



# FINANCIAL STABILITY

2015 • 2

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

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

- To promote informed dialogue on financial stability, i.e. its strengths and 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.

## Turning point ahead for financial institutions

By the end of 2015, the economic recovery will have been underway for five years. Over that period, most economic indicators and premises for financial stability have changed for the better. Public, private, and financial sector balance sheets have gradually normalised and are still growing stronger and more streamlined. Last year represented a rare situation in Iceland's economic history, one featuring internal and external balance simultaneously: low inflation, a virtually non-existent output gap, and a modest current account surplus. Financial institutions generated profits under these conditions; their liquidity was ample, and their capital ratios rose.

Conditions have improved still further this year; however, already discernible are the first signs of an incipient output gap, which could cause economic instability and risk in the financial system further ahead. Of particular concern are developments in the labour market, rising real estate prices, and early indications of increased inflows of foreign capital. Risk has not yet become excessive, however, and there is still ample scope to respond to the situation that could be developing. In addition, the financial institutions' strong capital position should render them highly resilient under strain. At the end of June, the capital ratio of the three large commercial banks combined was 26.6% of their risk-weighted assets.

The risk that is most important to address at this stage is not related to these factors, however. A large share of non-residents' claims against residents are potentially volatile short-term claims but have been locked in by the capital controls since November 2008. These legacy problems are still in the process of being solved. Measures have been designed to address them, including composition agreements for the failed banks' estates and an auction for owners of offshore krónur, which will offer offshore ISK holders the opportunity to choose between tying up their krónur assets for a long period or exiting the króna via the auctions. If these measures prove successful, capital controls could be lifted soon thereafter without undue risk.

These measures will pose a challenge to currently operating financial institutions, particularly their liquidity position. In general, however, given their strong capital position, they should be well positioned to face that challenge and then emerge from the protective environment of the capital controls.

The above-mentioned measures, the liberalisation of the controls, and the early signs of growing tension in the economy mark a clear break in the financial institutions' operating environment. Once the safety net provided by the capital controls has been removed, it is essential that the financial institutions safeguard the resilience they have developed in recent years. They must also prepare themselves to operate within a domestic and international regulatory framework more stringent than that existing before the financial crisis. For instance, capital requirements will be much stricter than before, including capital buffers to address systemic risk, risk due to systemically important financial institutions, as well as countercyclical buffers, as is provided for in the international regulatory framework. The capital buffers have been discussed at meetings of the Systemic Risk Committee and Financial Stability Council, and decisions on the buffers will be published in the near future.

In this light, and in view of the imbalances that could develop once again in the domestic economy in coming years, it is vital that financial institutions remain vigilant. In recent years, their profits have been driven largely by larger-than-expected recoveries in the wake of the financial crisis. Further significant improvements from that direction are not expected, however. To a greater extent than before, strong core operations will have to

be the foundation for the solid operating results that safeguard resilience. Core operations have been improving, and opportunities for streamlining remain. If efforts in this direction are successful, the next economic downturn will be less harmful to households, businesses, and the general economy than the previous one.



## Current account surplus is growing, and households' financial position continues to improve ...

External conditions have been favourable so far this year. In H1/2015, the underlying current account surplus was about 3.8% of GDP, considerably more than in the first half of 2014, and was driven mainly by tourism-related trade. This trade has generated strong foreign currency inflows. The Central Bank bought foreign currency for slightly more than 196 b.kr. over the first nine months of the year; nevertheless, the króna has appreciated by some 7.3%. In the wake of Iceland's sovereign rating upgrade, foreign investors have exhibited growing interest in Iceland; for instance, net new investment by non-residents totalled nearly 34 b.kr. in the three months of this summer, as compared with 7.3 b.kr. in 2014 as a whole. The majority of this new investment has been concentrated in long-term Treasury bonds.

Foreign financial markets have been extremely turbulent following the collapse of share prices in China. The outlook is for GDP growth in Iceland to remain stronger than in most trading partner countries. In the Bank's most recent forecast, GDP growth is projected at 4.2% for 2015 as a whole. The slack in the domestic economy has disappeared, and the outlook is for a widening positive output gap in the coming term. Turnover in the real estate market has increased markedly, and in August, real house prices in the capital area were up 5.8% year-on-year. Household debt declined by 4.6% in real terms between years and by 1.5% after adjusting for the Government's debt relief measures, and real wages rose 5.3% year-on-year; therefore, on the whole, households' position continues to improve. Firms' position is also strengthening: their debt position has improved for seven years in a row, terms of trade have improved, and the boom in tourism has had a positive impact on domestic retail trade and services.

### ... and the banks' core operations are growing stronger

The large commercial banks' operations were successful in the first half of 2015. Their core operations strengthened somewhat between periods, and net interest and commission income was up by 7.5% year-on-year, or nearly 6% in real terms. Irregular items still weigh heavily, although the share of irregular items in profits was somewhat smaller than at the same time in 2014, or 52% as opposed to 63%.

Private sector default and insolvency have declined. At the end of June, 2.1% of the three largest commercial banks' loans were 90 days or more in arrears, a reduction of just over a percentage point year-on-year.

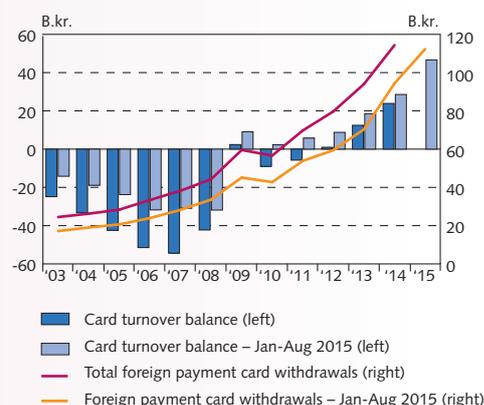
The banks' liquidity ratios have been strong, and their access to funding has improved. Their foreign bond issues have grown steadily, and borrowing terms are improving. With improved credit ratings, they should gain even greater access to foreign credit.

Their capital base as a share of their risk-weighted assets declined by nearly 2 percentage points in the first half of the year,

## Financial system: outlook and key risks

Chart 1

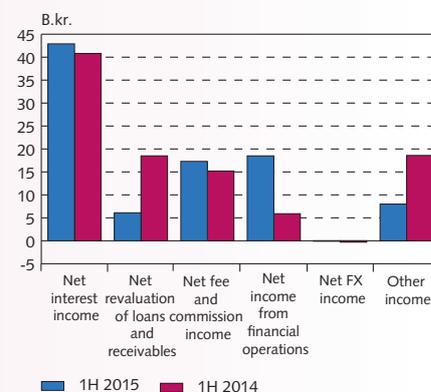
Total foreign payment card withdrawals in Iceland and card turnover balance<sup>1</sup>  
At August 2015 prices



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 2

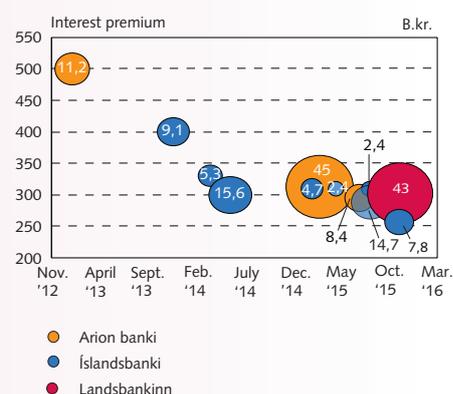
The three largest commercial banks' income<sup>1</sup>



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

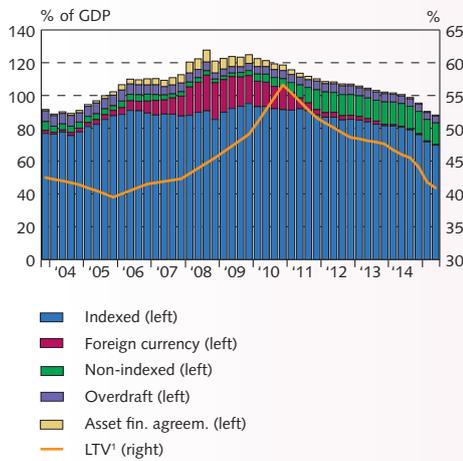
Chart 3

Foreign issues of commercial banks from 2008



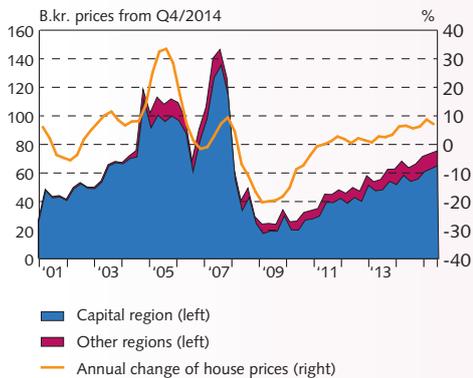
Source: Nasdaq OMX Iceland.

Chart 4  
Household debt as % of GDP  
Q4/2003 - Q2/2015



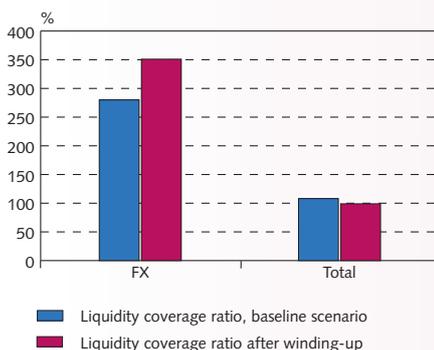
1. Household mortgage debt as % of households' total real estate assets.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 5  
Housing market turnover and real house prices<sup>1</sup>



1. Price per m<sup>2</sup> at constant prices.  
Source: Registers Iceland, Central Bank of Iceland.

Chart 6  
Impact of settlement of failed banks' estates  
on the new banks' liquidity coverage ratio<sup>1</sup>  
According to creditors proposals in June



1. As of July 2015.  
Source: Central Bank of Iceland.

to 26.6% in June, as they paid out 45 b.kr. in dividends during the period.

During the spring, stress tests were conducted on the large commercial banks. The stress tests are used in risk assessment, and they provide indications of the banks' sensitivity to adverse developments or shocks. This year's stress test provided for scenarios based on two sets of assumptions scenarios: on the one hand, strong capital outflows involving about a third of the large commercial banks' deposits, and on the other, a contraction in the economy. The shock caused by the outflows was severe, while the contraction in the economy was of medium severity. The results show a deviation in both capital and liquidity ratios, but on the whole, the banks are relatively well prepared to face shocks of this kind.

### Imbalances could develop over time ...

Real house prices in the greater Reykjavík area have risen steadily since mid-2011. The annual real price rise has measured more than 5% in the past year and a half. Collateral capacity has increased markedly at the same time, owing to rising house prices, which could stimulate credit growth. In 2014, the commercial banks' net increase in lending was roughly equal to the contraction in other domestic credit institutions' and pension funds' credit stock, particularly due to the Housing Financing Fund. After adjusting for the decline in mortgage loans due to measures to reduce mortgage principal, the increase in commercial bank lending in H1/2015 was considerably larger than the contraction in other credit institutions' loan stock. Rapid credit growth could exacerbate risk, with the associated negative impact on the financial system.

Strong inflows of foreign capital could cause imbalances later on; therefore, it is important to keep abreast of developments in the coming term and assess whether the inflows stem from volatile capital that could have an excessively strong impact on asset prices.

### ... and large steps towards capital account liberalisation lie ahead

Other things being equal the settling of the failed banks' estates will put pressure on the króna. Negative impact on the balance of payment would amount to 24% of GDP, in addition to the potential impact from outflows of offshore krónur in an amount ranging up to 14% of GDP. By law, however, the failed banks' estates must pay a stability tax if they have not concluded composition agreements that fulfil stability conditions by year-end 2015. Creditors have now presented proposals for an action plan and the payment of the stability contribution. A review of the proposals and an assessment of whether each of them fulfils the stability conditions is currently underway. It is clear, however, that the negative impact on the exchange rate and the foreign exchange reserves, will be eliminated.

The payment of the stability contribution will affect the money supply, other things being equal, and it is important to allocate the funds so as to safeguard stability.

In recent years, the Central Bank has updated its rules on liquidity and adopted new rules on funding. The rules address strong outflows in a short period of time. The banks are therefore well prepared for the next steps in capital account liberalisation, which will entail, among other things, withdrawals of the estates' króna-denominated deposits. It is also assumed that there will be some outflows of offshore krónur in connection with the planned currency auction. These outflows, however, will reduce the banks' liquidity which will still remain above regulatory requirements.

From their establishment, the new Icelandic banks have operated in an environment protected by the capital controls. Challenges lie ahead as the banks prepare themselves to adapt to a more open environment, but they appear relatively well prepared to face them.



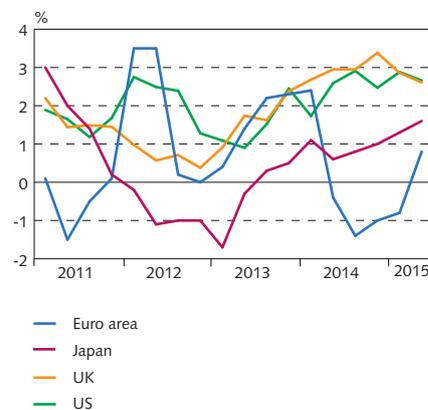
# I Financial stability

## The economic environment

### The global economy

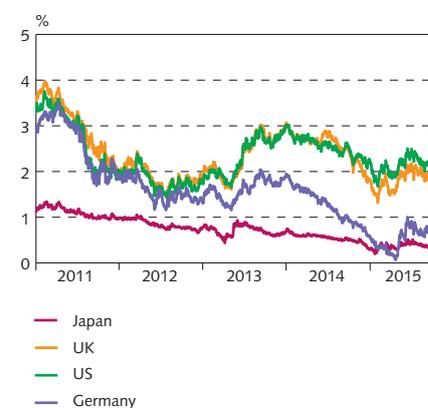
- The second quarter saw output growth figures of 2.6% in the UK and 2.7% in the US, slightly less than in the same quarter of 2014. The euro area appears to have recovered relatively strongly, with output growth measuring 1.6% in Q2, and Japan recorded growth of 0.8% after a continuous year-long contraction (Chart I-1).
- The International Monetary Fund (IMF) revised its GDP growth forecasts upwards this summer and now expects a global average of 3%, slightly less than in its previous forecast. If this forecast materialises, 2015 GDP growth will be just below last year's level. The outlook is still expected to improve in developed countries, although it has deteriorated in developing and emerging countries. In the long run, financial market conditions, fiscal relaxation in the euro area, low fuel prices, and an improving labour market will support GDP growth. The IMF now projects global GDP growth at just over 3½% in 2016.
- Oil prices rose somewhat in Q2 and then declined in Q3, falling below its year-to-date low in August. Growth prospects have therefore improved in countries that rely on oil imports, but by the same token, oil exporters suffer.
- Major currency exchange rates have fluctuated widely, due both to oil prices and to divergent GDP growth prospects. Leading central banks' policy rates are very low and have been so for quite some time. Earlier this year, interest rates were negative in many markets, even on medium-term bonds. Nominal and real interest rates on long-term government bonds are still very low in historical context in many markets (Chart I-2). They have tended to rise, however, in the US, the UK, and Germany.
- Divergent economic and inflation expectations in the US and the eurozone early this year, and thus expectations concerning interest rates, prompted the US dollar to appreciate and the euro to depreciate as capital flowed from Europe to the US. Major emerging countries' exchange rates have also developed in differing ways. In the recent term, for instance, the ruble, the lira, and the rand have depreciated, while the rupee and the renminbi have appreciated (Chart I-3). China took action in late summer, however, devaluing the renminbi repeatedly in August so as to improve the country's competitive position following a contraction in exports during the first half of the year.
- The Chicago Board Options Exchange's VIX implied volatility index gives an indication of market expectations concerning fluctuations

Chart I-1  
GDP growth in selected countries<sup>1</sup>



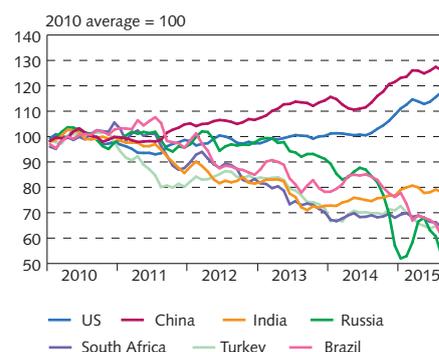
1. Change from same quarter of the previous year.  
Source: Macrobond.

Chart I-2  
Yields on 10-year government bonds



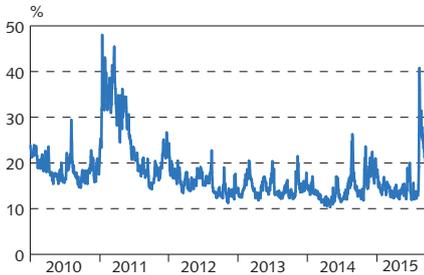
Source: Macrobond.

Chart I-3  
Currency exchange rates<sup>1</sup>



1. BIS nominal indices.  
Source: Macrobond.

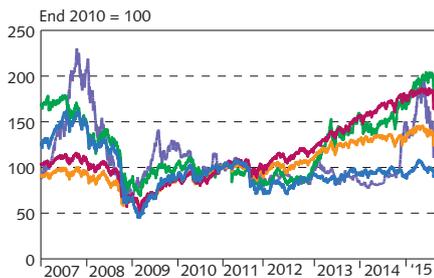
Chart I-4  
VIX implied volatility index  
Implied volatility of S&P 500 index options



Source: Federal Reserve Bank of St. Louis.

in share prices and is a rough measure of expected annualised movements in the S&P 500 index over the next thirty days (Chart I-4). The index moved very little during the Greek debt crisis this summer; however, it rose rapidly when share prices collapsed in Shanghai in late August, strongly affecting share prices around the world (Chart I-4). By mid-September, the Shanghai share price index had risen somewhat from its 25 August trough, which was some 44% below the peak reached two months earlier. It was nonetheless up about 24% from the previous year. Even though share prices surged over a short period in China, the rise there, at the peak this summer, was smaller than has been seen in the US and Japan over the past three years (Chart I-5).

Chart I-5  
Share price indices



— STOXX  
— S&P 500  
— FTSE 350  
— Nikkei 225  
— Shanghai 50

Source: Macrobond.

**The domestic economy**

- The slack in the domestic economy appears to have disappeared, and the outlook is for a growing output gap in the coming term. In response to the increased risk of overheating, in part due to wage settlements, the Central Bank's Monetary Policy Committee (MPC) decided to raise interest rates twice this summer. The Bank's key rate is now a percentage point higher than it was when *Financial Stability* was published this spring. Domestic demand is expected to grow in the near future. According to preliminary figures from Statistics Iceland, GDP growth measured 5.6% in Q2 and 5.2% in the first half of the year, and growth is expected to remain stronger in Iceland than in its main trading partners. The Central Bank's most recent forecast projects GDP growth at 4.2% in 2015 and 3% in 2016.
- The prospect that Iceland's economy will be stronger than that of most trading partners creates opportunities that can be used to improve Iceland's position. Government debt continues to decline, and foreign debt principal has been reduced. Treasury debt amounted to 67% of GDP in mid-2015, down from 75% of GDP at year-end 2014 (Chart I-6).

Chart I-6  
Treasury debt



Source: Statistics Iceland.

**Yields on Treasury foreign issuance**

- Iceland's sovereign credit rating was upgraded by all three major rating agencies this summer. Standard & Poor's upgraded the rating for foreign currency obligations to BBB in July, after having left it unchanged at BBB- since November 2008. Moody's upgraded the sovereign to Baa2 in June, the first change since the Baa3 rating assigned in November 2009. Fitch also upgraded Iceland's rating, to BBB+ from BBB. The outlook on all of the ratings is stable.
- The spread between the yields on the Icelandic Treasury's US dollar bonds issued in May 2012 and comparable bonds issued by the US Treasury has narrowed significantly from the date of issue. It has fluctuated in the range of 1.4 to 1.8 percentage points in the past six months. In September it was about 1.6 points, the same as it had measured six months earlier. Lithuania issued US

dollar bonds with a similar maturity date, and the interest rate spread between those bonds and US Treasury bonds rose from 0.9 percentage points in early March to 1.2 percentage points in September. In July 2014, the Icelandic Treasury issued a eurobond that matures in 2022. Latvia has issued a bond maturing around the same time (2021), and the yield has developed similarly to the yield on the Icelandic bonds. In both cases, the spread between these bonds and German Treasury bonds maturing in 2022 has narrowed, albeit slightly more for the Latvian bond. Latvia adopted the euro at the beginning of 2014 (Chart I-7).

## Domestic markets

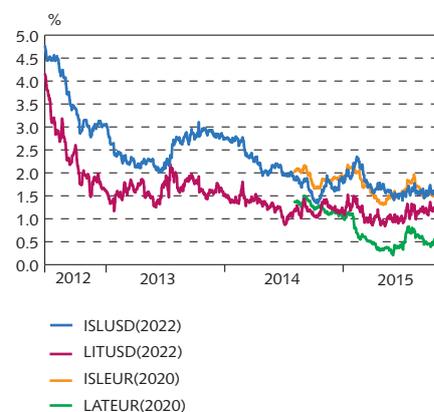
### Real estate market

- In August, house prices in the capital area were up 8.1% year-on-year in nominal terms and 5.8% in real terms. Real estate market turnover has grown steadily. In Q1/2015, it was about 75 b.kr., about three times the Q1/2010 total in real terms, and roughly equal to the level seen in Q3/2004, when the upswing in the real estate market had begun (Chart I-8).
- Purchase contract registrations were suspended for several weeks in Q2, making it difficult to assess developments in the market, but turnover appears to be still on the rise. It can be expected that increased collateral capacity owing to the transfer of capital to mortgage loans in the recent past will support business in the market in the coming term.
- Furthermore, immigration appears to be on the rise, which could have a significant effect on real estate market prices.

### Bond market

- Over the first 9 months of the year, bond market turnover totalled 1,440 b.kr., some 26% more than over the same period in 2014.
- Treasury bond yields rose in Q2, after wage settlements triggered expectations of an inflation spurt later in the year. Yields on nominal Treasury bonds rose somewhat, while indexed yields fell. In the last few weeks, yields on nominal Treasury bonds have fallen slightly once again, with the decline concentrated in long-term bonds (Chart I-9). The Treasury bond yield curve is now slightly downward-sloping for longer maturities. The last time this happened was during the run-up to the 2008 collapse. Buying pressure in the bond market now appears to be limited to longer bonds. Owners of offshore krónur have held large amounts of short-term Treasury bonds, but their authorisation to reinvest in Treasury bonds was revoked in March. They are authorised to reinvest in Treasury bills, however, and their Treasury bill holdings had risen from zero to about 42% of the outstanding stock by the end of August.

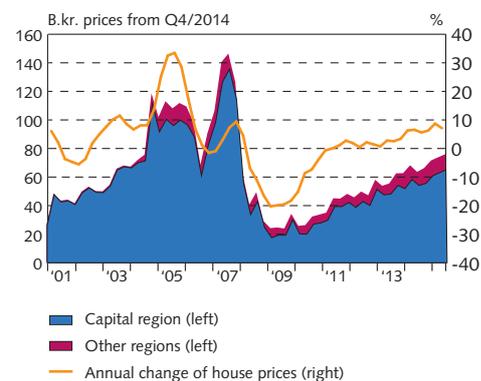
Chart I-7  
Spreads on government bonds<sup>1</sup>



1. Difference between the 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.

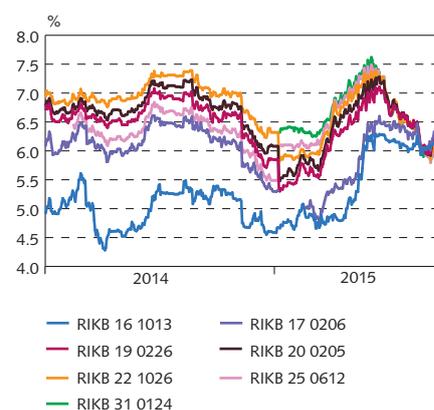
Source: Bloomberg, Central Bank of Iceland.

Chart I-8  
Housing market turnover and real house prices<sup>1</sup>



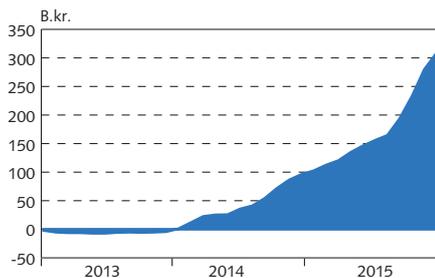
1. Price per m<sup>2</sup> at constant prices.  
Source: Registers Iceland, Central Bank of Iceland.

Chart I-9  
Yields on nominal Treasury bonds



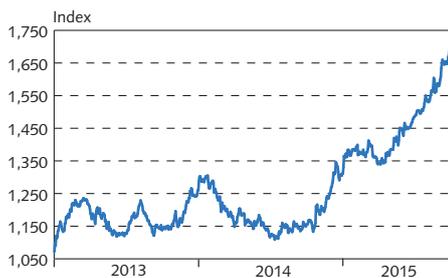
Source: Central Bank of Iceland.

Chart I-10  
Accumulated Central Bank intervention in the FX market from Jan. 2013 - 30 Sep. 2015



Source: Central Bank of Iceland.

Chart I-11  
OMX18 share price index<sup>1</sup>  
1 January 2013 - 30 September 2015



— OMX18

1. Daily data.  
Source: Nasdaq Iceland.

- Non-residents stepped up their Treasury bond holdings in Q3, and by end-August they owned 22% of the stock of outstanding bonds. Returns on Icelandic Treasury bonds are relatively high in international context. These developments may also be due in part to the upgrades of Iceland's sovereign credit ratings following the announcement of capital account liberalisation measures in June.

### Foreign exchange market

- In the first three quarters of 2015, the Bank bought currency equivalent to 196.2 b.kr., as opposed to 86.3 b.kr. over the same period in 2014. In addition to its regular weekly purchases of 6 million euros from market makers, the Bank intervenes in the market in order to mitigate short-term exchange rate volatility and takes advantage of the opportunity to expand its foreign exchange reserves (chart I-10).
- Market turnover totalled 364.5 b.kr. during the first three quarters, as opposed to just under 200 b.kr. during the same period in 2014. The Bank's share of total turnover year-to-date is 54%, as compared with 43% over the same period last year.
- The Bank bought most in August, 46.8 b.kr., the largest amount it has ever purchased in a single month. In spite of the Bank's activity, the króna has appreciated so far this year, although the Bank's purchases have contained the rise. The trade-weighted index had fallen by 7.6% from the beginning of year through September. The króna appreciated by 8.1% against the euro but depreciated by 0.4% against the US dollar during the same period. Wide swings in foreign markets have caused exchange rates against the króna to diverge greatly from one currency to another.

### The equity market

- During the first nine months of the year, turnover in the Icelandic equity market totalled 264.0 b.kr., up from 184.2 b.kr. over the same period in 2014. September was the single busiest month, with turnover totalling 38.6 b.kr. Two new companies were listed on the stock exchange in rapid succession: the real estate firms Eik and Reitir. At the end of Q3, the OMX18 stood at 1,680 points, an increase of 28.2% since the beginning of the year, as compared with a 8.6% decline over the same period in 2014. The OMX18GI, which measures the weighted average yield of listed companies on the OMXIPI taking dividends into account, rose 33.2% in the first nine months of the year and stood at 1,834 points at the end of September.
- The market capitalisation of companies on the Main Market and Nasdaq First North in Iceland was 936 b.kr. at the end of September 2015, an increase of 35% from the year-end 2014 total of 692 b.kr.
- Share price indices in the Nordic countries rose by varying amounts in the first nine months of the year. Iceland's OMX18

index (Chart I-11) rose most followed by the Danish OMXC20 index (23.9%). Sweden's OMXS30 and Finland's OMXH25 have stood virtually still this year. The 9.8% increase in the OMXI8 was the only rise in the Nordic region this summer (June-August).

## External position

### Underlying current account balance positive

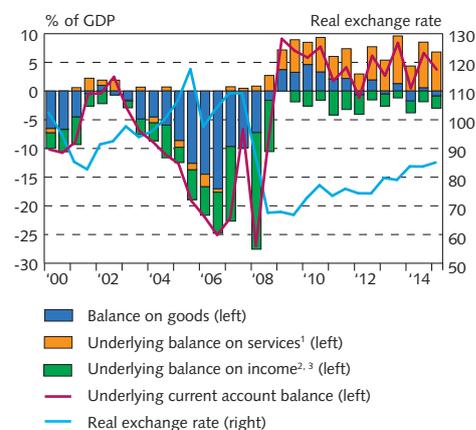
- In the first half of 2015, the underlying current account balance was positive by 40 b.kr., or 3.8% of GDP for the period. In comparison, the surplus was 0.6% of GDP over the same period in 2014.<sup>1</sup> The underlying current account balance has been positive by an average of 4.4% over the last five years, in spite of a worsening goods trade balance.
- As in the past three years, goods trade showed a deficit in the first half of 2015. The balance on goods was negative by nearly 9 b.kr., and the underlying income balance made a negative contribution to the current account balance in the amount of 23 b.kr. The balance on goods has deteriorated in recent years, with a higher real exchange rate, but a strong services account driven by a booming tourism sector has generated a surplus on the balance of combined goods and services trade. The underlying balance on services was positive by nearly 72 b.kr., or 6.8% of GDP, in H1/2015. Of that total, transport and transit contributed 57 b.kr. and travel another 26 b.kr.

### Foreign currency inflows and growing non borrowed reserves

- The Central Bank bought foreign currency for 196 b.kr. during the first nine months of the year. In spite of its substantial currency purchases, the króna appreciated by about 7.3% over the same period, indicating a surge in foreign currency inflows. In view of the Bank's purchases and in connection with the settlement of the failed banks' estates and the planned foreign currency auction, the Monetary Policy Committee (MPC) decided to increase reserve requirements from 2% to 4% so as to strengthen the Bank's liquidity management.
- The inflows are due, among other things, to improved terms of trade and the increase in the number of foreign tourists visiting Iceland. In support of this, total foreign payment card turnover in Iceland was up 32% year-on-year in the first eight months of 2015. The payment card turnover balance was positive for the same period and grew by 70% year-on-year. It was negative in 2008 but has improved markedly in recent years.<sup>2</sup>

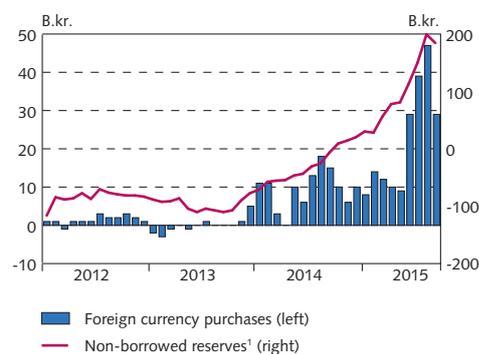
1. In the underlying current account balance, the services account balance has been adjusted for the failed DMBs' financial intermediation services indirectly measured (FISIM), and the balance on income has been adjusted for the effects of DMBs in winding-up proceedings and other transactions that do not reflect Iceland's financial burdens.
2. The card turnover balance shows the difference between foreign payment card use in Iceland and Icelanders' payment card use abroad.

Chart I-12  
Components of the underlying current account and real exchange rate



1. Services account balance adjusted for FISIM of DMBs in winding-up proceedings. 2. Secondary income included with income account. 3. Primary income account balance adjusted for the effects of DMBs in winding-up proceedings and other factors that do not reflect Iceland's financial burdens.  
Sources: Statistics Iceland, Central Bank of Iceland.

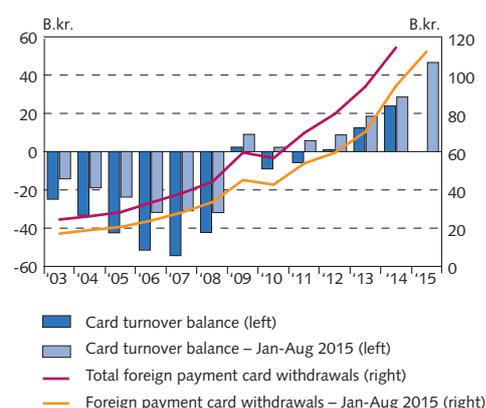
Chart I-13  
Central Bank foreign currency purchases and non-borrowed reserves



1. Foreign exchange reserves net of total external liabilities to residents and non-residents.  
Source: Central Bank of Iceland.

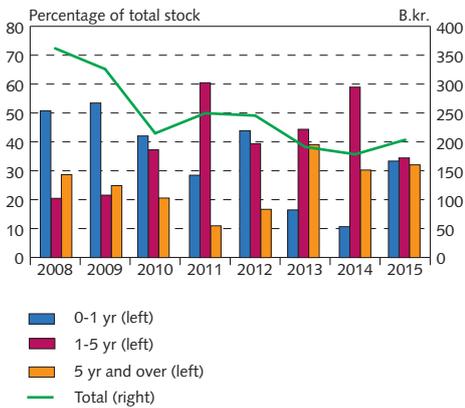
Chart I-14  
Total foreign payment card withdrawals in Iceland and card turnover balance<sup>1</sup>

At August 2015 prices



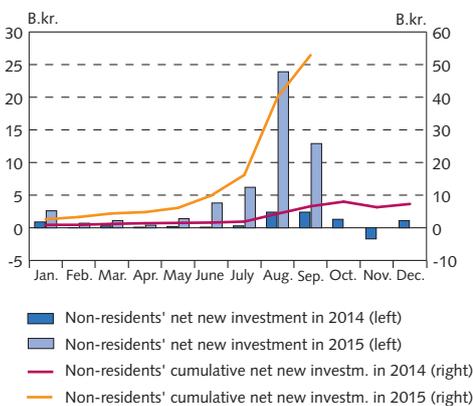
1. The card turnover balance shows the difference between foreign payment card use in Iceland and Icelanders' payment card use abroad.  
Source: Central Bank of Iceland.

Chart I-15  
Maturities of bonds and bills held by non-residents<sup>1</sup>



1. Based on August position and assuming that RIKB16 matures within one year.  
Source: Central Bank of Iceland.

Chart I-16  
Non-residents' net new investment in Iceland<sup>1</sup>



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

- The Central Bank's gross foreign exchange reserves totalled 530 b.kr. at year-end 2014 and had grown to 587 b.kr. by the end of September 2015. The Central Bank and Treasury's net foreign-denominated disbursements over the twelve months from September 2015 are estimated at 158 b.kr., or about 27% of the gross reserves.<sup>3</sup> The portion of the reserves not financed with foreign-denominated loans (sometimes called the non-borrowed reserves) totalled 185 b.kr. at the end of September, whereas it was negative at the same time in 2014. The substantial increase in reserves is due to the Central Bank's foreign currency purchases. Any examination of the Bank's foreign exchange reserves must take account of the fact that the capital account liberalisation strategy entails outflows from the reserves. The reserves will most likely decline in the coming term, but it is difficult to predict how much.

**Non-residents' short-term ISK assets increase**

- Non-residents' short-term ISK assets are invested mainly in Government-guaranteed bonds and bills or in deposits with commercial banks and the Central Bank. As long as there are restrictions on capital outflows from Iceland, non-residents may only expatriate the interest on their short-term ISK assets. On the other hand, they may at any time liquidate new investments entered into after the capital controls were introduced and expatriate the proceeds. Non-residents have somewhat increased new investment in Treasury bonds in recent months. From June through August, their new investment in Treasury bonds totalled about 29 b.kr., largely explaining the increase in non-residents' short-term ISK assets from 289 b.kr. to 317 b.kr. (15% of GDP) over the same period. Over the period from February through May, the stock of non-residents' short-term ISK assets was virtually unchanged, partly because the auctions under the Bank's Investment Programme were discontinued in March.

- Available investment options, to owners of offshore krónur were, dramatically reduced in March, as their reinvestment authorisation is now restricted to Treasury bills and deposits once their bonds mature. The average duration of these short-term ISK assets has therefore shortened in the recent term. In connection with the Government's capital account liberalisation strategy, there are plans to hold a final foreign currency auction, but the date has not yet been decided. So far this year, the offshore exchange rate has risen slightly and the spread between the onshore and offshore rates has widened, but it appears that the offshore ISK owners locked in by the capital controls are awaiting further news of the liberalisation strategy.

3. The net reserves are defined by the IMF as the reserves less predetermined net disbursements from reserve assets in the upcoming twelve months. According to this IMF definition, the net foreign exchange reserves totalled 429 b.kr. at the end of September 2015.

### New investment and carry trade

- Non-residents have greatly increased their new investment in Treasury bonds this year. In the first nine months of the year, they invested for 54 b.kr. (including 40 b.kr. in Treasury bonds), whereas new investment-related outflows were virtually non-existent. In comparison, net new investment totalled 7.3 b.kr. in 2014 as a whole. In recent months, new capital from non-residents has flowed mainly towards Treasury securities, which could indicate that foreign investors are again demonstrating an interest in Icelandic Treasury bonds because of the interest rate differential with abroad. Interest has been concentrated mainly in long-term Treasury bonds. This type of new investment is not restricted by the capital controls.
- As is described in *Financial Stability 2015/1*, the stock of non-residents' short-term ISK assets could grow substantially if the failed banks' estates are settled without mitigating measures. Now, however, measures have been taken, and it appears that such problems have been mitigated through the imposition of a stability tax or through composition agreements with a stability contribution (see the section *Failed banks' estates*).

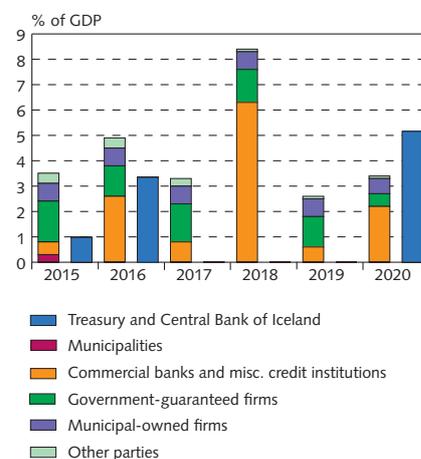
### Resident entities gain improved access to foreign credit markets

- Resident entities' access to foreign credit markets has improved in the recent term. At mid-year, the three major credit rating agencies upgraded the Republic of Iceland's sovereign credit ratings by one notch to medium-grade ratings. Risk is considered acceptable, with Standard & Poor's assigning it a rating of BBB. Following the sovereign rating upgrade, the three large commercial banks' ratings were upgraded to investment-level, with a rating of BBB-, one notch below the sovereign, from Standard & Poor's. As access to foreign credit markets improves, it can be assumed that other borrowers in addition to the Government and the commercial banks, will consider it beneficial to refinance their debt in foreign currencies (see the discussion of the large banks' foreign bond issues in the section entitled *Funding*). Because the terms currently offered to domestic borrowers are worse than they were before the crash, this is not an efficient option for all.

### Iceland's contractual debt service burden declines

- A positive underlying current account balance has enabled resident entities to pay down foreign debt. In May, the Treasury prepaid a loan from Poland in the amount of 7.3 b.kr. With this transaction, the Government has paid off all bilateral loans taken from neighbouring countries after the financial crisis struck. The Government also paid off the balance of the so-called Avens bond, about 28.3 b.kr, mid July. The bond was issued as part of an agreement between the Central Bank and the Treasury, on the one hand, and the estate of Landsbanki Íslands and the Banque centrale du Luxembourg, on the other, concerning the purchase of Avens assets. In addition, the Government recently bought

Chart I-17  
Contractual foreign-denominated debt service<sup>1</sup>  
Instalments on foreign long-term loans and  
foreign-denominated debt to the failed banks



1. Based on position and exchange rate as of 26 August 2015 except for the Treasury's and the CBI's position, which is as of the beginning of September.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-18  
Contractual foreign-denominated debt service, excluding the Treasury and the Central Bank<sup>1</sup>  
Instalments on foreign loans and foreign-denominated debt to the failed banks

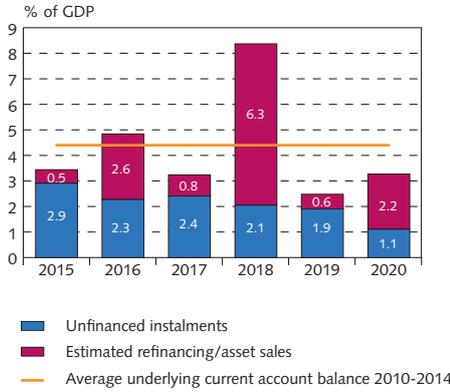


Chart I-19  
International investment position

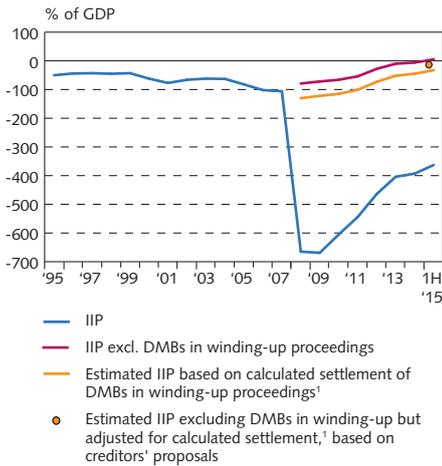
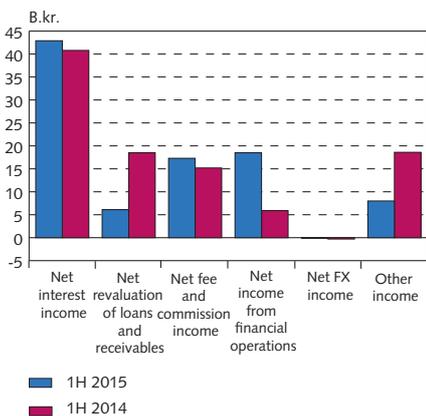


Chart I-20  
The three largest commercial banks' income<sup>1</sup>



back some of its own bonds issued in US dollars, in the nominal amount of USD 400 million, or about 54 b.kr. The bonds were issued to replenish the Central Bank's foreign exchange reserves in the wake of the financial crisis. The Central Bank recently prepaid the outstanding balance of the loan from the IMF, in the amount of 42 b.kr.

- The combined foreign loan payments to be made by the Treasury and the Central Bank over the next five years have declined significantly in the past year. The repayment profile of foreign debt and foreign-denominated debt to DMBs in winding-up proceedings is shown in Chart I-17. Estimated foreign-denominated payments to be made in 2016-2020 by borrowers other than the Treasury and the Central Bank amount to 4.4% of GDP, on average. Contractual debt service for 2018 rose in Q1/2015 because of Arion Bank's issuance of a three-year bond in the amount of EUR 3 million, or about 45 b.kr.
- The combined debt service of entities other than the Treasury and the Central Bank over the next five years is broadly similar to the average underlying current account balance over the past five years. It can be assumed, however, that a portion of the foreign debt will be refinanced. The estimated refinancing need of entities other than the Treasury and the Central Bank of Iceland is shown in Chart I-18. This is a conservative estimate, as it assumes that the commercial banks are the only borrowers that will refinance their debt in foreign currency. Unfinanced instalments on foreign loans totalled an average of 1.9% of GDP per year, which is 2.5 percentage points below the average underlying current account balance in the past five years and about 1.9 percentage points below the underlying current account balance for 2014. Given these assumptions, the situation is relatively comfortable.

**IIP excluding DMBs in winding-up proceedings positive**

- Because of substantial prepayments and a positive underlying current account balance, Iceland's international investment position (IIP) has improved in the recent term. The IIP excluding the DMBs in winding-up proceedings was positive by 114 b.kr., or 5.4% of GDP, at the end of Q2/2015, whereas it has generally been negative until now. After adjusting for the estimated effects of the settlement of the failed banks' estates, the IIP is still negative, however, by 685 b.kr., or 32.4% of GDP. No account has been given, however, to the stability tax or the stability contribution from DMBs in winding-up proceedings. It can be assumed that winding up the failed financial institutions in accordance with the proposals submitted to the authorities by their creditors and presented concurrent with the capital account liberalisation strategy could improve the position by roughly 16-18% of the GDP. Because the draft composition agreements are still being reviewed, the ultimate impact is uncertain.

## Operations and equity

### Commercial banks' operations

- Iceland's commercial banks recorded robust profits in the first half of 2015.<sup>4</sup> Their earnings reports were affected by various estimated and irregular items, such as write-ups and sales of equity securities and valuation increases in loans. These factors should be considered in any assessment of operating results and financial ratios.
- The commercial banks' combined profits fell by 4 b.kr. year-on-year in H1, to 42.5 b.kr. The combined calculated return on total assets was 2.8% and their return on equity just under 15%. Irregular income items weighed heavily, with income related to equity securities, discontinued operations, and loan valuation changes accounted for about 52% of pre-tax profit.<sup>5</sup> Calculated returns on estimated core operations amounted to 0.9% of total assets in H1, as opposed to 0.8% in H1/2014.<sup>6</sup>
- The commercial banks' net interest income totalled 42.9 b.kr., an increase of 2.1 b.kr., or 5.3%, between periods. Interest income rose slightly, while interest expense declined by 4%. The combined calculated interest spread was 2.9%, a slight increase between periods. Inflation had a positive impact on the interest rate spread, and the banks' combined indexation imbalance totalled 286 b.kr. at the end of the period. Commission income totalled 17.3 b.kr. after rising nearly 14% between periods. The increase was due, among other things, to payment cards and increased market activity. Core income as a share of operating income totalled 66%, an increase of 2 percentage points between periods.<sup>7</sup>
- The net rise in loan values totalled 6.1 b.kr., a steep decline from the 18.5 b.kr. recorded for the same period in 2014. The increase in loan values, corporate loans in particular, totalled 8.9 b.kr., whereas impairment was 2.8 b.kr. The restructuring of transferred loan portfolios is nearly complete. Fluctuations in loan values are smaller than before, and the difference between claim value and book value is steadily narrowing. The majority of it is due to loans in default.

4. The discussion of commercial bank operations in H1/2015 is based on the consolidated accounts of the three largest commercial banks and comparison figures for H1/2014. Figures represent the aggregate operating results of the commercial banks unless otherwise stated. The aggregate position may diverge from that of individual financial companies.

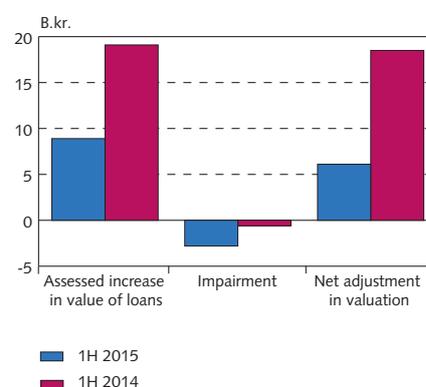
5. Profit from discontinued operations includes profit from the operations of appropriated large companies in unrelated activities and gains on the fair value assessment or sale of such companies.

6. Profit before tax and excluding discontinued operations. Estimated core operations based on a 2.8% calculated interest rate differential and 0.8% net loan impairment on an annualised basis, and commission and fee income and operating expenses (cf. Scenario II in *Financial Stability 2015/1*, pp. 32-33). It should be noted that scenarios for core operations can vary.

7. Core income (net interest and commission income) as a share of operating income, excluding discontinued operations.

Chart I-21

The three largest commercial banks' income and expenses due to revaluation of loans<sup>1</sup>

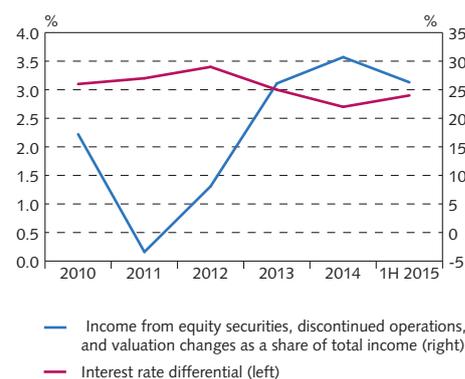


1. Consolidated figures.

Sources: Commercial banks' interim financial statements.

Chart I-22

The three largest commercial banks' interest rate differential and irregular income<sup>1</sup>

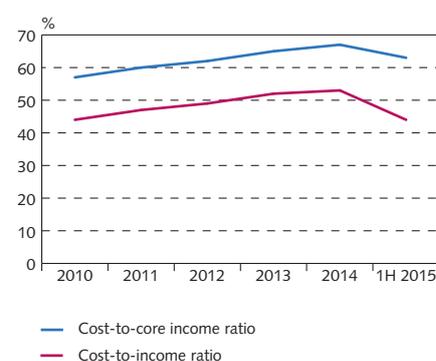


1. Consolidated figures.

Sources: Commercial banks' annual and interim financial statements.

Chart I-23

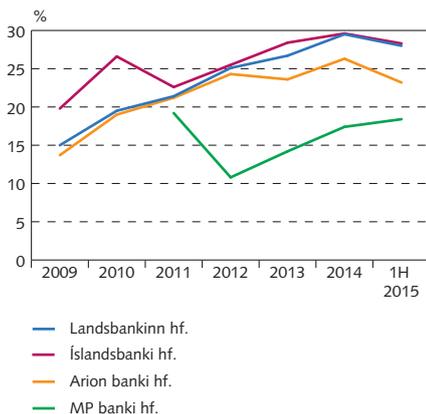
The three largest commercial banks' cost-to-income ratios<sup>1</sup>



1. Consolidated accounts. Operating expenses, adjusted for major irregular items. Operating income excluding loan revaluation changes and discontinued operations. Core income; net interest income and net fee and commission income.

Sources: Commercial banks' annual and interim financial statements.

Chart I-24  
Commercial banks' capital adequacy ratios<sup>1</sup>



1. Consolidated figures. Capital base as % of risk-weighted base.  
Sources: Commercial banks' annual and interim financial statements.

- Net income from financial activities increased markedly between years, to 18.5 b.kr. Equity securities yielded gains of about 17 b.kr., and profits on bonds totalled 1.8 b.kr., whereas derivatives and foreign currency mismatches generated losses. The gains on equity securities were largely due to marking shareholdings to market following exchange listing or sale, although market conditions were favourable as well, with the OMXI8 appreciating by nearly 13% during the half. Profits on discontinued operations contracted sharply between years, or by 9.6 b.kr. Combined income from equity securities and discontinued operations totalled about 18.3 b.kr. If this is added to the income from loan valuation increases, irregular and estimated income items amount to some 26% of total income for the half.
- The commercial banks' operating expenses totalled 37.7 b.kr. in H1/2015, an increase of 1.2 b.kr., or 3.2%, between periods.<sup>8</sup> Wage costs, the banks' largest expense item, rose by nearly 100 m.kr. between periods in spite of continued downsizing, albeit to varying degrees from one bank to another. The cost-to-income ratio declined slightly year-on-year, to 44%, owing mainly to increased income from financial activities.<sup>9</sup> The ratio of costs to net interest and commission income declined as well, by about 2 percentage points. The ratio of costs to total assets was unchanged year-on-year, at 2.5%. The banks have announced their intention to continue streamlining and cutting costs.
- Taxes totalled 12.4 b.kr. in H1/2015, an decrease of 2.8 b.kr. between periods. Income tax totalled 8 b.kr., and the bank levy amounted to 4.4 b.kr. In addition, the banks pay an administrative tax on wages, which is recognised under wage-related expenses in their accounts.

### Commercial banks' equity

- The large banks' equity totalled 595 b.kr. at the end of June 2015. It had declined 3.2 b.kr. from the beginning of the year because of dividend payments in the amount of 45 b.kr. for the year 2014. Their capital base contracted further because of Arion Bank's prepayment of a portion of its subordinated loans. The banks' capital ratio was 26.6%, after declining by 1.9 percentage point since the beginning of the year, and the Tier 1 capital ratio was 25.3%, having declined by 0.9 percentage points. The banks use the standardised approach to calculate their credit and market risk.<sup>10</sup>
- In July, amendments to the Act on Financial Undertakings, no. 161/2002, were passed, including the adoption of four capital

8. Operating expenses excluding bank levy.

9. Operating income excluding income due to changes in loan values and discontinued operations.

10. See the FME Rules on the Capital Requirement and Risk-Weighted Assets of Financial Undertakings, no. 215/2007, with subsequent amendments.

buffers. The *Financial Stability* Council makes recommendations to the Financial Supervisory Authority concerning the value of the capital buffers apart from the capital conservation buffer, which is based on a fixed percentage. Changes to the banks' balance sheets are ahead, in the wake of the passage of legislation on the stability tax in July. Possible reductions in capital must be examined in view of the proposed capital buffers and the heavy weight of estimated and irregular items in the banks' financial statements. Given the uncertainty that lies ahead, it is important to maintain the resilience of the banking system.

## Funding and liquidity

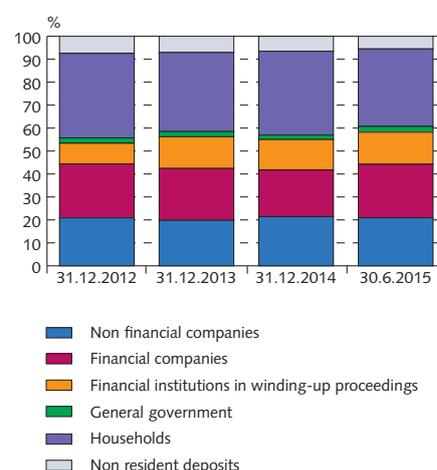
### Deposits the mainstay of commercial bank funding

- The commercial banks' funding consists mainly of deposits. As a share of total funding, deposits have remained stable since the beginning of the year, at just under 52%. The banks' capital has declined by just over 3 b.kr. since the beginning of the year because of dividend payments. As of end-June, capital accounted for 19% of their funding. Subordinated loans accounted for just under 1% of funding, a reduction of 1 percentage point since the beginning of the year, as Arion Bank has paid up about 20 b.kr. in subordinated loans during the year. Short-term debt to deposit money banks (DMB) and financial institutions in winding-up proceedings totals about 314 b.kr. and has increased by 40 b.kr. since the beginning of the year.
- The commercial banks' total deposits amount to 1,840 b.kr. and have increased by 154 b.kr. since the beginning of the year. The rise in deposits is due in part to an increase in deposits owned by the failed banks' estates and by pension funds. Non-residents' deposits contracted by about 10 b.kr., or 9%, in the first half of the year. Non-residents own about 7% of deposits, including about 6 percentage points denominated in Icelandic krónur. Roughly 13% of residents' deposits are in foreign currencies. Customer deposits amount to just over 68% of total loans granted and have increased by just over 3 percentage points since the beginning of the year.

### The banks' liquidity position is ample

- Overall, the banks' liquidity position is well above the minimum provided for in the Central Bank's liquidity rules. The combined liquidity ratio in foreign currencies was 299% at the end of September, whereas the regulatory minimum is 100%. The overall liquidity ratio was 123%, while the regulatory minimum is 80% and rises to 90% on 1 January 2016.
- The authorities presented their capital account liberalisation strategy in June. When the failed banks' estates are settled, considerable outflows can be expected from their deposits with the commercial banks. The liquidity rules require that the banks hold

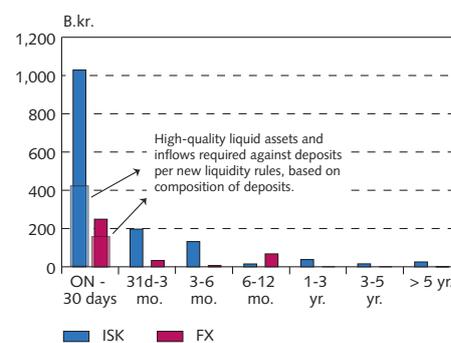
Chart I-25  
Depositors<sup>1</sup>



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

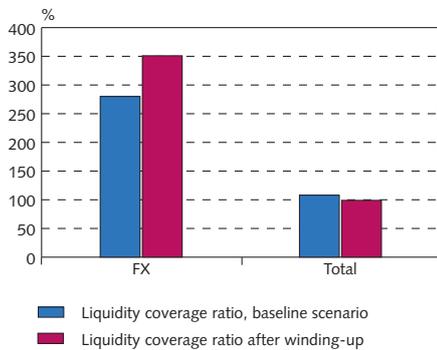
Chart I-26  
Term deposit maturities and liquidity requirements<sup>1</sup>

The three largest commercial banks<sup>2</sup> as of 30 June 2015



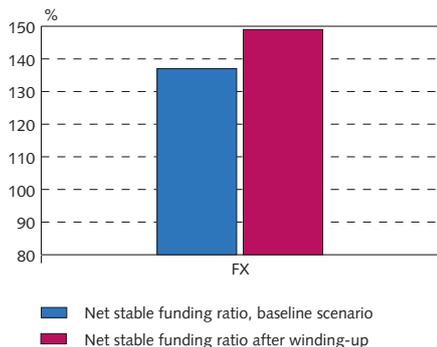
1. Liquidity requirements in FX take account of the amendments made to the Rules in December 2014. It is required that assets be held to offset the deposits in the old banks with maturities of up to 6 months. 2. Consolidated figures.  
Source: Central Bank of Iceland.

Chart I-27  
Impact of settlement of failed banks' estates on the new banks' liquidity coverage ratio<sup>1</sup>  
According to creditors proposals in June



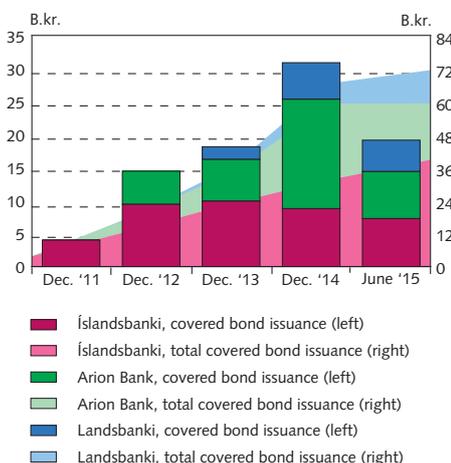
1. As of July 2015.  
Source: Central Bank of Iceland.

Chart I-28  
Impact of settlement of failed banks' estates on the new banks' net stable funding ratio (NSFR)<sup>1</sup>  
According to creditors proposals in June



1. As of July 2015.  
Source: Central Bank of Iceland.

Chart I-29  
Commercial banks' covered bond issuance<sup>1</sup>



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

liquid assets to offset a large proportion of the estates' deposits and other unstable deposits. As a result, the banks are relatively well prepared to pay out the deposits, although they will probably have to tap their liquid assets to do so. If composition agreements are broadly in line with the proposals presented by creditors this summer, it can be assumed that foreign-denominated deposits with the commercial banks will be used to buy foreign-denominated bonds issued by operating commercial banks. According to the above, the banks' foreign liquidity ratios will rise because of the bond issues; however, withdrawals of deposits for payment of stability contributions, taxes, operating expenses, etc., will reduce their liquidity. As a result, their overall liquidity ratio will decline somewhat, although it will remain above the minimum provided for in the liquidity rules, after adjusting for mitigating measures taken by the banks to improve their liquidity position.

- The liquidity ratio measures the ratio of liquid assets to deposits and other obligations that are liquid within thirty days. About 73% of deposits can be withdrawn within a month, 83% within three months, and 90% within six months. Based on the composition of the banks' deposit portfolios and the current liquidity rules, the banks must have liquid assets amounting to 33% of all deposits, or 46% of all deposits available for withdrawal within 30 days.
- At the end of June, the commercial banks' one-year funding ratio in foreign currencies was 137%, well above the Central Bank's minimum requirement of 80%. On 1 January 2016, the minimum funding ratio will rise to 90%. If the failed banks' estates buy bonds issued by the commercial banks concurrent with the deposit withdrawals, as is assumed in the creditors' proposals from June, the ratio will rise considerably, as the banks will receive long-term foreign-denominated funding.

**Banks' covered bond issuance continues to increase**

- The banks' market funding has increased year-on-year so far in 2015. Covered bond issuance totalled about 19.1 b.kr. in the first half, as compared with 6.5 b.kr. in H1/2014. In the first half of the year, 18.7 b.kr. worth of indexed covered bonds were issued, as opposed to only 460 m.kr. in nominal covered bonds. Arion Bank and Íslandsbanki issued covered bonds in August and September, and Landsbankinn did so in September. Their outstanding stock of covered bonds is about 89.4 b.kr. but still accounts for only 2.9% of their funding. Íslandsbanki has continued to issue bills. At the end of June, some 2.9 b.kr. were outstanding, as compared with 4.4 b.kr. at the beginning of the year. Arion Bank began to issue bills last year and had 1.9 b.kr. outstanding at the end of June 2015. Landsbankinn began issuing bills this September, with an issue totalling 1.3 b.kr.
- The commercial banks' encumbrance ratios have continued to fall in spite of increased covered bond issuance, owing to loan pay-

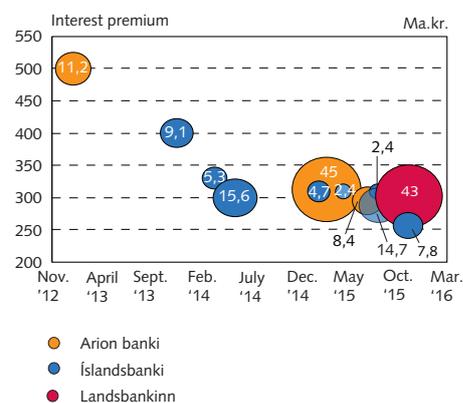
ments and refinancing. About 22% of Landsbankinn's assets were hypothecated for funding at the end of June, and its encumbrance ratio has fallen by 2 percentage points year-to-date. Arion Bank's ratio is similar, or 22%, having declined by about 5 percentage points in the first half of the year. Roughly 11% of Íslandsbanki's assets are hypothecated for funding, and the ratio rose by about 1 percentage points in the first half of the year.

### Increased foreign market access and improved borrowing terms

- The commercial banks' terms in foreign markets have continued to improve. In July, rating agency Standard & Poor's upgraded the commercial banks' ratings from BB+/B to BBB-/A-3, with a stable outlook for Arion and Íslandsbanki and a positive outlook for Landsbankinn. All of the banks have issued bonds abroad in 2015. In March, Arion issued a 300m euro bond at 3.125% fixed interest. Arion also issued a 500m Norwegian krone (NOK) bond at 295 points above NIBOR, which was 205 points below the premium on its February 2013 issue. Alongside the issue in Norwegian kroner, Arion repaid a large portion of its previous NOK issue. In February, Íslandsbanki issue a new four-year bond in Swedish kronor (SEK). It expanded the issue in April and July, by a total of SEK 600m, at 310 points above STIBOR, which is 70 points below the premium on its December 2013 issue. In July, Íslandsbanki also issued a eurobond in the amount of 100m euros at 2.875% fixed interest. At the same time, the bank bought back half of its 2014 eurobond, or about 48m euros. In October, Íslandsbanki issued its first bond in Norwegian kroner, a three-year NOK 500m bond at 260 points above NIBOR. In early October, Landsbankinn issued a 300m euro bond at 3% fixed interest, the bank's first listed foreign issue. At the time of the new issue, the bank announced that it would pay the instalments due in 2016 and a portion of the 2018 instalments on the bond it issued to LBI hf.

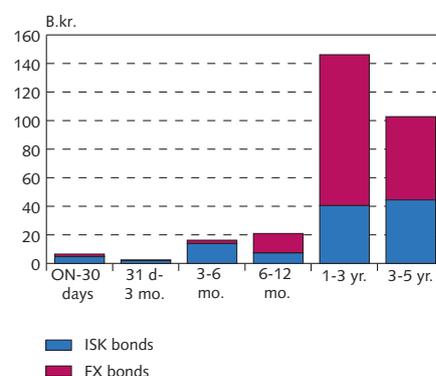
- In the next twelve months, payments of instalments and interest on the bonds will total 46 b.kr., including 18 b.kr. in foreign currencies. In the next three years, payments of instalments and interest on the bonds will total 192 b.kr., including 124 b.kr. in foreign currencies. Apart from the banks' foreign market funding, the vast majority of foreign-denominated instalments and interest payments in the next three years are due to Landsbankinn's collateralised bonds with the old bank. The balance of the bonds was 200 b.kr. as of end-June. As is mentioned above, creditors' proposals concerning the stability contribution affect the composition of the commercial banks' funding, in part because of increased foreign bond issuance alongside withdrawals of deposits.

Chart I-30  
Foreign issues of commercial banks from 2008



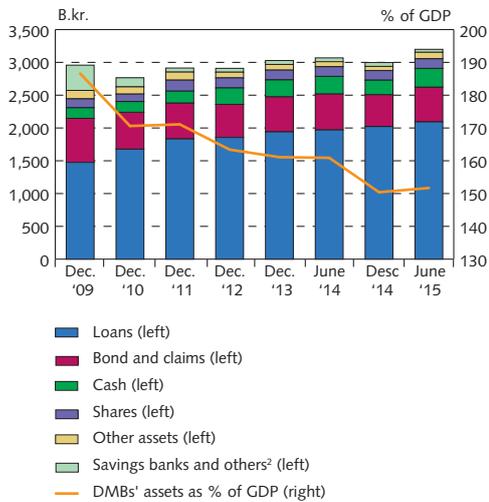
Source: Nasdaq OMX Iceland.

Chart I-31  
Bond maturities<sup>1</sup>  
The three largest commercial banks<sup>2</sup> as of 30 June 2015



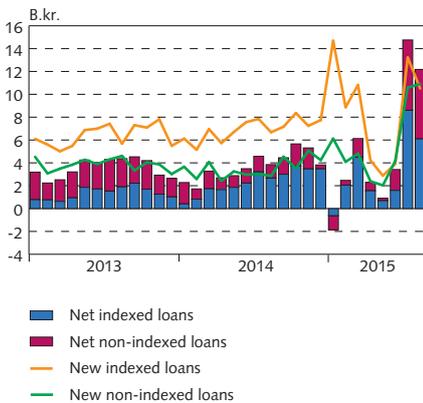
1. Instalments and interest. 2. Consolidated figures.  
Source: Central Bank of Iceland.

Chart I-32  
DMBs' total assets, % of GDP<sup>1</sup>



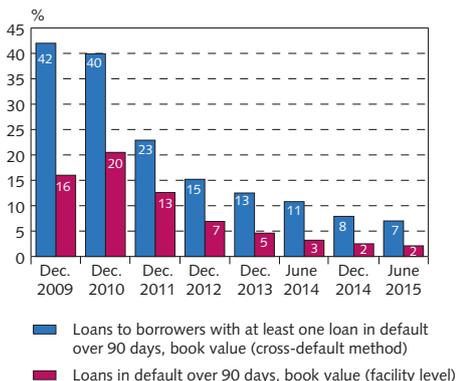
1. Parent companies. Asset classes (for instance, loans) include commercial banks. 2. Others are deposit divisions of cooperative societies and Postgiro (total assets 2.2 b.kr. as of 30 June 2015).  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-33  
New DMB mortgage lending<sup>1</sup>  
January 2013 - August 2015



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

Chart I-34  
Default ratios of the three largest commercial banks<sup>1</sup>



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

## Deposit institutions' assets

### Total DMB assets increase

- Total assets held by deposit money banks (DMB) have increased in real terms since the beginning of the year. As of end-June, assets held by DMBs (four commercial banks and five savings banks) totalled 3,199 b.kr., up from 2,997 b.kr. at year-end 2014 and 3,069 b.kr. at the end of June 2014. In real terms, they have grown by 5% in the past six months and about 2.7% in the past twelve months. Their assets totalled 152% of GDP as of end-June, an increase of 2 percentage points since year-end 2014. The ratio of assets to GDP has declined somewhat in the past twelve months, however, from 161% to the current level. They have risen less than GDP since 2009, when the ratio was 187%.
- Loans constitute the vast majority of the DMBs' asset portfolio. As of end-June 2015, they totalled 2,123 b.kr., or 66% of the total. The book value of loans was up 115 b.kr. year-on-year and by 65 b.kr. since the beginning of 2015. It should be noted that loans from DMBs to individuals have declined by 25 b.kr. because of the Government's indexed debt relief measures, which entailed a reduction in mortgage principal.<sup>11</sup> In spite of an increase in lending, the share of loans in total assets has declined by just over 2 percentage points in the past twelve months.
- Bonds and claims were the DMBs' second-largest asset class, at about 16.6% of total assets, about the same as at the beginning of the year. The third-largest asset class is cash, which accounts for 9.3% of total assets, an increase of 1.4 percentage points.

### Increase in net new mortgage loans

- In 2015, there has been greater variation in the amount of net new mortgage loans than in 2014, when demand for indexed mortgages exceeded demand for non-indexed mortgages. This has been affected by the strike among lawyers employed at capital area Commissioners' offices, as well as the allocation of third-pillar pension savings and the direct write-down of mortgages under the Government's debt relief package. There was a marked increase in net new mortgage loans in July, after the striking lawyers returned to work, including 8.6 b.kr. in indexed loans and 6.16 b.kr. in non-indexed loans. In the first eight months of the year, net new lending to households totalled 40.7 b.kr., a year-on-year increase of 63%. After adjusting for the reduction in mortgage loans due to the Government's debt relief measures, net new lending to households is estimated to have increased by 130% year-on-year in the first eight months of 2015.

11. See the report from the Minister of Finance and Economic Affairs on the reduction of indexed mortgage principal: <http://www.althingi.is/alttext/pdf/144/s/1486.pdf>.

- As of end-June, 2.1% of the banks' loans were 90 days in arrears, a decline of about 0.9 percentage points year-on-year.<sup>12</sup> The decline since the beginning of 2015 measures 0.4 percentage points. In terms of the more conservative cross-default method, however, which includes all loans taken out by borrowers in arrears, frozen loans and loans deemed unlikely to be paid, the default ratio was 7% at the end of June 2015, as opposed to 10.8% a year earlier. It is clear that the decline in non-performing loans has slowed down.

## Households

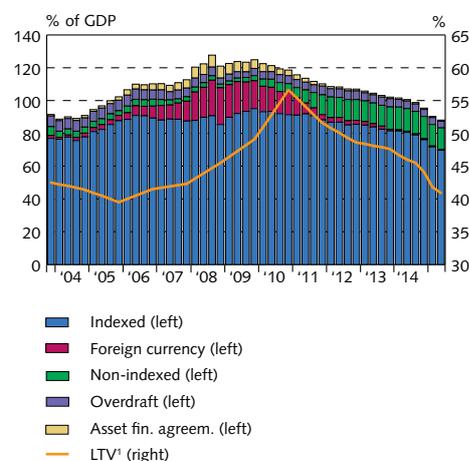
### Government measures improve equity and debt positions

- Household debt amounted to 88% of GDP in June 2015, after having fallen by 12 percentage points year-on-year. In real terms, it fell by 4.6% between June 2014 and June 2015 and by 4% from Q4/2014 to Q2/2015. It was the largest year-on-year drop in household debt relative to GDP since the financial crisis, yielding the lowest ratio since the turn of the century. The Government's measures have reduced indexed mortgage principal and improved households' debt position. Household debt is estimated to have declined by 60 b.kr. due to direct write-downs and to the authorisation to channel third-pillar pension savings towards mortgage loans. Without these measures, the ratio of household debt to GDP would have fallen by 9 percentage points instead of 12. The household deleveraging that began early in 2009 is therefore still proceeding apace.
- A substantial rise in house prices coupled with the decline in real mortgage loans has lowered households' loan-to-value (LTV) ratio to 40.9% as of end-June, a reduction of 5 percentage points year-on-year, the largest drop ever seen in a single year. In historical context, the LTV ratio is quite low. It held relatively stable at around 45% during the period 1998-2003. It declined between year-end 2003 and year-end 2005, after the banks began offering mortgage loans, as house prices rose in excess of indebtedness at first. In the four-and-a-half years since year-end 2010, the LTV ratio has fallen by a full 15.5 percentage points. Therefore, in historical terms, collateral capacity is ample, particularly in view of the fact that market agents expect house prices to continue rising and a portion of the Government's write-down of indexed household debt has yet to emerge.

### Debt position of Icelandic households' with mortgage debt

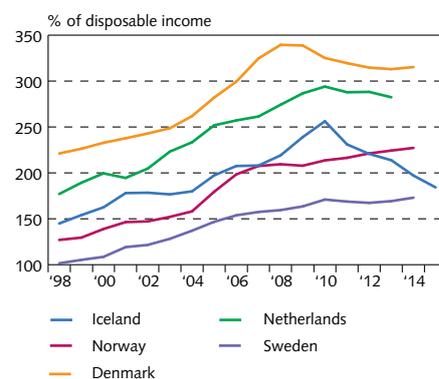
- In previous issues of *Financial Stability*, Icelandic households' debt-to-GDP ratio has been compared with those in selected other countries. Chart 36 shows a comparison of household debt relative to disposable income in several European countries. For Icelandic households, this ratio was estimated at 184% as of

Chart I-35  
Household debt as % of GDP  
Q4/2003 - Q2/2015



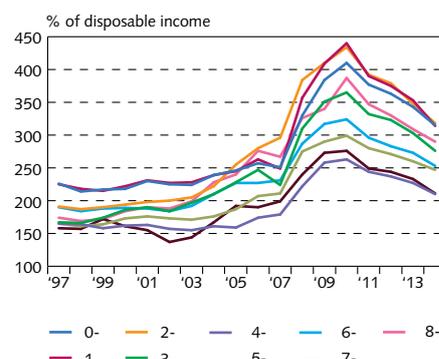
1. Household mortgage debt as % of households' total real estate assets.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-36  
Household debt as a share of disposable income, European comparison  
1998-Q2/2015



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

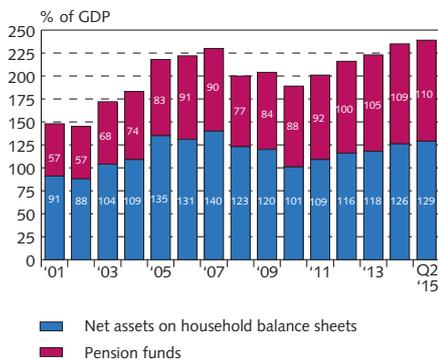
Chart I-37  
Household debt as a share of disposable income, by municipality code<sup>1</sup>  
1997-2014



1. Includes only individuals with mortgages. Categorized according to the first letter in municipality code.  
Sources: Statistics Iceland, Central Bank of Iceland.

12. Including only those loans that are 90 days in arrears or more, which is the most common measure of non-performing loans used in international financial reporting and annual accounts.

Chart I-38  
Households' net assets as % of GDP<sup>1</sup>  
2001- Q2/2015



1. Pension fund assets are based on payouts after deduction of 30% income tax. Q2/2015 figures are estimated.

Sources: Statistics Iceland, Directorate of Internal Revenue, Central Bank of Iceland.

Chart I-39  
Status of loans to households from the  
Housing Financing Fund and the three  
largest commercial banks<sup>1</sup>



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.

end-June 2015, as opposed to about 197% at the end of 2014. The ratio has therefore declined sharply this year and in recent quarters. Among the countries included in Chart 36, only Sweden has a lower ratio than Iceland.

- When conducting an international comparison, it is important to remember that Iceland's rate of home ownership about 70-80%, which is higher than in the other Nordic countries. Residential mortgage debt is often attributable to leasing companies or to the public sector rather than households. Sweden's central bank has analysed household indebtedness by separating out households with mortgage debt. As a result, the ratio rises from 175% to 315%.<sup>13</sup> In Iceland, the ratio would be 300% instead of 184% if only households with mortgage debt were included. The ratio in Sweden's largest urban areas is even higher, at around 450% in Stockholm and over 400% in Göteborg and Malmö. In Iceland, the ratio among capital-area households with mortgages is about 315%, considerably lower than in Sweden's largest urban areas.
- Households' net wealth continues to increase, to an estimated 239% of GDP as of end-June 2015. Their net wealth according to balance sheets is estimated at 129% and net pension fund assets at 110%.<sup>14</sup> It has risen more or less steadily since year-end 2010 and is now considerably higher than at the turn of the century, when it was about 140-150% of GDP.

#### Non-performing loan ratios and individuals on the default register

- The decline in non-performing loan ratios has lost pace. Using book value and the cross-default method, about 8.2% of total loans granted to households by the three largest banks and the Housing Financing Fund (HFF) were in default at the end of August 2015.<sup>15</sup> The share of loans in default has fallen by 1.9 percentage points since year-end 2014. The main reason for the decline in default 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 fallen. At the end of August, there were 25,775 individuals on the default register. The peak, in July 2013, was 28,307. Year-to-date, the number of individual in the default register has fallen by 1,242, or about 5%. Registered personal bankruptcies and unsuccessful distraint measures numbered 5,695 at the end of August, after peaking at 6,710 in October 2014. Year-to-date,

13. <http://www.riksbank.se/en/Press-and-published/Notices/2015/Economic-commentary-Household-indebtedness-in-Sweden--update-for-2014/>

14. The calculation of net pension assets assumes 30% income tax on the gross amount.

15. 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.

the number of registered personal bankruptcies and unsuccessful distraint measures has declined by 961, or by about 15% over eight months. This is the most rapid decline ever seen.

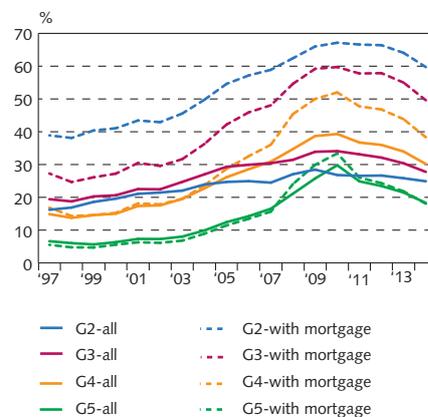
### Households' position strengthens according to tax return data

- The proportion of income tax filers who owe more than three times their annual income continues to decline. At year-end 2014, it was 25.2%, after declining by 2.4 percentage points since end-2014 and by 6.2 percentage points from the end-2010 peak.<sup>16</sup> It remains high in historical context, however. If individuals with mortgage debt are segregated out, the ratio rises to 48% as of end-2014 and therefore declined by 4.1 percentage points between years. It peaked at 57.6% at year-end 2010. An examination of income groups shows that, for individuals with mortgage debt in the highest income quintile (G5), the ratio is virtually the same as for all individuals in the quintile, or about 18% as of the year-end. This indicates that the vast majority of individuals in the highest-income group who owe more than three times their disposable income have mortgage debt. For other income groups, the proportion of income tax filers with mortgage debt who fall into this category is higher than for all individuals in the group, and the difference grows greater as the income level falls. For instance, the share of individuals in the second-lowest quintile (G2) who owe more than three times their annual income is 25%, but if those with mortgage debt are segregated out, the ratio jumps to 60%. These figures indicate that lower-income individuals who buy their own homes take on more debt relative to their income than higher-income individuals do.
- The situation is still difficult for young people, particularly those with mortgage debt. In previous issues of *Financial Stability*, the 30-40 age group has been most heavily indebted relative to disposable income. At year-end 2014, the ratio was 263% for the 35-40 age group, a considerable improvement from 2010, when the ratio was 369%. If individuals with mortgage debt are segregated from the total, the ratio for the youngest individuals rises; for instance, it was 386% among the 25-30 age group (nearly 6,000 individuals are in this group) at year-end 2014, down from 529% at the end of 2010. Young people wishing to acquire their own home must therefore take on considerable debt.
- At year-end 2014, all age groups had positive equity, but at year-end 2013, the 25-35 age group had negative equity; i.e., they owed more than they owned (Chart 42). The situation has improved markedly since 2010, when it was worst, and particularly for young people with mortgage debt. For instance, individuals aged 30-35 had negative equity in the amount of 1.7 m.kr in 2010, as opposed to 3.6 m.kr for those with mortgage debt (at

Chart I-40

Share of taxpayers owing more than 300% of disposable income<sup>1</sup>

By income group and debtor type



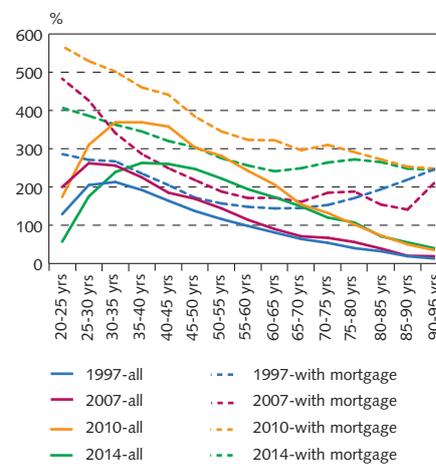
1. The broken lines show the share of taxpayers with mortgage debt whose total debt exceeds 300% of their disposable income. The lowest-income group, G1, is not shown.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-41

Debt as a share of disposable income<sup>1</sup>

By age group and debtor type

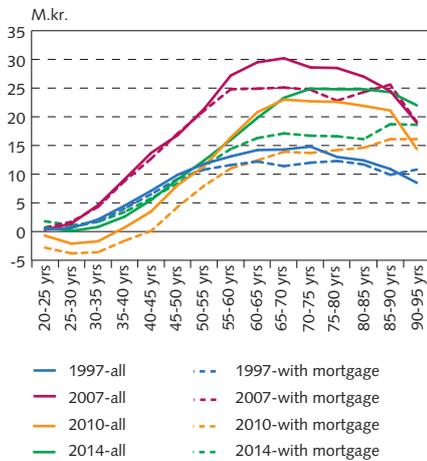


1. The broken lines show the ratio of total debt to disposable income for individuals with mortgages.

Sources: Statistics Iceland, Central Bank of Iceland.

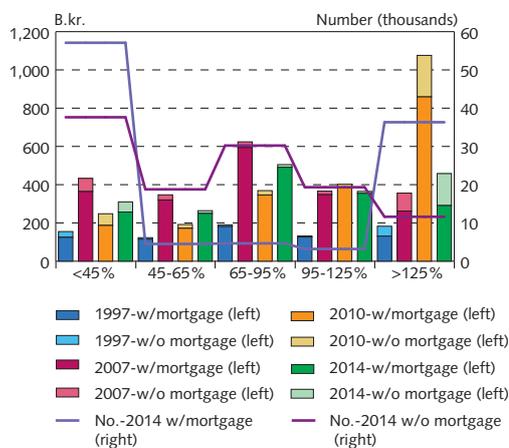
16. The information is based on tax return data from the Directorate of Internal Revenue, processed by Statistics Iceland for the Central Bank.

Chart I-42  
Net asset position by age group,  
2014 price levels<sup>1</sup>  
By age group and debtor type



1. The broken lines show the net assets of individuals with mortgages.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-43  
Debt in each debt ratio (2014 prices)<sup>1</sup>



1. Approximately 40,000 individuals were debt-free in 2014 and are not included in the chart.  
Sources: Statistics Iceland, Central Bank of Iceland.

2014 prices). At year-end 2014, the same age group was much better positioned. The full group had positive equity amounting to 0.8 m.kr., and the subgroup with mortgage debt had positive equity totalling 1.7 m.kr. The recent rise in house prices has therefore improved young homeowners' equity position considerably.

- In general, individuals' debt problems have diminished. At year-end 2014, about 26.8% of individuals had negative equity (i.e., owed 95% or more), down from 29.9% in 2013 and 35.3% in 2010. This group's total debt was 823 b.kr. at the end of 2014, as opposed to 970 b.kr. as of end-2013, and 1,478 at the end of 2010 (at 2014 prices). The situation has therefore improved year-on-year and it is much better than in 2010. The improvement has been greatest among individuals who owe 125% or more of the value of their assets. At the end of 2010, the debt of individuals in this group with mortgage debt totalled 859 b.kr., as opposed to 217 b.kr. for those without mortgages. At the end of 2014, however, the debt of individuals in this group with mortgage debt totalled 291 b.kr., as opposed to 167 b.kr. for those without mortgages. Debt has therefore declined by 568 b.kr., or 66%, among those with mortgages, and by 50 b.kr., or 23%, among those without. This dramatic changes since 2010 is due both to debt write-offs (e.g., due to bankruptcy), court judgments pronouncing exchange rate-linked loans illegal, and rising asset prices, which improves equity ratios and reduces the number of individuals in the most heavily indebted group. It can be expected that the position of those with mortgage debt will improve still further in 2015, as the effects of the Government's measures to reduce indexed mortgage debt will surface in large part this year.

#### Real wages increases

- Households' position continues to improve. Households' financial position has improved markedly, both in 2014 and so far in 2015. Data based on household balance sheets show that the net equity position is good and debt levels low. Nearly all statistics of importance for households have developed favourably in the recent term. Real wages rose by 5.9% between July 2014 and July 2015, for instance, resulting in the largest twelve-month improvement and the highest index value ever seen. The Central Bank estimates that real disposable income will rise by virtually unprecedented 7.6% this year. Increased purchasing power and an improved labour market situation have supported private consumption, which grew by 3.7% in 2014 and is estimated to grow by 4.2% in 2015. Central Bank data show that the position of individuals living in their own homes has improved more than that of people in the rental market (i.e., those who rent privately owned or socially subsidised flats). The share of those living in their own homes declines as income falls, and the improvement has therefore been less pronounced among those with lower income. Data from the Debtors' Ombudsman support this conclusion, as the proportion of renters among those who apply for debt mitigation has risen.

## Companies

- In Q2/2015, Iceland's terms of trade were broadly the same as at the end of 2014, improving by only 0.5% in spite of a strong improvement in the first quarter. The main explanation for this is that the drop in oil prices reversed in part during the period. Oil prices fell steeply once again, however, between June and July. On the other hand, average exported goods prices rose by about 10%, although the foreign currency price of marine product exports (which, together with aluminium and tourism, is one of Iceland's most important export sectors) rose much less, or about 2%, during the first half of the year.
- The tourism boom has stimulated domestic retail trade and services, as the number of travellers visiting Iceland was up 27% year-on-year in August. Corporate executives were somewhat more pessimistic about firms' operating environment in May than in February, and the sentiment index compiled among the 400 largest firms in the country declined slightly between surveys, to 129 at the end of May. The index rose to 182 in September, however, its highest level since the financial crisis struck.

### Corporate debt deleveraging has slowed down

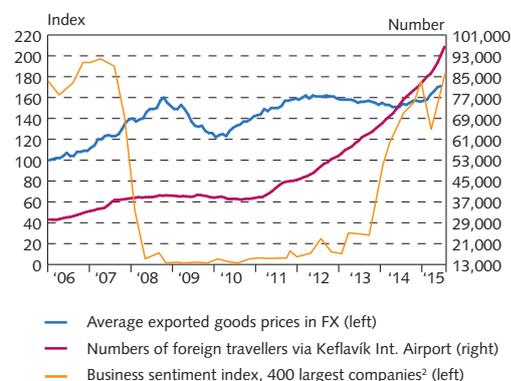
- Corporate debt totalled 102% of GDP at the end of Q2/2015, having fallen by 12 percentage points year-on-year. In real terms, however, it was down by close to 3%. On the whole, corporate debt deleveraging has slowed down. The reduction of foreign-denominated debt is a major factor in the assessment of developments in corporate debt, as foreign debt constitutes 44% of the total.<sup>17</sup> Excluding foreign-denominated debt, corporate debt rose by 2% in real terms year-on-year.
- As before, corporate debt is shown at claim value, but the difference between it and book value has narrowed significantly in the recent term. Since *Financial Stability 2015/1* was published, however, the methodology for assessing corporate debt has been changed, and holding companies are no longer included with operating companies. The change, which was made to accord with international standards observed by the Central Bank in its data collection, facilitates international comparison of corporate debt.

### The banks' net new corporate loans are on the rise

- Net new lending from the three large commercial banks to firms increased markedly in the first half of the year, but based on developments in the first two months of Q3, the pace seems to have slowed (Chart I-46). In the first eight months of the year, net new loans totalled 116 b.kr., which is some 21 b.kr. more than

Chart I-44

Developments in exported goods prices, number of foreign visitors via Keflavik Airport, and the business sentiment index<sup>1</sup>

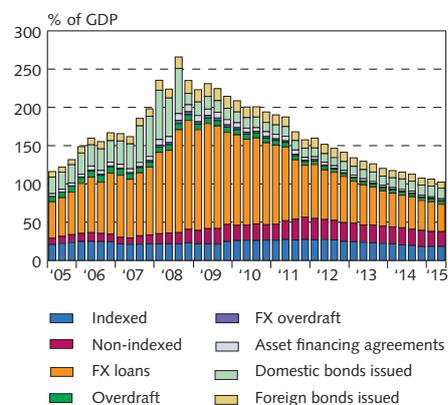


1. Twelve month moving averages are used for export goods and the number of foreign visitors. 2. The business sentiment index indicates Iceland's 400 largest companies' assessment of the current state of the economy.  
Sources: Capacent Gallup, Icelandic Tourist Board, Statistics Iceland, Central Bank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

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Chart I-45

Corporate debt as % of GDP<sup>1</sup>  
Q2/2005 - Q2/2015

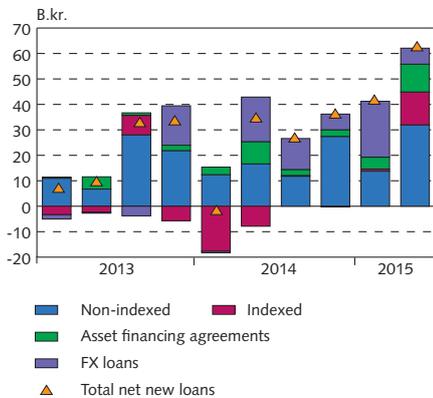


1. Debt owed to domestic and foreign financial undertakings and market bonds issued. Debt owed by holding companies is excluded from the data.

Sources: Statistics Iceland, Central Bank of Iceland.

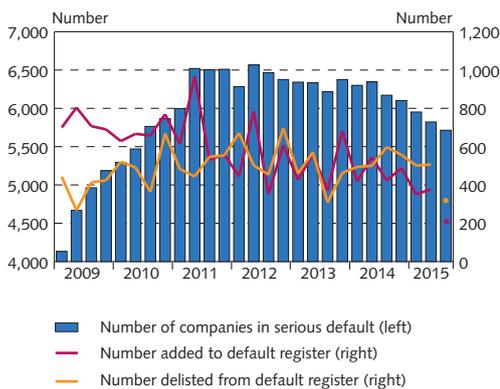
17. Including foreign marketable bonds. Corporate debt measured in Icelandic krónur has declined, among other things, because of the appreciation of the króna. The Icelandic króna strengthened by roughly 1.4% in the first half of 2015.

Chart I-46  
Net new lending from the three commercial banks to firms, by loan form<sup>1</sup>  
Q1/2013 - Q2/2015



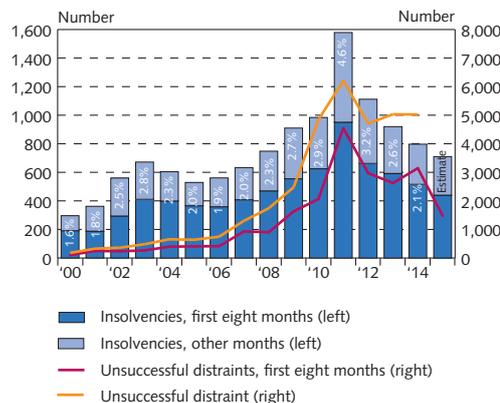
1. New loans net of prepayments. Prepayments are payments in excess of contractual payments.  
Source: Central Bank of Iceland.

Chart I-47  
Companies in default<sup>1</sup>  
Q1/2009 - August 2015<sup>2</sup>



1. In August 2015, a total of 5,714 firms, or about 14.3% of the total, were listed on the CreditInfo default register. 2. Values for Q3/2015 are based on the position in August and activity in July and August.  
Source: CreditInfo.

Chart I-48  
Corporate insolvencies and unsuccessful distraint measures  
Total for entire year, 2000-2015<sup>1</sup>



1. The percentages show insolvencies as a share of the total number of firms. The total number of insolvencies for 2015 is extrapolated from the first eight months of the year.  
Sources: Registers Iceland, Statistics Iceland.

on all of 2014. Lending has been greatest to services companies, presumably due to tourism-related development. Non-indexed loans were once again the most popular, except among fishing companies. In the fishing industry, the 16 b.kr. in net lending was almost entirely denominated in foreign currency, as companies in the sector have foreign income.

**Fewer firms added to the default register**

- In previous issues of *Financial Stability*, it has been noted that developments in the CreditInfo default register have been inconsistent with other indicators of firms' position (see, for instance, *Financial Stability 2015/1*). The number of companies on the register has held virtually unchanged, whereas other indicators have suggested that firms' position has improved in recent years. Now, however, the number of firms on the default register has begun to fall. In August, 5,714 companies, or 14.3% of operating companies in Iceland, were on the register. This is a reduction of 13% from the mid-2012 peak and 6% since the beginning of 2014. The drop in the number of firms on the register does not stem from an increase in delistings, which have actually decreased in recent quarters, but from a decline in new additions. This must be considered a clear sign of improvement in Icelandic firms' position.

**Insolvency most common in the construction sector**

- In the first eight months of 2015, a total of 440 firms were declared insolvent, a 15% decline from the 8M/2014 total of 516. If the second half of this year turns out similar to the first half, the total will be about 710 for 2015 as a whole. As in recent years, most of the insolvencies were among *construction companies* (92, or 21% of the total) and among companies in *retail and wholesale and motor vehicle repair* (76, or 17% of the total). In spite of the large number of insolvencies among construction companies, they were outnumbered about two-to-one by new company registrations. The number of new registrations in the construction sector has risen 39% year-on-year.

- There were 1,479 unsuccessful distraint measures in the first eight months of 2015, a significant decline year-on-year. This is not an actual decline, however, as it is due mainly to the strikes among workers at Commissioners' offices earlier this year. The number of distraint petitions has fallen between years, but it is possible that petitioner have postponed submitting their requests because of the strikes.

**Non-performing loans broadly unchanged year-to-date**

- The reduction in the three large commercial banks' non-performing loans has slowed down markedly, as corporate debt restructuring is largely complete. The assessment of the banks' non-performing loans is based on book value, with non-performing loans defined as loans 90 days or more in arrears, frozen loans,

and those for which payment is deemed unlikely. Non-performing corporate loans accounted for about 6.7% at the end of August, and 4.6% if loans to holding companies and public sector firms are excluded. Default was least widespread among medium-sized companies, whereas in recent years it has been least among large firms. Default among construction firms declined most in H1/2015, from just over 8% of total loans to the sector to just over 5%. A large share of non-performing corporate loans, or 53%, are frozen. The percentage varies widely by company size, however; for instance, only 8% of non-performing loans to small firms were frozen, as opposed to 69% of loans to large firms.

## Financial market entities

### Financial system structure

- Total financial system<sup>18</sup> assets have increased by 3.0% in real terms year-to-date, totalling 8,989 b.kr. as of end-June. Earlier in this report is an analysis of the operations of Iceland's commercial banks, which constitute 35% of the financial system, as well as a discussion of their assets and liabilities. This section discusses pension funds, the Housing Financing Fund (HFF), and savings banks, whose combined assets comprise about 44% of the financial system.
- In June 2015, the stock of loans granted by resident entities to households and businesses was 3,449 b.kr., or 163% of GDP, after declining 9 percentage points since year-end 2014. In real terms, the loan stock declined by 1.2% in the first half of the year. Household debt is estimated to have declined by 60 b.kr. due to Government measures, both direct write-downs and the authori-

Table 1 Financial system assets<sup>1</sup>

Assets, b.kr.	31.12. 2011	31.12. 2012	31.12. 2013	31.12. 2014	30.6. 2015	Change from 31.12.'14
Banking system <sup>2</sup>	4,378	3,809	3,788	3,736	3,933	197
thereof Central bank of Iceland	1,464	900	760	739	734	-5
thereof commercial banks	2,852	2,850	2,968	2,939	3,154	215
thereof savings banks and others <sup>3</sup>	62	59	60	59	46	-13
Other credit institutions	1,097	1,076	1,067	1,030	1,000	-30
thereof Housing Financing Fund	864	876	863	824	818	-6
Pension funds	2,169	2,437	2,696	2,939	3,127	188
Insurance companies	145	155	165	168	176	8
Mutual funds, investment and institutional funds	371	410	452	488	526	38
State loan funds	171	192	209	226	227	2
Total assets	8,332	8,079	8,378	8,587	8,989	402

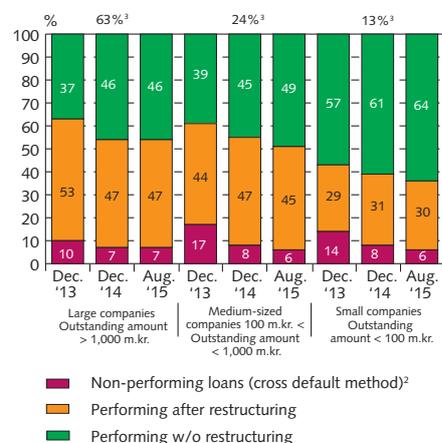
1. Values for the banking system and mutual funds, investment and institutional funds have changed from previous publications. This can be attributed to AMI, a fund of Arion bank, which is now under the parent company but was previously classified as a fund. 2. The banking system consists of commercial 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 2.2 b.kr. as of 30 Jun 2015).

Source: Central Bank of Iceland.

18. 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.

Chart I-49

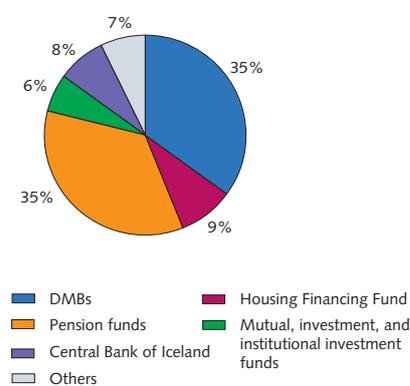
Status of the three largest commercial banks' corporate loans, by claim amount<sup>1</sup>



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.

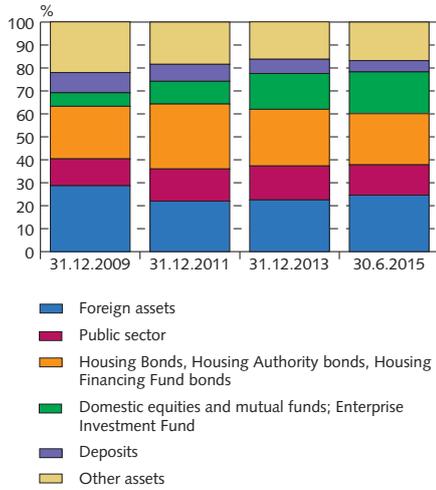
Chart I-50

Breakdown of financial system assets<sup>1</sup>  
June 2015



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

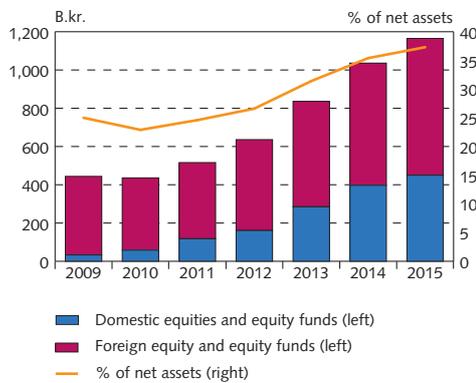
Chart I-51  
Breakdown of pension fund assets<sup>1</sup>



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 I-52  
Pension funds' equity holdings<sup>1</sup>



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.

sation to channel third-pillar pension savings towards mortgage loans. Without these measures, which began to be implemented in November 2014, the stock of loans would have totalled 3,509 b.kr. as of end-June, or 166% of GDP. The twelve-month decline relative to GDP would have been 18 percentage points, or 1.5% in real terms.

### Pension funds

- Pension fund assets increased by 4.6% in real terms between end-2014 and June 2015. They totalled 3,127 b.kr. at the end of June, or 148% of GDP. The corresponding ratio at the end of June 2014 was 145%.
- The pension funds' bond holdings relative to total assets declined by 1 percentage point from year-end 2014, to 52% as of end-June 2015. Equity securities accounted for 18% of assets, an increase of 2 percentage points in the first half of the year. The proportion of other assets was virtually unchanged during the half. Deposits in banks and savings banks accounted for 5%, unit shares<sup>19</sup> 23%, holdings in the Enterprise Investment Fund (EIF)<sup>20</sup> about 1%, and other assets 1%.
- About  $\frac{3}{4}$  of total pension fund assets are domestic, or nearly 2,370 b.kr., and about a fourth are foreign, at just over 758 b.kr. These proportions are virtually the same as at year-end 2014.
- Marketable bonds are the pension funds' largest single asset item, accounting for some 44% of their total assets. So far in 2015, pension funds' marketable bond holdings have increased by just over 54 b.kr., to a total of 1,361 b.kr. at the end of June. Some 47% of the bonds are HFF bonds, an increase of 2.8 percentage points since year-end 2014. The pension funds' investment options have been limited in recent years, but in July the Central Bank announced an exemption from the Foreign Exchange Act, no. 87/1992, for investment in financial instruments issued in foreign currency. The exemption extends to pension funds and other domestic custodians of third-pillar pension savings. The investment authorisation totals 10 b.kr. and will be divided among those applying for the exemption, both in terms of size, which carries a weight of 70%, and in terms of net inflows, which carries a weight of 30%. This authorisation will expand pension funds' investment options to a degree and will provide them with the opportunity for greater risk diversification.
- Covered bonds owned by the pension funds are classified as corporate bonds. This classification limits the pension funds' invest-

19. Unit shares consist of shares in bond funds, equity funds, and mixed funds issued by resident and non-resident entities.

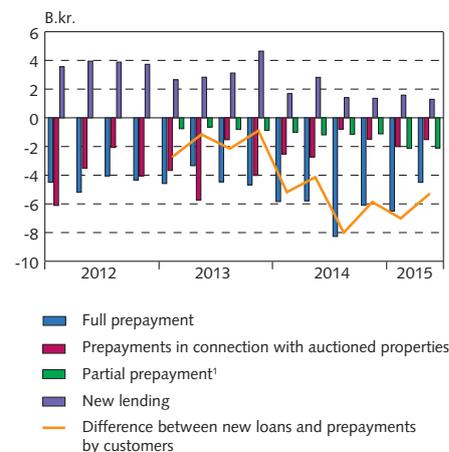
20. The Enterprise Investment Fund (EIF) was established at the end of 2009 by 16 pension funds that control about 64% of total pension fund assets in Iceland. Since then, Landsbankinn and VÍS have joined the group of owners. The EIF's role is to promote the reconstruction of the Icelandic economy in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

ment in covered bonds, even though they are less risky than conventional bonds because they are backed by asset portfolios. The increase in the financial institutions' funding of mortgage loans with covered bond issuance warrants an examination of whether such bonds should instead be classified as less risky than corporate bonds, as the underlying risk attached to them is much less.

### Housing Financing Fund

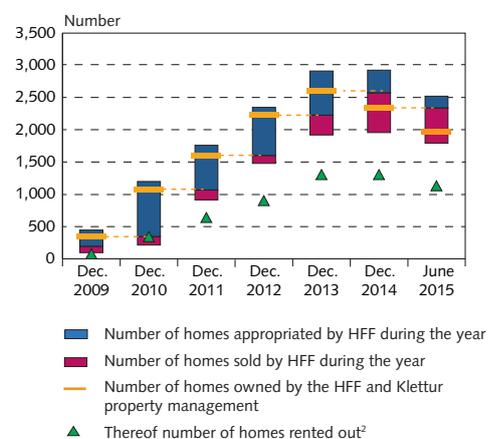
- The HFF's total assets amounted to 818 b.kr. at the end of June 2015, about 6 b.kr. below the end-2014 total of 824 b.kr. The main cause of the reduction was a 36 b.kr. downturn in lending, as loans account for nearly 85% of the Fund's assets, or 692 b.kr. This steep contraction is due mainly to the Government's debt relief measures. During the period, the HFF processed mortgage principal reduction claims in the amount of 34 b.kr. for 24,727 households.
- The HFF recorded an operating loss of 808 m.kr. in the first six months of 2015, which is similar to all year 2014, excluding ISK 4 b.kr. revenues from settlement of options contracts which had been in dispute since autumn 2008. At the end of June, the Fund's capital totalled just under 17.3 b.kr., and the capital ratio was 4.8%, up from 4.5% at the end of 2014. The capital ratio is still below the HFF's target of 5%, however.
- At the end of June, issued HFF bonds totalled nearly 796 b.kr. and had declined by just over 3 b.kr. from end-2014. No HFF bonds have been issued since January 2012.
- The future role and existence of the Fund remain highly uncertain. No bill of legislation of housing was passed before the legislative recess in the spring; therefore, bills must be resubmitted this autumn. At the autumn session, the Minister of Social Affairs and Housing intends to present a bill providing for a new housing institution called Íbúðastofnun to take on the tasks in the HFF's purview. The housing institution would take on the conferral of initial contributions towards construction or purchase of rental flats intended for tenants below given income and asset thresholds.
- Full and partial prepayments by HFF customers totalled just over 15.2 b.kr. in the first six months of 2015, as opposed to 13.8 b.kr. over the same period in 2014, indicating that the Fund's prepayment problem is still escalating. Extra payments due to customers' allocation of third-pillar pension savings totalled 2.9 b.kr. in the first half of 2015. Concurrent with the increase in prepayments in H1, new HFF lending contracted by 1.6 b.kr. year-on-year. The Fund's new lending year-to-date totals just under 2.9 b.kr.
- The calculated discount given to the central government on the book value of the portion of the HFF loan portfolio appropriated by the State as a result of the reduction in indexed mortgage

Chart I-53  
Prepayments by HFF customers and new loans



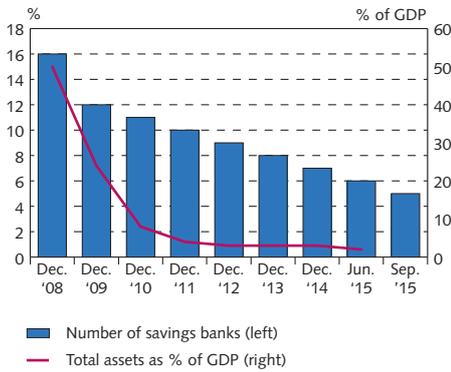
1. Data not available prior to 2013.  
Source: Housing Financing Fund.

Chart I-54  
Residential properties owned by the Housing Financing Fund¹



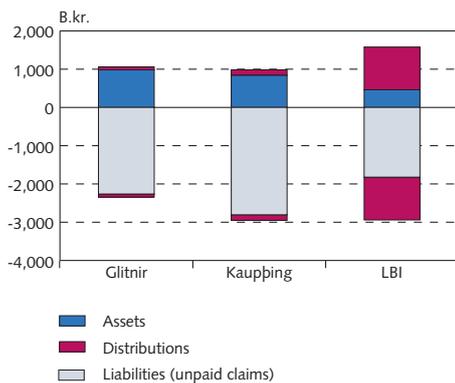
1. Consolidated accounts. 2. The Housing Financing Fund began renting out residential property in March 2009. Klettur property management began renting out residential property in the beginning of 2014.  
Sources: HFF annual financial statements and monthly reports, Klettur Property Management.

Chart I-55  
Number of savings banks and their assets



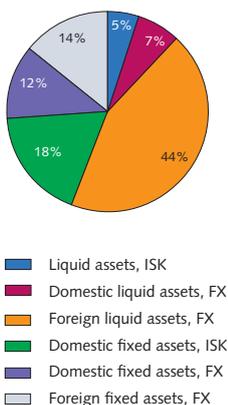
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-56  
Assets, claims, and distributions of DMBs in winding-up proceedings  
Book value 30.06.2015



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

Chart I-57  
Assets of DMBs in winding-up proceedings  
Book value 30.06.2015



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

principal is estimated at just over 1 b.kr. By end-2014, some 433 m.kr. had been entered; therefore, the impact of the discount in 2015 to date is 597 m.kr. It is not clear how this loss to the Fund will be compensated, but a declaration promising restitution has been made.

- In the first half of the year, the HFF sold 548 properties but appropriated 181. The number of flats appropriated by the HFF has declined year-on-year, but sales of flats have increased. At the end of June, the HFF and its subsidiaries owned 1,974 flats, as opposed to 2,341 at the end of 2014.
- As of end-June, loans in default and frozen<sup>21</sup> loans accounted for 8.7% of the Fund's total loans, as opposed to 11.3% at the same time in 2014. Further analysis of non-performing loans to households can be found in the section entitled *Households*.

### Savings banks

- At the end of June, the savings banks' total assets amounted to just under 43.3 b.kr., after declining by over 13.6 b.kr. in real terms since year-end 2014. In March, the Financial Supervisory Authority approved the merger of Sparisjóður Vestmannaeyja and Landsbankinn. In June, Sparisjóður Norðurlands and Landsbankinn entered into an agreement on the preparation of a merger, and a merged bank commenced operation in September. The merger of Afl sparisjóður and Arion Bank is also in preparation, leaving four savings banks still in operation.

## The failed banks' estates

### Outstanding claims against failed financial institutions

- Outstanding claims against the failed banks' estates totalled 6,892 b.kr. at the end of June, although the final amount is uncertain. The vast majority (97%) are general claims, but because it is still possible to file priority claims, that percentage could change. Furthermore, the amount of the outstanding claims could decline through netting, contractual agreements, and court judgments. The estates have set aside funds in suspense accounts to cover disputed priority claims, which are excluded from the total amount of outstanding claims. At the end of June, the estates had paid priority creditors 1,342 b.kr., and LBI had yet to pay 210 b.kr. On 18 September, an agreement was announced between the Depositors' and Investors' Guarantee Fund (DIGF), on the one hand, and the Dutch central bank (De Nederlandsche Bank, DNB) and the British Financial Services Compensation Scheme (FSCS), on the other, concerning a settlement relating to LBI's Icesave deposit accounts. According to the agreement, LBI will pay the equivalent of 9.5 b.kr. in foreign currency to DNB and FSCS. The

21. Includes loans in arrears by more than 90 days and those for which payments have been frozen according to the HFF's monthly reports.

Table 2 Book value of Glitnir, Kaupthing, and LBI assets as of 30 June 2015

B.kr.	Domestic assets			Foreign assets in FX <sup>1</sup>	Total assets
	in ISK	in FX	Total		
Liquid assets	121	151	272	1,000	1,272
Loans to customers	24	5	29	169	198
Loans to financial institutions	1	0	1	24	25
Securities	36	37	73	106	179
Derivatives	2	1	3	12	15
Compensation bonds from new banks for asset transfer	0	201	201	0	201
Holdings in subsidiaries and affiliates	340	8	348	8	356
- thereof stakes in the new banks	340	0	340	0	340
Other assets	7	14	21	14	35
<b>Total</b>	<b>530</b>	<b>418</b>	<b>948</b>	<b>1,332</b>	<b>2,280</b>
Position in escrow accounts	1	0	1	23	24
Assets and positions in escrow accounts	531	418	949	1,356	2,305
Domestic assets backed by foreign collateral	12	19	31	0	31

1. An insignificant portion of foreign assets are in ISK.

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

general claims that have been approved far exceed the estates' assets; therefore, a large proportion of them will be written off at the time of settlement.

### The estates' assets

- The estimated book value of assets held by the estates of Glitnir, Kaupthing, and LBI totalled 2,280 b.kr. at the end of June, excluding the approximately 24 b.kr. held in suspense accounts due to disputed claims. The estates' assets including the suspense account balances have increased by 64 b.kr. this year, mainly due to valuation increases in the holdings in the new banks and increased recoveries for assets that have been sold. The estates' domestic assets are entered at 948 b.kr., or about 42% of total assets, including 530 b.kr. in Icelandic krónur and about 418 b.kr. in foreign currencies.<sup>22</sup>

### The estates' liquid assets: differences between estates

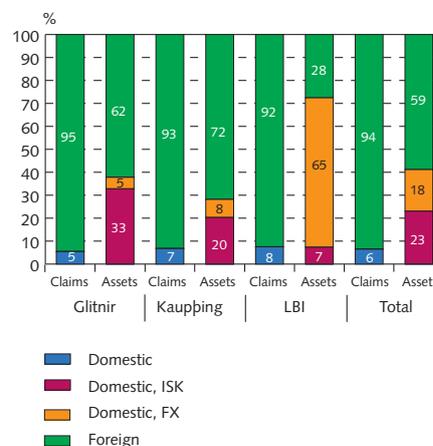
- The estates' liquid assets plus the suspense account balances total 1,296 b.kr., or 56% of total assets. After adjusting for distributions, the estates have converted 72% of total assets to liquid assets to date. The ratio of liquid assets to total assets varies from one estate to another, as is discussed in Financial Stability 2015/1. LBI has converted about 80% of its assets to liquid form, Glitnir about 75%, and Kaupthing about 60%, although the pace has slowed in the recent term. About 79% of the estates' liquid assets are foreign. Some 29% of domestic assets are liquid, as opposed to 75% of foreign assets.

22. The estates' definition of domestic assets listed in foreign currencies is not entirely comparable from one estate to another. See *Financial Stability 2015/1*.

Chart I-58

Estimated domestic/foreign breakdown of assets and claims of DMBs in winding-up proceedings<sup>1</sup>

Book value of assets 30.06.2015



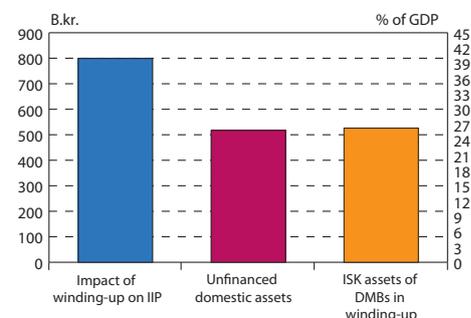
1. The proportion of domestic claims is calculated based on the underlying beneficial owners of the claims.

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

Chart I-59

Impact of calculated settlement of DMBs in winding-up proceedings on the IIP, unfinanced domestic assets and ISK assets<sup>1</sup>

Book value of assets 30.06.2015



1. Assuming equal distribution of assets among creditors; no consideration is given to future tax payments or other issues pertaining to the settlement of the estates.

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

Chart I-60

Stability conditions

Stability contribution	Payment of direct contribution
	Transfer of assets and claims
	Payments connected with sale of banks
Lengthening of foreign funding	Refinancing in foreign currencies
	Allocation of FX deposits to bond purchases

Source: Central Bank of Iceland.

### Settlement without mitigating measures

- An estimated 93.5% of creditors are non-residents and the other 6.5% residents. The calculated effect of the estates on Iceland's international investment position (IIP) – i.e., domestic assets reverting to foreign creditors net of foreign assets reverting to domestic creditors – amounts to just under 800 b.kr., or 38% of GDP, based on the position as of Q2/2015, assuming that fixed assets will be sold for book value, and excluding other factors such as tax payments and stability contribution. Net outflows through the foreign exchange market upon winding-up, excluding mitigating measures, will be much less, however.
- The problem that settling the estates poses for capital account liberalisation lies in the large share of foreign creditors as compared with the share of domestic assets. Other things being equal, this mismatch will put pressure on the Icelandic króna, although a portion of foreign-denominated assets will revert to domestic creditors. Unfinanced domestic assets amount to approximately 517 b.kr., or 22% of the estates' total assets and 24% of GDP, and are roughly equivalent to the estates' króna-denominated assets.
- Glitnir and Kaupthing's estates have the most pronounced mismatches: their foreign creditors hold claims against 95% and 92% of assets, respectively, whereas the two estates' foreign-denominated assets account for 67% and 80%, respectively, of total assets. Distributing the value of assets to their creditors without countervailing measures would therefore severely undermine the stability of the króna. LBI's mismatch is much smaller.

### Mitigating measures

- In order to address the problem stemming from the settlement of the estates, the authorities presented a capital account liberalisation strategy on 8 June 2015. Thereafter, the Act on a Stability Tax was passed by Parliament. According to that Act, the estates' composition agreements must fulfil specified stability conditions. The stability conditions aim both to limit the effect of each estate's winding-up on the exchange rate of the Icelandic króna and to minimise the overall impact of winding-up on financial stability. In order to fulfil the conditions, the estates can, among other things, pay a stability contribution based on their króna-denominated assets, thereby reducing the distributions of those assets to foreign creditors. If composition agreements that fulfil the stability conditions are not reached by the end of 2015, the estates must pay a stability tax.
- On the same day that the authorities presented their plans for the stability tax and stability conditions, the three banks' creditors presented proposals for measures and stability contributions that they deemed adequate to fulfil the necessary stability conditions, so that it would be possible to conclude composition agreements, subject to an exemption from the Foreign Exchange Act.

Thereafter, all of the estates' winding-up boards submitted draft composition agreements based largely on the proposals presented in June. The Central Bank has been reviewing the winding-up boards' proposals in the recent term. No final conclusion has been reached, and the proposals may be subject to change.

- The proposals submitted by the creditors in June vary somewhat, as each one is designed to solve the problem stemming from the estate concerned. In their simplest form, proposals that fulfil the stability conditions will comprise some of the following: payment of a direct contribution, transfer of domestic assets and claims, contingent bonds, earnings-based agreements, debt refinancing, and allocation of deposits towards bond purchases. All of the large banks' estates assume that they will retain enough capital to defray operating expenses and cover the bank tax. In some instances, it is assumed as well that funds will be set aside for disputed claims, indemnity funds, and other payments that are uncertain.
- A final conclusion has yet to be reached, but the above implies nonetheless that a solution to the most serious part of Iceland's balance of payments problem will be forthcoming soon. This will entail either composition agreements that fulfil the stability conditions or the imposition of a stability tax.

#### **Impact of winding-up with mitigating measures**

- Because a conclusion has yet to be reached, it is not possible to carry out a comprehensive analysis of the impact that winding-up on the basis of composition agreements with stability conditions will have on the domestic economy, the balance of payments, the Treasury, and financial stability. It is clear, however, that the negative impact on the exchange rate and the foreign exchange reserves will be eliminated, as this is a prerequisite for exemptions from the Foreign Exchange Act. Iceland's underlying IIP will improve to about 16-18% of GDP, depending on the ultimate outcome. Treasury debt will decline as well, although the specifics depend on the allocation of the stability contribution so as not to jeopardise economic stability. The banks' liquidity could be reduced somewhat, but within limits that the banks can tolerate, if they take care not to weaken their liquidity unduly with excessive credit growth in coming months. The Central Bank will publish a more detailed analysis of these factors when the outcome has been determined.



# II Central Bank and Financial Supervisory Authority stress test 2014/15

The stress test carried out by the Central Bank of Iceland and the Financial Supervisory Authority for 2014/15 extends to the three largest commercial banks, whose total assets constitute some 97% of total deposit institution assets in Iceland. In general, stress tests are useful for risk assessment, and they give indications of both banks' resilience and their sensitivity to adverse economic developments. They also support macroprudential policy and supervision. The purpose of the 2014/15 stress test is to examine the commercial banks' resilience to a specific stress scenario featuring a combination of capital outflows, an economic contraction among Iceland's trading partner countries, and a decline in fish catches. According to this stress scenario, export volumes will contract, terms of trade will deteriorate, and the exchange rate of the króna will decline. Unemployment will rise, purchasing power will decline, and private consumption will contract. GDP will contract by 2.6% in the first year and 1.3% in the second year. The main impact of such a stress scenario on the banks is that Tier 1 capital ratios will decline by 2-3.5 percentage points from the base year 2014, when the three banks' aggregate Tier 1 capital ratio was 25%.<sup>1</sup>

## Background, purpose, and form

The Central Bank of Iceland and the Financial Supervisory Authority collaborate on the administration of stress test to examine the impact of macroeconomic scenarios on the commercial banks' resilience. The stress test entails a comprehensive analysis of the banks' business plans, operations, and balance sheets over a three-year horizon 2015-2017.

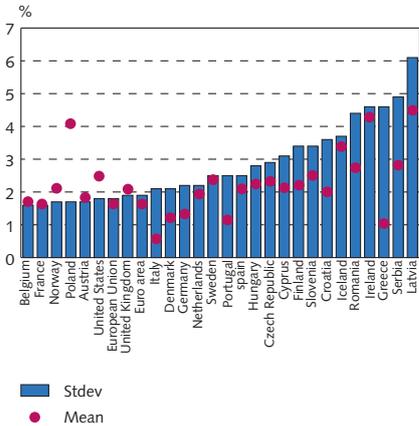
Such a stress test was first administered in 2013/14, and the knowledge acquired was used to prepare and execute the 2014/15 stress test. This is the first publication of such a stress test in Iceland. The 2014/15 stress test extends to the three largest commercial banks, whose total assets constitute some 97% of total deposit institution assets in Iceland. The Central Bank prepared the scenarios and developed the stress test.

### Purpose of stress tests

Stress testing provides an assessment of financial system resilience and can enhance confidence in the financial system as a whole. Stress tests are useful for general risk assessment; they give indications of banks' sensitivity to adverse economic developments and help authorities to react to potential risks in a timely manner. Research shows that cyclical swings are more pronounced in Iceland than elsewhere, not least because of the small size of the economy and the frequent fluctuations in both the exchange rate and real disposable income.<sup>2</sup> Stress tests give useful information for macroprudential policy and financial market supervision. In addition, they create an important foundation for discourse between parties such as banks and financial supervisors, or between various departments within a given bank. In general, banks that have implemented procedures for stress tests are

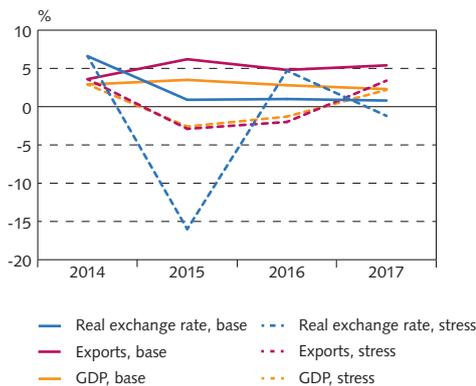
1. The three banks' aggregate Tier 1 capital ratio after dividend payments.  
 2. Central Bank of Iceland *Special Publication* no. 7, "Iceland's currency and exchange rate policy options", September 2012.

Chart II-1  
Standard deviation and mean GDP growth 1996-2014



Source: Eurostat.

Chart II-2  
Development of macro indicators in the  
baseline and stress case 2015-2017<sup>1</sup>



1. Real change, except annual change of the real exchange rate.  
Source: Central Bank of Iceland (QMM results Nov 2014).

better prepared to respond to potential shocks, as stress tests and their results can be used as a tool for risk management. It is important that key bank executives participate actively in stress test preparation and interpretation so that the lessons to be learned from them are utilised as effectively as possible.

### Scenario analysis

The 2014/15 stress test takes the form of a scenario analysis wherein two macroeconomic scenarios are set out. On the one hand is the baseline scenario, which is based on assumptions concerning economic developments in coming years and is broadly in line with the Bank's baseline forecast. On the other hand is the stress scenario, which deviates from the baseline with a specific economic shock.

In the execution of the stress test, the impact of macroeconomic scenarios on the banks' balance sheets and profit and loss accounts is examined. An assessment is made of developments in each bank's balance sheet and profit and loss account, on the one hand, and in its capital base and risk-weighted assets, on the other. The banks use their own methodology to carry out the assessment but must follow instructions from the supervisors, which facilitates comparison between banks. The Central Bank also examines the effects of the scenarios on the banks by using its own stress testing model, in order to generate a reference assessment for each bank and lay the groundwork for discussion of the scenarios' impact on various aspects of the banks' business plans. The stress test discussed here is intended primarily to give an indication of the impact of the specified scenarios on the banks' capital position.

### Macroeconomic scenarios

Two scenarios of possible economic developments were prepared using the Central Bank's quarterly macroeconomic model (QMM). The stress scenario was based on the Bank's analysis of the key risks to financial stability in Iceland at the time the test was administered. To determine the severity of the stress scenario, recent stress tests conducted abroad were used as a reference, and historical developments in economic variables in Iceland were examined as well. Based on these factors, the stress scenario can be defined as of medium severity. On the other hand, the capital flight from the banking system according to the stress scenario was severe. The stress scenario does not represent the Bank's forecast of expected developments in macroeconomic variables or other economic variables.

#### Baseline scenario

The baseline scenario is in line with the baseline forecast in *Monetary Bulletin* 2014/4 concerning medium-term economic developments, with one important difference: it assumes that the Bank's policy rate will remain unchanged.

#### Stress scenario

The purpose of the stress scenario for 2014/15 is to determine the commercial banks' resilience to a shock featuring a combination of

capital outflows, an economic contraction among Iceland's trading partner countries, and a decline in fish catches. It is assumed that the króna will depreciate, revenues from foreign tourists will decline, global aluminium prices will fall, and fish catches will contract. It is also assumed that export volumes will contract and terms of trade will deteriorate, although the depreciation of the króna will offset falling prices of export products in foreign markets to some degree.

Capital outflows from the banking system as described in the stress scenario are further specified below. Similar developments could take place, for instance, if the capital controls were lifted all of a sudden. The stress test assumes that the following outflows will take place at the beginning of the first year:

- 50% of Treasury bonds owned by non-residents (or 10% of the total Treasury bond stock) are sold.<sup>3</sup>
- Pension funds withdraw 45% of their króna-denominated deposits (in order to buy Icelandic Treasury bonds sold by non-residents at reduced prices) and 100% of foreign-denominated deposits available for withdrawal in 2015.
- Non-residents withdraw 30% of króna-denominated deposits and 70% of foreign-denominated deposits available for withdrawal in 2015.
- Financial institutions in winding-up proceedings withdraw all deposits available for withdrawal in 2015.
- Financial institutions withdraw 40% of króna-denominated deposits and 100% of foreign-denominated deposits available for withdrawal in 2015.
- Icelandic individuals and small companies withdraw 10% of króna-denominated deposits and 20% of foreign-denominated deposits available for withdrawal in 2015.
- Large companies withdraw 20% of króna-denominated deposits and 50% of foreign-denominated deposits available for withdrawal in 2015.

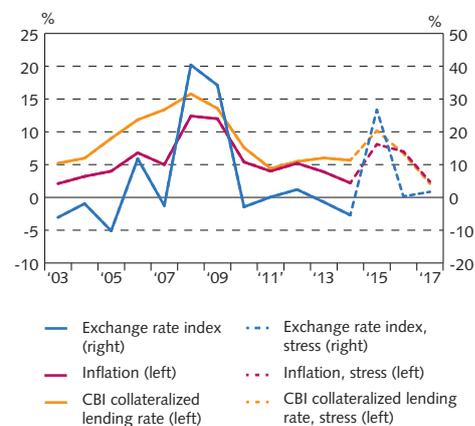
Outflows of deposits total about a third of the three largest banks' deposits as of end-2014. As always, capital flows are also determined by other economic variables, such as assumptions concerning investment, exchange rates, and so forth. It is assumed that the deposits withdrawn will exit the domestic economy and will not, for instance, be used to pay down debt or be transferred between accounts within the banking system.

The exchange rate of the Icelandic króna will fall by about 21% in the stress scenario, and the real exchange rate will fall by some 16% in the first year. Inflation will rise in the wake of the currency depreciation, measuring 8.1% in the first year and 7.0% in the second year. The Central Bank's collateralised lending rate is allowed to follow the Taylor rule. It will be 10.2% in the first year and will fall to 6.7% in the second year. In the third year, 2017, interest rates will fall markedly, in the wake of declining inflation and a narrowing output gap.

3. According to Government Debt Management figures on positions held by Treasury securities owners as of 28 November 2014.

Chart II-3

Development of exchange rate, inflation and interest rate 2003-2014 and in the stress case 2015-2017<sup>1</sup>

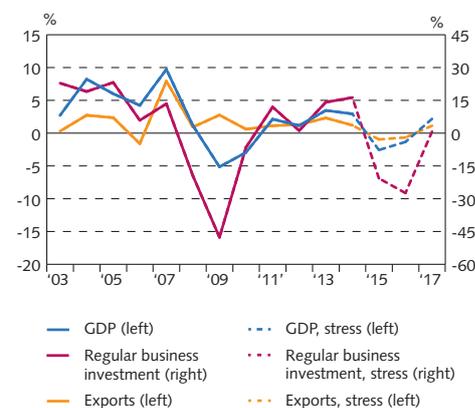


1. Annual change of exchange rate index, annual average inflation and collateralized lending rate.

Source: Central Bank of Iceland (QMM results from Nov 2014).

Chart II-4

Development of GDP, exports and investments 2003-2014 and in the stress case 2015-2017<sup>1</sup>

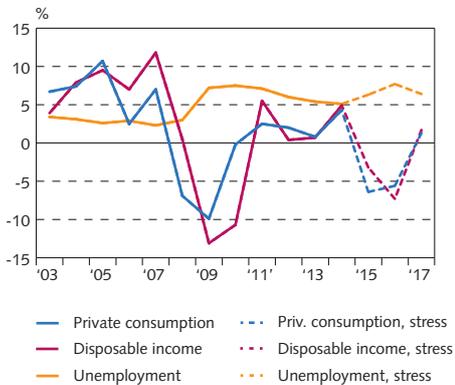


1. Real change.

Source: Central Bank of Iceland (QMM results Nov 2014).

Chart II-5

Development of private consumption, disposable income and unemployment 2003-2014 and in the stress case 2015-2017<sup>1</sup>



1. Real change except annual average unemployment.  
Source: Central Bank of Iceland (QMM results Nov 2014).

At the same time, revenues from services exports will decline, mostly due to a contraction in tourism-generated revenues. The contraction in services export revenues will measure about 7% in the first year and 10% in the second year. Furthermore, marine product export volumes will contract by 10% in comparison with the baseline scenario. In the first year, exports will contract by 5% in comparison with the baseline, or about 3% from the previous year. Aluminium prices will fall in foreign currency terms by nearly 10% in the first year (20% in comparison with the baseline). Terms of trade will deteriorate by 2.4% in the first year and will not fully recover during the period.<sup>4</sup> Investment will contract because of reduced economic activity. Unemployment will measure 6.3% in 2015 (as opposed to 4.2% in the baseline scenario) and 7.7% in 2016 (4.0% in the baseline). Real disposable income will contract by 3% in the first year and 7% in the second. Private consumption will contract during the first two years – by 6.4% in 2015 and 5.6% in 2016. Public consumption and public investment are assumed to develop similarly in both scenarios. In the stress scenario, however, Government operations will generate a deficit, prompting the Treasury to issue more bonds. GDP will contract by 2.6% in the first year and 1.3% in the second year in the stress scenario.

Asset prices will fall, both in Iceland and abroad. Equity securities prices are assumed to fall in the first year by 35% in Iceland and 18% abroad. House prices will fall by 15% in real terms over two years, although nominal prices will hold broadly unchanged. Over the period 2015-2017, the premium on Treasury bonds is assumed to rise by 150 in excess of interest rate development in the stress scenario, and bond prices are assumed to fall by 10-23%, depending on maturity and bond type.

## Assumptions and execution

### Providing guidance to the banks enables comparable assumptions

All of the banks received the same guidelines for the execution of the stress test. The aim is to ensure that the three banks rely on comparable assumptions and that the results will be comparable across banks insofar as is possible. The banks' annual accounts are prepared on a consolidated basis, and the stress test is based on their consolidated balance sheets as of end-2014.

### Developments in the balance sheet and the risk-weighted assets

In carrying out the stress test, the banks must estimate the effects of the scenarios on the assets and liabilities sides of their balance sheets. Developments in assets (such as loans) must be in line with the macroeconomic scenarios, adjusted for developments in demand<sup>5</sup> and price levels, etc. Consideration must also be given to supervisory bodies' requirements in connection with factors such as capital ratios and liquidity ratios. In estimating developments in financial assets held

4. It is assumed that terms of trade will recover in four years' time.

5. Demand can develop, among other things, with purchasing power, GDP, and/or investment.

for trading, consideration must be given to price level changes according to the scenarios.

It is assumed that, in assessing developments in the risk-weighted assets, banks consider developments in credit risk, market risk, and operational risk, as well as other relevant risk factors. The forecast of risk-weighted assets must be consistent with the forecasted balance sheet, including the credit provisioning account. Consideration must be given to developments in exposures (such as loans) and in risk weights, which rise as loan-to-value ratios and non-performing loans rise.<sup>6</sup>

### Responses to deposit outflows

Because of the outflows of deposits provided for in the stress scenario, it is assumed that the banks will apply to the Central Bank for new liquidity in the form of collateralised loans. If collateralised loans are not an option, they can respond by selling assets such as equity securities, given developments in asset prices according to the scenario. On the other hand, it is not assumed that the banks will be able to sell illiquid assets such as loan portfolios, and it is not permitted to assume prepayments of loans in excess of scheduled instalments, equity capital increases, or other comparable measures.

In the stress test, the banks must assume that the stress will affect their ability to obtain market funding. It is assumed that the cost of foreign funding will rise. In the stress scenario, 80 points are added to the short-term foreign interest rate according to the baseline scenario, and the premium on the short-term rate rises by an additional 300 points in the first year (2015), 150 points in the second year (2016), and 75 points in the third year (2017), for both new issuance and refinancing.

### Developments in the profit and loss account

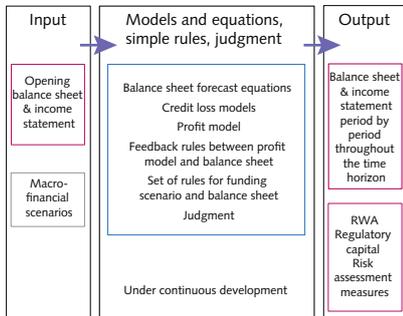
In general, forecasts relating to items in the profit and loss account should be consistent with the forecasted balance sheet, including those concerning interest income and expense, net income from financial activities, net exchange rate gains, and loan impairment. As regards interest income and expense, it is also necessary to consider developments in the funding environment, interest rates, exchange rates, and so forth, for each scenario. In connection with developments in loan impairment, the banks must assess the effects of the macroeconomic scenarios on the loan portfolio. It is assumed that the banks will use their own methodology to assess losses due to loan impairment, and it is desirable that statistical methods/models be used together with expert assessments.

Furthermore, it is assumed that the banks will have to pay the bank levy,<sup>7</sup> even in the stress scenario, over the horizon of the stress test (2015-2017). Dividend payments are permissible in both baseline and stress scenarios if the bank is operating at a profit. In the baseline scenario, it is assumed that dividend payments will be in accordance with the business plan. The same dividend percentage is assumed in the stress scenario, unless the bank is operating at a loss.

6. The banks use the standardized approach to calculate their credit and market risk.

7. The bank levy amounts to 0.376% of the banks' liabilities in excess of 50 b.kr.

Chart II-6  
Overview of CBI stress test model



Heimild: Seðlabanki Íslands.

No measures other than those described above – such as equity capital increases or measures that change the bank’s current policy – may be taken. The same applies to other management actions in response to the stress, such as laying off staff.

**The Central Bank’s assessment and stress testing model**

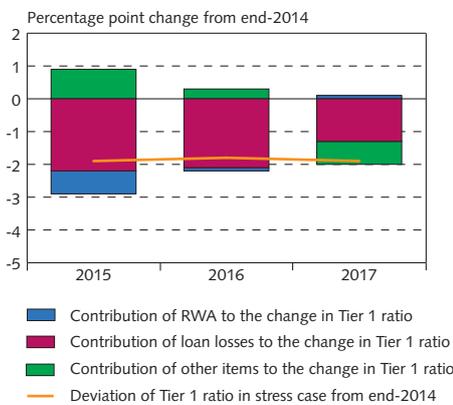
In assessing the results of the stress test, the Central Bank uses its own stress testing model,<sup>8</sup> which assesses the effects of macroeconomic scenarios on the Bank’s financial statements, including risk-weighted assets and the capital base, over the next three years. The stress testing model relies on sub-models and equations that are solved for the commercial banks or for the financial system as a whole, in terms of macroeconomic variables or other variables. Therefore, in examining the results, the same models and assumptions are used for each bank. Because the data are inadequate in many respects, Central Bank experts make their own judgements as well. It should be noted that the stress testing model is in constant development.

**Conclusions**

The results show the assessment of the combined effects of the stress scenario on the capital base and risk-weighted assets, including loan losses and developments in the banks’ income and expenses. The banks used various methods and approaches to assess the impact of the stress, but within the framework provided for in the guidelines accompanying the stress test. The Central Bank’s assessment, however, uses the same methodology for each bank.

It is important to note that the results are sensitive to changes in assumptions and methodologies. The composition of each bank’s balance sheet in the beginning of the test is also important. Therefore, the stress test results give only an indication of the potential effect of the stress. It is also appropriate to bear in mind that the stress scenario is one defined scenario, but that during a more severe stress and a steeper economic contraction, losses and reductions in capital ratios could be proportionally greater, as, for instance, the relationship between loan losses and macroeconomic variables is non-linear.

Chart II-7  
Estimate of the participating banks:  
Deviation in Tier 1 capital ratio in the stress from end-2014<sup>1</sup>



1. Participating banks’ forecast for stress case 2015-2017. Sources: Arion bank, Íslandsbanki, Landsbankinn.

**Capital ratio, capital, and risk-weighted assets**

The combined impact of the stress scenario on the banks is a 2- to 3.5-percentage point reduction in the Tier 1 capital ratio from the 2014 level of about 25%. The capital ratio declines because of both a reduction in capital and a rise in the risk-weighted assets. Charts II-7 and II-8 show the assessments by the Central Bank and the banks themselves of the reduction in the Tier 1 capital ratio, the contribution of loan losses through the profit and loss account, changes in risk-weighted assets, and the effects of other items. The contribution of loan losses is greatest in the first years in the stress scenario and largely explains the decline in profit.

8. A more detailed description of the Central Bank’s stress testing model can be found in *Financial Stability 2014/1*.

To place the stress test results into context with stress tests administered outside Iceland, the US Federal Reserve Bank conducted stress tests on US banks earlier this year, and the stressed capital ratio<sup>9</sup> was estimated to decline 3.6 percentage points from the reference period.<sup>10</sup> The European Banking Authority (EBA) conducted stress tests on selected European banks in 2014, and the result was that, by end-2016, capital ratio<sup>11</sup> declined by 2.6 percentage points from the base year 2013.<sup>12</sup> The stress scenarios used in the stress tests of the US Federal Reserve and the EBA differed both from one another and from the stress scenario used in Iceland by the Central Bank and the Financial Supervisory Authority. Furthermore, the US and European banks had much lower capital ratios than the Icelandic banks did at the beginning of the stress test.

Developments in banks' capital base depend on profit or loss, dividend payments, and deductions from capital. Developments in Tier 1 capital as a result of the stress scenario are shown in Charts II-9 and II-10. The banks' own assessment was very similar to the Central Bank's.<sup>13</sup> According to the stress test results, the combined Tier 1 capital declines as a result of the stress by a total of 8% from the base year (2014) to the end of the stress test horizon.

Risk-weighted assets weight the banks' assets in terms of risk and are the denominator of the capital ratio. The banks assessed the impact of the stress on their risk-weighted assets somewhat differently as regards developments in both exposures (such as loans and financial assets) and risk weights for various exposure categories. According to the banks' assessment, risk-weighted assets on aggregate rise by 3% in the first year in the stress scenario, as opposed to 6% according to the Central Bank's assessment. In the third year, risk-weighted assets decline, however, according to the assessments of both the banks and the Central Bank. In comparison, the US Federal Reserve forecasts a rise in risk-weighted assets of up to 13% in response to severe stress.<sup>14</sup> According to the EBA stress test in 2014, the banks' risk-weighted assets in the stress scenario rise by 11% from the base year.<sup>15</sup>

### Income, expenses, loan losses, and profit

The banks' income develops largely in line with developments in their balance sheets; for instance, interest income depends on developments in the loan portfolio and the interest environment. Because the stress scenario entails elevated inflation and a depreciation of the króna, indexed and foreign-denominated loan principal will rise, alt-

9. Tier 1 common ratio.

10. Dodd-Frank Act Stress Test 2015: Supervisory Stress Test Methodology and Results, Board of Governors of the Federal Reserve System, March 2015.

11. Common Equity Tier 1 capital ratio.

12. Results of 2014 EU-wide stress test, Aggregate results, European Banking Authority, October 2014.

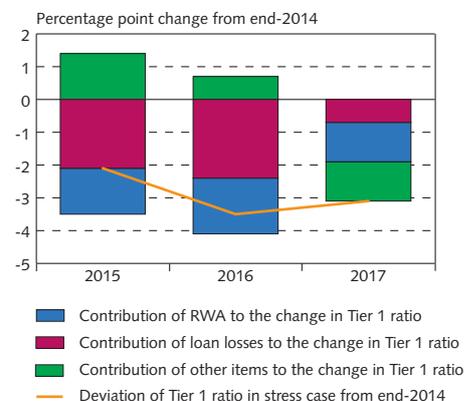
13. The stress test does not assume any new subordinated loans.

14. Board of Governors of the Federal Reserve System, 2015, Dodd-Frank Act Stress Test 2015: Supervisory Stress Test Methodology and Results.

15. It should be noted that many banks in Europe use the internal ratings-based approach (IRB) to assess their risk-weighted assets, whereas the standardised approach is used in Iceland and widely in the US. The average risk weights of European banks that participated in the EBA test are also much lower than in Iceland.

Chart II-8

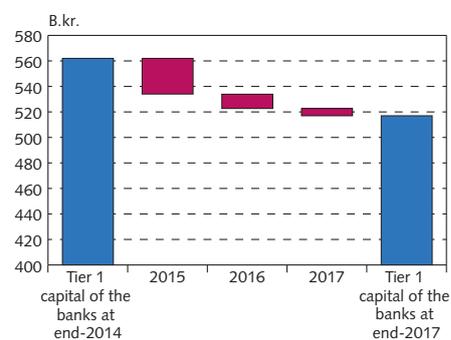
CBI estimate: Deviation in Tier 1 capital ratio in the stress from end-2014<sup>1</sup>



1. Central Bank of Iceland forecast for stress case 2015-2017.  
Source: Central Bank of Iceland.

Chart II-9

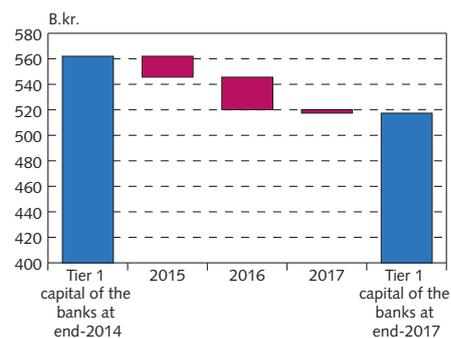
Estimate of the participating banks: Development of Tier 1 capital of the three banks from end-2014 to 2017 in the stress case<sup>1</sup>



1. Participating banks' forecast for stress case 2015-2017.  
Sources: Arion Bank, Islandsbanki, Landsbankinn.

Chart II-10

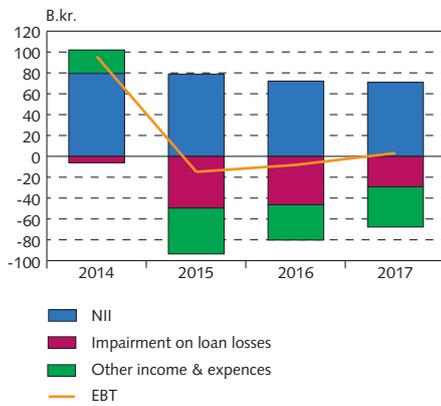
CBI estimate: Development of Tier 1 capital of the three banks from end-2014 to 2017 in the stress case<sup>1</sup>



1. Central Bank of Iceland forecast for stress case 2015-2017.  
Source: Central Bank of Iceland.

Chart II-11

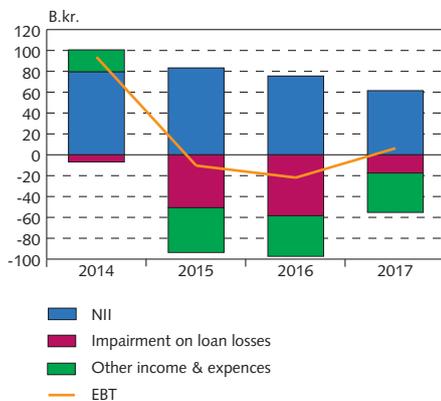
Estimate of the participating banks: EBT and contribution of different items in 2014 and estimates for stress case 2015-2017<sup>1</sup>



1. Participating banks' forecast for stress case 2015-2017.  
Sources: Arion Bank, Íslandsbanki, Landsbankinn.

Chart II-12

CBI estimate: EBT and contribution of different items in 2014 and estimates for stress case 2015-2017<sup>1</sup>



1. Central Bank of Iceland forecast for stress case 2015-2017.  
Source: Central Bank of Iceland.

though overall demand will contract, reducing demand for new loans. Nominal interest rates will rise in the first year and then decline in the stress scenario. The banks' interest income and expense will rise at the outset but decline later on. The assessment of developments in net interest income is shown in Charts II-11 and II-12.

Other income, such as net financial and commission and fee income, will contract. Financial income will decline due to falling asset prices, although this will be offset in the first year by the depreciation of the króna. Reduced economic activity will lead to reduced commission and fee income.

Operating expenses will rise somewhat, due both to elevated inflation and to developments related to operational risk. The stress test does not assume that streamlining measures such as employee lay-offs will be undertaken in order to cut costs.

Loan losses will increase during a stress, in the wake of an economic contraction. In particular, reduced demand affects firms' debt service capacity, and elevated unemployment and reduced purchasing power affect individuals' debt service capacity. Furthermore, asset prices will fall, causing a rise in loss given default. The banks' combined losses on loans to individuals and firms can be seen in Charts II-11 and II-12. Loan losses as a share of total loans are assessed at close to 2.5%, on average, in the first two years, and are projected to decline in the third year.

The banks' profits will contract during the first years after the shock. In the first year, their operations will turn around and generate a loss equal to about 30% of the previous year's profit.

### The banks' liquidity position

The banks' liquidity position is currently strong. Iceland was one of the first countries to implement rules on liquidity coverage ratios (LCR) based on the recommendations of the Basel Committee for Banking Supervision (BCBS). The stress scenario assumes massive outflows of pension funds' and financial institutions' foreign-denominated deposits, which, together with non-residents' deposits, carry the heaviest outflow weight according to the liquidity rules. All of the banks are considered to fulfil the liquidity requirements for foreign currencies following the shock, and their liquidity position actually improves because of a reduction in deposits carrying a heavy weight. On the other hand, the liquidity position in Icelandic krónur deteriorates slightly, affecting the overall liquidity ratio in the stress scenario. Individual banks may have to respond and improve their overall liquidity ratios after the shock, as the stress test assumes that all of the banks will fulfil liquidity requirements, even in a stress, from the second year of the stress test horizon onwards (2016).

## Appendix I

### FSI core indicators for the three largest commercial banks (FSI)<sup>1</sup>

%	2012		2013		2014		2015
	Q2	Q4	Q2	Q4	Q2	Q4	Q2
Regulatory capital to risk-weighted assets <sup>2</sup>	23.1	25	25.9	26.2	27.2	28.5	26.6
Regulatory Tier 1 capital to risk-weighted assets <sup>2</sup>	20.9	22.6	23.6	24.0	25.0	26.2	25.4
Return on assets <sup>2</sup>	2.5	2.4	2.3	2.2	3.2	3.6	2.8
Return on equity <sup>2</sup>	15.5	13.8	13.0	12.1	17.5	19.3	14.8
Interest margin to gross income <sup>2</sup>	50.3	48.8	41.7	45.2	46.5	45.8	48.8
Non interest expenses to gross income <sup>2</sup>	79.0	79.9	77.2	77.5	66.4	70.0	66.5
Liquid assets to total assets <sup>3</sup>					24.3	21.2	22.0
Net open position in foreign exchange to capital <sup>3</sup>	18.2	7.7	3.6	6.3	4.6	6.1	3.7

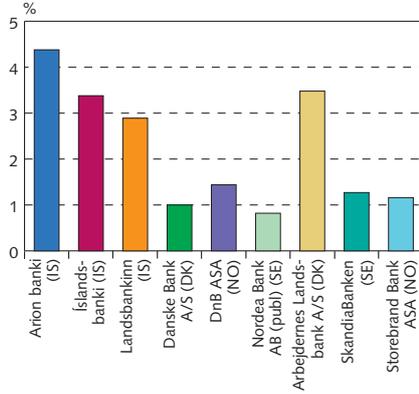
1. The Central Bank intends to publish core indicators of financial stability in collaboration with the IMF. All definitions used by the Central Bank accord with IMF definitions or have been approved by the IMF. These are still provisional figures, which could change, and comprise only part of the indicators. 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 II

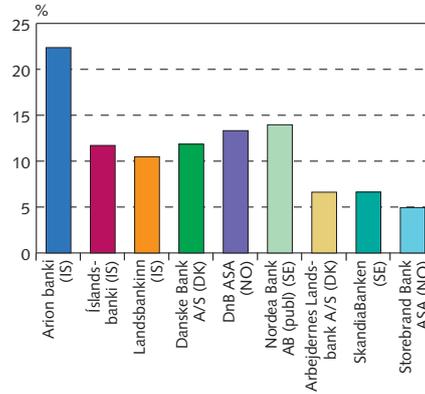
### Nordic comparison

Chart 1  
Net interest margin June 2015<sup>1</sup>



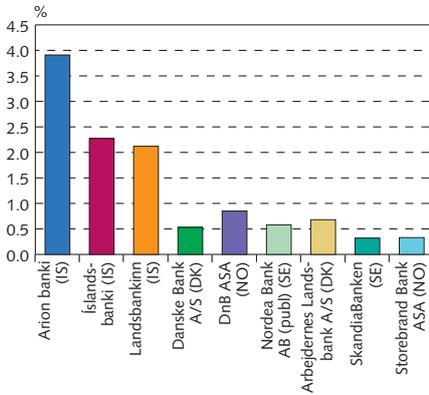
1. Islandsbanki's large net interest margin is due largely to a difference in financial reporting methods used by the banks; Islandsbanki uses a different method for redemption of interest income from transferred loans.  
Source: Bankscope.

Chart 2  
Return on equity June 2015



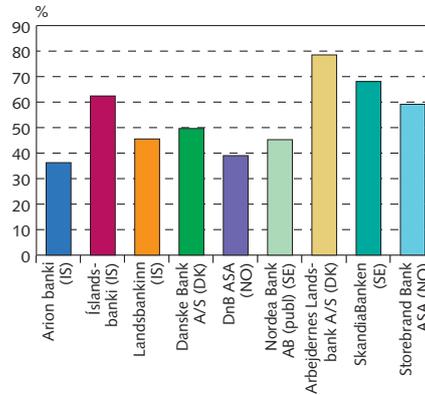
Source: Bankscope.

Chart 3  
Return on total assets June 2015



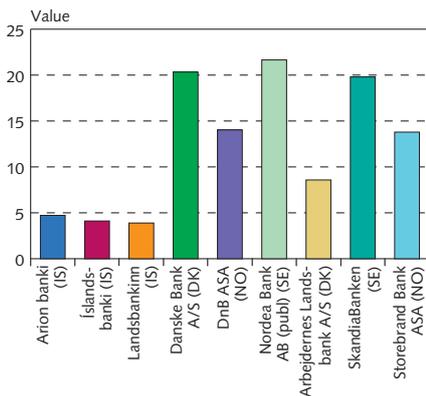
Source: Bankscope.

Chart 4  
Cost-to-income June 2015



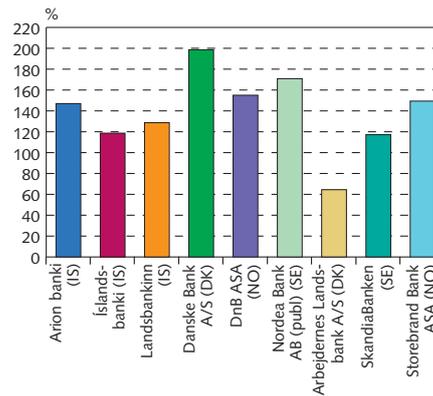
Source: Bankscope.

Chart 5  
Leverage June 2015  
Debt as proportion of equity



Source: Bankscope.

Chart 6  
Loans/ customer deposits June 2015



Source: Bankscope.