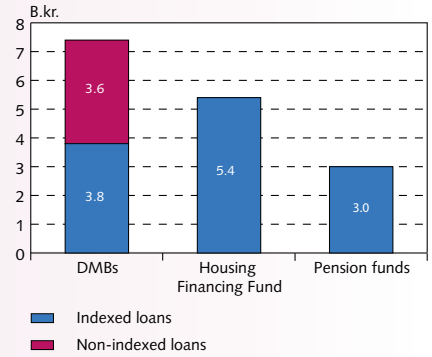
Direct write-down of mortgage debt by loan type



Source: Central Bank of Iceland.

Chart 4

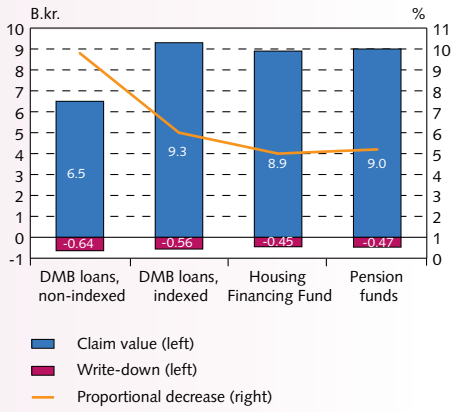
Write-downs of mortgage debt due to third-pillar pension savings, by loan type



Source: Central Bank of Iceland.

Chart 5

Claim value of mortgages and third-pillar pension savings for each borrower[1]



1. Based on average values and assuming that each borrower has one mortgage.
Source: Central Bank of Iceland.

Appendix I

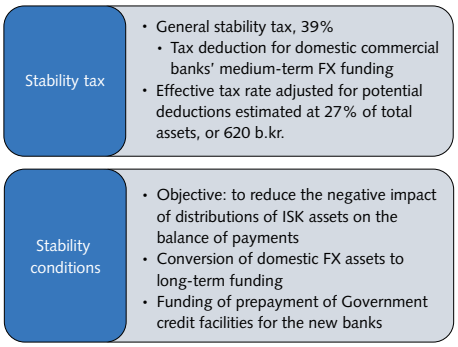
The composition agreements of the failed banks' estates

The estates of the failed financial institutions – i.e., the old commercial banks – have now negotiated composition agreements, and the Central Bank of Iceland granted them exemptions from the Foreign Exchange Act once the composition agreements had been approved by the District Court. The estates agreed to transfer their króna-denominated assets or dispose of them so that the domestic assets would not have a negative impact on Iceland's balance of payments or pose a threat to financial stability. Priority claims have now been paid in full, and a large portion of the estates' assets have now been distributed to creditors. The stability contributions have been paid, apart from contingent cash sweep assets. Large portion of the contributions stem from the estates' holdings in the domestic commercial banks. Holding companies established when the estates were wound up will continue to work towards liquidating the remaining assets and distributing recoveries to creditors. The composition agreements removed a major obstacle to capital account liberalisation.

Winding-up proceedings formally concluded

About seven years have passed since the Icelandic banking system collapsed and winding-up boards were appointed for the estates of the failed financial institutions. The winding-up boards of Glitnir hf., Kaupthing hf., and LBI hf. presented composition proposals in autumn 2015 and requested exemptions from the Foreign Exchange Act.[1] At the end of October 2015, the Central Bank confirmed that the proposals would not jeopardise monetary or exchange rate stability or cause financial instability. This assessment was based on the fact that the composition agreements satisfied the stability conditions presented on 8 June 2015, when the authorities publicised the updated capital account liberalisation strategy.[2] As a result, the Bank gave a verbal promise that the estates would be granted exemptions from the Foreign Exchange Act, provided that the composition agreements were approved by the Icelandic courts. The estates had considerable interests at stake in presenting composition agreements before year-end 2015 because otherwise a 39% tax would have been levied on their total assets. The effective tax rate, after adjusting for deductions, was somewhat lower, however, or 27% for all of the estates combined, although it varied from one estate to another.[3] The composition agreements were approved by the District Court in December 2015, and the Central Bank granted Glitnir, Kaupthing, and LBI an exemption from the Foreign Exchange Act shortly thereafter. This formally concluded the estates' winding-up proceedings.

Chart 1



Distributions to creditors

According to the Act on Bankruptcy, Etc., the confirmation of an estate's composition agreement is subject to the requirement that the

1. The discussion in this Appendix centres on the estates of the three large commercial banks, but it should be noted that smaller entities also fall within the scope of the Act on a Stability Tax and were granted exemptions on the basis of stability conditions.
2. See the Central Bank of Iceland report: Settlement of the failed financial institutions on the basis of stability conditions: impact on balance of payments and financial stability.
3. See the Act on a Stability Tax.

estate be engaged in settling its debts to priority creditors. Full settlement of outstanding approved priority claims against the LBI estate took place in January 2016, with a distribution of 210 b.kr. to priority creditors. The other two estates had already settled with priority creditors before the composition agreements were approved.

All of the estates handled distributions to general creditors by first making so-called *de minimis* payments. Creditors with claims below a given amount, which ranged between 1.5 m.kr. and 5 m.kr. but varied from one estate to another, received full payment of their claims. Thereafter, other creditors with claims in excess of the *de minimis* amount received payments consisting of a *pro rata* distribution of the estates' remaining cash, less the estates' expected operating expenses in coming years, plus share capital in a new holding company established for outstanding assets and an interest-free bond issued by the holding company. As the assets are sold and converted to liquid assets, they will be distributed to creditors via bond payments. The payment dates on the newly established holding companies' bonds are either every six months or every three months, depending on whether recoveries in the preceding payment period exceeded a specified minimum. Table 1 illustrates distributions to creditors.

Table 1 Distributions to general creditors[1]

B.kr.	*Glitnir*	*Kaupthing*	*LBI*	*Total*
Minimum distribution	7	13	3	23
Contractual distribution	519	230	-	749
Nominal value of bonds	224	588	288	1.101
Nominal value of shares	7	14	2	22
Total	757	845	293	1,894

1. It should be noted that the figures are based on the nominal value of the estates' bonds, which is somewhat higher than the book value of the underlying assets on which payments on the bonds are based.

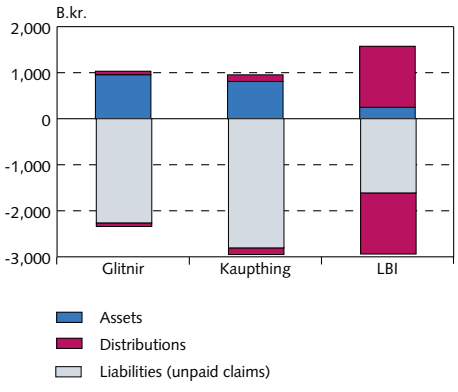
Sources: Financial information from Glitnir, Kaupthing, and LBI; Central Bank of Iceland.

It has been explained in previous issues of *Financial Stability* that asset sales have varied from one estate to another from the outset. Adjusting for distributions to priority creditors, 82% of LBI's assets, 73% of Glitnir's assets, and 61% of Kaupthing's assets were liquid as of mid-2015.[4] These proportions rise considerably as a result of the composition agreements, as a large share of the estates' stability contributions took the form of non-liquid assets. They rise to 95% for Glitnir, 86% for LBI, and 69% for Kaupthing.[5] It can be assumed that it will take some time to settle all of the old banks' assets. For example, the LBI holding company holds the Landsbankinn-LBI bond, which matures in 2026, and the Glitnir and Kaupthing holding companies own bonds deriving from the lengthening of deposits with the domestic commercial banks and the refinancing of loans granted by

Chart 2

DMBs in winding-up: assets, general claims, and distributions to priority creditors

Book value 30.09.2015[1]



1. Adjusted for distributions from LBI hf. to priority creditors in January 2016.

Sources: Financial information from Glitnir, Kaupthing, and LBI; Central Bank of Iceland.

4. For a more detailed discussion, including the possible reasons why the ratios differ across estates, see, for instance, *Financial Stability* 2015/1.

5. This does not account for the fact that, with the composition agreements, Glitnir and Kaupthing's deposits with domestic commercial banks were lengthened. It should also be noted that, unlike Glitnir, Kaupthing still owns its holding in a domestic commercial bank; however, a bond amounting to 84 b.kr. was issued and a profit-sharing agreement negotiated which will provide the State with 29 b.kr. upon the sale of the bank, based on its end-2015 book value. For this reason, Kaupthing's ratio rises less than that of the other banks.

the State to the commercial banks during the reconstruction of the banking system. The old banks' creditors will therefore not fully realise their claims on the estates until about 10 years from now, or perhaps earlier if the estates sell the assets in question with a fixed payment profile. However, creditors may sell the securities issued by the holding companies to other investors, just as they were able to sell claims against the estates beforehand. Based on the winding-up boards' estimates of distributions to creditors, it can be assumed that most of the distributions will be paid in five to seven years. Chart 2 shows, in book value terms, how much had been paid to priority creditors from each estate by end-September 2015, including the payment to LBI's priority creditors. The chart also shows the assets and liabilities of the estates' general creditors prior to the approval of the composition agreements and the payment of the stability contributions. The stability contributions reduce the estates' assets by nearly 400 b.kr., and claims amounting to nearly 5,000 b.kr. are written off. Table 2 itemises the stability contribution for each estate.

Problem relating to settlement of estates solved

In previous issues of *Financial Stability*, detailed account has been given of the estates' assets, the classification of creditors, and the problem that settling the estates posed for capital account liberalisation (see, for instance, *Financial Stability* 2015/2). In broad terms, the problem lay in potential foreign currency outflows upon winding-up, which would destabilise the foreign exchange market and possibly jeopardise financial stability. Domestic assets accounted for about 40% of total assets, while about 93% of the claims were owned by non-residents. Winding up the estates and making distributions to creditors, who would probably have converted the krónur to foreign currency once the capital controls were lifted, would have put substantial pressure on Iceland's balance of payments.

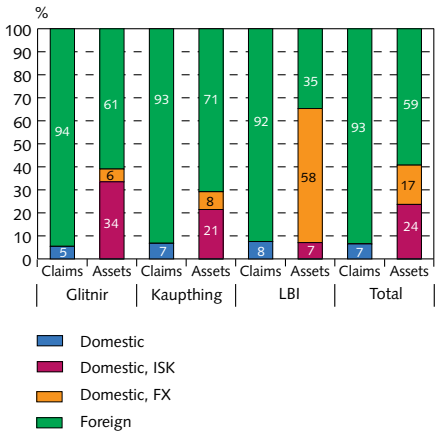
In the authorities' presentation of 8 June 2015, it was announced that a stability tax would be levied on the estates' total assets in order to solve this problem. In order to avoid paying the tax, the estates could present composition proposals that satisfied so-called stability conditions, which were supposed to ensure that the composition agreements would neither cause monetary or exchange rate instability nor lead to financial instability by, for example, weakening the resilience of currently operating commercial banks. In order to satisfy the stability conditions, the estates would need, among other things, to convert their foreign-denominated domestic assets to long-term funding to the extent needed and to fund, with long-term facilities, domestic financial institutions' prepayment of the Government's foreign-denominated credit facilities. The credit facility was a part of the State's contribution upon the establishment of the new banks.

Other things being equal, settling the failed banks' estates would have had a negative impact on Iceland's international investment position (IIP) in the amount of 787 b.kr., or nearly 36% of GDP, based on the position in Q3/2015. This is equivalent to the difference between the value of domestic assets that would have reverted to foreign creditors, on the one hand, and foreign assets that would

Chart 3

Estimated domestic/foreign breakdown of assets and claims of DMBs in winding-up proceedings[1]

Book value of assets 30.09.2015



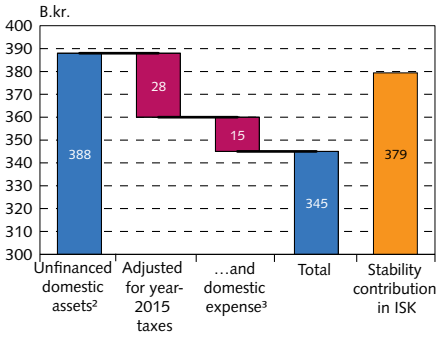
1. The share of domestic claims is estimated based on underlying beneficial owners of claims.

Sources: Claims registers and financial information from Glitnir, Kaupthing and LBI; Central Bank of Iceland.

Chart 4

Unfinanced domestic assets reverting to foreign creditors[1]

Book value of assets 30.9.2015



1. Assuming equal distribution of assets among creditors. 2. Assuming refinancing of the Landsbanki bonds. Estimated domestic costs for DMBs in winding up proceedings, which if not used will become part of the stability contribution.

Sources: Claims registers and financial information from Glitnir, Kaupthing, and LBI; Statistics Iceland; Central Bank of Iceland.

have reverted to domestic creditors, on the other. Based on the same methodology, unfinanced domestic assets reverting to foreign creditors would amount to just under 390 b.kr., or about 18% of GDP. The difference in the impact on the IIP and the amount of unfinanced domestic assets reverting to foreign creditors stems from the fact that a portion of the estates' domestic assets had already been financed, as they were either backed (directly or indirectly) by foreign collateral or backed by foreign revenue flows. Distributions of unfinanced ISK assets to foreign creditors would have had a negative impact on the balance of payments when the estates were settled.

After adjusting for the taxes that the estates paid at the end of 2015 – i.e., the bank tax and the special financial administration tax – this amount is reduced from nearly 390 b.kr. to about 360 b.kr. If adjustments are also made for the estates' operating expenses in Iceland, the amount of unfinanced domestic assets declines to 345 b.kr. Comparing this amount with the stability contributions in krónur, which totalled 379 b.kr., reveals that the stability conditions solved the balance of payments problem that settling the estates could have created, without any mitigating measures (see Chart 4).

The estates' stability contributions

In order to mitigate the negative effects of distributing the value of assets in Icelandic krónur, the estates paid a so-called stability contribution that was estimated at 379 b.kr. when the composition agreements were made but turned out higher, or about 394 b.kr., primarily because the end-2015 book value of Íslandsbanki and Arion Bank was higher than estimated. The stability contribution, a small part of which (just over 20 b.kr.) is in liquid assets, consisted largely of the Glitnir estate's 95% holding in Íslandsbanki hf., a bond backed by Kaupthing's 87% holding in Arion Bank, and a profit-sharing agreement contingent on the sale of Arion Bank. Table 2 shows how the stability contributions are broken down into liquid assets, transferred assets, contingent cash sweep assets that will be paid to the authorities as recoveries are made, and contributions due to the commercial banks. Because the estates transferred the assets to the authorities, the amount of the stability contribution could change with changes in the asset values. It is clear that the operating commercial banks were

Table 2 Stability contributions based on the estimated end-2015 position

B.kr.	*Glitnir*	*Kaupthing*	*LBI*	*Total*
Liquid assets	15	0	7	22
Other ISK assets	22	4	10	36
Contingent cash sweep assets	7	5	8	20
Íslandsbanki	188	0	0	188
Collateralised bond due to Arion Bank	0	84	0	84
Profit-sharing agreement due to sale of Arion Bank at book value	0	29	0	29
Foreign-denominated assets	0	14	0,5	15
Stability contribution in ISK	232	122	25	379
Total stability contribution	232	136	26	394

Sources: Financial information from Glitnir, Kaupthing, and LBI; Central Bank of Iceland.

the estates' most valuable ISK assets, and the transfer of the holding in Íslandsbanki carried the most weight in the combined stability contribution.

Other mitigating measures

Other mitigating measures undertaken by the estates can be seen in Table 3. For some time, the estates have held a portion of their liquid assets as deposits with the commercial banks. According to the stability conditions, the estates were required to convert domestic assets denominated in foreign currencies into long-term funding to the degree necessary. The estates therefore converted their foreign-denominated deposits with the operating commercial banks into long-term funding. This improved the domestic banks' foreign-denominated funding and better enabled them to provide financing for the investments of domestic exporters and other firms with foreign-denominated revenues. Developments in the commercial banks' funding, including the effects of settling the failed banks' estates, are discussed in Chapter IV.

The stability conditions also stipulated that the foreign-denominated credit facilities granted by the authorities when the new banks were established would be repaid. The facilities were paid back around the turn of the year, increasing the Central Bank's foreign exchange reserves by about 74 b.kr. Table 3 shows the amounts of the estates' mitigating measures. Because of the measures described above, the commercial banks' debts with a fixed repayment profile increased upon the approval of the composition agreements.

Table 3 Other mitigating measures

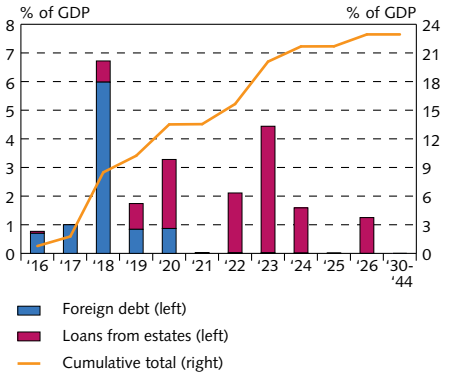
B.kr.	*Glitnir*	*Kaupthing*	*LBI*	*Samtals*
Deposits: lengthened and converted	35	42	0	77
Refinancing of banks' debt to State and Central Bank	20	54	0	74
Conversion rights on Landsbankinn bonds	0	0	125	125

Sources: Financial information from Glitnir, Kaupthing, and LBI; Central Bank of Iceland.

Chart 5

Contractual foreign-denominated debt service, domestic commercial banks and other credit institutions[1]

Instalments on foreign loans and foreign-denominated debt to the failed banks



1. Based on position at end-2015 and exchange rate of 24 February 2016, plus commercial banks' foreign issuance in Q1/2016.
Sources: Statistics Iceland; financial information from Glitnir, Kaupthing, and LBI; Central Bank of Iceland.

Underlying international investment position improves

Since 2008, the official calculation of Iceland's IIP has given a misleading impression of the actual position. When the old banks failed, the assets transferred to the estates were revalued, whereas the liabilities were entered at nominal value plus accrued interest in official accounts. It has been clear from the outset, however, that payments to creditors would be limited by the estates' assets and recoveries. Therefore, in recent years the Central Bank of Iceland has calculated the so-called underlying IIP, which accounts for the expected effects of the settlement of the estates and represents the true IIP. With the composition agreements, the estates' liabilities were written off with reference to their assets, and the officially calculated IIP thereby became the same as the underlying IIP. At the end of 2015, the IIP was negative by about 14.3% of GDP, whereas the calculated underlying IIP at the end

of Q3/2015 was negative by 35% of GDP. The IIP therefore improved markedly because of the estates' stability contributions. If the stability contributions had not been paid, the position would have been poorer by around 370 b.kr. (about 17% of GDP); i.e., non-residents' share of the stability contributions. Developments in the IIP are discussed in greater detail in Chapter II.

Comprehensive solution achieved with composition agreements

As is mentioned above, settling the estates through composition agreements, which fulfilled the stability conditions and were confirmed by the Central Bank, eliminated the potential negative effects of winding-up on Iceland's balance of payments. The composition agreements also avoided possible legal uncertainty and ensured that disputes about taxes on the estates will not result in capital outflows. They also reduced the uncertainty about the estates' low-value ISK assets in connection with their transfer to the authorities and assets that will revert to the authorities through the cash sweep provision. If the assets prove more valuable than is currently assumed, the stability contribution will rise commensurably. Therefore, the increase in value will not create a balance of payments problem in the future. In addition, Íslandsbanki was transferred to the State, thereby eliminating the uncertainty about the sale of the bank.

Appendix II

Macroprudential policy in the Nordic-Baltic region

This Appendix summarises the principal changes made in the past year in the application of macroprudential tools in the Nordic and Baltic countries.

Denmark

Since 1 October 2015, banks in Denmark have been required to satisfy liquidity coverage ratio (LCR) requirements. Danish banks classified as systemically important must maintain an LCR of at least 100% and other banks must maintain a 60% LCR, also effective 1 October 2015.[1] The ratio will rise in stages, in accordance with the capital requirements regulation (CRR), until it reaches 100% in 2018. As of 1 November 2015, the Danish Financial Supervisory Authority requires that, in general, homebuyers be required to make a minimum 5% down payment when purchasing a home.[2]

Finland

The board of the Finnish Financial Supervisory Authority, which is the financial stability authority in Finland, decided in December 2015 to maintain the countercyclical capital buffer at 0%.[3] This decision was taken in view of the fact that cyclical systemic risk had remained unchanged and a comprehensive appraisal of risk indicators did not suggest that risk was accumulating. The systemic importance of four financial institutions was confirmed in June 2015 and a capital buffer for systemic importance (O-SII) of 0.5-2% imposed on those institutions.[4] The tax deduction for residential mortgage interest payments has been reduced in annual stages since 2014. The permissible deduction is now 55% of interest payments. It will continue to decline by 10% per year.[5]

Norway

In Norway, the countercyclical capital buffer has been 1% since June 2015, and in the same month the Norwegian finance ministry decided

1. Bankpakke 6 (2014). Aftale mellem regeringen (Socialdemokraterne, Radikale Venstre og Socialistisk Folkeparti) og Venstre, Dansk Folkeparti, Liberal Alliance og Det Konservative Folkeparti om regulering af systemisk vigtige finansielle institutter (SIFI) samt krav til alle banker og realkreditinstitutter om mere og bedre kapital og højere likviditet. Retrieved 18 April 2016 from: https://www.evm.dk/aftaler-og-udspil/13-10-10-regulering-af-systemisk-vigtige-finansielle-institutter.
2. Finanstilsynet (2014). More robust property financing. Retrieved 23 March 2016, from: https://www.finanstilsynet.dk/~/media/Nyhedscenter/2014/Memo.ashx.
3. Finanssivalvonta (2015). Macroprudential decision: FIN-FSA will not impose a countercyclical capital buffer requirement on banks, but will begin preparations for setting higher risk weights on housing loans. Retrieved 4 March 2016, from: http://www.finanssivalvonta.fi/en/Publications/Press_releases/Pages/21_2015.aspx.
4. Finanssivalvonta (2015). Macroprudential decision: Systemically important banks in Finland designated and additional capital requirements imposed on them. Retrieved 5 March 2016, from: http://www.finanssivalvonta.fi/en/Publications/Press_releases/Pages/12_2015.aspx.
5. Vero skatt (2016). Tax credit on home loan interest. Retrieved 5 March 2016 from: https://www.vero.fi/en-US/Individuals/Buying_a_home/Tax_credit_on_interest_payments.

Table 1 Capital buffer utilisation

	Capital buffer	*Value*	*Effective date*
Denmark	Countercyclical capital buffer	0%	1.1.2016
	Systemic risk buffer[1, 2]	1-3%	1.1.2015
Estonia	Countercyclical capital buffer	0%	1.1.2016
	Systemic risk buffer	2%	1.8.2014
Finland	Countercyclical capital buffer	0%	1.1.2016
	O-SII[3]	0.5-2%	7.1.2016
Latvia	Countercyclical capital buffer	0%	1.2.2016
Lithuania	Countercyclical capital buffer	0%	30.9.2015
	O-SII	0.5-2%	31.12.2016
Norway	Countercyclical capital buffer	1%	1.7.2015
	Countercyclical capital buffer	2%	1.7.2016
	Systemic risk buffer	3%	1.7.2014
	O-SII	1%	1.7.2015
	O-SII	2%	1.7.2016
Sweden	Countercyclical capital buffer	1%	13.9.2015
	Countercyclical capital buffer	1.5%	1.6.2016
	Systemic risk buffer[2]	3%	1.1.2015
	O-SII	2%	1.1.2016

1. The systemic risk buffer is only imposed on systemically important financial institutions in Denmark; it is introduced in increments and will take full effect in 2019. 2. The systemic risk buffer is used as a substitute for the O-SII buffer in Denmark and Sweden and is therefore imposed only on systemically important banks in those countries. 3. O-SII is a capital buffer imposed on other systemically important institutions.

that it would be raised to 1.5% on 1 July 2016. [6] A 1% O-SII buffer has been in effect since 1 July 2015. It will rise to 2% on 1 July 2016.[7] A regulation setting forth requirements for mortgage loans was implemented in June 2015.[8] It sets the maximum loan-to-value (LTV) ratio for residential mortgages at 85% and requires that annual payments of principal on new mortgages equal at least 2.5% if the LTV ratio is over 70%. This regulation will expire at the end of 2016 unless the authorities consider it necessary to maintain it.

Sweden

A 1% countercyclical capital buffer took effect in Sweden in September 2015. In June 2015, Finansinspektionen (the Swedish financial supervisory authority) decided to increase it to 1.5%, effective June 2016. The decision was based in part on increased credit growth, rising house prices, and risks related to the fact that rules on payments of residential mortgage principal have not yet taken effect.[9] The regulation on payments of mortgage principal is expected to take effect in 2016. [10, 11] The provisions of the regulation assume that payments of principal will be at least 2% per year if the LTV ratio is over 70% and at least 1% if the LTV ratio is over 50%.

Estonia

In December 2015, Eesti Pank (the Estonian central bank) classified two financial institutions as systemically important. The capital requirements for systemically important entities will be decided in the first half of 2016.[12] Furthermore, Eesti Pank set the countercyclical capital buffer at 0%. Credit growth in Estonia is considered to be within normal limits, and forecasts do not indicate excessive growth in the near future.[13]

Table 2 Prudential rules on mortgage lending

	Type of requirement	*Value*	*Effective date*
Denmark	LTV[1]	95%	1.11.2015
Estonia	LTV	0.85	1.3.2015
	DSTI[2]	0.5	-
	Length of loan	30 yr	-
Finland	LTV	90-95%	1.7.2016
Latvia	LTV	0.9	July 2007
Lithuania	LTV	85%	1.9.2011
	DSTI	40%	1.11.2015
	Length of loan	30 yr	-
Norway	LTV	85%	1.12.2011
Sweden	LTV	85%	13.9.2015

1. Loan-to-value ratio.
2. Debt service-to-income ratio.

6. Ministry of Finance (2015). Countercyclical buffer unchanged. Retrieved 5 March 2016, from: https://www.regjeringen.no/en/aktuelt/countercyclical-buffer-unchanged3/id2467949/
7. Ministry of Finance (2015). Decision on systemically important financial institutions. Retrieved 7 March 2016 from: https://www.regjeringen.no/en/aktuelt/decision-on-systemically-important-financial-institutions/id2424671/
8. Ministry of Finance (2015). Regulation on requirements for residential mortgage loans. Retrieved 7 March 2016 from: https://www.regjeringen.no/en/aktuelt/regulation-on-requirements-for-residential-mortgage-loans/id2417372/
9. Finansinspektionen (2015). Decision regarding the countercyclical buffer rate. Retrieved 5 March 2016, from: http://www.esrb.europa.eu/pub/pdf/other/150809_ESRB_notification_Sweden.pdf?e2f1d06b6980c032f6e60bec3dabebe5
10. Finansinspektionen (2015). New proposal for an amortization requirement. Retrieved 5 March 2016, from: http://www.fi.se/Folder-EN/Startpage/Press/Press-releases/Listan/New-proposal-for-an-amortization-requirement/
11. Such rules were to be adopted in 2015 but were postponed because of uncertainty about the Swedish financial supervisor's statutory authority to set such rules. A bill of legislation amending banking legislation has been presented before the Swedish parliament, and it is expected to pass and enter into force in 2016, with adoption of the rules to follow shortly thereafter. See: Finansinspektionen (2016). Proposal for new rules regarding mortgage amortisation requirements. Consultation Memorandum. Retrieved 22 March 2016, from: http://www.fi.se/upload/90_English/80_Press_office/2015/amorteringskrav-remisspm2-151218-en.pdf
12. Eesti Pank (2015). Identifying the systemically important credit institutions in Estonia. Retrieved 5 March 2016, from: https://www.eestipank.ee/en/financial-stability/systemically-important-credit-institutions
13. Eesti Pank (2015). The countercyclical capital buffer rate – Eesti Pank's assessment of the countercyclical capital buffer rate (Q1 2016). Retrieved 5 March 2016, from: https://www.eestipank.ee/en/financial-stability/countercyclical-capital-buffer

Latvia

At the end of 2015, Latvia's Financial and Capital Market Commission (FCMC) classified six financial institutions as systemically important.[14] The capital buffer for systemically important institutions has not yet been determined. A countercyclical capital buffer set at 0% took effect on 1 February 2016. It is not expected to increase this year.[15]

Lithuania

The Bank of Lithuania set a 0% countercyclical capital buffer in June 2015.[16] The bank's assessment was that credit growth was normal and that developments in the markets were sustainable.[17] The bank has also classified four financial institutions as systemically important; therefore, they must maintain an O-SII buffer of 0.5-2%, effective 31 December 2016.[18] Furthermore, the bank has tightened prudential rules on mortgage lending. The maximum residential mortgage length has been shortened from 40 years to 30, and the debt service-to-income (DSTI) ratio may not exceed 50% (previously 40%), assuming an interest rate of 5% in calculating the ratio.[19]

14. Finanšu un kapitāla tirgus komisija (2015). Other systemically significant institutions. Retrieved 5 March 2016, from:http://www.fktk.lv/en/publications/macroprudential-supervision/other-systemically-significant-institutions/5490-other-systemically-significant-institutions.html.
15. Finanšu un kapitāla tirgus komisija (2015). Countercyclical capital buffer. Retrieved 5 March 2016, from: http://www.fktk.lv/en/publications/macroprudential-supervision/countercyclical-capital-buffer.html.
16. Lietuvos Bankas (2015). Countercyclical Capital Buffer. Retrieved 5 March 2016, from: http://www.lb.lt/countercyclical_capital_buffer.
17. Lietuvos Bankas (2015). Countercyclical Capital Buffer Background material for decision. Retrieved 5 March 2016, from: http://www.lb.lt/n25658/akr_pagrindimo_pazyma_2015-4_en.pdf.
18. Lietuvos Bankas (2015). Regarding notification on Article 131(7) of the Directive 2013/36/EU. Retrieved 5 March 2016, from: http://www.esrb.europa.eu/pub/pdf/other/151225_Notification_bank_of_lithuania.pdf?448d4d6fc5c99f34b751eb3abd20d129.
19. Lietuvos Bankas (2015). Responsible Lending Regulations: strengthening the resilience of borrowers to adverse interest changes.

Appendix III

Financial system assets - Tables

Table 1 Financial system assets[1]

Assets, b.kr	*31.12.2011*	*31.12.2012*	*31.12.2013*	*31.12.2014*	*31.12.2015*	*Change from 31.12.2014*
Banking system[2]	4,378	3,809	3,788	3,758	3,783	25
thereof Central bank of Iceland	1,464	900	760	761	597	-163
thereof commercial banks	2,852	2,850	2,968	2,939	3,164	225
thereof savings banks and others[3]	62	59	60	59	22	-37
Other credit institutions	1,097	1,076	1,067	1,030	979	-51
thereof Housing Financing Fund	864	876	863	824	799	-25
Pension funds	2,169	2,437	2,696	2,935	3,277	341
Insurance companies	145	155	165	169	171	2
Mutual funds, investment and institutional funds	371	410	452	488	599	111
State loan funds	171	192	209	226	210	-16
Total assets	8,332	8,079	8,378	8,605	9,018	413

1. Values for the Banking system and for mutual funds and investment and institutional funds have changed from previous publications. This can be attributed to AMI, a fund of Arion Bank, which is now under the parent company but was previously classified as a fund. 2. The banking system consists of commercial banks, saving banks, and the Central Bank of Iceland. Internal trades between the Central Bank of Iceland and other parties are excluded. 3. Others are deposit divisions of cooperative societies and Postgiro (total assets 2.4 b.kr. as of 31 Dec 2015).

Source: Central Bank of Iceland.

Table 2 Pension funds' assets

Assets, b.kr	*31.12.2014*	*31.12.2015*	*Change from 31.12.2014*
Bonds	1,583	1,688	105
Marketable bonds	1,303	1,400	97
Other bonds	280	288	8
Equity securities	472	647	175
Deposits in banks and savings banks	130	153	22
Unit shares	684	726	42
Enterprise Investment Fund[1]	41	41	-1
Other assets	25	22	-3
Total assets	2,935	3,277	341

1. The Enterprise Investment Fund (EIF) was established at the end of 2009 by 16 pension funds that control about 64% of total pension fund assets in Iceland. Since then, Landsbankinn and VÍS have joined the group of owners. The EIF's role is to promote the reconstruction of the Icelandic economy in the wake of the financial crisis.

Source: Central Bank of Iceland.

Table 3 Insurance companies' assets

Assets, b.kr	*31.12.2014*	*31.12.2015*	*Change from 31.12.2014*
Cash and bank deposits	7.4	6.6	-0.8
Claims on credit institutions	1.3	2.5	1.2
Loans	2.7	1.4	-1.3
Fixed-income securities[1]	75.1	70.3	-4.8
Variable-income securities[2]	32.8	39.0	6.2
Reinsurers' portion of technical provisions	3.4	3.6	0.2
Investments in connection with life insurance where policy holder bears the investment risk	5.3	5.6	0.3
Other assets	40.7	41.6	1.0
Total assets	168.6	170.5	2.0

1. Indexed, exchange rate-linked, and nominal marketable bonds, plus marketable bills 2. Equities and unit shares.

Source: Central Bank of Iceland.

Appendix IV

Financial core indicators for the three largest commercial banks

FSI core indicators for the three largest commercial banks (FSI)[1]

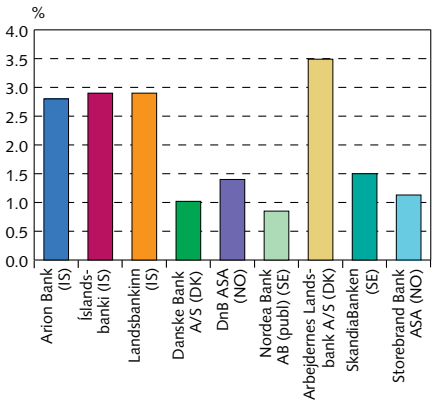
	2012		2013		2014		2015	
%	Q2	Q4	Q2	Q4	Q2	Q4	Q2	Q4
Regulatory capital to risk-weighted assets[2]	23.1	25.0	25.9	26.2	27.2	28.5	26.6	28.2
Regulatory Tier 1 capital to risk-weighted assets[2]	20.9	22.6	23.6	24.0	25.0	26.2	25.4	27.6
Return on assets[2]	2.5	2.4	2.3	2.2	3.2	2.7	2.8	3.4
Return on equity[2]	15.5	13.8	13.0	12.1	17.5	14.1	14.8	17.2
Interest margin to gross income[2]	50.3	48.8	41.7	45.2	46.5	45.8	48.8	46.8
Non interest expenses to gross income[2]	79.0	79.9	77.3	77.5	66.4	70.0	66.5	68.8
Liquid assets to total assets[3]					24.3	21.2	22.0	22.8
Net open position in foreign exchange to capital[3]	18.2	7.7	3.6	6.3	4.6	6.1	3.7	2.2

1. The Central Bank intends to publish core indicators of financial stability in collaboration with the IMF. All definitions used by the Central Bank accord with IMF definitions or have been approved by the IMF. These are still provisional figures, which could change, and comprise only part of the indicators. 2. Consolidation, operating expenses, and net operating income calculated in accordance with definitions of the European Banking Authority (EBA). 3. Parent company. Definitions differ from those in the Central Bank's rules.
Sources: Financial Supervisory Authority, Central Bank of Iceland.

Appendix V

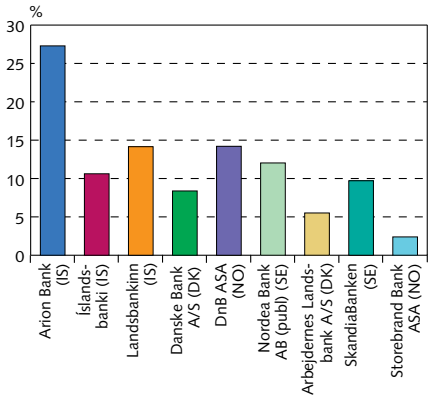
Nordic comparison

Chart 1
Net interest margin 2015



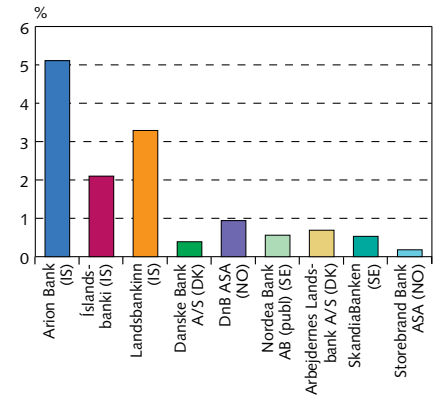
Sources: Bankscope, commercial banks' annual accounts, Central Bank of Iceland.

Chart 2
Return on equity 2015



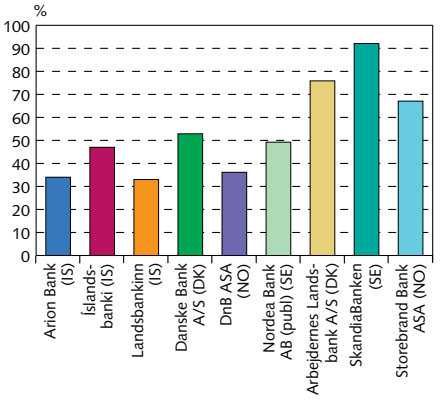
Source: Bankscope.

Chart 3
Return on total assets 2015



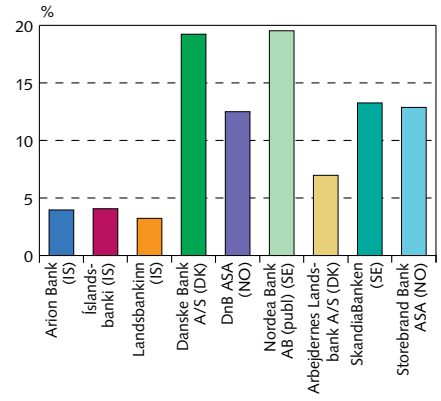
Source: Bankscope.

Chart 4
Cost-to-income 2015



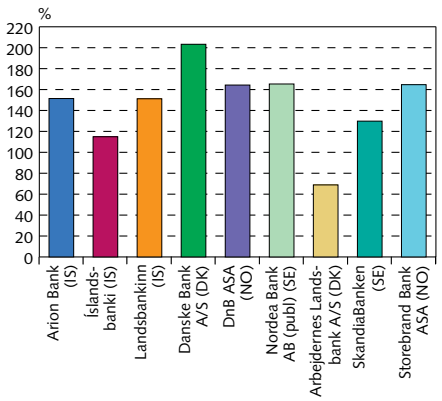
Sources: Bankscope, commercial banks' annual accounts, Central Bank of Iceland.

Chart 5
Leverage 2015
Debt as proportion of equity



Source: Bankscope.

Chart 6
Loans/customer deposits 2015



Source: Bankscope.