FINANCIAL STABILITY

2016 • 2

Contents

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

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

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

Published by:
The Central Bank of Iceland, Kalkofnsvegur 1, 150 Reykjavík, Iceland
Tel: (+354) 569 9600, fax: (+354) 569 9605
E-mail: sedlabanki@sedlabanki.is
Website: www.sedlabanki.is

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Icelandic letters:
ð/Ð (pronounced like th in English this)
þ/Þ (pronounced like th in English think)
In *Financial Stability*, *ð* is transliterated as *d* and *þ* as *th* in personal names, for consistency with international references, but otherwise the Icelandic letters are retained.

Foreword by the Deputy Governor

Financial institutions' resilience must be preserved under favourable external conditions

External conditions have been very favourable for the financial system in the recent term. GDP growth has been robust, unemployment has fallen, households' disposable income has risen rapidly, and businesses have generally been profitable, insofar as can be determined. Households and businesses have taken advantage of this situation and have reduced debt and improved their equity position. Disposable income has grown unusually fast, asset prices have risen markedly, and resident borrowers' access to foreign credit markets is easier than it has been in a long time, but in spite of this, credit growth has been modest and inflation has remained low, as improved terms of trade and a booming tourism sector have supported the current account surplus and the appreciation of the króna. The current account surplus has also facilitated the build-up of foreign exchange reserves during the prelude to capital account liberalisation. The external position of the economy has improved significantly in a short period of time, enhancing resilience against macroeconomic shocks that could test the stability of the financial system.

Apart from the liquidity risk that will inevitably accompany capital account liberalisation in the coming term, the likelihood of near-term shocks that could destabilise the financial system is minimal, as the banks are well equipped to face potential shocks. Their capital ratios are high and their liquidity generally sound. Stress tests on the banks' liquidity position indicate that their liquidity ratio will remain above the regulatory minimum specified by the Central Bank, even in the event of sizeable capital outflows after the capital controls are lifted. The loan terms offered to the banks and other resident borrowers in foreign credit markets have improved. This indicates that resident entities have ready access to foreign credit, which also reduces the risk attached to liberalisation. The continued improvement in the Treasury's position also helps in this regard. For example, Moody's Investors Service recently upgraded Iceland's sovereign credit ratings by two notches, citing the reduction in Treasury debt and declining risk associated with capital account liberalisation.

The Central Bank has prepared for the liberalisation process by holding an auction for owners of offshore krónur and buying foreign currency in the interbank market for nearly 300 b.kr. this year. The foreign currency purchases have prevented excessive appreciation of the króna during the prelude to liberalisation, and ample reserves reduce the risk that the exchange rate will fall steeply during liberalisation and weaken the balance sheets of households, businesses, and banks.

The mismatch between economic developments in Iceland and in other countries gives rise to a wide interest rate differential, which, over time, creates the risk of excessive inflows of short-term capital. In order to counteract this risk and prevent the exchange rate from rising excessively, the Central Bank adopted rules providing for special reserve requirements on new capital inflows in June. After the rules took effect, foreign investment in the domestic bond market declined significantly.

There are signs of increasing tension in housing and labour markets, which could signal increased risk in the financial system further ahead. It is therefore vital to keep abreast of developments in these markets in the coming term. Real residential and commercial property prices have risen rapidly and are high in historical context. If forecasts of continued price increases materialise, there will be elevated risk of a sudden reversal should the economy suffer a setback. On the other hand, GDP growth has outpaced growth in the private sector's domestic debt, and households' increased purchasing power and improved equity position have improved their debt service capacity and given them a greater cushion to absorb shocks.

Another risk factor that must be monitored closely in the coming term is the exponentially strong growth of the tourism industry, which has driven both GDP growth and the appreciation of the króna to a large extent. Although credit growth is moderate on the whole, lending to the tourism sector has increased rapidly. In case of a downturn in tourist arrivals – for instance, if rising oil prices or a natural disaster should cause operating difficulties for airlines – there could be loan losses in the sector. Analysis of the impact on the banks of a scenario involving a contraction in tourism indicates that, other things being equal, the banks' position is unlikely to be jeopardised by such a setback, but that there is good reason to monotor developments closely.

Under the current favourable external conditions, indicators of risk to the financial system have generally moved in a positive direction. The banks' capital position meets the Financial Supervisory Authority's requirements with some extra cushion despite dividend payments by two of the banks. The banks' profits have contracted year-on-year, but returns on core operations are broadly unchanged. Profits on valuation adjustments and other irregular items, which have contributed the lion's share of overall profits in recent years, have declined. Credit risk has subsided. On the other hand, there are signs that the upward financial cycle has begun. Under the current favourable external conditions, it is essential that financial institutions preserve their resilience so that they will be able to weather economic headwinds later without significant disruption of their activities. As a result, the Financial Stability Council has recommended, upon receiving a recommendation from the Systemic Risk Committee, that the Financial Supervisory Authority increase the countercyclical capital buffer by 0.25 percentage points. This is done with the aim of ensuring that the full buffer will be in place when the financial cycle reaches its peak.

Current position and key risks

Economic conditions broadly favourable

GDP growth is robust and, as in recent years, is driven primarily by growth in export revenues and disposable income, together with improvements in private sector balance sheets. Increased tourism revenues and favourable terms of trade have contributed to a sustained and sizeable current account surplus. The surplus plus capital inflows have led to foreign exchange inflows. The exchange rate of the króna rose by 11.6% over the first nine months of the year even though the Central Bank bought 290 b.kr. in foreign currency during the period. In the Bank's opinion, the foreign exchange reserves are sufficient to support the general capital account liberalisation process, important parts of which have already been implemented this year. In early September, rating agency Moody's Investors Service upgraded Iceland's sovereign credit ratings by two notches, from Baa2 to A3. The upgrade was due in part to the reduction of Treasury debt and the successful steps taken towards capital account liberalisation. Iceland's net external debt measured just over 1% of GDP at mid-year, the most favourable position in half a century and at the same time the interest premium on foreign-denominated Treasury bonds has fallen.

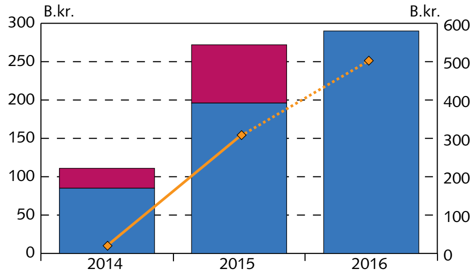
Private sector debt continues to decline

Households' and businesses' debt is now historically low relative to both income and GDP. With reduced indebtedness and increased net wealth, households and businesses are better equipped to withstand shocks than they have been for a long time. This is supported by real wage growth – as can be seen in a 10% rise in the real wage index over the past twelve months – persistent GDP growth, and the appreciation of the króna.

Important steps taken towards liberalisation

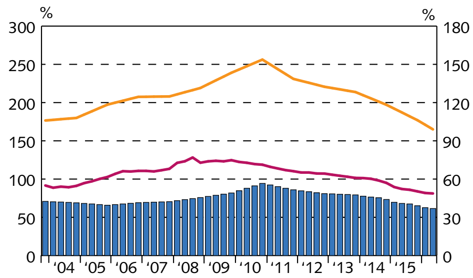
Important steps have been taken towards lifting the capital controls in recent months. In May, Parliament passed legislation on the treatment of offshore krónur, providing for amendments designed to ensure that the special restrictions applying to offshore krónur under the capital controls will hold even though large steps are taken to lift controls on individuals and businesses. In June, the Central Bank of Iceland held a foreign currency auction in which it invited owners of offshore krónur to exchange their krónur for euros before general liberalisation begins. Although most of the bids submitted in the auction were accepted, large owners submitted bids at an exchange rate higher than the Central Bank could accept, and the stock of offshore krónur was therefore reduced by one-fourth. During the summer, the Central Bank set the Rules on Special Reserve Requirements for New Foreign Currency Inflows, and afterwards there was a reduction in new investment in domestic Treasury bonds, which can prove to be a source of volatile capital flows. With the passage of a bill of legislation in October, most of the capital controls on individuals and businesses have been lifted.

Chart 1
Central Bank FX market intervention and developments in reserves



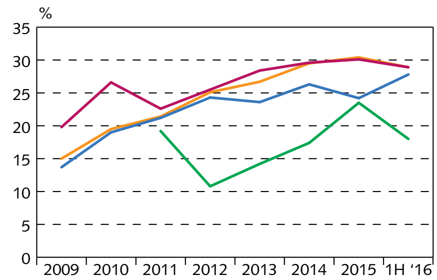
1. Based on position end-September 2016.
Source: Central Bank of Iceland.

Chart 2
Household debt and LTV
Q4/2003 - Q2/2016



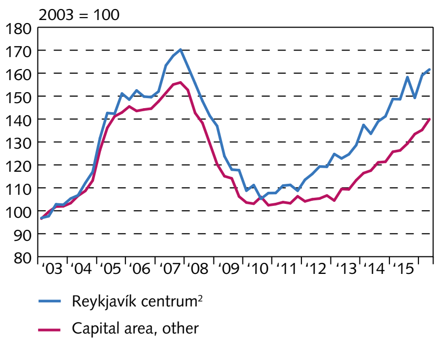
1. Household mortgage debt as % of households' total real estate assets
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 3
Commercial banks' capital adequacy ratios[1]



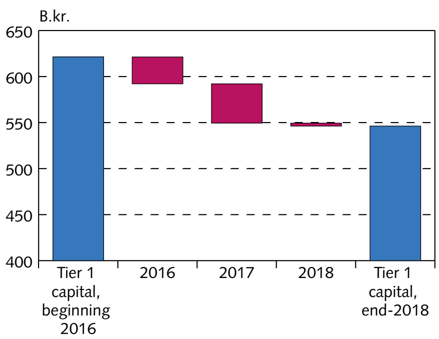
1. Consolidated figures. Capital base as % of risk-weighted base.
2. CAR for MP Bank 2011-2014.
Sources: Commercial banks' annual and interim financial statements.

Chart 4
Capital area house prices[1], per m²



1. At constant prices. 2. North of Hringbraut, Hagar, Melar, Grandar, and Hlíðar.
Sources: Registers Iceland, Statistics Iceland, Central Bank of Iceland.

Chart 5
Central Bank estimate: Developments in the three banks' Tier 1 capital 2016-2018, stress scenario



Sources: Arion Bank, Íslandsbanki, Landsbankinn, Central Bank of Iceland.

Banks' capital and liquidity position strong

The banks are on a relatively firm footing. Their combined capital ratio rose slightly during the first half of the year, to 28.5% as of end-June. The capital requirements made of the banks have been tightened with the increase in the countercyclical capital buffer by 0.25 percentage points, to 1.25%, in tandem with the upward financial cycle. The large commercial banks recorded robust profits in the first half of 2016, although their profits contracted between years, mainly due to reduced income from irregular items, whereas net interest income increased year-on-year. Irregular income items are still prominent, though, at about 20% of total income during the first half of the year. Credit risk has subsided as private sector debt has declined. The banks' borrowing terms in foreign credit markets have improved considerably in recent months, and their access to funding has increased further with the rise in Iceland's sovereign credit ratings. The banks' liquidity ratios have risen during the year, and stress tests conducted on their liquidity position in connection with upcoming steps towards capital account liberalisation show that they can withstand significant outflows.

Risk could still be accumulating, particularly in the real estate market …

There are some signs of tension in the domestic economy, particularly in the labour market and the housing market, which could be conducive to financial imbalances in the long run. Real estate prices have continued to rise this year. In August, real house prices were up 12.1% year-on-year; furthermore, the twelve-month rise has measured over 5% virtually without exception for the past two-and-a-half years. The twelve-month increase in real commercial property prices in the capital area was 14.3% in Q2 and has exceeded 9% for more than two years. Real house prices are still highest in central Reykjavík, but in the recent term they have risen fastest in neighbourhoods further from the city centrum.

… but conditions are conducive to continuing credit growth …

Credit growth is still modest and remains below GDP growth. On the other hand, the positive output gap has widened, unemployment has fallen, and nearly half of corporate executives describe their firms as understaffed. Furthermore, rising asset prices provide household and corporate balance sheets with additional collateral capacity; indeed, rising real estate prices are generally a precursor to credit growth. These factors together create conditions conducive to private sector credit growth. Apart from changes in the credit stock due to price and exchange rate movements, demand for new loans has increased, albeit more among firms than among households.

… and the upswing could prove fragile

Tourism-generated revenues have grown rapidly in the past three years and have contributed significantly to the economic well-being that has developed in Iceland. The risks associated with swift growth in tourism must be monitored carefully. A large drop in the number of tourist arrivals could be followed by an economic recession, rising unemployment, and falling asset prices. This, in turn, could cause the banks to suffer operational losses, not least because of increased loan losses. Developments like these provide the basis for the adverse scenario in the Bank's 2016 stress test carried out on the large commercial banks. Based on the assumptions in the stress test, the banks' capital ratio could fall by nearly 4 percentage points from the end-2015; however, it would remain well above the regulatory minimum.

Conditions are favourable for liberalisation, but some uncertainty is inevitable

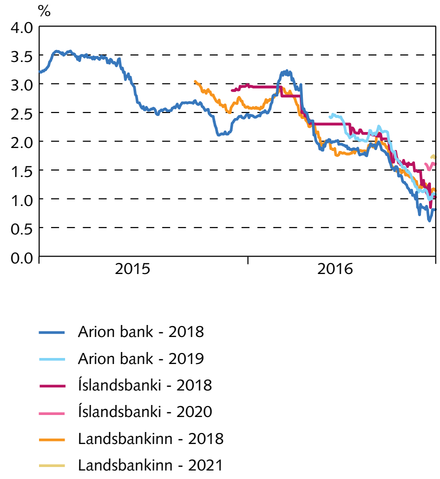
The planned liberalisation of capital controls is designed to reduce imbalances and the long-term costs associated with a capital controls regime. Large foreign exchange reserves, favourable macroeconomic conditions, and the banks' strong liquidity position reduce the risks attached to the liberalisation process, although some uncertainty is unavoidable.

Improved access to foreign credit on favourable terms reduces short-term risk but could stimulate risk appetite further ahead

The banks' improved access to foreign credit markets reduces, among other things the risk associated with liberalisation. It also reflects the banks' relatively strong position. With economical foreign credit funding, the banks can provide foreign-denominated loans on better terms. About 20% of loans currently granted by deposit institutions are denominated in foreign currencies. At the end of June, growth in deposit institutions' foreign-denominated corporate lending was up more than 13% year-on-year, after adjusting for the appreciation of the króna. In the long run, easier access to foreign credit could stimulate risk appetite. It is important that authorities can put restrictions on foreign-denominated loans to households and businesses that are unhedged against foreign exchange risk, as granting such loans on a large scale could undermine the stability of the financial system.

Chart 6

Yield on commercial banks' foreign bonds, EUR



Source: Bloomberg.

I Financial stability

The economic environment and financial markets

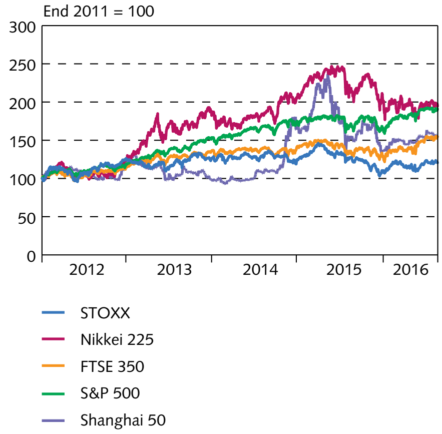
Global growth still sluggish

- Foreign stock markets have been somewhat volatile so far this year. In recent months, share prices have inched upwards in most markets, after an erratic performance early in the year. As of end-September, the European STOXX index had only risen by 3.3% year-to-date, as opposed to 7.8% for the American S&P index and about 12.5% for the British FTSE index, although the rise in the FTSE was due in part to the depreciation of the pound sterling at the same time. Stock prices in Japan and Shanghai were 12.6% and 7.4% lower, respectively, than at the turn of the year. Prices in both markets fell steeply early in 2016 and have not yet recovered.

- In key markets, long-term interest rates have been low for the entire year and have been on the decline. Interest rates on 10-year US Treasury bonds hovered around 1.5% this summer but had risen to 1.6% by end of September. In the UK, long-term rates sank in the wake of the 23 June Brexit referendum, in which British voters decided to leave the European Union (EU). Interest rates on 10-year UK Treasury bonds have been on the decline and are now below 0.8%. Long-term rates have been even lower in Germany and Japan. In Japan they have been negative since February, and in Germany 10-year government bond rates dipped below zero following the Brexit referendum and stood at -0.1% at the end of September. In the opinion of the Bank for International Settlements (BIS), there are signs that government bonds, including those in the US, Germany, Japan, and the UK, are overvalued at present. This could be due in part to expectations that interest rates will remain low longer than previously thought and that premia on long-term bonds will decline. This summer, government bonds valued at a total of over 10 trillion US dollars bore negative interest rates, most of them issued in euros and Japanese yen.

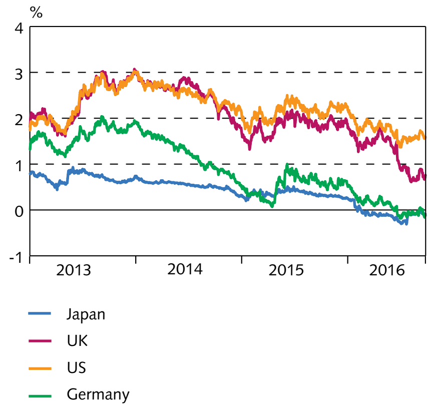
- There has been some movement in major currency exchange rates this year. The yen has appreciated steadily and, by August, was some 19% stronger than at year-end 2015, according to the exchange rate index calculated by the BIS. According to that index, the Icelandic króna appreciated by nearly 9% over the same period. The US dollar has remained strong this year and is broadly unchanged since end-2015. The euro appreciated slightly until August, or by just over 2%, but over the past two years it has been relatively weak in historical context. The Chinese renminbi depreciated by 7% from the beginning of the year until August, and the pound sterling was nearly 15% weaker in August than at the end of 2015, with almost 7% of the decline occurring between June and July.

Chart I-1
Share price indices



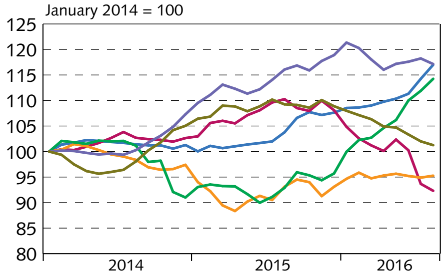
Source: Macrobond.

Chart I-2
Yields on 10-year government bonds



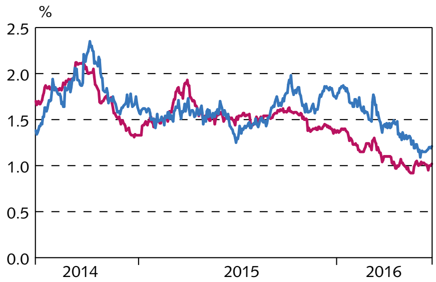
Source: Macrobond.

Chart I-3
Currency exchange rates[1]



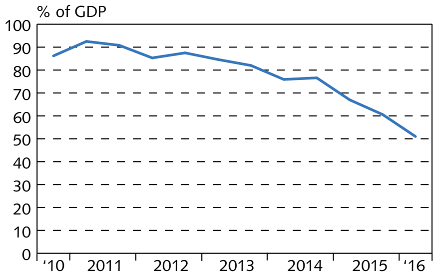
1. BIS nominal indices
Source: Macrobond.

Chart I-4
Government bond spreads[1]



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

Chart I-5
Treasury debt



Source: Government Debt Management.

- The International Monetary Fund (IMF) revised its global output growth forecast downwards in October. The Fund lowered its forecast by 0.1 percentage points for 2016 and 2017, to 3.1% and 3.4%, respectively. The reduction is due primarily to the Brexit decision and to the deteriorating GDP growth outlook for the US. On the other hand, the outlook for emerging economies has improved, owing to lower interest rates in developed countries and reduced concerns about the Chinese economy.

- The IMF also points out that, for the long term, risk has grown in major financial systems, as interest rates have yet to normalise, income has stalled in many economies, and income inequality has increased. This gives rise to the risk of growing support for isolationist policies, which could lead to stagnation.

Signs of overheating in the domestic economy

- There are growing pressures in the labour market, and unemployment is below equilibrium. In Q2/2016, unemployment among the 16-74 age group measured 3.6%. Executives from about 40% of firms consider themselves short-staffed.[1]

- GDP growth measures over 4%. The tourism industry continues to grow apace, with 1,177,000 tourists visiting Iceland in the first eight months of the year, as opposed to 887,000 during the same period in 2015, an increase of 33%. The resulting growth in foreign revenues has supported the króna and contained inflation in spite of increased demand pressures in the domestic markets. The Central Bank's Monetary Policy Committee (MPC) lowered the Bank's key interest rate by 0.5 percentage points in August, to 5.25%. Twelve-month inflation measured 0.9% at that time but would have been 1.2% were it not for an error in calculation by Statistics Iceland, which caused inflation to be underestimated for the period from March to August 2016.

- Households' and firms' position has strengthened, and the ratio of debt to GDP is now low in historical terms. The real wage index has risen by 10% in the past twelve months and is now 14% above its early 2008 peak.

- The ratio of Icelandic Treasury debt to GDP has continued to fall in 2016, to 51% as of end-August. It has fallen by over 10% of GDP since the beginning of the year. Total debt has fallen by 120 b.kr. year-to-date, including a 92 b.kr. decline in foreign debt, owing in part to the allocation of the stability contributions from the failed banks. On the other hand, GDP has grown in the first half of the year, by 6.8% year-on-year in nominal terms and by 4.1% in real terms.

- Premia on foreign-denominated bonds issued by the Republic of Iceland have declined steadily this year. Important steps have

1. Gallup's summer survey among Iceland's 400 largest companies.

been taken towards capital account liberalisation, the Central Bank's key interest rate was lowered in August, and Moody's Investor Service upgraded Iceland's sovereign credit rating by two notches, from Baa2 to A3, in September. The interest rate spread between US dollar bonds issued by the Republic of Iceland and maturing in 2022 and comparable bonds issued by the US Treasury has narrowed by 0.25% year-to-date, and the spread between the Republic of Iceland's eurobonds and comparable German bonds has narrowed by 0.52%.

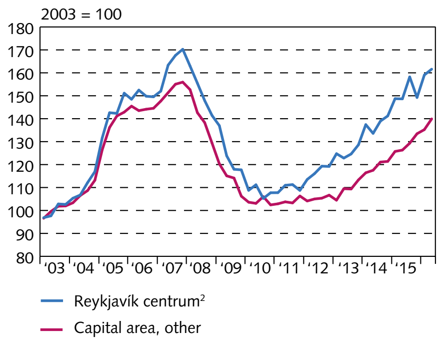
Growing tension in domestic asset markets

- Real estate prices have continued to rise this year. In August, real house prices were up 12.1% year-on-year; furthermore, the twelve-month rise has measured over 5% virtually without exception for the past two-and-a-half years. The twelve-month rise in real commercial property prices in the capital area was 14.3% in Q2 and has been over 9% for more than two years. Real house prices are still highest in central Reykjavík, but in the recent term they have risen fastest in neighbourhoods further from the city centrum. Since 2010, house prices in central Reykjavík (north of Hringbraut, in the western part of the city, and in the city's Hlíðar neighbourhood) have risen by 50% in real terms and are now only 5% below their end-2007 peak. In other capital area neighbourhoods, real house prices have risen by an average of 37% over the same period. The real increase near the city centrum is due largely to the fact that flats there have been put to more profitable use as rental accommodation for tourists. In the recent past, demand for new or larger homes has increased because of persistent GDP growth, as has demand for small flats in less expensive neighbourhoods, due in part to population growth. Changes in the use of housing in the city centrum, with some properties rented out to tourists, mean that these properties are not used as permanent residences to the same extent as before. The available supply of residential housing has therefore contracted accordingly, and demand for residential housing in other neighbourhoods has increased. With lasting GDP growth and increased immigration to Iceland, house prices can be expected to rise still further. Higher prices generally lead to increased supply and the cycle is dampened over time, but the demand must be met with construction.

- Shortly after mid-2015, developments in Treasury bond yields began to change. Since then the yields on all series have been similar, irrespective of maturity. Early in the year, yields were at or just below 6% on all series, but they rose by approximately 30 basis points in the first week of June, after the Central Bank introduced a new policy instrument to temper carry trade with krónur. With that change, new foreign investment in domestic Treasury bonds contracted markedly, and the rise in yields reversed over the ensuing weeks.

Chart I-6

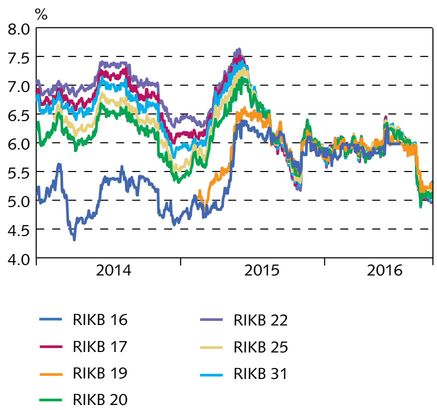
Capital area house prices[1], per m[2]



1. At constant prices. 2. North of Hringbraut, Hagar, Melar, Grandar, and Hlíðar.
Sources: Registers Iceland, Statistics Iceland, Central Bank of Iceland.

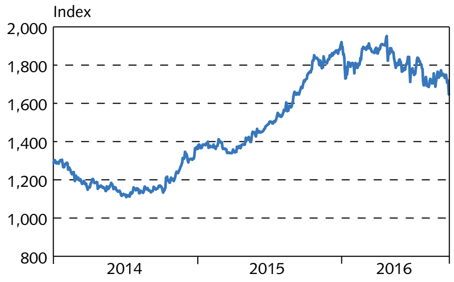
Chart I-7

Yields on nominal Treasury bonds



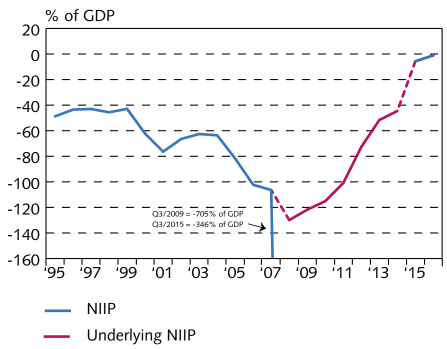
Source: Nasdaq Iceland.

Chart I-8
OMXI8 share price index
1 January 2014 - 30 September 2016



Source: Nasdaq Iceland.

Chart I-9
Net international investment position[1]



1. Based on underlying position from 2008 through end-2015; i.e., adjusted for the effects of settling the failed banks' estates and assuming equal distribution of assets to general creditors. At the end of 2015, the estates of the failed financial institutions reached composition agreements entailing the write-off of a large portion of their debt. As a result, there was no difference in the NIIP and the underlying NIIP.
Sources: Statistics Iceland, Central Bank of Iceland.

- In late August, yields fell sharply when the MPC decided to lower the Bank's interest rates. On 1 September, they fell still further when Moody's announced the two-notch upgrade of Iceland's sovereign credit ratings. Treasury bond yields are now around 5.2%, almost a percentage point lower than they were this summer.

- Trading in bonds issued by the Treasury and the Housing Financing Fund accounts for about 90% of bond market turnover year-to-date, as opposed to 97% in 2015. The rise in trading in bonds from other issuers is attributable mainly to increased issuance by the commercial banks.

- After a strong rise in 2015, the OMXI8 share price index has fallen somewhat this year. As of end-September it was down 12.4% since the turn of the year. The decline in the index is due to quarterly financial statements, performance forecasts, and external factors, including falling share prices in Asia and the results of the Brexit referendum. Share price indices in the Nordic countries except for Finalnd have declined this year. Turnover has picked up in the recent term, however, and was up 60% year-on-year in the first nine months of 2016.

- The market capitalisation of companies listed on the Nasdaq Iceland exchange and the Nasdaq First North market was 938 b.kr. at the end of September, a decline of 8.8% since the beginning of the year. No new companies have been admitted for trading on the Main List this year.

- The exchange rate of the króna has risen in the past year, and the pace of the rise has accelerated in recent months. There has been a sizeable external trade surplus, and the Central Bank has bought large amounts of foreign currency (for further discussion, see *International investment position (IIP)*).

International investment position (IIP)

NIIP continues to improve

- Iceland's official net international investment position (NIIP) was negative by just over 1% of GDP at the end of Q2/2016. It improved between quarters, mainly because of the June 2016 auction held by the Central Bank for owners of offshore krónur. Because of the differential between the auction exchange rate and the onshore exchange rate, ISK assets held by non-residents declined more than the Bank's foreign exchange reserves did. The NIIP has also improved because of the favourable currency composition of debt to foreign lenders. The holding companies of the old banks now have a negligible impact on the NIIP; however, the ultimate impact will be determined by developments in their winding-up. The NIIP is very favourable in historical terms.

- External debt amounts to 109% of GDP, excluding debt owed by the old banks' holding companies and special-purpose entities.[2] The external debt of the public sector amounts to 20% of GDP, but half of the State's foreign debt is in krónur; i.e., Treasury bonds and bills owned by non-residents. Companies' foreign debt has declined sharply and is now about 22% of GDP. About half of it was debt owed by State-guaranteed firms or municipality-owned firms, some of which have paid down debt systematically in recent years. Other debt owed by operating companies is largely related to fishing and tourism, including debt owed by transport and transit companies.

- Because the commercial banks refinanced their debt to the old banks' holding companies with foreign bond issues during the year, their share of total external debt has increased in the recent past. This trend is expected to continue as borrowing terms improve.[3]

Current account surplus still handsome in spite of worsening goods account balance

- Iceland's current account surplus totalled 44 b.kr. in the first half of 2016, or 3.9% of GDP for the period. The underlying current account surplus, adjusted for the old banks' holding companies, was just under 38 b.kr., or 3.3% of GDP, as opposed to 5.2% of GDP for the same period in 2015. The underlying current account balance for that past four quarters amounts to 106 b.kr., or 4.7% of GDP.

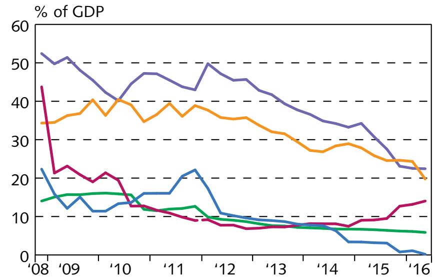
- The underlying services account balance was positive by 90 b.kr. in the first half of 2016, or by 7.9% of GDP for the period, an increase of 0.3 percentage points between years. The goods account balance was negative in the amount of 65 b.kr., or 5.7% of GDP, whereas it was negative by 0.8% of GDP during the same period in 2015. Such a large goods account deficit has not been seen since 2008. The underlying balance on combined goods and services trade was positive in the amount of 25 b.kr., or 2.2% of H1/2016 GDP, as opposed to 72 b.kr., or 6.8%, in H1/2015.

- The underlying balance on income was positive by just over 1% of GDP in the first half of 2016. Since the old banks' composition agreements were approved, the measured income balance of the companies has been positive, as they own foreign interest-bearing assets, while the bonds issued to their owners bear no interest. Ultimately, the interest payments will revert in large part to the foreign owners of the companies. Therefore, as before, the calculation of the underlying current account balance excludes factor income from the failed banks.

2. Debt to foreign lenders, excluding foreign entities' holdings in equities and derivatives. SPEs are companies that are often established for tax purposes and whose actual operations are limited or non-existent. In essence, they are only shells for capital flowing through Iceland and have very limited economic impact. As a result, they are omitted from this analysis of external debt.

3. The commercial banks' debt to the old banks' holding companies is debt to residents that, in turn, owe that money to non-residents. The estimated balance as of end-June was about 250 b.kr., 11% of GDP, but is estimated to be approximately 100 b.kr. less as of end-September.

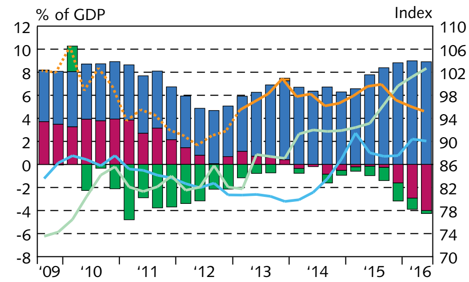
Chart I-10
External debt position[1]
Position of selected entities



CBI
DMBs[3]
Government[2]
Other financial corporations excl. old banks' holding companies
Non-financial corporation and households

1. Loans classified as foreign direct investment are excluded. 2. State and local authorities. 3. Commercial bank bonds owned by deposit institutions are debts to resident entities and therefore show in the IIP only as debt owed by the old banks' new holding companies to foreign owners.
Sources: Statistics Iceland, Central Bank of Iceland.

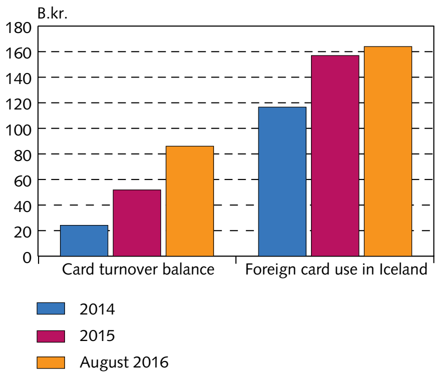
Chart I-11
Components of the underlying current account balance, real exchange rate, and the terms of trade[1]
Four quarter moving sum



Underlying balance on services (left)
Balance on goods (left)
Underlying balance on income (left)
Underlying current account balance (left)
Real exchange rate (right)
Terms of trade (right)

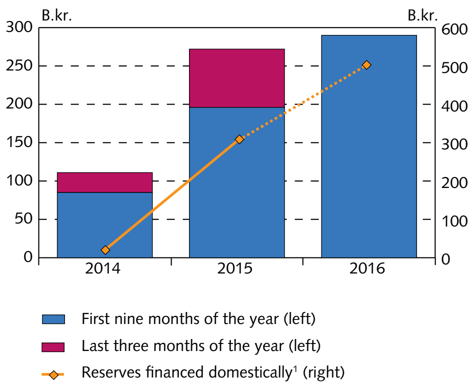
1. Adjusted for the effects of the old banks on factor income and the effects of their financial intermediation services indirectly measured (FISIM) on the balance on services from Q4/2008. Secondary income is included in factor income. From 2009 through 2012, the balance on income was also adjusted for the effects of Actavis, owing to inaccurate data during the period (see dotted line).
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-12
Payment card turnover balance and foreign card use in Iceland[1]
August 2016 prices



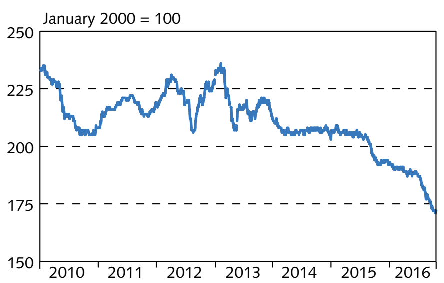
1. The card turnover balance shows the difference between foreign payment card use in Iceland and Icelanders' payment card use abroad.
Source: Central Bank of Iceland.

Chart I-13
Central Bank FX market intervention and developments in reserves



1. Based on position end-September 2016.
Source: Central Bank of Iceland.

Chart I-14
Exchange rate of the króna[1]



1. Narrow trade basket (1%), exchange rate index based on average imports and exports.
Source: Central Bank of Iceland.

- The increased services account surplus in recent years is due in large part to tourism, whose importance in exports has grown. The export value of the tourism sector amounted to nearly 18% of GDP in the past four quarters, or 35% of total goods and services exports. Non-residents' payment card use while in Iceland has increased in line with the rise in tourist numbers. Non-residents' card turnover grew by 44% year-on-year in the first eight months of 2016, to 164 b.kr. The card turnover balance was positive by 86 b.kr. over the same period and has increased by 83% between years.

Foreign exchange reserves adequate in the run-up to capital account liberalisation

- The Central Bank's foreign exchange reserves amounted to 760 b.kr. at the end of September, including 504 b.kr. financed domestically. The Central Bank has been active in the foreign exchange market so far this year. As of end-September, the Bank has bought foreign currency for 290 b.kr., an increase of 47% between years. In spite of the Bank's purchases and those made by the pension funds under their special authorisation for foreign investment, the exchange rate of the króna rose by 11.6% in the first nine months of the year. The Bank's foreign currency purchases are a response to the strong foreign currency inflows generated by services trade. Early in the year, there were also noticeable net inflows from new investment by non-residents, albeit totalling only 45 b.kr.

- As of end-June 2016, Iceland's foreign exchange reserves were large enough to cover eight months of imports, whereas a common threshold for minimum reserve adequacy is three months' worth of imports. At that time, the *Guidotti-Greenspan* ratio was 181%. The ratio of the reserves to the IMF's reserve adequacy metric (RAM) was 156% in June 2016. It therefore exceeds the 150% threshold that the Central Bank and the IMF consider adequate during the run-up to capital account liberalisation.[4]

Balance of payments risk due to non-residents' ISK assets

- Iceland's balance of payments risk has subsided greatly in the past twelve months. The main obstacles to capital account liberalisation were the negative impact of the failed banks' estates on the balance of payments and non-residents' ownership of liquid ISK assets, as it was uncertain how much of these assets would be

4. The reserve adequacy metric (RAM) takes account of various factors that affect a country's balance of payments and could give an indication of potential capital outflows. For the calculation, each individual factor is assigned a given risk weight. The risk weights are determined primarily with an eye to an estimated reserve criterion that is sufficient rather than economical or desirable. The weights are determined based on experience of capital outflows; for instance, during the aftermath of financial crises. The RAM is determined based on the money supply (5% weight), exports (5% weight), foreign short-term debt (30% weight), and other debt, such as non-residents' long-term bond holdings net of direct investment (15% weight). The risk weights are discussed in detail in the IMF's November 2013 report. See: http://www.imf.org/external/np/pp/eng/2013/111313d.pdf.

exported from Iceland upon liberalisation. The problems relating to the estates were solved with their composition agreements in late 2015, and recent statutory amendments have reduced the risk of outflows of offshore króna assets and have segregated that risk

- In May 2016, Parliament passed the Act on the Treatment of Króna-Denominated Assets Subject to Special Restrictions. The Act explicitly defines offshore krónur, which totalled 320 b.kr. at that time.[5] Owners of offshore krónur were then invited to participate in a foreign currency auction held by the Central Bank.[6] The new Act authorised owners of offshore krónur to invest in special Central Bank certificates of deposit (CD), in addition to their previous authorisations, and deposit institutions are required to invest in the CDs in an amount equal to offshore króna holders' total deposits.

- In the auction, held in June, bids were submitted for 178 b.kr. and the Central Bank accepted bids for 72 b.kr. the settlement exchange rate was 190 kr. per euro. The Bank also accepted bids received during the days immediately following the auction. On the whole, the stock of offshore krónur was reduced by 83 b.kr., or one-fourth of assets defined as offshore krónur. The auction also greatly reduced the number of offshore króna holders, and relatively few entities own the offshore krónur currently outstanding. The Bank accepted 1,688 of the 1,715 bids submitted, or 98.4% of the total.

Large steps taken towards liberalisation

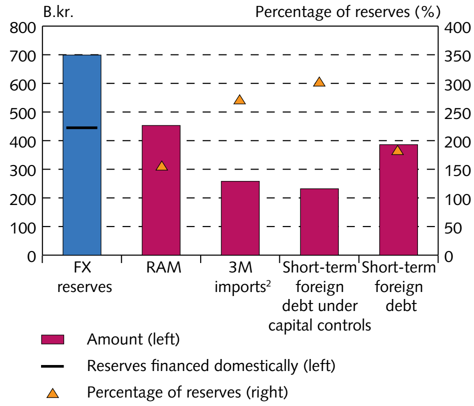
- Because the problem relating to the failed banks' estates has been solved and the risk due to offshore krónur has been segregated, the next steps can be taken towards lifting controls on individuals and companies. So far this year, the pension funds have received special authorisations to purchase foreign assets in the amount of 70 b.kr., as compared with an authorisation amounting to 10 b.kr. in 2015. The pension funds have exercised 31 b.kr. of the 40 b.kr. foreign investment authorisation granted them by the Central Bank for Q3/2016. Therefore, on the whole, the pension funds have invested abroad for 65 b.kr., or 82% of their combined total authorisation of 80 b.kr.

- On 11 October the Parliament passed a law centring on liberalisation of capital controls on individuals and firms. With the passage of that legislation, controls on a large share of individuals and companies were lifted. Following amendments to the Foreign Exchange Act, individuals and companies are now authorised to

Chart I-15

Central Bank reserve adequacy[1]

Position in Q2/2016

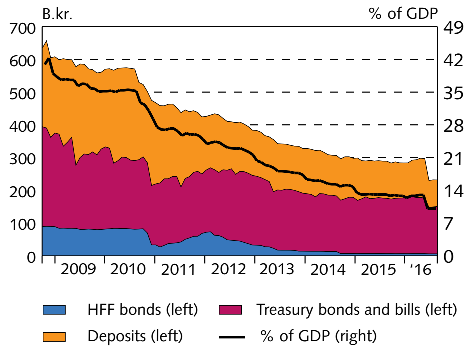


1. New investment in Treasury bonds is classified as short-term debt. In calculating the RAM reserve adequacy criterion, offshore krónur are classified as long-term debt, but in calculating short-term debt to calculate the Guidotti-Greenspan ratio, only offshore krónur maturing within 12 months are classified as short-term debt. 2. Average of three months of imports in the last four quarters. The reserves will cover 8.1 months of imports.
Source: Central Bank of Iceland.

Chart I-16

Deposits and high-quality króna assets owned by non-residents[1]

October 2008 - August 2016



1. Adjusted for new investment in Treasury bonds during the period.
Sources: Statistics Iceland, Central Bank of Iceland.

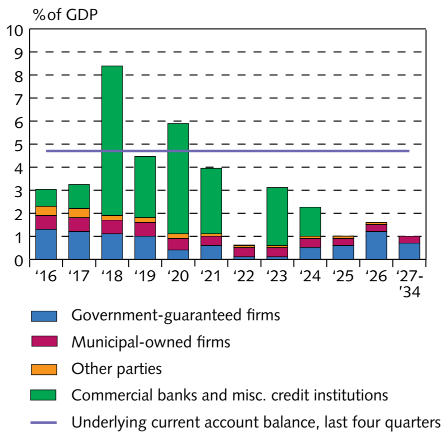
5. See the Act on the Treatment of Króna-Denominated Assets Subject to Special Restrictions, no. 37/2016: http://www.althingi.is/altext/145/s/1320.html.
6. Owners of offshore krónur have been given the opportunity to convert them to foreign currency at 220 kr. per euro until 1 November 2016.

invest abroad for a maximum of 30 m.kr. through the year-end, whereupon the authorisation will rise to 100 m.kr. Furthermore, at the turn of the year, these parties will also be authorised to transfer deposit balances from accounts with domestic banks to accounts with foreign banks. The scope of the outflows deriving from these statutory amendments is uncertain, as are future developments in the exchange rate. When the capital controls are liberalised, capital outflows can be expected, owing to an increase in firms' foreign direct investment and to firms' and individuals' attempts to diversify risk in their asset portfolios. A wide interest rate differential with abroad and largely favourable conditions in Iceland, together with sizeable foreign currency inflows due to services trade and the associated appreciation of the króna, reduces the risk of large-scale net outflows.

- In connection with the bill of legislation preceding the recently passed law, the Central Bank assessed the impact of potential capital outflows on the commercial banks' liquidity position, as well as on the balance of payments and the foreign exchange reserves.[7] The Bank's assessment assumed significant post-liberalisation outflows, among other things, but not disorderly capital flight. The main conclusion is that the domestic economy is well prepared to take the next steps in the liberalisation process, as the foreign exchange reserves are large. Furthermore, the ratio of the foreign exchange reserves to the RAM will not fall excessively, even though significant outflows are assumed. Nevertheless, it is clear that if outflows resemble those according to the scenario in the Bank's assessment that provides for the largest outflows (which is unlikely but possible), the strain on the foreign exchange market, financial institutions, and the economy as a whole would be enough that it would be imprudent to open the way for additional freedom of movement of capital before the markets have normalised once again. The results of the assessment highlight the value of the strategy of lifting the capital controls in stages. Further discussion of the effects of potential capital outflows on the banks' liquidity can be found in *Funding and liquidity*.

Chart I-17

Repayment profile of long-term foreign loans, excluding the Treasury[1]



1. Foreign long-term loans and foreign-denominated debt to the holding companies of the failed banks. Based on position at end-Q2/2016 and exchange rate of 31 August 2016, plus commercial banks' foreign issuance in Q3/2016.
Sources: Statistics Iceland, financial information from DMBs and old banks' holding companies, Central Bank of Iceland.

Foreign debt service quite manageable

- A US dollar bond issued by the Treasury in 2011 matured in June 2016. The outstanding balance of the bond was 62 b.kr. The Treasury's outstanding foreign-denominated debt now totals about 210 b.kr., with maturities in 2020 and 2022. State-guaranteed and municipality-owned companies have reduced their debt systematically in recent years. Based on the position as of end-June 2016, they have reduced their debt by 61 b.kr. between years; however, a portion of the reduction stems from the appreciation of the króna.

7. See the report published on the Central Bank website on 27 August 2016: http://www.cb.is/publications/news/news/2016/08/27/Assessment-of-possible-outflows-upon-capital-liberalisation/

- The commercial banks have made efforts to settle their debt to the old banks' holding companies and have issued medium-term bonds in foreign markets for this purpose. Retirement of debt to the holding companies has caused the repayment profile of the banks' foreign debt to become more front-loaded than before (for a more detailed discussion of the banks' bond issues, see *Funding and liquidity*).

- Residents' contractual foreign debt service burden appears quite manageable in the context of the underlying current account balance over the past four quarters, and given the current situation, it can be assumed that the commercial banks will have ready access to foreign markets and will be able to refinance their foreign debt upon maturity.

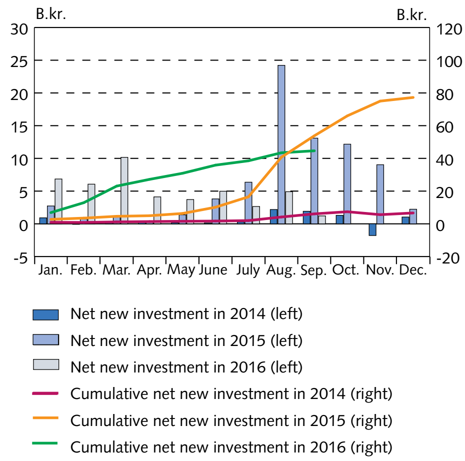
Capital flow management measures have reduced foreign capital inflows to the Treasury bond market

- Rules on special reserve requirements for new inflows of foreign capital were adopted recently, so as to temper capital inflows and affect their composition. According to these rules, 40% of new inflows of foreign capital must be deposited to a deposit account with a deposit institution, which in turn must place the same amount in a specific capital flow account with the Central Bank of Iceland. These capital flow accounts currently bear no interest.[8] The market appeared not to have expected such capital flow management measures, and Treasury bond yields rose by 30-50 points following the adoption of the rules (see *The economic environment and financial markets*). Capital flow management measures such as these aim to reduce the risk of large-scale and volatile inflows of foreign capital. Since the measures were adopted, non-residents' new investments have tapered off, particularly investments in long-term Treasury bonds. During the first nine months of the year, new inflows totalled 65 b.kr., including 32 b.kr. invested in Treasury bonds. Foreign investors have also been interested in unlisted equities and have invested 17 b.kr. year-to-date in them. Since the New Investment Programme was introduced in the second half of 2009, capital inflows have totalled some 241 b.kr. Inflows net of outflows currently total 168 b.kr., some 40% of that amount in Treasury bonds.

- In early September, rating agency Moody's upgraded Iceland's sovereign credit ratings by two notches, from Baa2 to A3. The upgrade has a strong impact on the credit ratings of other domestic entities and on the borrowing terms offered to them in foreign capital markets. The rise in the sovereign rating can also enhance foreigners' interest in investing in Iceland.

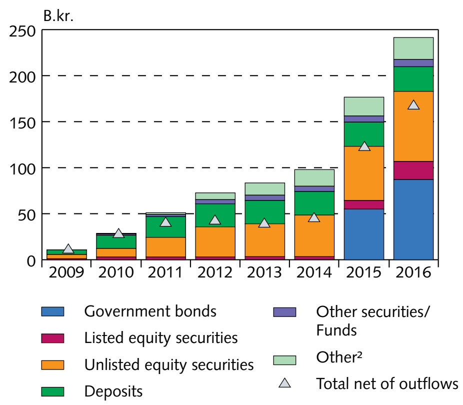
8. The rules explain when the funds must be deposited to special reserve accounts; for instance, no special reserve requirements are imposed on foreign direct investment. Furthermore, the rules specify the special reserve ratio, the holding period, and the interest rate on capital flow accounts. See: http://www.cb.is/library/Skraarsafn---EN/Capital-surveillance/Rules%20no.%20490%202016.pdf.

Chart I-18
New capital inflows through New Investment Programme[1]
September 2016 prices



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

Chart I-19
Cumulative new investment[1]
September 2016 prices

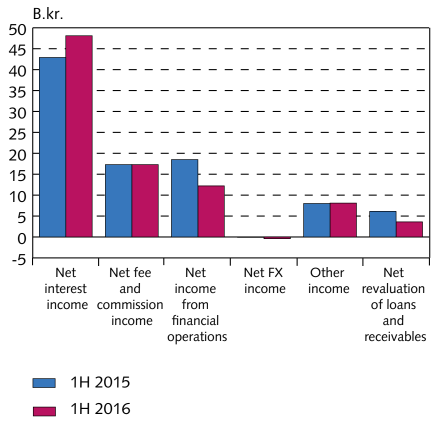


1. Through September 2016. 2. Including real estates, claims and loans.
Source: Central Bank of Iceland.

Operations and equity

Chart I-20

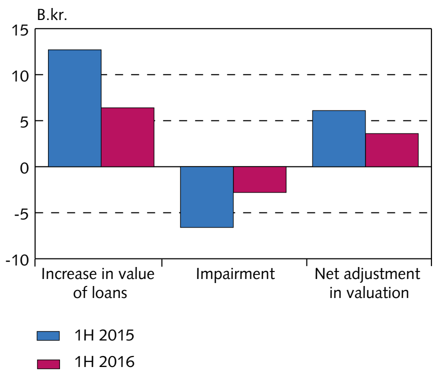
The three largest commercial banks' income[1]



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

Chart I-21

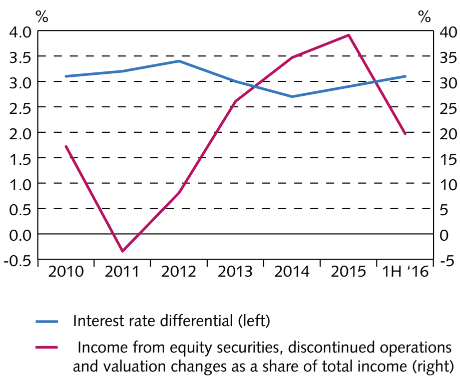
The three largest commercial banks' income and expenses due to revaluation of loans and receivables[1]



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

Chart I-22

The three largest commercial banks' interest rate differential and irregular income[1]



1. Consolidated figures. Income from equity securities in 2014, 2015 and 1H 2016 includes income from sale and valuation adjustments of the largest affiliates.
Sources: Commercial banks' annual and interim financial statements.

Commercial banks' operations

- Iceland's commercial banks recorded robust profits in the first half of 2016.[9] Their combined profit declined during the period by 8.4 b.kr. year-on-year, to 34.1 b.kr. Their return on total assets was 2.2%, and the return on equity was just over 10%, somewhat less than in the same period in 2015. The banks' net interest income increased, while irregular income items such as loan valuation changes and income from equity securities sales declined, as H1/2015 saw strong sales gains and sizeable increases in the value of holdings in companies in connection with market listings. Irregular income was still strong in spite of the decline in the first half of 2016. For instance, income related to equity securities, discontinued operations, and loan valuation changes accounted for about 37% of pre-tax profit.[10] Calculated returns on estimated core operations declined between periods, from 0.9% in H1/2015 to 0.7% in H1/2016,[11] due to a rise in operating expenses.

- The commercial banks' net interest income totalled 48.1 b.kr., an increase of 5.2 b.kr., or 12%, between periods. Interest income rose by 16% and interest expense by 20%. The combined calculated interest spread rose by 0.2 percentage points between periods, to just over 3%. The increased spread was due mainly to an increase in the ratio of interest-bearing assets (i.e., loans to customers) to total assets, an improved capital position, and a rise in interest rates between periods. Net commission and fee income was broadly unchanged between periods, at 17.3 b.kr., although developments varied from one bank to another. Core income as a share of operating income totalled 75%, an increase of 9 percentage points between periods.[12]

- The net rise in loan values totalled 3.6 b.kr., down from 6.1 b.kr. over the same period in 2015, with the loan value increase totalling 6.4 b.kr. and impairment amounting to 2.8 b.kr. The restructuring of transferred loan portfolios is nearly complete. In the near future, loan valuation changes will probably flip from being positive, as they have been in recent years, to being negative in the amount of net loan impairment. Other things being equal, this will have a significant impact on the banks' operating results.

9. The discussion of commercial bank operations in H1/2016 is based on the consolidated accounts of the three largest commercial banks and comparison figures for H1/2015. Figures represent the aggregate operating results of the commercial banks unless otherwise stated. The aggregate position may diverge from that of individual financial companies.
10. 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.
11. 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 2016/1, pp. 25-26). It should be noted that scenarios for core operations can vary.
12. Core income (net interest and commission income) as a share of operating income, excluding discontinued operations.

- Net income from financial activities declined markedly between years, to just over 11.8 b.kr. Equity securities yielded gains of about 11.4 b.kr. and profits on bonds totalled 700 m.kr., whereas foreign currency mismatches generated losses. Gains on equity securities stemmed from the sale by the banks' subsidiaries of their holdings in Visa Europe, although most other equity positions generated losses in line with the decline in the OMXI8 index during the half. Profits on discontinued operations rose slightly between years, or by 300 m.kr. Combined income from equity securities and discontinued operations totalled about 12.9 b.kr. If this is added to the income from loan valuation increases and other income from the sale and valuation changes in the largest affiliates, irregular and estimated income items total some 20% of total revenues for the half.

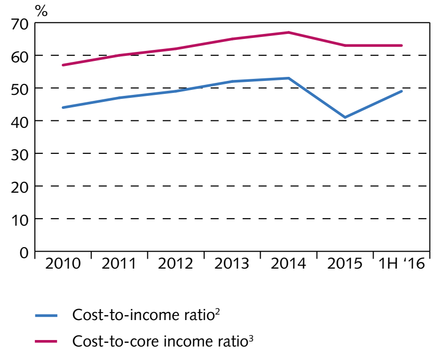
- The commercial banks' operating expenses totalled 41.1 b.kr. in H1/2016, an increase of nearly 3.4 b.kr., or 9%, between periods.[13] Wage costs, the largest expense item, increased by over 2.4 b.kr. between periods, and other expenses rose by more than 900 m.kr. The rise in wage costs is due principally to contractual pay hikes at year-end 2015 and early in 2016. The ratio of expenses to operating revenues was 49%, a slight increase from the prior year, partly as a result of reduced income from financial activities.[14] The ratio of costs to total assets was 2.6%, a marginal increase year-on-year, while costs as a share of net interest and commission/fee income remained virtually unchanged. The banks have announced their intention to continue streamlining in order to cut costs. Among other things, a comprehensive renewal of payment intermediation systems is currently underway and will hopefully yield increased streamlining in coming years.

Commercial banks' equity

- The large banks' equity totalled 655 b.kr. at the end of June 2016. It had declined 13.7 b.kr. from the beginning of the year because of dividends, as two of the large commercial banks paid out or expensed nearly 39 b.kr. due to year-2015 profits. Their capital ratio was 28.5%, after rising by 0.3 percentage points since the beginning of the year, and Tier 1 capital was virtually unchanged, at 27.6%.[15] The banks' risk base fell by about 2%, mainly because of reduced foreign exchange risk, as their foreign exchange imbalances declined markedly since the beginning of the year. The banks use the standardised approach to calculate their credit and market risk.[16] In the first half of 2016, three capital buffers with a combined total of 6.75% took effect. The

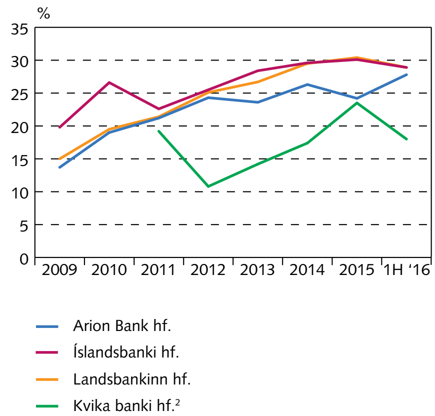
13. Operating expense excluding the bank tax and the largest irregular expense items.
14. Operating income excluding income due to changes in loan values and discontinued operations.
15. With the amendments to the Act on Financial Undertakings, no. 161/2002, passed on 1 September 2016, the definition of Tier 1 capital was updated in line with CRDIV/CRR.
16. See the FME Rules on the Capital Requirement and Risk-Weighted Assets of Financial Undertakings, no. 215/2007, with subsequent amendments.

Chart I-23
The three largest commercial banks' cost-to-income ratios[1]



1. Consolidated figures. 2. Operating expenses as a share of operating income, excluding loan revaluation changes and discontinued operations and adjusted for major irregular items. 3. Operating expenses as a share of core income (net interest income and net fee and commission income) and adjusted for major irregular items.
Sources: Commercial banks' annual and interim financial statements.

Chart I-24
Commercial banks' capital adequacy ratios[1]



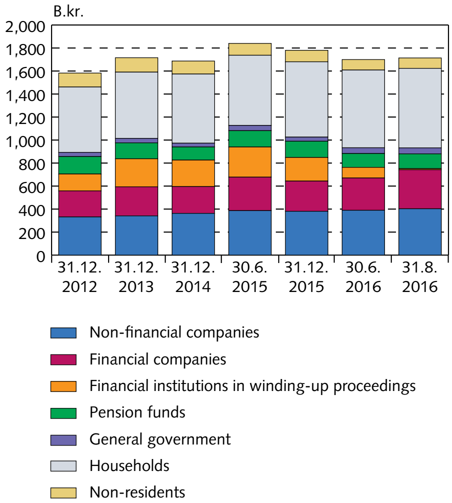
1. Consolidated figures. Capital base as % of risk-weighted base.
2. CAR for MP Bank 2011-2014.
Sources: Commercial banks' annual and interim financial statements.

Financial Stability Council recently recommended to the Financial Supervisory Authority (FME) that the countercyclical capital buffer be increased by 25 basis points, to 1.25%. The increase will take effect twelve months after the FME's decision. The increase is in line with the financial cycle, as all signs indicate that the upward cycle has begun (for further discussion of growth in debt, see *Financial system assets*). The Financial Stability Council indicated that the build-up of the countercyclical capital buffer would continue in line with the upward financial cycle.[17] Further discussion on capital buffers can be found in Box III-1 of *Financial Stability* 2016/1.

- It is clear that the future banking system architecture, ownership structure, and capital position will be under discussion in the coming term. Changes in the composition of the capital base and possible reductions in capital must take place in accordance with the minimum requirements for the capital base, with full capital buffers, and the liquidity position. As before, it is important that the banking system be strong, resilient enough to withstand shocks, and able to support the development of the economy.

Chart I-25

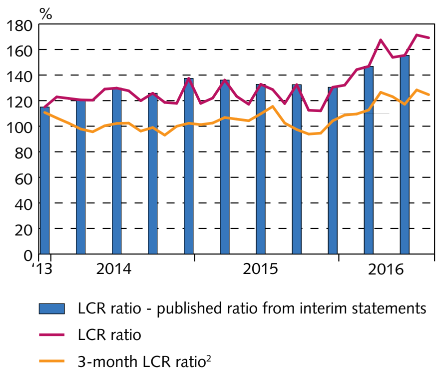
Depositors[1]



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

Chart I-26

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



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

Funding and liquidity

Banks well prepared for capital account liberalisation

- The banks are funded primarily with deposits, as before although the ratio of deposits to total funding has declined slightly since the beginning of the year, to 54% at the end of June. The banks' capital has declined by just over 13.7 b.kr. over the same period because of dividend payments. As of end-June, capital accounted for 20% of their funding. Short-term debt to financial institutions in winding-up proceedings have declined markedly since the estates' composition agreements were approved. The remaining deposits are now included with deposits of other financial institutions. The deposits of financial institutions in winding-up and other financial institutions declined by nearly half, or a total of 180 b.kr., from June 2015 through June 2016, while the banks' long-term funding increased over the same period.

- In October 2016, a bill of legislation was passed providing for the next steps in capital account liberalisation. It can be assumed that some changes could take place in the banks' deposit portfolios if deposits are withdrawn for investment abroad. The banks are required to hold liquid assets corresponding to a large share of deposits in order to satisfy liquidity requirements; therefore, they are relatively well prepared for potential outflows. Stress tests have been carried out to assess how well prepared the banks are to withstand various withdrawal levels. With the capital transfer

17. Press release from the Financial Stability Council, 3 October 2016: https://www.fjarmalaraduneyti.is/fjarmalastodugleiki/frettatilkynningar/fjordi-fundur-fjarmalastodugleikarads-arid-2016.

cap provided for in the bill, the banks' liquidity will not dry up, and based on the stress tests that have been conducted, the banks combined will comply with the Central Bank's liquidity rules.[18]

- The banks have improved their liquidity position so far this year. Overall, the three large commercial 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 395% at the end of August, whereas the regulatory minimum is 100%. The overall liquidity ratio was 194%, while the regulatory minimum is 90% and rises to 100% on 1 January 2017. The liquidity ratio measures the ratio of liquid assets to deposits and other obligations that are liquid within thirty days. About 67% of deposits can be withdrawn within a month, 83% within three months, and 89% within six months.

- Work is now underway on the implementation of the liquidity coverage ratio (LCR) rules that took effect in the European Union (EU) last autumn. The rules are based on recommendations issued by the Basel Committee on Banking Supervision (BCBS). The Central Bank's liquidity rules are based on the same recommendations and date from 2013. The amendments made now are not substantial as regards liquidity requirements made of banks; rather, they aim to implement the definitions and presentation that have taken effect in Europe. In Iceland, however, additional requirements concerning a special foreign liquidity ratio will remain in effect.

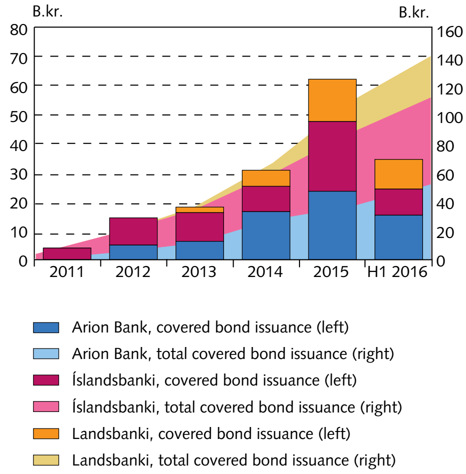
Reduction in banks' covered bond issuance

- At the end of September, the stock of outstanding covered bonds issued by the banks totalled 152 b.kr., an increase of 37% since year-end 2015. Covered bonds now account for 4.9% of the banks' funding. Issuance was brisk early in the year but has tapered off in recent months. Of the 44 b.kr. issued year-to-date, 25 b.kr. were issued during the first three months of 2016. A total of 28 b.kr. in indexed covered bonds have been issued so far this year, as opposed to 17 b.kr. in non-indexed bonds. As of end-September, outstanding bills amounted to 34 b.kr., up from 20 b.kr. at the beginning of the year and 4.4 b.kr. at the end of August 2015.

- Bond yields in the secondary market began to rise in March and continued to do so until the end of August. The yield on Arion Bank's indexed issue maturing in 2019 was 2.85% at the beginning of March and peaked at 3.63% in the latter half of August. It then began to fall again after the Central Bank interest rate cut and stood at 3.47% as of end-August. Other issues of a similar

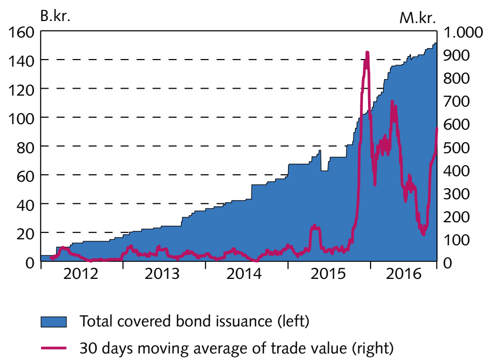
18. See also the Central Bank report entitled "Analysis of potential outflows upon capital account liberalisation", dated 27 August 2016, available on the Bank's website: http://www.cb.is/publications/news/news/2016/08/27/Assessment-of-possible-outflows-upon-capital-liberalisation/

Chart I-27
Commercial banks' covered bond issuance[1]



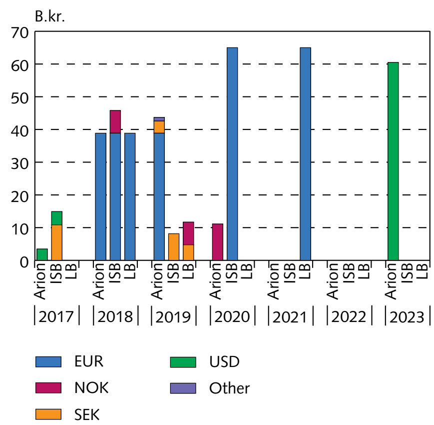
1. New issues (columns) and total outstanding (shaded areas).
Source: Nasdaq Iceland.

Chart I-28
Commercial banks' total covered bond issuance and trade value



Sources: Kodiak Excel, Central bank of Iceland.

Chart I-29
Commercial banks' foreign bonds by maturity and currency[1]
Listed foreign funding



1. At exchange rate at 31 August 2016. The total outstanding balance of the Landsbankinn-LBI debt is in USD with maturity in 2020, 26.4 B.kr., and 2024, 28.5 B.kr.
Source: Nasdaq Iceland.

length have followed the same pattern. Yields on the banks' non-indexed issues declined by as much as 55 points after the Central Bank's 50-point rate cut in August and have continued to fall since then. The yield on Landsbankinn's non-indexed bond maturing in 2019 was 5.80% at the end of August.

- On the Nasdaq Iceland exchange, trading in covered bonds spiked at the end of 2015, after market making with the banks' covered bonds was adopted and covered bond funds were established. Turnover has contracted again as 2016 has passed, however, and is now relatively limited, in line with reduced issuance.

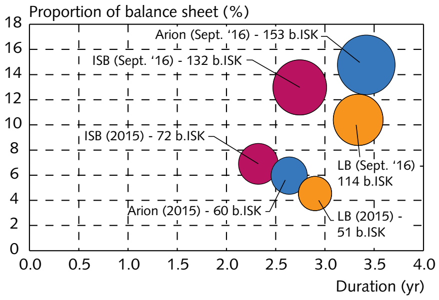
Foreign market funding on favourable terms

- The banks' foreign market funding terms have improved significantly, and access is greatly eased, owing to the upgrade in Iceland's sovereign credit rating and favourable conditions for funding in foreign capital markets. All three banks issued bonds abroad in 2016. In April, Arion Bank issued a three-year bond for 300 million euros and refinanced a portion of the 747 million (97 b.kr.) US dollar bond it issued in January, in connection with the Kaupthing Bank composition agreement. Arion's eurobond was sold at terms equivalent to the interbank rate plus 270 basis points. A year earlier, a comparable issue by the same bank was sold at the interbank rate plus 310 basis points. In early September, Íslandsbanki and Landsbankinn each issued bond for 500 million euros (65 b.kr.). Íslandsbanki's bond bore a four-year maturity and sold at 200 points above the interbank rate, and the premium on Landsbankinn's four-and-a-half-year bond was 190 points above the interbank rate. The banks also issued smaller bonds in US dollars, euros, Swedish kronor, and Norwegian kroner.

- In the next twelve months, payments of instalments and interest on the bonds will total 79 b.kr., including 17 b.kr. in foreign currencies. In the next three years, payments of instalments and interest on the bonds will total 342 b.kr., including 225 b.kr. in foreign currencies. The next five years' instalments and interest on these foreign-denominated loans total about 52 b.kr. per year, on average, or 9.3% of the banks' foreign-denominated loans. There are large maturities in 2018 and 2019, but the banks' recent issues are long-term and have lengthened the average residual maturity of their foreign market funding. The banks' issues have been undertaken to refinance long-term debt to the holding companies of the failed banks. Their foreign funding as a whole has therefore become more front-loaded.

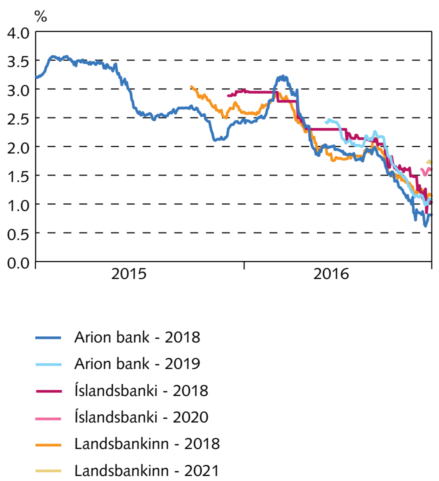
- The banks have a high net stable funding ratio in foreign currency, at 159%, whereas the regulatory minimum is 90% and will rise to 100% on 1 January 2017. The rules on net stable funding in foreign currency and the rules on banks' foreign exchange balance are designed to ensure that the banks will finance their foreign lending with foreign long-term capital. On the other hand, it must

Chart I-30
Comparison of banks' foreign funding[1]
Listed foreign funding, relative to total assets and by duration[2]



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

Chart I-31
Yield on commercial banks' foreign bonds, EUR



Source: Bloomberg.

also be ensured that foreign exchange risk is not passed on to borrowers and that excessive currency and maturity mismatches do not develop, as was the case during the pre-crisis period of abundant, cheap foreign credit. Therefore, the banks must take care not to grant foreign loans to borrowers that are not hedged against foreign exchange risk; i.e., those who have neither income nor assets in foreign currency.

Financial system assets

Financial system structure

- Total financial system assets amounted to 9,098 b.kr. at the end of Q2. They were virtually unchanged since the beginning of the year but had declined in real terms.[19] Of that total, loans and marketable corporate bonds accounted for 36%.

Growth in debt

- The domestic debt of the private sector has risen steadily in real terms since year-end 2014.[20] Private sector debt to domestic lenders totalled 3,310 b.kr. at book value at the end of June 2016 but would have totalled 3,406 b.kr. without the Government's debt relief measures. In terms of book value, annual growth in real private sector debt measured 1.5% excluding the reduction in debt stemming from the debt relief measures. Real growth in corporate debt measured 1%, while real growth in household debt measured 1.9% excluding the aforementioned debt relief.[21] As a

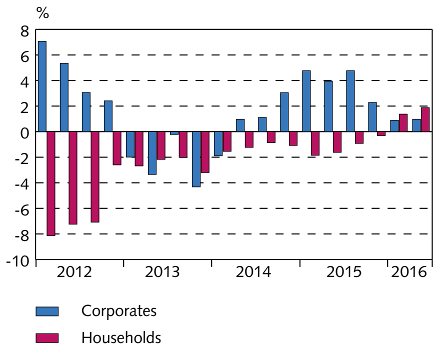
Table 1 Financial system assets[1]

Assets, b.kr.	*31.12. 2012*	*31.12. 2013*	*31.12. 2014*	*31.12. 2015*	*30.6. 2016*	*Change from 31.12.'15*
Banking system[2]	3,809	3,788	3,758	3,794	3,796	2
thereof Central bank of Iceland	902	762	760	597	573	-24
thereof commercial banks	2,850	2,968	2,939	3,175	3,200	26
thereof savings banks	57	58	59	22	23	0
Other credit institutions	1,076	1,067	1,030	979	984	5
thereof Housing Financing Fund	876	863	824	804	795	-6
Pension funds	2,437	2,696	2,935	3,284	3,320	36
Insurance companies	155	165	169	171	180	9
Mutual funds, investment and institutional funds	410	452	488	599	599	0
State loan funds	192	210	226	210	219	9
Total assets	8,079	8,378	8,605	9,037	9,098	61

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 banki, 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.

Source: Central Bank of Iceland.

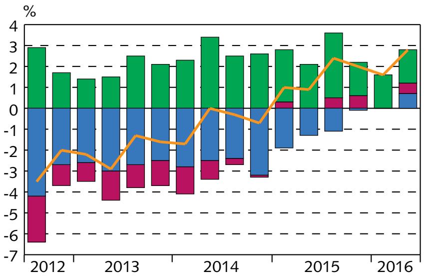
Chart I-32
Real household and corporate debt, year-on-year change[1]
2012-Q2/2016



1. Total debt from domestic financial firms and domestic market financing. Excluding Government debt relief measures for households.
Sources: Statistics Iceland, Central Bank of Iceland.

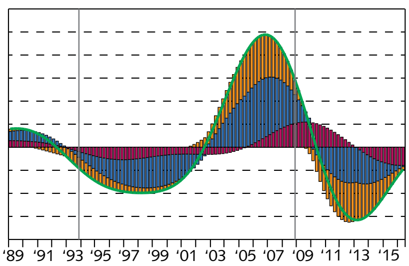
19. The financial system consists of deposit money banks (35% of the system); pension funds (37%); and the Housing Financing Fund (9%); plus the Central Bank of Iceland; miscellaneous credit institutions (excluding the Housing Financing Fund); insurance companies; securities, investment, and institutional investment funds; and the Government credit funds (19%).
20. Debt to domestic financial institutions and issuance in the domestic bond market.
21. Financial institutions' revaluation of credit risk has led to reduced write-offs and higher loan portfolio values. The growth in debt during the period stems in part from this.

Chart I-33
Domestic credit stock, adjusted for exchange rate and price level[1]
Annual change in the total credit stock and in each loan type



1. Year-on-year quarterly change in the stock of domestic credit to households and firms, at book value and without Government debt relief measures for households. The distribution of provisions by loan type is estimated from the size of each type. 2. CPI-indexed credit at mid-2016 prices 3. Foreign-denominated credit at mid-2016 exchange rate 4. Non-indexed credit at current prices.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-34
The financial cycle in Iceland[1]



1. The financial cycle estimate is based on the use of a two-sided asymmetric band-pass filter and principal components analysis, both of which are repeated for the entire sample when new data arrive. The underlying variables are standardised; therefore, the chart is only a representation of the phase of the financial cycle and its components at any given time. 2. All variables in the credit component are based on claim value.
Sources: Statistics Iceland, Registers Iceland, Central Bank of Iceland.

share of GDP, the book value of the private sector's domestic debt continues to fall. The ratio was 150% at the end of June and had fallen by 5 percentage points since mid-2015, owing to strong output growth.

- As of end-June, total private sector debt (domestic and foreign) had contracted year-on-year in real terms. The real contraction in total debt measured 2.7% over the period and is driven both by reduction of companies' foreign debt and by the appreciation of the króna. Excluding the foreign debt of public companies, where deleveraging has been most pronounced, the contraction in total debt measures 1% in real terms.[22]

- Developments in the domestic price- and exchange rate-adjusted debt stock give to some extent a more accurate view of the scope of new financing and thereby of potential accumulation of systemic risk. By this measure, annual growth is about 2.8%. The long period of contraction in the domestic debt stock concluded in 2014, and growth has been measured consistently for the last year and a half. Based on recent quarters, the outlook is for debt growth to accelerate in the near future.

- The real price of real estate is rising rapidly at present. Rising property prices increase the collateral capacity on households' and businesses' balance sheets, thereby giving financial institutions greater scope for increased lending for house purchases, as rising property prices are often the precursor to credit growth. Nevertheless, an assessment of the financial cycle in Iceland indicates therefore that the upward cycle has begun and has been underway for some time. Further discussion of rising real estate prices can be found in *Economic environment and financial markets*.

- At the end of August 2016, net new residential mortgage lending by the entities that grant such loans (i.e. deposit institutions, the Housing Financing Fund (HFF), and the pension funds) excluding the Government's debt relief measures totalled 117 b.kr. over a twelve-month period, a 79% increase year-on-year. There is a large difference between indexed and non-indexed loans: the net increase in indexed residential mortgages was 130%, as opposed to 15% for non-indexed mortgages.

Deposit money banks (DMBs): Net new non-indexed mortgages decline

- DMBs' total assets were unchanged in real terms in the first half of the year, whereas at the end of June they totalled 3,224 b.kr., including savings bank assets amounting to 23 b.kr. Assets totalled 141% of GDP as of end-June, a decline of 9 percentage points between years. The banking system is still contracting in size relative to macroeconomic variables. Loans are by far the

22. Public companies refers to companies that are directly or indirectly owned by the State and local authorities.

largest share of DMBs' assets, at 2,253 b.kr. or 70% of total assets, an increase of 4.5% year-on-year in real terms. Cash, bonds, and claims contracted between years.

- In the first eight months of the year, net new mortgage loans from DMBs amounted to 44 b.kr.: indexed loans totalled 45 b.kr., and non-indexed loans were negative in the amount of 1 b.kr.[23] This is the longest period that net new non-indexed mortgage loans have been negative since the beginning of 2013, when the Central Bank began collecting such data.

- In terms of book value, 1.6% of the banks' loans were 90 days in arrears at the end of June, a decline of about half a percentage point year-on-year.[24] The decline since the beginning of 2016 measures 0.1 percentage points. In terms of claim value, the non-performing loan ratio was 4.7% and had declined by 1.6 percentage points between years.

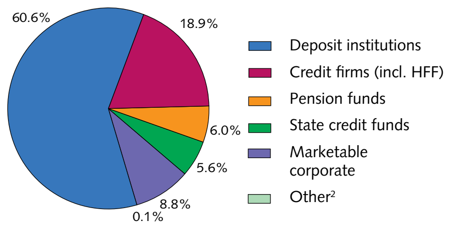
Pension funds: Loans to fund members on the rise

- Pension fund assets totalled 3,321 b.kr. at the end of June 2016, after contracting by 0.2% in real terms in the first half of the year. This is quite a change from 2015, when assets grew by 9.4% in real terms. Assets amounted to 146% of GDP as of end-June, a decline of 3 percentage points during the first half of the year. The main reasons for the change between 2015 and 2016 are the decline in share prices and the appreciation of the króna as the Nasdaq Iceland OMXI8 index fell by 5.5 percentage points and the króna appreciated by 4.2%. At the end of June, the pension funds' foreign assets were assessed at 709 b.kr., or about 21.3% of total assets, down 0.8 percentage points since year-end 2015 and about 2.1 percentage points since end-June 2015.

- About a year ago, the largest pension funds began offering non-indexed mortgage loans and raised the maximum loan-to-value ratio of indexed and non-indexed loans to 75%. At the beginning, there was a moderate rise in the amount of fund members' loans, but this year there has been a sizeable increase. Since March, new pension fund member loans have totalled 7-8.5 b.kr. per month, up from the average of 1 b.kr. per month in H1/2015. At the end of August, fund members' loans increased in real terms by 23% year-on-year. Thereafter, the pension funds' total lending to households rose by 38 b.kr. during the first eight months of 2016, to 210 b.kr. at the end of August. It is estimated that the Government's debt relief measures reduced the claim value of pension fund loans by just over 12-13 b.kr., and this year's increase is about three times that amount. Furthermore, the pension funds grant indirect loans in the form of marketable bonds

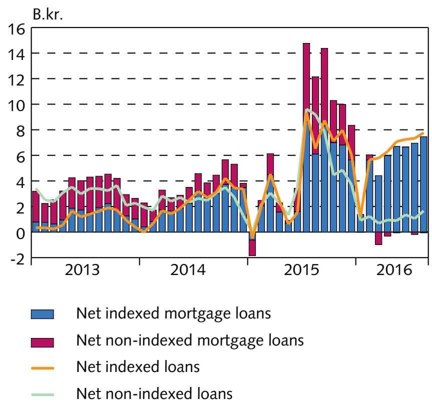
23. Net new residential mortgages with the Government's debt relief measures.
24. Including only those loans that are 90 days in arrears or more, which is the most common measure of non-performing loans used in international financial reporting and annual accounts.

Chart I-35
Distribution of households' and firms' debt within the financial system[1]
June 2016



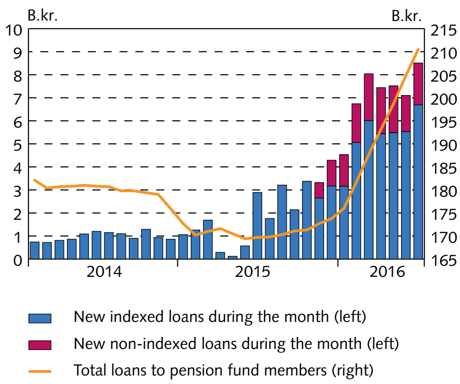
1. Book value. 2. The category "Other" are insurance companies, resolution committees, and holding companies of the failed financial institutions' estates.
Source: Central Bank of Iceland.

Chart I-36
Net new lending by DMB´s[1]
January 2013 - August 2016



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

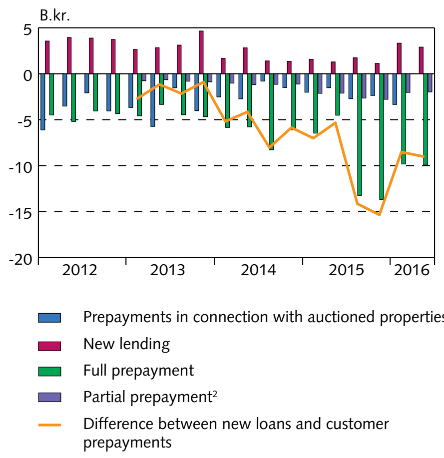
Chart I-37
Loans to pension fund members



Source: Central Bank of Iceland.

Chart I-38

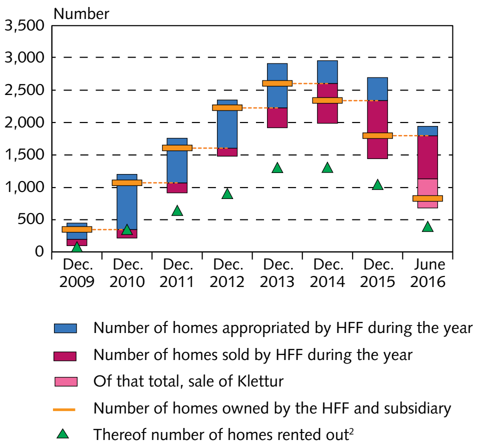
HFF customer prepayments and new loans



1. Data for 2016 not available. 2. Data for 2012 not available.
Source: Housing Financing Fund.

Chart I-39

Residential properties owned by the Housing Financing Fund[1]



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.

issued by listed and unlisted companies, as the funds are the largest owners of such bonds. Pension fund member loans and marketable bonds issued by operating companies increased by 13.5% in real terms the first eight months of this year.

Housing Financing Fund (HFF): Loans contract

- At the end of June, the HFF's total assets were virtually unchanged since the beginning of the year, at 798 b.kr. Loans are the Fund's largest single asset item, accounting for 77% of total assets, and they contracted by nearly 13% year-on-year in real terms. The change in the credit stock year-to-date amounts to just over 5% in nominal terms and 6.5% in real terms.

- The Fund recorded a profit of 2,510 m.kr. for the first six months of 2016, as opposed to a loss of 808 m.kr. over the same period in 2015. Its capital ratio was 6.45% at the end of June, an increase of 1 percentage point since year-end 2015, and its capital amounted to 22 b.kr. In September, the HFF reduced its indexation imbalance by purchasing an indexed bond backed by a mortgage loan portfolio from the Central Bank subsidiary ESÍ for just under 16 b.kr. Previously, the Fund had bought covered bonds from ESÍ for a total of 83 b.kr. in order to address the imbalance.

- The rental company Klettur ehf. was sold to the highest bidder in an open sale process during the first half of the year, and a purchase agreement was signed on 29 June 2016. The sale price was 10,101 m.kr., and the HFF's profit on the sale totalled 832 m.kr., about a third of its profit for the period.

- A total of 10,612 households with HFF loans allocated 6.9 b.kr. third-pillar pension savings (including 1.983 m.kr. in 2016) towards mortgage debt, from the time the measure was activated until 30 June 2016. Other full and partial prepayments by HFF customers totalled just under 23.8 b.kr. in the first six months of 2016, as opposed to 15.2 b.kr. over the same period in 2015, indicating that the Fund's prepayment problem is still significant. New loans issued by the fund in the first six months of the year totalled 6.2 b.kr., an increase of 117% year-on-year.

- Arrears among HFF customers have declined in the past six months, totalling 4.8% of total loans in June, as compared with 8.6% at the same time in 2015.

- Since the beginning of the year, the Fund has sold 667 flats and appropriated 144. At the end of June, the HFF owned 825 flats, including 390 being rented out; however, the number of flats owned by the Fund has declined rapidly in the past year, as it owned 1,974 residential properties in June 2015.

- Parliament passed Act no. 52/2016 on affordable rental housing on 2 June 2016. The Act assigns the HFF a new and important role in developing a new rental housing system intended for individuals and families below specified income and asset thresholds. With this Act, the uncertainty about the Fund's future role has been reduced. Furthermore, a bill of legislation amending the Housing Act, no. 44/1998, has been presented before Parliament, According to the bill, the Housing Financing Fund will be responsible for policy-making concerning housing affairs, as is the case with comparable agencies in the Nordic countries.

Household sector

Government measures improve households' debt position

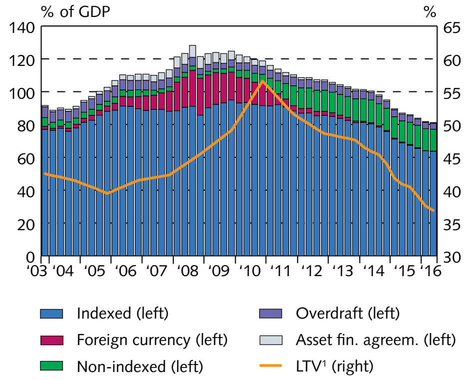
- The claim value of household debt was at 1,851 b.kr. at the end of June 2016 and unchanged in the first half of the year. In real terms, it had declined by 1.2% since the beginning of the year and by 2% since end-June 2015. Excluding the Government's debt relief measures, debt increased by 0.1% in real terms during the first half of the year but declined by 0.3% over the previous twelve months. Household debt amounted to 81.2% of GDP as of end-June, a decline of 2.7 percentage points during the first half of the year. Debt has fallen by 14 percentage points over the past eighteen months, owing to the Government's debt relief measures and to increased GDP. As of end-August, household debt had been written down by 98.4 b.kr. because of the debt relief measures, including 28.7 b.kr. in 2016.[25] Write-downs due to allocation of third-pillar pension savings to mortgages now total about 1.2 b.kr. per month; therefore, it can be expected that mortgages will be written down by another 18 b.kr. through year-end 2017, when the third-pillar option expires.

- The loan-to-value ratio for residential housing averaged 37% at the end of June, a reduction of four percentage points in twelve months. The reduction in the loan-to-value ratio in recent months is due primarily to rising house prices (for further discussion, see *Economic environment and financial markets*). Households have considerable scope to take on additional debt, and as time passes it is likely that household debt will rise once again.

- At the end of Q2/2016, household debt was estimated at 156% of disposable income. The ratio of debt to disposable income has fallen very rapidly in the recent term, owing to reduced debt and a steep rise in disposable income. Since 2010, it has fallen by 94 percentage points. Among individuals with mortgages, the ratio of debt to disposable income is 271% and has declined by 25 percentage points between years. Iceland's ratio of household debt to disposable income is now second-lowest in the Nordic region, whereas for decades it was second-highest, behind Denmark's. Only Finland (126%) now has a lower ratio.

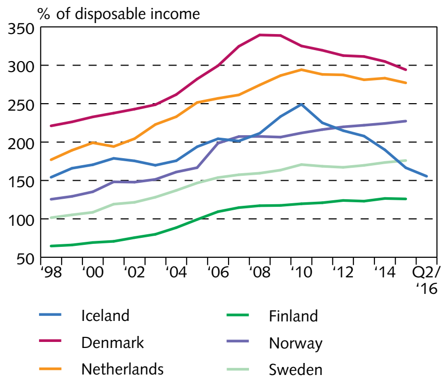
25. In addition, about 6 b.kr. is to be allocated towards personal income tax deductions during the period 2015-2018.

Chart I-40
Household debt as % of GDP
Q4/2003 - Q2/2016



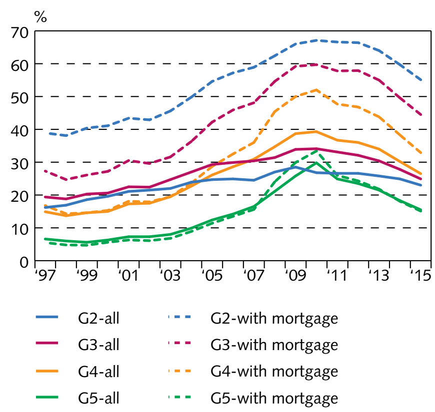
1. Household mortgage debt as % of households' total real estate assets.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-41
Household debt as a share of disposable income, European comparison
1998-Q2/2016



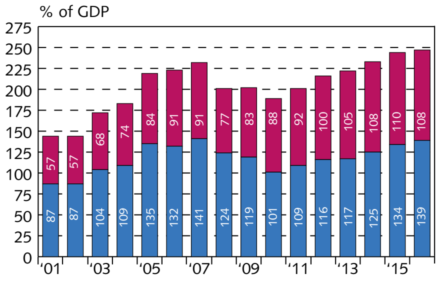
Sources: Eurostat, Statistics Iceland, Central Bank of Iceland.

Chart I-42
Share of taxpayers owing more than 300% of disposable income[1]
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-43
Households' net assets as % of GDP[1]
2001- Q2/2016



Net assets on household balance sheets
Pension funds

1. Pension fund assets are based on payouts after deduction of 30% income tax. Q2/2016 figures are estimated.
Sources: Statistics Iceland, Directorate of Internal Revenue, Central Bank of Iceland.

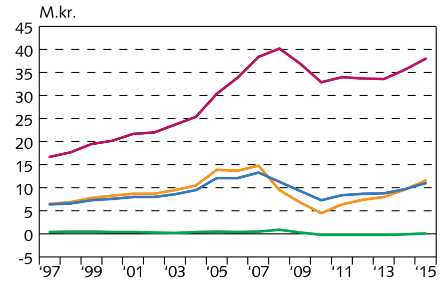
Non-performing loan ratios and individuals on the default register

- Among loans granted to individuals by the large commercial banks and the Housing Financing Fund, the share that are frozen or in arrears was 5.8% at the end of August, after falling by 1.4 percentage points in the first eight months of 2016.[26] It has fallen 2.5 percentage points in the past twelve months.
- At the end of September, there were 24,417 individuals on the default register, a reduction of 5% year-on-year and 4% since the beginning of 2016. A total of 6,365 individuals were registered as bankrupt or having been subjected to unsuccessful distraint measures as of end-September, a reduction of 2% since the end of 2015.

Position improves for leveraged households and households with mortgage debt

- The share of income tax filers who owe more than three times their disposable income was 22.5% at year-end 2015, a reduction of 2.8 percentage points year-on-year.[27] This was the largest single-year decline in the past two decades. If individuals with mortgage debt are segregated out, the improvement between years is even greater. At the end of 2015, some 37% of individuals with mortgages owed more than three times their disposable income, a year-on-year reduction of 4.5 percentage points. The most pronounced improvement has been in the two highest-income groups (G4 and G5), both for those with mortgages and as a whole.
- Households' net wealth was estimated at 247% of GDP at the end of June, an increase of 4 percentage points since end-2015 and 14 percentage points since end-2014. In the first half of the year, net pension assets fell by 2 percentage points relative to GDP, the first decline since the financial crisis struck in 2008. The increase in net household wealth was due mainly to rising house prices and declining debt.
- The net position of individuals with mortgage debt has improved markedly.[28] At the end of 2015, households' net wealth totalled 1,353 b.kr., a year-on-year increase of 20% in real terms. In 2010, the net wealth of households with mortgage debt was 516 b.kr. at 2015 prices; therefore, it has more than doubled in five years. The real position of homeowners without mortgage debt improved less in 2015, or by 10%, to 1,585 b.kr. at the end of

Chart I-44
Net asset by housing position [1]



All
Homeowners without mortgage
Homeowners with mortgage
Non homeowners

1. At 2015 prices. Net asset per individual.
Sources: Statistics Iceland, Central Bank of Iceland.

26. Based on book value and using the cross-default method; that is, categorising a customer as being in default if he or she has one loan in arrears.
27. The information is based on tax return data from the Directorate of Internal Revenue, processed by Statistics Iceland for the Central Bank. In calculating the percentage of income tax filers who owe more than three times their disposable income, the lowest-income group, G1, is excluded, as this group consists to a large extent of individuals with little or no income.
28. About 43.5% of income tax filers are homeowners with mortgage debt, 15.5% are homeowners without mortgage debt, and 41% are individuals who do not own real estate.

the year. The net wealth of individuals who do not own a home and are therefore in the rental market, in social housing, or living with others (such as their parents) was 11 b.kr. at year-end 2015, whereas a year earlier it was negative by 10 b.kr. at 2015 prices.

Strong rise in purchasing power

- Disposable income and real wages have risen strongly in the recent term. The real wage index rose 10% year-on-year to its end-July value of 137.2 points. The rise in purchasing power is due largely to wage increases; however, the appreciation of the króna and falling import prices, oil in particular, have contained inflation and thereby made a positive impact on purchasing power. The rise in purchasing power has spurred private consumption, which is projected to grow by 6.7% in 2016. In spite of strong private consumption growth, household saving has continued to increase, as disposable income has grown faster than consumption. With reduced indebtedness and improved net wealth, households are better equipped to withstand shocks than they have been for a long time.

Corporate sector

Tourism is growing and foreign-denominated lending is on the rise

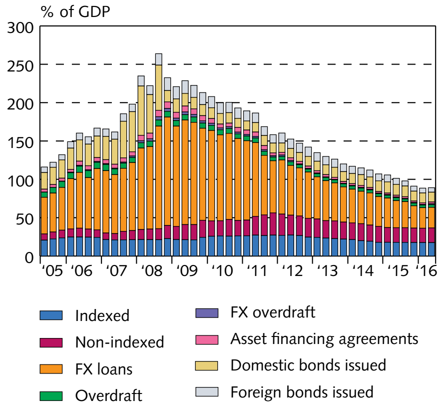
- At the end of June 2016, Icelandic firms' debt to domestic and foreign financial institutions and issued marketable bonds totalled about 89% of GDP. Corporate debt has declined by about 12 percentage points relative to GDP so far this year, or nearly 8% at constant prices. The Icelandic króna has appreciated significantly in the recent past – by nearly 12% over the first nine months of the year – reducing firms' foreign-denominated debt. Companies with a State guarantee and municipality-owned companies have worked systematically towards paying down their debt, particularly their debt to foreign lenders, which explains in large part the steep decline in operating companies' foreign-denominated debt in the recent term.

- The three large commercial banks' net new loans to corporate borrowers totalled 114 b.kr. in H1/2016, as opposed to 95 b.kr. for the same period in 2015, an increase of about 20% year-on-year. As before, non-indexed loans were most prominent, accounting for about 44% of net new loans. The largest increase, however, is in foreign-denominated loans, which totalled 44 b.kr., some 2 b.kr. more than in all of 2015. Growth in net foreign-denominated lending is attributable mainly to increased investment in the fishing industry and increased activity in the tourism sector. Growth has been strongest year-on-year in lending to companies in construction, industry, and transport and transit.

- It is important to pay particularly close attention to loans to the tourism industry because it has been Iceland's fastest-growing economic sector in recent years. For example, according to June 2016 figures, the number of tourist visits to Iceland had increased

Chart I-45

Corporate debt[1]

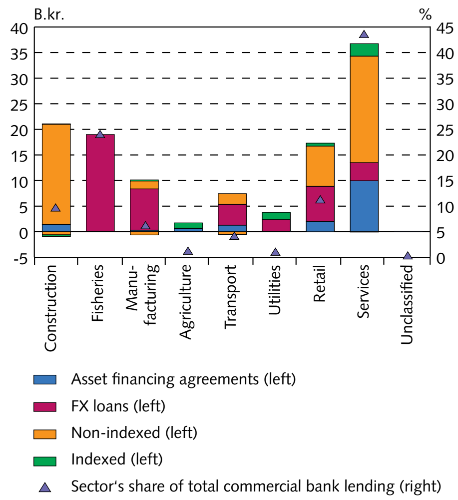


1. Debt owed to domestic and foreign financial undertakings and market bonds issued.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-46

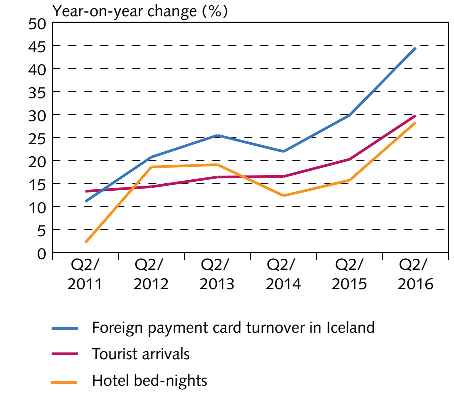
Net new corporate lending from the three commercial banks in H1/2016[1]

By industry and loan form



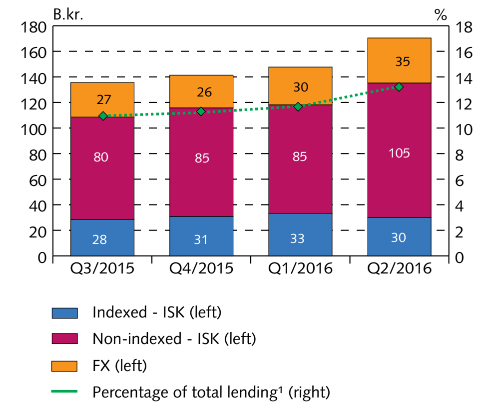
1. New loans net of prepayments. Prepayments are payments in excess of contractual payments.
Source: Central Bank of Iceland.

Chart I-47
Growth in number of tourists, overnight stays, and payment card turnover[1]



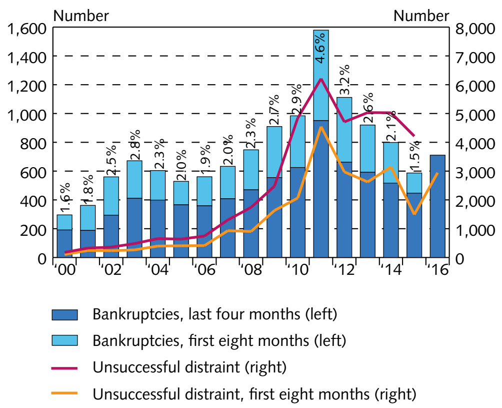
1. Year-on-year change at mid-year.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-48
Lending to the tourism industry



1. Total lending to operating companies and holding companies.
Source: Central Bank of Iceland.

Chart I-49
Corporate bankruptcies and unsuccessful distraint actions[1]



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

by 30% in a year. By the same token, overnight stays were up 28% and foreign payment card turnover in Iceland had risen by 45%. The book value of total lending to the sector was 170 b.kr. as of end-June 2016, or more than 13% of loans to non-financial firms and holding companies. Growth for the past three quarters measures 26%, with particularly strong growth between Q1 and Q2 of this year. If projected visitor numbers in coming years can be relied upon, the tourism industry can be expected to continue growing. Foreign-denominated loans now constitute one-fifth of total loans to tourism companies.

Corporate failures increase between years

- Registered corporate failures have declined steadily from the 2011 peak; however, 727 firms were declared bankrupt in the first eight months of this year, about 24% more than in all of 2015. In part, this is due to a steep increase in the number of companies in operation over the past three years, as it is natural that bankruptcies should rise at the same time. It may be more informative to examine the rate of bankruptcies; i.e., the ratio of corporate failures to the total number of companies. At the end of 2015, the ratio was 1.5%, but it will clearly be somewhat higher in 2016. Based on the estimated total number of operating companies at the year-end and the average increase over the past three years, and assuming that bankruptcies do not increase this year, this ratio has risen to 1.8%, which is below the levels seen during the pre-crisis upswing. Based on developments in unsuccessful distraint actions, however, the ratio will probably be higher. Over the first eight months of the year, there were 2,944 unsuccessful distraint measures against companies, about twice as many as over the same period in 2015. As is explained in *Financial Stability* 2015/2, figures for 2015 (particularly the first half of the year) were affected by the strike among employees at the capital area Commissioners' office. As a result, the figures are not entirely comparable. During the first eight months of 2016, there were roughly the same number of unsuccessful distraint actions as in the same period in 2014.

- In September 2016, there were 5,884 companies on the CreditInfo default register, or about 14% of all firms. The number of the default register has held broadly unchanged in the recent past and is similar to that at the beginning of the year. In terms of the ratio of firms on the default register to the total number of firms in each sector over the past twelve months, the most pronounced decline has been among firms in construction and transport/transit.

Reduction in commercial banks' non-performing loans

- The three large commercial banks' non-performing corporate loan ratio was 6.9% as of end-August 2016.[29] It rose by 2.5

29. Based on book value and using the cross-default method; that is, if one loan taken by a customer is non-performing, all of that customer's loans are considered non-performing.

percentage points towards the end of 2015, mainly because of increased arrears among large firms (for a more detailed discussion, see *Financial Stability* 2016/1), but that increase has largely reversed. About 65% of loans in arrears are frozen, and only 2% are in enforcement proceedings. Among small and medium-sized companies, frozen loans account for 36% of total arrears. Other types of non-performing loans include loans in collections (13%) and those undergoing restructuring (7%).

II Central Bank stress tests 2016

Banks' combined capital ratio falls by almost 4 percentage points

The Central Bank of Iceland's 2016 stress test extends to the country's three largest commercial banks. The purpose of the test is to examine the banks' resilience against potential shocks arising from an economic contraction among Iceland's trading partners, an appreciation of the króna, and a steep drop in the number of tourists visiting Iceland. The stress test covers a three-year period from 2016-2018. According to the stress scenario, export volumes shrink and terms of trade deteriorate. Investment contracts and unemployment rises, but inflation remains modest. In addition, GDP contracts by just over 5% for the first two years. The results of the stress test indicate that the banks' combined Tier 1 capital ratio could fall by 3.7 percentage points from the beginning of the period, when it was 27%, but that it would still be well above the minimum required by the Financial Supervisory Authority.

Background, purpose, and format

The Central Bank of Iceland, in consultation with the Financial Supervisory Authority, conducts an annual stress test in which it examines the resilience of commercial banks' to adverse macroeconomic scenarios. The 2016 stress test extends to the three largest commercial banks, whose total assets constitute some 98% of total deposit institution assets in Iceland.

Purpose of the stress test

An economic downturn can affect the financial system directly or indirectly, including increased arrears and loan losses. There are also clear signs of connections between bankruptcy and various economic variables such as unemployment, GDP, and private consumption; the same is true of the arrears that precede bankruptcy.[1] Furthermore, the interest environment and overall economic activity are very important for the banks' income.

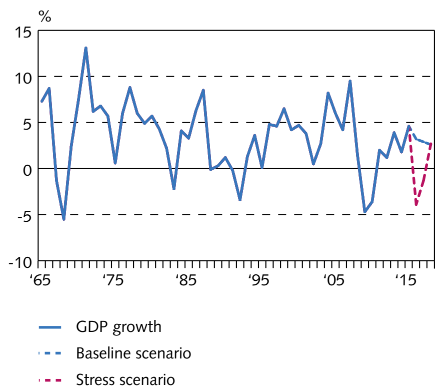
Stress tests are useful for general risk assessment; they give indications of banks' vulnerability to adverse economic developments and can enable the authorities to respond to potential risks in a timely manner. They also provide useful information for macroprudential policy formation and financial market supervision and create an important foundation for discussion among the relevant parties. In general, banks that have introduced procedures for stress testing are better prepared to respond to potential shocks, as stress tests and their results can be used as a tool for risk management.[2]

Format: Scenario analysis

The 2016 stress test takes the form of a scenario analysis wherein two scenarios are presented: *a baseline scenario and a stress scenario*.

Chart II-1

GDP growth 1965-2015 and in baseline and stress scenarios 2016-2018

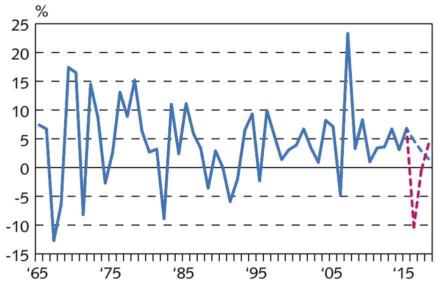


Source: Central Bank of Iceland (QMM results Nov 2015).

1. See also the rationale for the Financial Stability Council's recommendation concerning a capital buffer for systemic risk: https://www.fjarmalaraduneyti.is/media/frettatengt2016/Kerfisahaettuaki.pdf
2. Bernd Engelmann, Macroeconomic Stress Testing, Global Association of Risk Professionals, April 2013.

Chart II-2

Exports 1965-2015 and in baseline and stress scenarios 2016-2018[1]

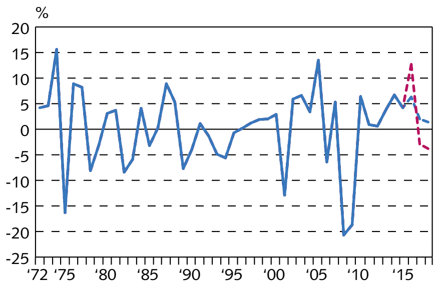


Exports
Baseline scenario
Stress scenario

1. Real change.
Source: Central Bank of Iceland (QMM results Nov 2015).

Chart II-3

Real exchange rate 1972-2015 and in baseline and stress scenarios 2016-2018[1]

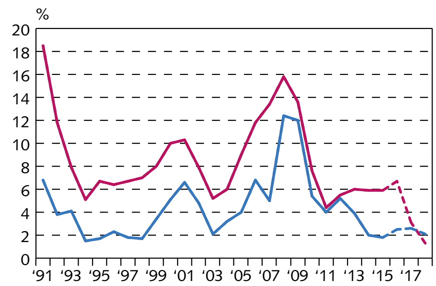


Real exchange rate
Baseline scenario
Stress scenario

1. Change from previous year.
Source: Central Bank of Iceland (QMM results Nov 2015).

Chart II-4

Developments in inflation and interest rates 1991-2015 and in stress scenario 2016-2018[1]



Inflation
Inflation, stress scenario
CBI collateralised lending rate
CBI collateralised lending rate, stress scenario

1. Annual average inflation and collateralized lending rate.
Source: Central Bank of Iceland (QMM results from Nov 2015).

The impact of the scenarios on developments in balance sheets and profit and loss accounts, on the one hand, and the capital base and risk-weighted assets, on the other, is then assessed. The banks use their own methodology to carry out the assessment but must follow instructions from the Central Bank, which facilitates comparison between banks. The Central Bank also examines the impact of the scenarios on the banks by using its own stress testing model. The objective is to have a reference for the banks' assessments and to create the foundations for discussion of the impact of the scenarios on various aspects of business plans.

Scenarios

Baseline scenario 2016

The baseline scenario is based on the assumptions concerning medium-term economic developments as set forth in the baseline forecast in *Monetary Bulletin* 2015/4, with one important difference: the Bank's key interest rate is held unchanged from year-end 2015 onwards.

Stress scenario 2016

The stress scenario is based on the Central Bank's analysis and assessment of current risks to financial stability in Iceland.[3] It was designed with an eye to recent foreign stress tests and historical developments in economic variables in Iceland. This year's stress scenario resembles previous shocks in the export sector, except that it provides for a reduction in tourist numbers rather than catch failures like those occurring in 1967 and 1982 (see Charts II-1 and II-2). It should be noted that the stress scenario does not represent the Bank's forecast of expected developments in macroeconomic variables or other economic variables.

The purpose of the 2016 stress scenario is to assess the commercial banks' resilience to potential shocks entailing a recession in Iceland's trading partner countries and a depreciation of their currencies against the Icelandic króna, plus a downturn in tourist numbers. Tourism has become Iceland's largest export sector. Revenues from foreign tourists accounted for 31% of total goods and services exports in 2015, as opposed to 22% for marine product exports. It is clear that the sector is extremely important for the Icelandic economy and has played a leading role in the post-crisis economic recovery. Further information about the tourism industry can be found in *Corporate sector*.

The stress scenario assumes that the positive outlook for the economy will change for the worse in 2016, with a recession among Iceland's trading partners, particularly Europe and emerging Asian countries.[4] It is assumed that most European currencies (particularly the euro and the pound sterling), as well as Asian currencies other

3. It should be noted that the risk factors for financial stability could already have changed, as the 2016 stress testing process began with the design of scenarios in November 2015 so as to allow for the time required for the design phase and the administration of the stress rest.

4. This is in line with recent stress tests conducted abroad, as well as the depreciation of the euro, the pound sterling, and Asian currencies other than the yen, plus the decline in commodity prices.

than the Japanese yen, which constitute the bulk of the trade basket, will depreciate markedly and that the Icelandic króna will therefore strengthen against them in 2016. This situation, the recession in trading partner countries, and other unforeseeable circumstances[5] will cause a drop in tourist arrivals, which in turn will put downward pressure on the exchange rate and trigger a depreciation in 2017-2018.

The scenario assumes that during the first year (2016), about 40% fewer tourists will come to Iceland than in the previous year. This reduction brings the total number of tourists visiting Iceland back to the level seen in 2012. As a result, there will be a reduction in income from services exports during the first two years of the stress scenario. *The contraction in exports* during the first year will total about 10%. It is also assumed that global aluminium and marine product prices will fall and oil prices will rise, and *terms of trade will deteriorate* thereafter. Investment will contract because of reduced economic activity. Unemployment will rise, and growth in real disposable income will stall. Private consumption will increase in the first year, broadly as in the baseline scenario, but will contract in the second year. *GDP* will contract by 3.9% in the first year and 1.3% in the second year. Developments in key economic variables according to the baseline and stress scenarios can be seen in Table II-1.

Table II-1 Key macroeconomic variables and other stress test variables[1, 2, 3]

	Baseline scenario			*Stress scenario*		
	2016	*2017*	*2018*	*2016*	*2017*	*2018*
Private consumption	4.3	4.1	3.9	4.3	-0.5	3.6
Public consumption	1.4	1.6	1.5	1.4	1.6	1.5
Gross capital formation	11.4	3.8	1.9	6.1	-1.2	5.0
Exports of goods and services	4.7	2.9	1.5	-10.4	-0.5	4.1
Imports of goods and services	7.3	3.9	1.9	3.3	2.1	5.2
GDP (output growth)	3.2	2.9	2.6	-3.9	-1.3	2.7
Terms of trade for goods and services	0.6	-1.3	-1.0	-6.2	-1.6	-1.3
Unemployment, Statistics Iceland labour force survey (% of labour force)	4.3	4.2	4.1	6.5	7.9	7.9
Real disposable income	6.7	4.9	3.3	3.4	5.1	5.7
Trade-weighted exchange rate index (TWI)	192	192	192	181	189	199
Inflation (consumer price index, CPI)	3.3	4.0	3.4	2.5	2.6	2.1
Real exchange rate in terms of CPI	6.3	2.0	1.4	12.7	-2.9	-3.8
CBI collateralised lending rate (flat discounted rate, %)	6.5	6.5	6.5	6.7	3.1	1.3

1. Change from prior year (%) unless otherwise specified. 2. The Central Bank collateralised lending rate in the baseline scenario is not the yield curve in the baseline forecast from Monetary Bulletin 2015/4 but a yield curve based on unchanged interest rates from year-end 2015. In the stress scenario, the collateralised lending rate is based on the Taylor rule. 3. Figures for the stress scenario are obtained with QMM simulation.

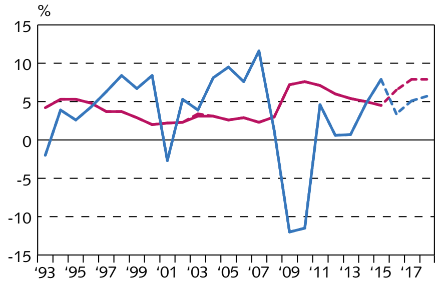
The Central Bank's *collateralised lending rate* will be lowered as a result of declining inflation and the slack in the economy. On the other hand, risk premia in the financial markets will rise in response to the contraction and the reduction in confidence. It is assumed that risk premia on the private sector and the banks will rise by 450 points for financing abroad and by 350 points in Iceland during the first year and then decline gradually.[6] The premium on Icelandic Treasury bonds will

5. Examples of such circumstances are a volcanic eruption that disrupted air travel or a decline in Iceland's appeal as a travel destination.

6. In addition to the premium provided for in the baseline scenario.

Chart II-5

Developments in disposable income and unemployment 1993-2015 and in stress scenario 2016-2018[1]

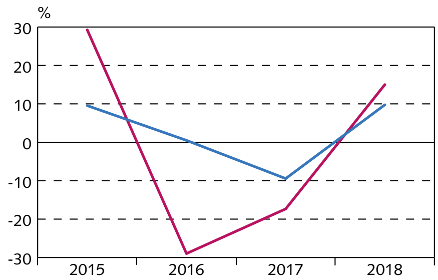


Disposable income
Disposable income, stress scenario
Unemployment
Unemployment, stress scenario

1. Real change annual average unemployment of disposable income.
Source: Central Bank of Iceland (QMM results Nov 2015).

Chart II-6

Developments in asset prices in 2015 and in stress scenario 2016-2018[1]

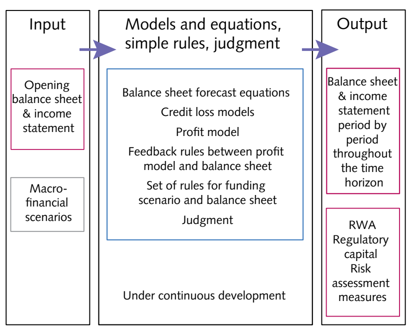


House prices
Equity prices

1. Change from previous year.
Source: Central Bank of Iceland.

Chart II-7

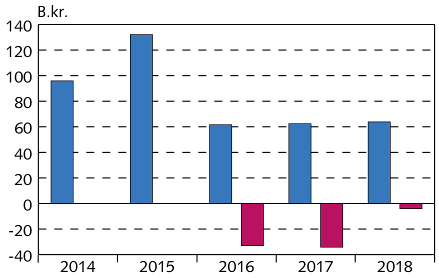
Overview of CBI stress test model



Source: Central Bank of Iceland.

Chart II-8

Central Bank estimate: EBT in baseline and stress scenarios[1]

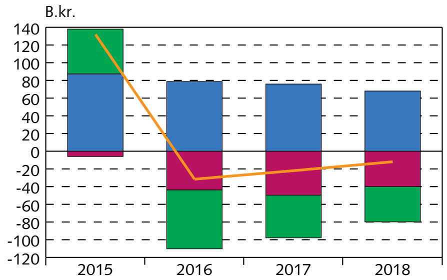


1. CBI estimate for 2016-2018.

Sources: Arion Bank, Íslandsbanki, Landsbankinn, Central Bank of Iceland.

Chart II-9

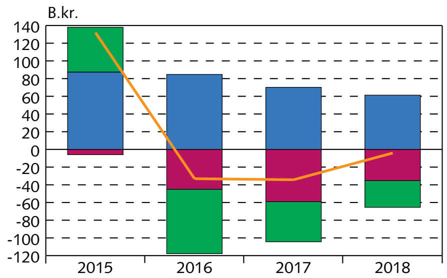
Participating banks' estimate: EBT and contribution of various factors, stress scenario 2016-2018



Sources: Arion Bank, Íslandsbanki, Landsbankinn.

Chart II-10

Central Bank estimate: EBT and contribution of various factors, stress scenario2016-2018



Sources: Arion Bank, Íslandsbanki, Landsbankinn, Central Bank of Iceland.

be 300 in 2016 and then taper off steadily.[7] *Asset prices* will fall, both in Iceland and abroad. Share prices will fall significantly and house prices less so (see Chart II-6).

The 2016 stress scenario is very unlike that in the 2014/15 stress test. The shock is now driven by a contraction in exports, accompanied by unemployment and a sharp contraction in the real economy. However, the stress scenario in last year's stress test was driven by capital outflows that triggered a depreciation of the króna, together with inflation and reduced purchasing power. The contraction of the real economy in the 2016 scenario is much stronger; for example, the contraction in GDP is 3.9% during the first year, as opposed to 2.6% in the 2014/15 stress test.

Assumptions and execution of the stress test

The stress test takes account of the banks' consolidated balance sheets as of the beginning of 2016 – i.e., the annual accounts for 2015, amended to reflect changes due to the composition agreements and year-2015 dividend payments – and covers a period of three years, from 2016-2018.[8]

Instructions provided to the banks

During the administration of the stress test, all of the banks received the same instructions so as to facilitate comparison among them. The instructions included a review of developments in the balance sheet, risk-weighted assets, and profit and loss account. For example, developments in assets (such as loans) must be in line with the macroeconomic scenarios, adjusted for developments in demand,[9] price levels, and so forth. The forecast of developments in income and expense on the profit and loss account, including loan losses, must be consistent with both the balance sheet forecast and developments in relevant aspects of the scenarios, such as interest rates, exchange rates, or macroeconomic variables. 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. In the stress test, the banks may not assume a change in their current policies or other radical management actions in response to the stress scenario. In the stress scenario, no dividend payments are assumed except for estimated year-2015 dividends paid out in 2016.

The Central Bank's assessment and stress testing model

In assessing the results of the stress test, the Central Bank uses a stress testing model of its own devising. The model assesses the impact of macroeconomic scenarios on the balance sheet and profit and loss

7. It is assumed that foreign treasury bonds owned by the Icelandic banks are classified as high-quality government bonds, such as German or American treasury bonds, and will not decline in price under the stress scenario.
8. Because the composition agreements concluded by the failed banks' estates assume, among other things, deposit outflows and changes in the banks' balance sheets, it is assumed that these changes take place in the beginning of 2016, and this balance sheet is used as the basis for the analysis.
9. Demand can develop, among other things, with purchasing power, GDP, and/or investment.

account, as well as the risk-weighted assets and capital base, over the next three years.[10] The stress testing model relies on sub-models and equations that are estimated for the commercial banks or for the financial system as a whole, in terms of macroeconomic variables or other variables. Because the data are inadequate in many respects, Central Bank experts make their own assessments as well. The model is under continuous development.

Information meetings with the banks, where the key elements of the stress test are discussed, were also used to assess the results of the stress test. Information meetings are an important way to develop both the stress testing process and the methodology used by the banks and the Central Bank.

Results

The results show the assessment of the effects of the stress scenario on the capital ratio, capital, 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 scenario, but within the framework provided for in the instructions from the Central Bank. 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, and to the initial position on each bank's balance sheet. Furthermore, it should be noted that the shock represents one specific scenario and if developments diverge from it, the impact on the banks' performance and capital ratio would presumably differ from that indicated here.

Baseline scenario

The results for the baseline scenario were in line with the banks' business plans. In recent years, irregular income, write-ups and sales of holdings in other companies, and valuation increases in loans have been prominent in the banks' profits. However, restructuring of asset portfolios is nearly complete, and in the near future, valuation adjustments of loans will be negative in the amount of net loan impairment. The banks' profits will therefore be less in the near term, even though the forecast in the baseline scenario assumes that core income will continue to strengthen. The forecast of pre-tax profit in the baseline scenario can be seen in Chart II-8; however, it does not assume upward valuation adjustments or asset sales. The three banks' capital ratios are high at present. They are expected to fall, however, as a result of dividend payments in coming years.

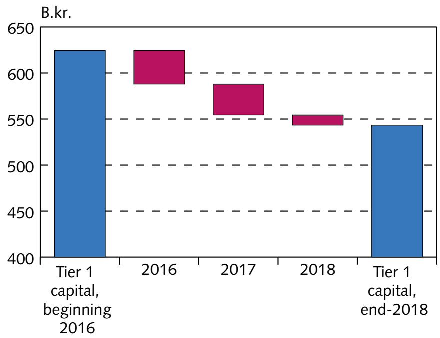
Stress scenario: Income, expenses, loan losses, and profit

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. In the stress

10. A more detailed description of the Central Bank's stress test model can be found in *Financial Stability* 2014/1.

Chart II-11

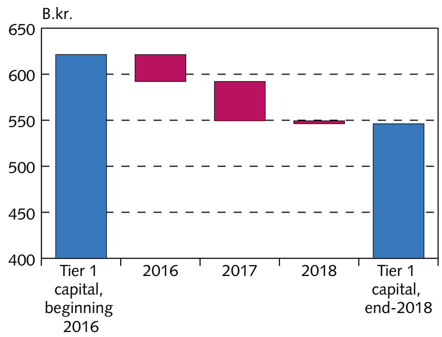
Participating banks' estimate: Developments in the three banks' Tier 1 capital from end-2015 to 2018, stress scenario



Sources: Arion Bank, Íslandsbanki, Landsbankinn.

Chart II-12

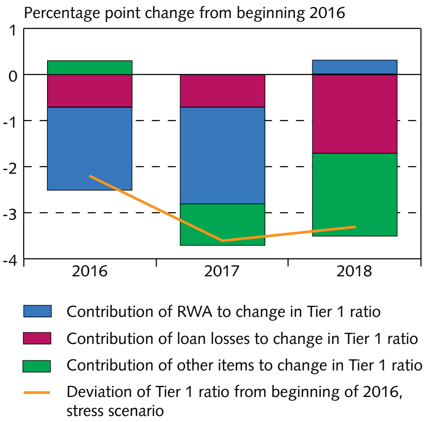
Central Bank estimate: Developments in the three banks' Tier 1 capital 2016-2018, stress scenario



Sources: Arion Bank, Íslandsbanki, Landsbankinn, Central Bank of Iceland.

Chart II-13

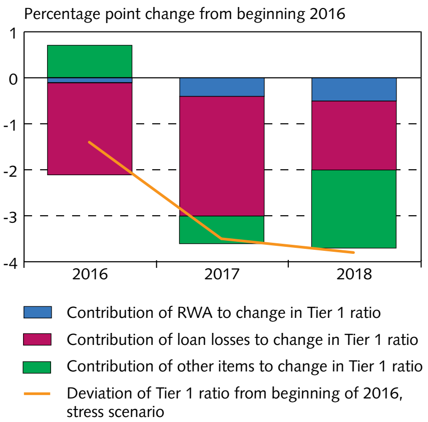
Participating banks' estimate: Deviation of Tier 1 capital ratio from beginning of 2016, stress scenario[1]



1. Participating banks' estimate for stress scenario 2016-2018.
Sources: Arion Bank, Íslandsbanki, Landsbankinn.

Chart II-14

Central Bank estimate: Deviation of Tier 1 capital ratio from beginning of 2016, stress scenario[1]



1. Central Bank of Iceland estimate for stress scenario 2016-2018.
Source: Central Bank of Iceland.

scenario, demand for new credit will be reduced by a decline in overall demand. Interest income will also fall in excess of interest expense, in part due to declining policy rates, banks' increased risk premia, and competition for deposits. Net interest income will therefore fall, as is shown in Charts II-9 and II-10. Other income, such as net commissions and financial income, will contract as well, owing to reduced activity, falling asset prices, and the appreciation of the króna during the first year of the stress scenario.

Loan losses will increase in the stress scenario in the wake of the economic contraction. Reduced demand affects firms' debt service capacity, and elevated unemployment affects individuals' debt service capacity. 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-9 and II-10. The ratio of loan losses to total lending will be highest in the second year, averaging 2.2% according to the banks' estimates and 2.6% according to the Central Bank's estimate. The banks will generate operating losses in all years, according to the stress scenario.

Stress scenario: Developments in capital ratio, capital, and risk-weighted assets

According to the results of the stress test, the three banks' combined Tier 1 capital ratio[11] will decline by 3.6-3.8 percentage points from the beginning of the period, when it was 27%. The drop can be attributed mainly to a reduction in capital, but also to a rise in the risk-weighted assets. The assessment of the banks and the Central Bank of the drop in the capital ratio, including the contribution from each component, can be seen in Charts II-13 and II-14. The decline in the capital ratio is due mainly to loan losses during the first two years. Changes in the risk-weighted assets and the effects of other items carry less weight.

Developments in banks' capital depend on profit or loss, dividend payments, and deductions from capital. Developments in Tier 1 capital in the stress scenario are shown in Charts II-11 and II-12. On average, the banks' own assessments were similar to the Central Bank's.[12] According to the results of the stress test, the banks' combined Tier 1 capital would decline by 12-13% from the beginning of 2016 through end-2018.

The risk-weighted assets weights the banks' assets in terms of risk and is the denominator of the capital ratio. The three banks assessed the impact of the shock on their risk-weighted assets very 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, the risk-weighted assets would rise by 3% in the first year of the shock and then decline again, and in the third year it would be 1% lower than at the outset. The Central Bank's assessment was that the risk-weighted assets would rise by

11. With the amendments to the Act on Financial Undertakings, no. 161/2002, passed on 1 September 2016, changes were made to the definition of Tier 1 capital. A new definition is now used, under the term *common equity Tier 1 capital*. Because the stress test was carried out before this change took effect, the previous definition is used in this analysis.

12. This also assumes deductions from capital.

0.5% in the first year. It would then keep rising, and in the third year it would be 2% higher than at the outset.[13]

Foreign comparison

Earlier this year, the US Federal Reserve Bank and the European Banking Authority (EBA) published stress test results.[14] The Federal Reserve's stress test led to a 3.9% reduction in the common equity Tier 1 capital ratio. The common equity Tier 1 capital ratio of selected European banks declined by 3.8 percentage points over the three-year horizon of the EBA stress test.[15] The reduction in the capital ratio in the two stress tests was due mainly to a reduction in capital but also due to an increase in risk-weighted assets.[16] Although the decline in the capital ratio in these stress tests is similar to that in the Central Bank of Iceland's 2016 stress test, the stress scenario of the US and EBA's stress tests differed both from one another and from the Central Bank's stress scenario. All of them, however, entailed a widespread international recession.

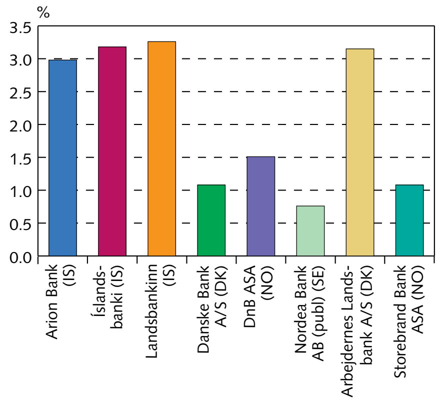
13. The assessment of risk-weighted assets is based on the standardised approach in this stress test.
14. Dodd-Frank Act Stress Test 2016: Supervisory Stress Test Methodology and Results, Board of Governors of the Federal Reserve System, June 2016.
15. 2016 EU-wide stress test results, European Banking Authority, July 2016.
16. 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.

Appendix

Nordic comparison

Chart 1

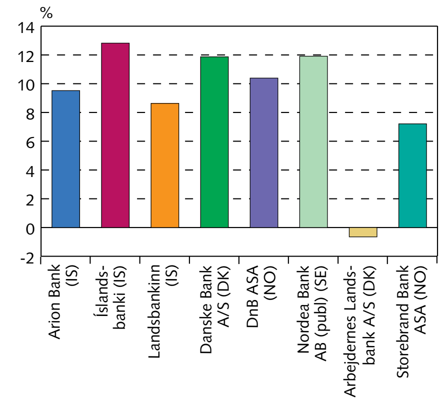
Net interest margin June 2016



Source: SNL Financial.

Chart 2

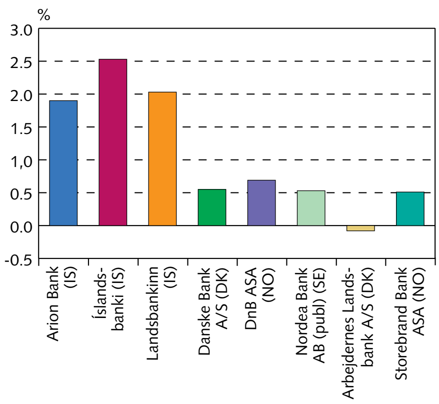
Return on equity June 2016



Source: SNL Financial.

Chart 3

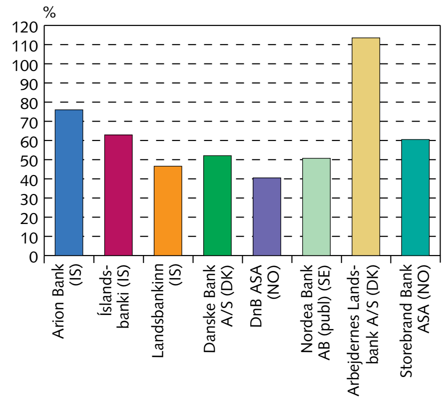
Return on total assets June 2016



Source: SNL Financial.

Chart 4

Cost-to-income June 2016

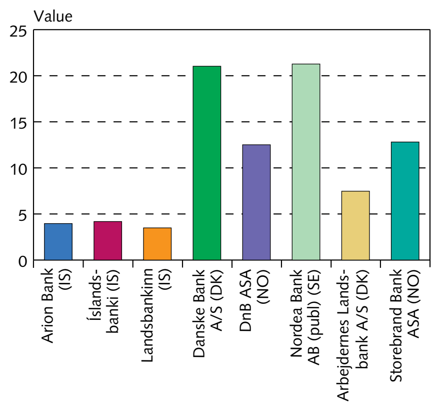


Source: SNL Financial.

Chart 5

Leverage June 2016

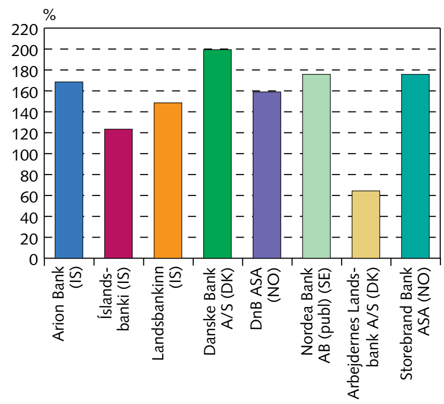
Debt as proportion of equity



Source: SNL Financial.

Chart 6

Loans/customer deposits June 2016



Source: SNL Financial.