



FINANCIAL STABILITY

2018 • 2

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

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

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

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Icelandic letters:

ð/Ð (pronounced like th in English this)

þ/Þ (pronounced like th in English think)

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

Foreword by the Deputy Governor

Increased uncertainty and risk call for preservation of financial institutions' resilience

Risk in the financial system has increased but remains moderate. Growth in tourism has slowed markedly, and risk connected to the sector has increased since the publication of *Financial Stability 2018/1* this past spring. Sharply higher oil prices and stiff competition have tested the resilience of airlines in Iceland and elsewhere, as can be seen in their operational challenges. This probably played a role in the depreciation of the króna during the autumn, owing to a reassessment of economic developments and prospects. A lower real exchange rate can in turn support the tourism industry. Growth in the commercial banks' lending to tourism companies has eased alongside weaker growth in the sector. Growth has been robust in recent years, however, and lending to tourism operators constitutes about a tenth of the banks' loan portfolio. If tourism-generated revenues contract, loan losses could result, but this alone would not put the banks' position at risk. However, a more substantial contraction in tourism revenues would also be a shock to the economy as a whole because of the impact it would have, for example, on foreign currency revenues and the exchange rate of the króna.

The stress scenario in the Central Bank's stress test, published in this report, entails a much more severe shock than that resulting from a contraction in a single export sector. The stress test is based on the banks' year-2017 annual accounts. The stress scenario spans a three-year horizon and entails, among other things, a sharp contraction in exports, a severe deterioration in terms of trade, credit rating downgrades, and higher cost of capital for domestic borrowers. The results of the stress test indicate that the banks' capital ratios would decline by an average of over 4½ percentage points, but because their capital ratios are relatively high, they could tolerate such a shock. Nevertheless, this would force them to tap the capital buffers that have been imposed in order to enable them to withstand losses due to a financial shock. On the other hand, it is well to bear in mind that the stress scenario represents a stylised example and that it may not cover all aspects of a shock, such as the consequences of spillovers and temporary pessimism. As a result, the effects of the stress test could be underestimated, especially the short-term effects.

Another risk factor discussed in this issue of *Financial Stability* centres on the recent surge in real commercial property prices, particularly in the greater Reykjavík area. Prices are now high, both in historical terms and relative to most relevant economic variables. High prices increase the likelihood of a decline if the economy suffers a setback; indeed, volatile commercial real estate prices have played a significant role in numerous financial crises around the world. Loans to real estate firms and construction companies now account for about a fifth of the commercial banks' lending; therefore, a drop in property prices could affect the banks.

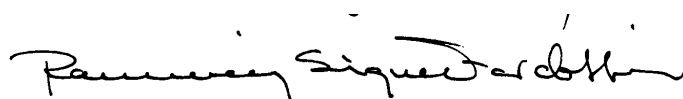
In other respects, risk in the real estate market is broadly unchanged since the spring. Real house prices are now at an all-time high, but the rise in prices relative to wages, income, and construction costs appears to have halted. This is due to several factors: an increased supply of residential housing, a slower increase in the number of flats used as short-term rentals to tourists, and reduced labour importation. Demand is still strong, but supply is projected to grow in coming years, as prices are still high relative to construction costs. As a result, the housing market appears likely to become better balanced. Growth in household debt is still moderate relative to other economic variables, in spite of a surge

in housing wealth. It is important that households exercise caution in using additional collateral capacity to take on more debt. Households' mortgage debt has increased as other types of debt have contracted. If the supply of housing increases more than demand, or if the tourism industry suffers a setback, house prices could fall, leading to an increase in the banks' risk of losses.

The economic situation in Iceland's main trading partner countries has improved in the recent past, but global uncertainty has increased. Furthermore, global financial conditions could deteriorate rather abruptly; for instance, if long-term interest rates should rise suddenly due to a reassessment of risk and/or a rise in inflation expectations. If such a development should coincide with uneven monetary policy normalisation in larger currency areas — from a slack to neutrality or a tighter stance — capital flows and currency exchange rates could fluctuate widely. The banks' near-term refinancing risk in foreign markets is limited, however, because their foreign-denominated liquidity is ample.

The banks' capital ratios have been well above the level required by the Financial Supervisory Authority for quite some time, but they declined last year and this year mainly because of dividend payments, and are now approaching the required level. After accounting for the rise in the countercyclical capital buffer in May 2019 and the so-called management buffer, there is little scope for a further reduction in their capital ratio. The banks have the option of changing their capital structure by issuing subordinated loans, thereby increasing their scope for further dividend payments, but that form of capital is weaker and does not cover losses in the same way. As a result, it would be prudent to keep dividend payments modest.

Steps have been taken to strengthen financial institutions' resilience by requiring them to build up capital buffers while systemic risk is still limited. Further efforts should be made to build up such resilience by raising the countercyclical capital buffer, whose purpose is to protect financial institutions against cyclical risk. Given that risk in the financial system is growing, that it is uncertain how fast the output gap will close, and that global financial conditions could deteriorate, it is important that financial institutions preserve their resilience so that they will have sufficient strength to withstand shocks in the future.



I Key risks

Risk in the financial system remains moderate but has increased. The main sources of risk are related to the real estate market and the tourism sector. Growth in tourism has slowed, whereas risk has accumulated with the surging growth of the past few years. In the quarters ahead, it will become clear whether projections on which the past few years' investment in the sector was based were overly optimistic. For many tourism companies, the operating environment has grown more difficult. If the tourism industry suffers a setback, it will affect the real economy and the commercial banks. The banks are on a sound footing, however, and can withstand a significant shock, as the stress scenario in the Central Bank's stress test (discussed in Chapter IV) entails a much more severe shock than that resulting from a contraction in a single export sector. The rise in house prices has virtually halted, and prices have been relatively stable in the past year. Household debt has grown faster than before, however, although the growth rate is still moderate in comparison with other economic variables. On the whole, households' position is strong. Commercial real estate prices are still rising rapidly, and growth in corporate lending has been robust in the recent term. In spite of this, firms' position is good, equity ratios are high, and the operating environment is favourable overall; however, this could change with rising debt and a more difficult operating environment.

The economic situation in Iceland's main trading partner countries has improved in the recent past, but global risk and uncertainty have increased. If the uncertainty concerning the world trade environment persists, it will have a negative impact on investment and output growth. Furthermore, global financial conditions could deteriorate rather suddenly; for instance, if long-term interest rates should rise suddenly due to a reassessment of risk and/or a rise in inflation expectations. If such a development should coincide with uneven monetary policy adjustments in larger currency areas, capital flows and currency exchange rates could fluctuate widely. The banks' near-term refinancing risk in foreign markets is limited, however, because their foreign-denominated liquidity is ample.







Tourism

Airlines' operating environment has deteriorated

The tourism industry has grown by leaps and bounds in the past several years. Today it is Iceland's largest single export sector, and flights to Iceland are its lifeline. The prospect of reduced frequency of air travel to and from Iceland was discussed in *Financial Stability 2018/1*. Such a reduction has not materialised yet; however, current airline timetables for the coming winter indicate a contraction in seat availability between Iceland and both Europe and North America.

Competition has grown stronger in the recent term, as can be seen in the fact that airlines have not raised their prices even though oil prices have risen steeply in the past few months. Iceland's international airlines have not been spared the effects of this, and both are facing a

Table 1 Key risks

	2018/1	2018/2
Residential real estate		
Commercial real estate		
Tourism		






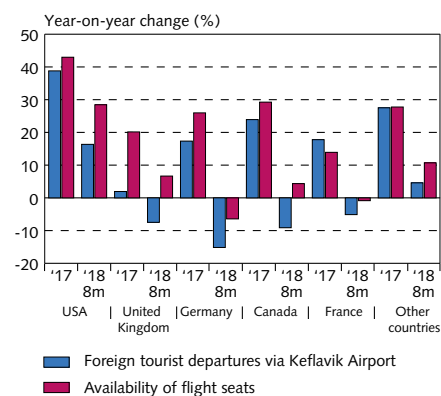
				
Least risk				Greatest risk

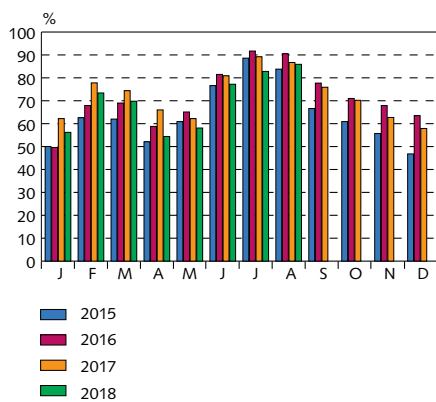
Chart I-1
Foreign nationals' departures via Keflavik Airport and availability of flight seats



Sources: Icelandic Tourist Board, ISAVIA.

Chart I-2

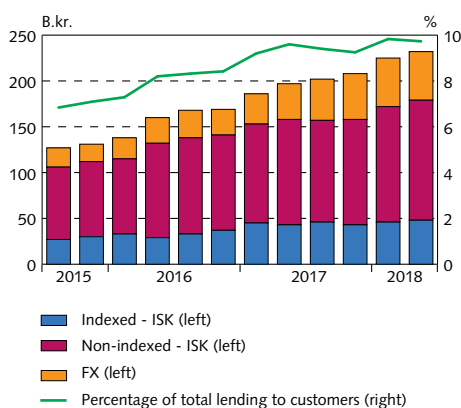
The occupancy rate of hotels in the capital area



Source: Statistics Iceland.

Chart I-3

D-SIB lending to tourism industry



Source: Central Bank of Iceland.

tough operating environment, as can be seen in operating losses and declining seat utilisation. Furthermore, this trend looks set to continue.

Growth in tourism losing pace rapidly

Iceland has become one of the priciest destinations in Europe, with a real exchange rate that is high in historical context. The increase in foreign tourist visits to the country has slowed markedly in the recent term. In the first nine months of the year, passenger departures from Keflavik Airport increased by 5.5% year-on-year, down from 28.2% a year earlier. Hotel and guesthouse bed-nights have followed a similar pattern, increasing by only 1.7% in the first eight months of 2018, as opposed to 10.9% over the same period in 2017. The number of hotel rooms available in the capital area has grown faster than the number of overnight stays, as can be seen in declining occupancy rates. That said, occupancy rates are still high in international context. In krónur terms, average payment card use per foreign tourist has virtually stood still between years, excluding card-based air transport spending.

At the end of June 2018, lending to the tourism sector accounted for nearly 10% of the large commercial banks' loans to customers. Credit growth has slowed in the sector in the recent past, from 20% as of end-2017 to 13% by end-June 2018.¹

After several very strong years, the growth rate in the tourism industry has tapered off significantly in the past few months. The high real exchange rate is detrimental to the sector at present, and rising oil prices will push airfares upwards sooner or later. If the downturn in available flights to Iceland deepens, it will have a negative effect on the tourism sector. Further ahead, the sector probably cannot rely on revenue growth from rising tourist numbers. The next several quarters should reveal whether investment in the sector has been excessive. The banks must be prepared for the possibility that counterparty risk will materialise and that operating difficulties in the tourism industry will result in loan losses.

Housing market

House price inflation in greater Reykjavík continues to lose momentum ...

The rise in house prices in greater Reykjavík has eased markedly. As of September, the real price of condominium housing had been very stable over the previous year, while single-family home prices had risen 1.6% between years. House prices in regional Iceland are still rising rather swiftly, however, with the twelve-month increase measuring 10.4% in September.

Turnover in the capital area housing market was up 17% year-on-year in real terms in the first nine months of 2018, and the number of purchase agreements was up by nearly 9%. In the past two years, the average amount per purchase contract has risen steeply.

1. Some new lending to tourism companies actually represents improved classification of loans in the banks' systems, and not new loans issued. As a result, credit growth is probably somewhat weaker than the figures imply.

... but imbalances remain

The sustainability of developments in house prices can be assessed by comparing them to developments in other economic variables. House prices and the wage index more or less kept pace with one another from 2011 through 2016, with the ratio between them hovering close to the average since 1994. In mid-2016, however, house prices started to rise well in excess of wages, and the ratio between them peaked in April 2017. Since then it has tapered off a bit, but it is still above the aforementioned average.

Overall, the same pattern can be detected in comparisons of house prices with disposable income, rent, and construction costs. Imbalances appear to have developed in 2016 and 2017, although they have diminished slightly since then. This is a positive development because a severe imbalance between house prices and the economic variables that generally determine them are a sign of growing risk.

Drivers of house price inflation have weakened ...

In recent months, the main drivers of house price inflation seem to have lost momentum. Labour importation was strong for several years, but growth slowed down in H1/2018. The Central Bank's key interest rate fell rather steeply in 2016 and 2017 but has been unchanged for a full year. Short-term rentals to tourists soared from 2015 through 2017, but the number of flats used solely for such rentals seems not to have risen in 2018. On the other hand, households' disposable income continued to rise in Q2/2018, fuelling demand.

... and supply has grown markedly ...

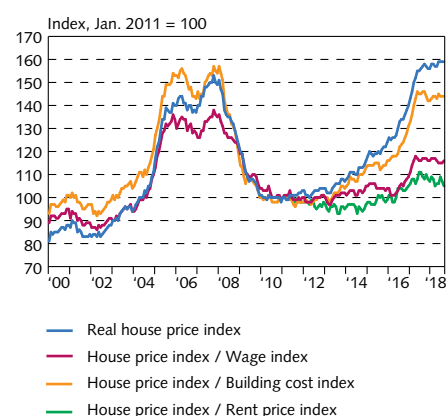
After the 2008 financial crisis, residential construction contracted severely, but according to recent figures from the Federation of Icelandic Industries, the supply of newly built flats is growing apace at present. The Federation forecasts that 2,080 flats in the capital area will be finished this year, as compared with 1,340 in 2017, according to Statistics Iceland figures. The Federation also forecasts a sizeable increase in the number of fully finished new properties in the next two years. Alongside the surge in construction, the average time-to-sale has grown a full month shorter since February, and the number of properties listed for sale has declined by 30% over the same period, indicating that demand is still very strong.

Although there is a sizeable shortage of housing at present, Statistics Iceland's population projects do not indicate that the population of greater Reykjavik will grow at the same rate as housing construction. As a result, the supply of housing could well catch up to demand in the next few years. If a slack develops in the economy at the same time as new construction is growing, real estate firms and construction companies could suffer.

... but households' mortgage debt is growing faster

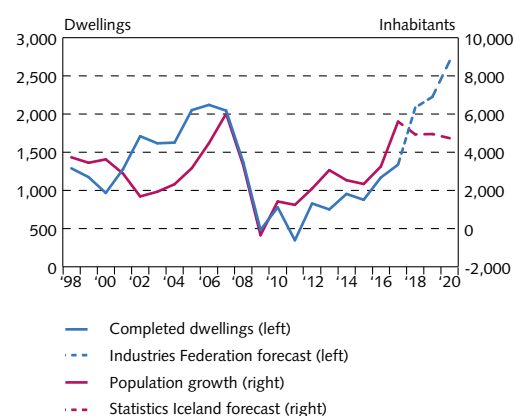
Households' mortgage debt increased by 5.8% in real terms between August 2017 and August 2018. It has now grown in real terms for nearly three years, by a total of 204 b.kr. at each year's price level, over this period. After adjusting for the contraction in consumer debt, households' debt collection overall has been in line with developments

Chart I-4
Real house prices and determining factors¹



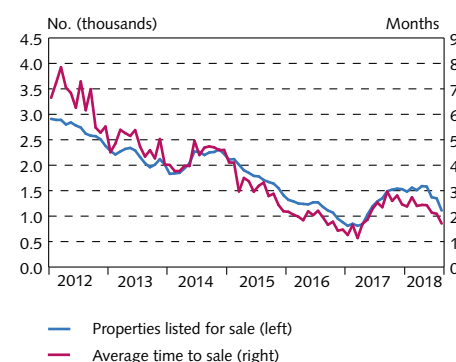
1. Real prices obtained by deflating with the consumer price index.
Sources: Statistics Iceland, Registers Iceland.

Chart I-5
Construction and population growth in the capital city area¹



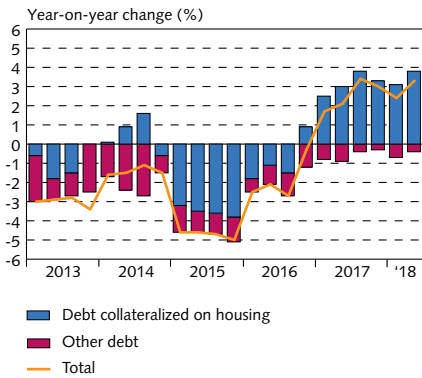
1. The forecast for capital city area population growth is obtained by assuming the same rate of growth for that area as the Statistics office forecast for the country as a whole.
Sources: Statistics Iceland, Federation of Icelandic Industries.

Chart I-6
Properties listed for sale and average time to sale¹



1. Monthly average of advertisements on Morgunbladið real estate website. The count is carried out by property code to avoid repeat counting. The average time to sale is the length of time (in months) it takes to sell advertised property divided by the turnover for the month in question.
Sources: mbl.is real estate web, Registers Iceland.

Chart I-7
Real growth of household debt¹
Contribution of mortgage loans



1. Growth rate of total household debt, due to growth in each category and in total. Deflated with the consumer price index.
Sources: Statistics Iceland, Central Bank of Iceland.

in disposable income and GDP in the recent term. It therefore remains moderate, albeit accelerating.

When high prices, strong market turnover, and increased mortgage debt go hand-in-hand, as they do now, there is a greater likelihood that systemic risk related to the housing market will accumulate. As a result, real estate purchasers and lenders are well advised to ensure that they remain prudent in buying and financing property.

Commercial real estate market

Steep price increases ...

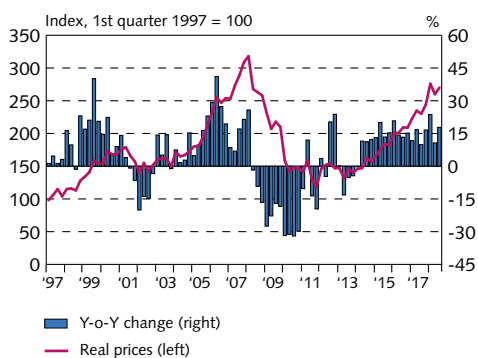
Commercial real estate prices in the greater Reykjavík area have soared in recent years. By the end of September, the commercial real estate price index had risen by 18% in real terms in a single year, as opposed to 9.9% a year earlier. Prices are now high relative to other economic variables such as gross operating surpluses, the GDP price deflator, and the building cost index, and are well above their long-term trend level.² There are also signs of steep price increases outside the capital area in recent years. Turnover in the market eased somewhat year-on-year in H1/2018, after a relatively strong two years. It should be noted, though, that turnover figures and the price index only represent registered purchase agreements. Other commercial real estate transactions, such as direct sales of companies that own property, are not included.

... driven by rising rent

The three real estate firms listed on the Nasdaq Iceland exchange that own and operate commercial properties — Eik, Reginn, and Reitir — have grown by leaps and bounds in the past several years. From 2012 through June 2018, they bought property for a total of 145 b.kr. at 2018 prices. Over the same period, total commercial real estate turnover according to registered purchase agreements amounted to 224 b.kr.³ The companies' valuations are therefore of vital importance to the commercial real estate market as a whole.

The notes to the three companies' financial statements explain the key premises for the book value of their real estate assets. The valuation is based in part of expected revenues from individual properties. It can be assumed that there is some consistency between it and the valuation used as the basis for the companies' real estate purchases and sales. Over a three-year period from 2014 to 2017, the companies' assumed future rent price rose by an average of 26.3%.⁴ A reduction in the weighted average cost of capital contributed to a small valuation increase. The three companies' yield declined by

Chart I-8
Real commercial real estate prices¹



1. Capital city area commercial real estate price index, deflated with the consumer price index. The index is based on the weighted average price of retail-, office- and industrial housing. The newest value is preliminary.
Sources: Statistics Iceland, Registers Iceland.

2. The building cost index shows the cost of building a reference flat and may not apply effectively to commercial property, which may be of various types. The index is scaled here, and its value is of lesser importance than its development over time. Because it is affected in the long run by wage costs and exchange rate developments, it is quite useful for this purpose.
3. It is uncertain whether these figures include duplicate counting; therefore, it is difficult to estimate the three companies' share of total market turnover. A large share of transactions do not appear in registrations because they entail a transfer of title to the company that owns the property and not to the property itself.
4. A weighted average based on the value of the companies' real investment assets at any given time.

an average of 1.2 percentage points between 2014 and 2018.⁵ The decline was driven by rising asset valuations and rising property taxes. On the whole, returns were virtually in line with risk-free returns, although they differed from one company to another.

Although projections are optimistic ...

According to the explanatory notes in the companies' annual accounts, asset valuations have grown more sensitive to changes in assumptions over the period. For example, a 5% decline in rent would have led, on average, to a 4.9% reduction in valuation in 2014 but to a 5.5% reduction in 2017.⁶ An increase in yield of half a percentage point would have led to a 6.6% reduction in valuation in 2014 but to a reduction of 7.1% three years later.

What does not show in the sensitivity analysis is that the specified changes in assumptions have perhaps become more likely over the period, as have larger changes in assumptions. This is particularly applicable to rent prices. In 2014, commercial real estate prices were low, both historically and relative to other economic variables, whereas now they are high. The probability of a drop in prices has increased, but developments in overall commercial property supply over the next few years are important. If a strong increase in supply goes hand-in-hand with a slack in the economy, prices could plummet.

... resilience is needed

Commercial property prices in greater Reykjavík have more than doubled in the last five years. Rent has probably risen by dozens of percentage points, and real estate firms' returns on assets have fallen by more than a percentage point. This is interesting in view of a recent study of fluctuations in the price of high-quality office properties in 58 European cities during the period from 1980 through 2016.⁷ The study examines price changes before and after 169 price peaks during the period, depending on whether the ensuing price drop did or did not exceed 20%.⁸ In the past five years, during the run-up to a steep decline, prices rose by an average of 85%, rent rose 40%, and yields declined by 1.7 percentage points. In the run-up to a small decline, however, purchase prices rose by an average of 20% and rent by just under 14%, whereas yields declined by 0.45 percentage points, also over a five-year period prior to the drop in price. During the period from 1980 through 2003, price increases were driven mainly by rising rent, whereas in 2004 through 2016 they were driven by declining yields.

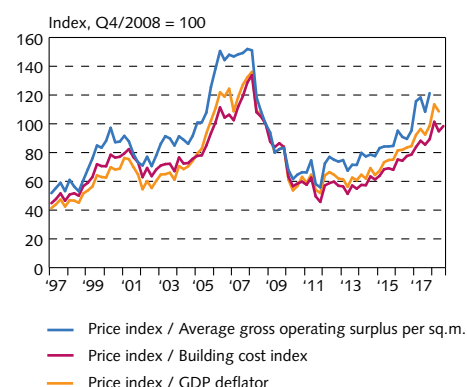
5. Based on yield, which is calculated as the rental income for the quarter, net of the cost of operating investment assets, on an annualised basis, divided by the book value of the investment assets at the beginning of the same quarter.

6. Eik has published an analysis that assumes a 1% reduction in average rent per square metre, whereas the other companies assume 5%. It is assumed here that there is a linear effect of falling rental income, and Eik's reduction is then multiplied by 5 to obtain a figure comparable to the other companies. A weighted average is then calculated.

7. Hagen, M., & Hansen, F. (2018). Driving forces behind European commercial real estate prices prior to a sharp fall in prices. Staff Memo no. 1. Norges Bank.

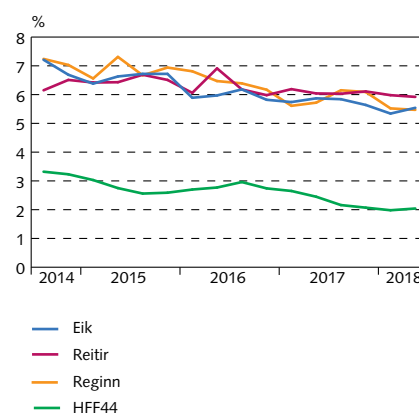
8. Due to a shortage of data, implied prices derived from rent and yield were examined. The yield is defined as the ratio of rental income to the price of the property. It is possible to invert this equation and define the implied price as rental income relative to the yield.

Chart I-9
Capital city area CRE-prices and other variables¹



1. All variables set to 100 in 4Q 2008, before a ratio is calculated. Annual data for gross operating surplus and the housing stock are non-linearly interpolated.
Sources: Statistics Iceland, Registers Iceland, Central Bank of Iceland.

Chart I-10
Main CRE-companies' net yield¹



1. Net yield is the ratio of each firms' annualized quarterly rental income, net of investment properties' operating costs, to investment properties book value at the start of the quarter. Yield on a CPI-indexed Housing Financing Fund bond, HFF44, as a benchmark
Sources: Annual and quarterly financial statements, Government Debt Office.

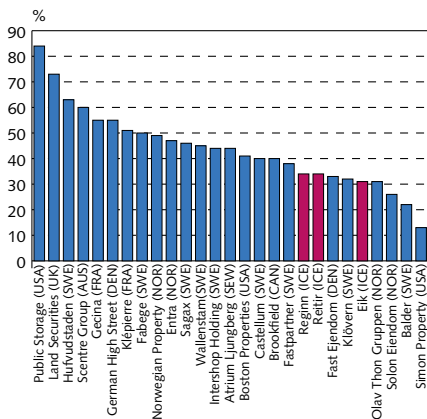
This comparison does not imply a forecast of a drop in prices in Iceland but rather an indication that a steep rise has often been associated with a steep decline in Europe. There are not enough data to estimate developments in yields and rent prices during the run-up to previous price declines in Iceland. The last downturn, which began in 2008, does not necessarily provide a good reference against which to assess the current position. During that downturn, real prices in greater Reykjavík fell by over 60% in three years. It would probably be more useful to consider 2001, when a mild economic contraction coincided with a 6% increase in the commercial property stock and real prices fell by 20% in a single year.

Equity must be sufficient

Fluctuations in commercial property prices have played a role in many financial crises worldwide in recent decades, and they have generally manifested themselves in a strong credit growth, liberal lending terms, and rising prices during the upward cycle, followed by a collapse in prices, default, and loan losses in the downward cycle.⁹ As a result, most lenders make stringent down payment requirements for commercial mortgage lending. At the end of 2017, real estate companies owed the commercial banks about 306 b.kr. Furthermore, pension funds own a large proportion of the three listed real estate firms' issued marketable bonds and shares. Therefore, it is undeniably in the interest of Icelandic depositors and households that risk related to the commercial real estate market be kept within acceptable limits.

The aforementioned three real estate firms had an average equity ratio of just over 33% as of end-June 2018. This appears to be on the low side in international context, as selected leading real estate firms in Sweden and Norway (see Chart I-11) have an average equity ratio of just over 38%. In making this comparison, however, it is worth noting that real estate prices in Europe are widely very high, real interest rates are low, and yields are low as well. In such an environment, investors buy property in the hope of price increases rather than operating profits. A comparison of equity ratios must therefore take account of differences in circumstances.¹⁰

Chart I-11
Various CRE-companies' capital ratio¹



1. The capital ratio, i.e. total equity capital to total assets, is based on each firm's latest published financial statement, which in all cases is the statement for 1st half 2018 or annual statement 2017.
Sources: Annual and quarterly financial statements.

Increased uncertainty about price developments

The past six years' increase in commercial real estate prices is probably in part a correction and a rebalancing following the post-crisis collapse in prices. There are signs that tension has increased markedly in specific areas and specific market segments, where prices and rent are both high, although they are unlikely to remain high in the long term. Overall, prices are high both in historical terms and relative to related economic variables. Although no reliable figures are available on total new construction volumes, retail space in downtown Reykjavík has increased in the recent past. Furthermore, several large office buildings are under construction in the capital area, as are a number of industrial

9. ESRB (2015). Report on commercial real estate and financial stability in the EU.
10. The equity ratio also appears low in comparison with other sectors, according to year-2016 data from the Director of Internal Revenue, published by Statistics Iceland.

buildings on the outskirts of the city. This represents a change from the situation a few years ago, when investment was limited almost entirely to hotels and other accommodation and a shortage of other types of commercial property pushed prices upwards. When high commercial property prices and growing corporate debt go hand-in-hand, risk can accumulate.

II Financial institutions' operating environment

Economic developments have generally been beneficial for the financial system in recent years, and most economic indicators have developed favourably. Now, however, there is increased uncertainty about near-term prospects. On the other hand, GDP growth remains robust. Inflation and inflation expectations have inched upwards recently, and the breakeven inflation rate in the bond market has risen. The króna has depreciated this autumn, and volatility in the market has increased. Terms of trade have deteriorated in 2018 to date, and the current account surplus has shrunk year-on-year. Iceland's net international investment position is positive, and the Central Bank's foreign exchange reserves are strong. In general, households and businesses have taken advantage of the favourable economic environment in recent years by deleveraging, and their financial position is strong. They are in a better position to withstand shocks than they have been in some time. Private sector debt has begun to grow more rapidly than before, however — corporate debt in particular. Internationally, uncertainty and tension have mounted in the recent term. The appreciation of the US dollar has had a negative impact on many emerging market economies, and rising oil prices creates problems for oil-importing countries. If these trends persist, it will have a negative effect on both investment and GDP growth, and global financial conditions could deteriorate as a result of reassessment of risk.

Macroeconomic environment and financial markets

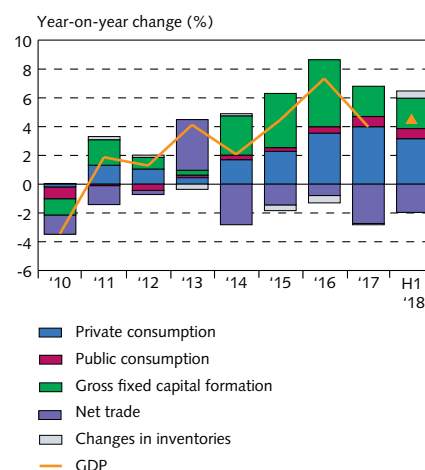
GDP growth robust — but slower

GDP growth in Iceland has been strong in recent years. It measured about 4% in 2017 and was driven mainly by private consumption and investment. According to *Monetary Bulletin* 2018/3, GDP growth is expected to be broadly unchanged in 2018 and then taper off in the years thereafter, due to weaker growth in exports and domestic demand. Weaker export growth is attributable in part to slower growth in tourism. The output gap has narrowed in the recent past, in line with reduced GDP growth.

Inflation has risen in 2018 to date, after having been around 2% or below for more than three years, but it remains close to the Central Bank's 2½% inflation target. Simultaneously, short- and long-term inflation expectations have risen somewhat and, by the end of Q3/2018, were above the target by most measures.

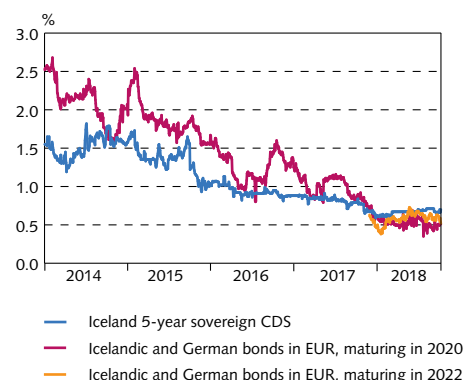
The Treasury debt-to-GDP ratio has continued to fall. By end-August, it was 31%, more than four percentage points lower than at the same time in 2017. The interest rate spread between Icelandic Treasury bonds denominated in euros and comparable German bonds has narrowed year-to-date, due to Iceland's reduced debt and sovereign credit rating upgrades, although the pace of the narrowing has eased since mid-2017. In later July, Moody's changed the outlook on its ratings for Iceland from stable to positive and affirmed its A3

Chart II-1
Output growth¹



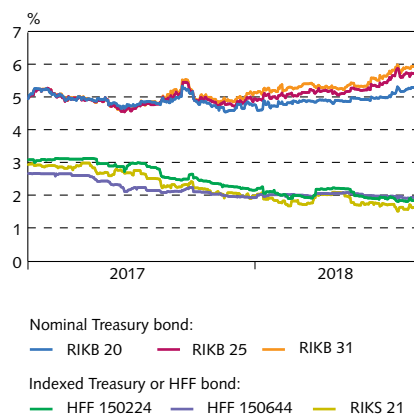
1. Contribution of individual components to output growth.
Sources: Statistic Iceland, Central Bank of Iceland.

Chart II-2
Government bond spreads



Source: Thomson Reuters.

Chart II-3
Nominal Treasury bond yields



Source: Central Bank of Iceland.

Chart II-4
OMX18 share price index

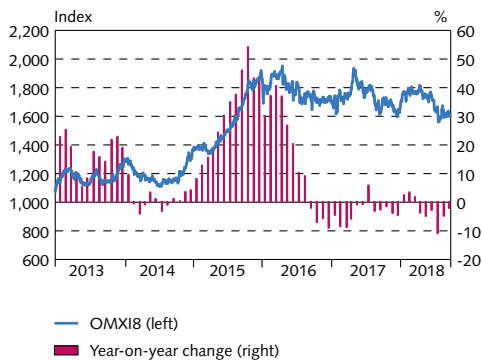
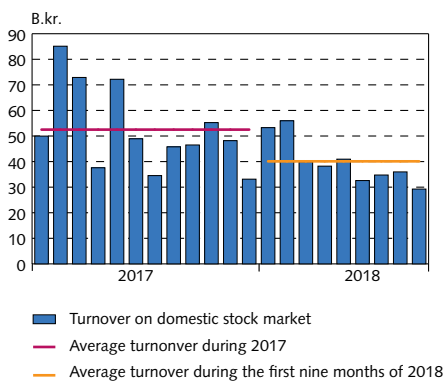


Chart II-5
Turnover in the Nasdaq Iceland stock exchange



rating on long-term obligations. Both S&P Global and Fitch affirmed Iceland's A ratings with a stable outlook in June 2018.¹

Growing uncertainty in the domestic markets

The Central Bank's key interest rate has been unchanged at 4.25% year-to-date. Nominal Treasury bond yields have risen during the year, but indexed yields have fallen. The breakeven inflation rate in the bond market has therefore risen, but it is uncertain how much of that increase is due to rising risk premia on nominal long-term bonds and how much is due to higher inflation expectations. It is possible that the rise in inflation expectations reflects uncertainty about the results of the upcoming wage negotiations. Yields on the longest nominal Treasury bonds have surged in the recent term, whereas shorted yields have risen less markedly. The slope of the yield curve has therefore grown slightly steeper. Yields on indexed Treasury and Housing Financing Fund (HFF) bonds have generally fallen over the same period.

Turnover on the Nasdaq Iceland stock exchange has declined between years, and in the first nine months of 2018 it was 27% less than over the same period in 2017. The OMX18 index has been volatile this year, but by end-September it was about the same as at the beginning of the year. It rose sharply early in the year, and at its April peak it had risen by 11% since the turn of the year. By the end of July, however, it had fallen to its low for 2018, which was 4.5% below the value at the beginning of the year. Prices of individual companies' shares have diverged in 2018 to date, with four of 18 listed shares rising since the beginning of the year. The market value of listed companies has risen somewhat year-to-date, to 1,002 b.kr. at the end of September, owing mainly to the listing of Heimavellir hf. and Arion Bank hf. during the year. Thus far in 2018, the percentage of shares pledged directly in the Icelandic stock market fell from just over 13% to about 12%, mainly because of the new listing of Arion Bank on Nasdaq Iceland.² In this context, it is worth noting that the pension funds own about 40% of listed shares in Iceland, in terms of market value, and these shares are not pledged. Direct pledging of shares owned by investors other than the pension funds is around 20%. The percentage of shares pledged as collateral in the stock market has been broadly unchanged for the past four years.³

Volatility in the exchange rate of the króna has increased since spring but is still less pronounced than it was just after the capital controls were lifted in 2017. There was pressure on the króna in early September, when it weakened by nearly 6% in the span of a few days, doubtless due to uncertainty about prospects for tourism

1. For further information on the ratings from Moody's, Fitch, and S&P, see the Government Debt Management website: <http://www.lanamal.is/EN/investors/credit-rating>, or the Central Bank website: <https://www.cb.is/about-the-bank/government-debt-management/credit-rating-material>.
2. Direct pledging is the average percentage of pledged shares for all listed companies on both the Main List and the First North market, based on the relative weight of each company.
3. Only direct pledges are considered; therefore, no account is given to general collateral in shares or indirect collateralisation via derivatives agreements. As a result, the pledge ratio in the Icelandic equity market is probably higher.

companies. The Bank intervened in the foreign exchange market on 11 September, for the first time since November 2017, in a bid to halt spiral formation. This was consistent with the Monetary Policy Committee's May 2017 statement that the Bank would intervene in the market as it deemed necessary in order to mitigate volatility. The króna appreciated by about 3% during the week thereafter but has weakened again in October.

The real exchange rate of the króna in terms of relative consumer prices held broadly stable in H1/2018 but has fallen in the autumn. By the end of September it was down nearly 1% year-on-year. Terms of trade have deteriorated for the past four consecutive quarters, and by end-June they were roughly the same as in mid-2016. The deterioration is due in part to a general rise in import prices, particularly the steep increase in fuel prices.

Significant global economic uncertainty

In H1/2018, GDP growth among Iceland's main trading partners measured 2.3%, one of the strongest growth rates since 2010.⁴ Growth has gained pace in the US but sagged in Europe. Emerging market countries are facing headwinds due to rising US interest rates, a stronger US dollar, and rising oil prices.⁵ The global inflation outlook has deteriorated in recent months, mainly due to high oil prices. The US Federal Reserve Bank raised interest rates by 0.25 percentage points in June and again in September, in line with increased demand growth and inflation. Interest rates have also been raised in the UK and Canada, while the European Central Bank (ECB) has decided to keep its key rate unchanged, at least for the present. Increased geopolitical and economic uncertainty in both advanced and emerging economies could affect worldwide financial stability. In the recent past, trade-related tensions have exacerbated the risk of escalating tariffs and trade wars. This increased tension between trading partners has a direct impact on industry in the countries concerned. Measures intended to reduce cross-border trade could cause global financial conditions to tighten and could have serious repercussions for global GDP growth and financial stability.⁶

Asset prices have risen in many markets in the recent past, but volatility has increased as well. In the US, share prices have been rising virtually without interruption since the spring, partly because of changes in the tax code passed by the US Congress at the end of 2017, but they peaked at the end of September and have tumbled since, as they have elsewhere. Furthermore, the interest rate spread on US corporate bonds and Treasury bonds has narrowed year-to-date, due to firms' better-than-expected operating performance. In Europe, the probability of Britain's exit from the European Union (EU) without a withdrawal agreement has increased, the pound sterling has grown much more volatile, and corporate valuations have sagged.⁷

4. Global GDP is calculated by weighting quarterly changes in GDP growth in Iceland's trading partner countries using the narrow trade basket (1%). The Central Bank's projections are based on forecasts from Consensus Forecasts and Global Insight.

5. IMF *Global Financial Stability Report*, October 2018.

6. IMF *Global Financial Stability Report*, October 2018.

7. IMF *Global Financial Stability Report*, October 2018.

Chart II-6
Exchange rate of the króna¹

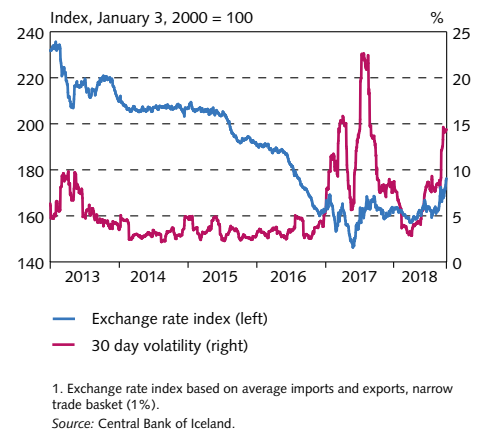


Chart II-7
Policy rates in selected economies

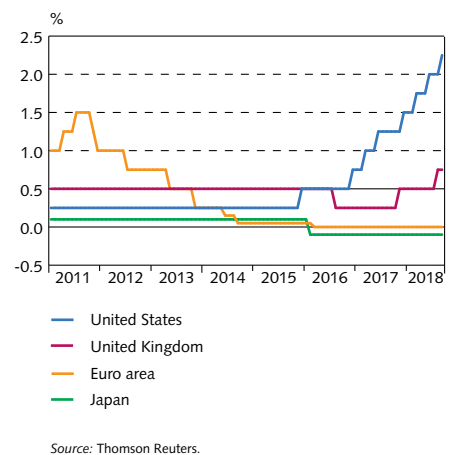


Chart II-8
Share price indices

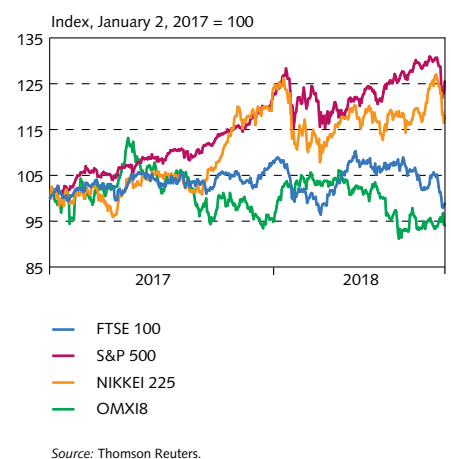
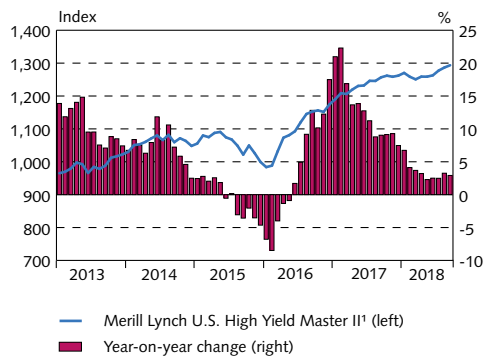
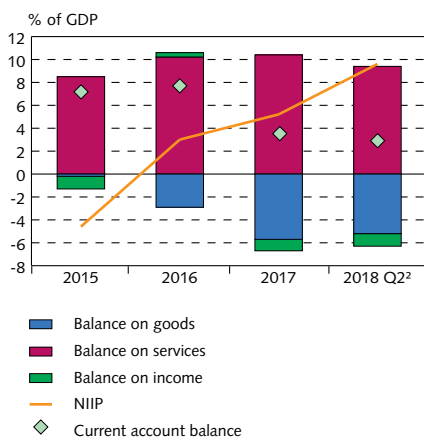


Chart II-9
High-yield bonds



1. Merill Lynch U.S. High Yield Master II Index is a benchmark for high-yield corporate bonds issued in the United States.
Source: Thomson Reuters.

Chart II-10
Net IIP and current account balance¹



1. Excluding the effects of the old banks' holding companies and trade in ships and aircraft. 2. Net external position as of end-Q2/2018 and the sum of the current account balance in the last four quarters.

Sources: Statistics Iceland, Central Bank of Iceland.

The UK is one of Iceland's largest trading partners, and the outcome of contracts between it and the EU could have a major impact on the Icelandic economy. Furthermore, the interest rate spread on comparable Italian and German government bonds has widened significantly in recent months. The ECB has announced, however, that it will cut back on its monthly net bond purchases beginning in October 2018 and stop them entirely in December.

The VIX implied volatility index, which measures market expectations of share price volatility in the US, has been low in the recent past, in historical context, after rising markedly in February 2018 and again in October. The index is sometimes used as a measure of risk in the financial markets. Furthermore, share price volatility in early 2018 does not appear to have dampened appetite for riskier assets such as high-yielding bonds. Many international systemically important banks have fallen in price since the beginning of the year, although developments differ from one region to another. The reductions in price have caused many banks' market value to fall below their book value.

Iceland's international investment position

IIP improves, but current account surplus shrinks

Iceland's external position is good. Net external assets reached an all-time high of just under 10% of GDP at the end of June. Thus far in 2018, external assets have grown in excess of liabilities because resident's foreign investment has outpaced capital inflows from non-residents. Furthermore, the recent depreciation of the króna has had a favourable effect on the external position, as foreign assets are almost entirely in foreign currencies, whereas just under a third of domestic assets held by non-residents are denominated in Icelandic krónur.

The current account surplus has been quite large in recent years but has narrowed rapidly. In H1/2018, it amounted to just under 0.4% of GDP, about a fourth of the surplus in H1/2017. In comparing the two years, however, it is important to remember that goods export were unusually weak in Q1/2017 because of the fishermen's strike. The current account surplus looks set to continue to shrink.⁸

If the effects of the old banks' holding companies and transactions with ships and aircraft are ignored, the H1/2018 current account surplus measured about 1.4% of GDP, well below that in the same period of 2017. Since export revenue have been higher in Q3 than in other quarters in recent years, the current account surplus has generally been larger in the second half than in the first half. Based on the last four quarters for which information has been published, the current account surplus excluding the old banks and excluding transactions with ships and aircraft measured 3.1% of GDP, which translates to a roughly 50% decline between years.

Foreign exchange reserves large

The Central Bank's foreign exchange reserves totalled 703 b.kr. at the end of September, about 26% of GDP. About 80% of the reserves

8. See *Monetary Bulletin* 2018/3.

are financed in krónur. The reserves are large in historical context and similar in size to those in various other small open economies with an independent currency. They are comfortable in terms of the IMF's reserve adequacy metric (RAM), at 150% of the RAM as of end-June 2018.

Foreign currency inflows have eased

In terms of the trade-weighted exchange rate index, the króna weakened by about 3.3% in the first nine months of 2018 and has fallen further in October. A variety of factors can affect the exchange rate. An important one is external trade, as the surplus on external trade has been the main source of foreign currency inflows into Iceland. The surplus shrank, however, in H1/2018. Furthermore, resident investors have increasingly sought out foreign assets since the capital controls were lifted almost in full. This is particularly true of the pension funds, which bought foreign currency for 92 b.kr. in the first nine months of the year. The pension funds have only used a portion of this amount for investment abroad, as their foreign-denominated deposits with the commercial banks grew by 37 b.kr. at constant exchange rate over the same period. Foreign-denominated deposits held by other residents increased by 28 b.kr. In all, residents' foreign deposits with the commercial banks increased by some 43% in 2018 through end-September.

Net capital inflows for new investment by non-residents are still positive, however. In the first nine months of the year, net inflows totalled 35 b.kr., about 50 b.kr. less than in the same period of 2017. These inflows have mainly been invested in equities listed on the Nasdaq Iceland exchange, including investments due to Arion Bank's initial public offering. Last year, a large share of inflows derived from non-residents' participation in a closed offer of Arion Bank shares, but excluding these, the difference in flows between periods is smaller. Thus far in 2018, foreign currency inflows for investment in Icelandic Treasury bonds have been limited. The new investment in Treasury bonds that has taken place has been due primarily to reinvestment, mainly due to release of 2017 inflows held in special reserve accounts.

Households' and businesses' debt and financial position

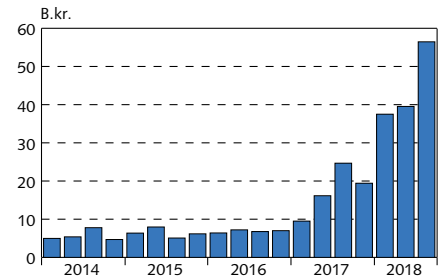
Private sector debt on the rise

Real growth in private sector⁹ debt measured 5.3% year-on-year in Q2/2018. Corporate debt grew relatively strongly, at 7%, while household debt rose more modestly, at 3.3%. The growth rate therefore exceeds GDP growth, and the private sector debt-to-GDP ratio has risen by 2.2 percentage points in a single year.

The current growth in debt is due to an increase in private sector debt to domestic financial institutions, primarily deposit institutions and pension funds. Debt owed to foreign lenders has contracted, however. As of August, private sector debt to domestic financial

Chart II-11

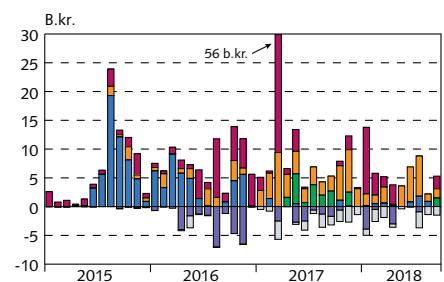
Pension funds' foreign-denominated deposits with systemically important banks
At constant September 2018 exchange rates



Source: Central Bank of Iceland.

Chart II-12

Registered new investment using foreign capital¹



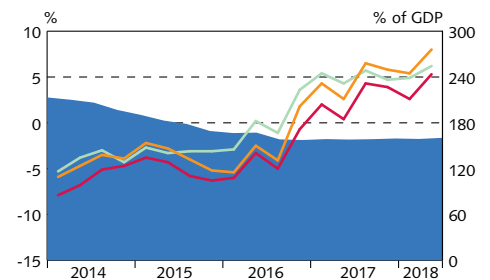
■ Unrestricted Government bond inflows
■ Other inflows
■ Inflows into listed equities
■ Restricted Government bond inflows
■ Government bond outflows
■ Other outflows

1. Outflows from Government bonds before September 2015 are unknown. Total outflows before that time are therefore classified as other outflows.

Source: Central Bank of Iceland.

Chart II-13

Private sector credit growth¹



■ Credit-to-GDP ratio (right)
— Real growth (left)
— Nominal growth (left)
— Price- and exchange rate-adjusted growth² (left)

1. Lines show yearly growth rates. 2. CPI-indexed credit at fixed prices and foreign-denominated credit at fixed exchange rate.
Sources: Statistics Iceland, Central Bank of Iceland.

9. The private sector includes households and non-holding companies. Government-owned companies are included as well.

Chart II-14
Household debt and LTV ratio for residential mortgages¹

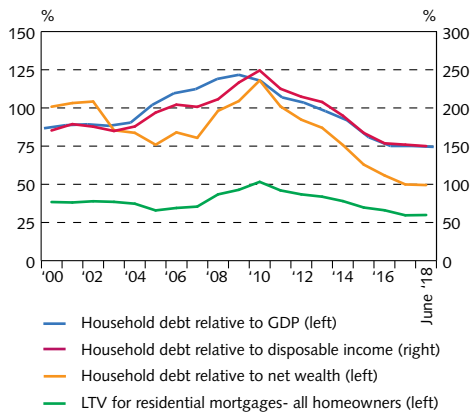


Chart II-15
Housing status and mortgage debt per individual w/mortgage¹

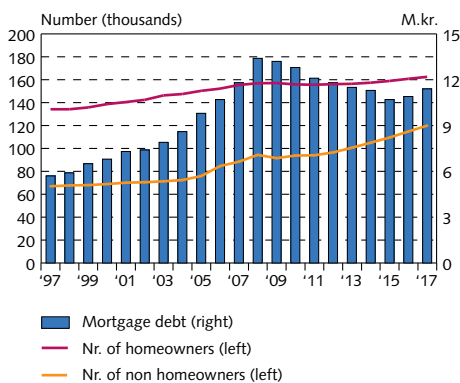
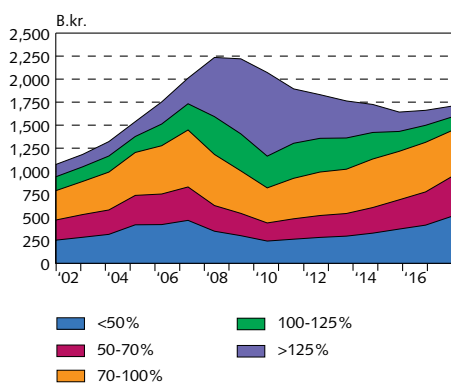


Chart II-16
Debt/assets ratio of individuals with mortgage¹



institutions had increased by 7.2% in real terms. Deposit institutions accounted for some 60% of the increase, and the remainder was attributable almost entirely to pension funds. Credit institution lending to the private sector grew in real terms by nearly 9% over the period, with the increase due mainly to corporate loans. Debt owed to pension funds grew by about 25% over the same period, about two-thirds of it due to loans to individuals.

The private sector debt level remains low in historical context, and it is below that in comparison countries.

Households

Households' financial position is strong ...

Growth in household debt has been more or less in line with GDP growth in the past two-and-a-half years; therefore, the household debt-to-GDP ratio has remained virtually constant after a steady decline in the wake of the financial crisis. Residential mortgage debt has been on the rise in the past two years, and the pace has been quickening in the recent term. Other household debt has continued to contract. The composition of residential mortgage debt has changed as well: non-indexed loans have grown much more common and now constitute about a fifth of all loans backed by residential real estate.

The financial position of individuals with mortgage debt has improved considerably in recent years. Both the number of individuals with negative housing equity and the share of debt owed by them have fallen steeply. The rise in property prices has played a leading role in this, although increased household saving is a factor as well. Figures on personal bankruptcies, default register listings, and non-performing loans also show that households' position has improved. Personal bankruptcies declined in number between years, and the number of individuals on the default register is falling steadily. The non-performing loan ratios of both the large commercial banks and the Housing Financing Fund fell by 0.5 percentage points in H1/2018.

... but mortgage debt is rising

The percentage of individuals who live in their own homes has continued to fall in the past two years, whereas mortgage debt has increased and now constitutes a larger share of total household debt. According to figures from Statistics Iceland, the number of taxpayers who own property has increased by 7,000 over the past ten years, while the number who do not has risen by 31,000.¹⁰ The percentage of taxpayers who are homeowners has therefore fallen by over 6 percentage points over this period, to 58% by end-2017. The share of individuals carrying mortgage debt has fallen accordingly, to 42% in 2017. As a result, the group carrying mortgage debt is growing proportionally smaller, while mortgage debt is rising, which indicates that those carrying mortgage debt are more heavily leveraged than before. Mortgage debt per individual in a mortgaged property bottomed out in 2015 and has increased in the two years since.

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

The past few years' rise in house prices has enabled homeowners to use increased collateral capacity to finance consumption spending and refinance less favourable debt with mortgage loans. Non-homeowners have not benefited from the same increase in net wealth, and Statistics Iceland figures indicate that their debt has declined in recent years.

Residential loan-to-value (LTV) ratios have been on the decline, in part due to rising house prices. The overall LTV ratio was 29.7% at the end of 2017. It appears, then that growth in homeowners' debt is still modest in spite of the surge in housing wealth.

Growth in private consumption and real disposable income has eased

Households' disposable income is still growing faster than household debt, and the debt-to-disposable income ratio is therefore still falling. Private consumption has been robust in recent years, but according to the Central Bank's most recent macroeconomic forecast, the growth rate can be expected to ease in the coming term.¹¹ In the past few years, real disposable income growth has outpaced private consumption growth by a large margin, but whether this will continue is uncertain.

In the past three years, households' net wealth has increased rapidly, owing mainly to rising house prices, lower debt levels, and increased saving. Households therefore have much greater scope to take on additional debt.

Companies

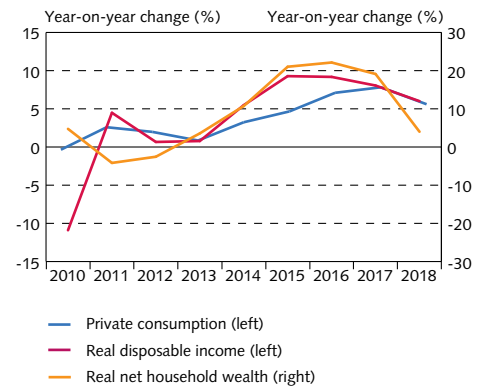
Companies' position is generally good ...

The economic environment is generally favourable for Icelandic companies. Firms' financial position is strong on the whole, equity ratios are high, and debt levels are historically low. The number of companies on the default register has continued to fall as it has been in recent years, although there has been a slight increase in two sectors: tourism and fisheries. The number of firms on the default register relative to the number of companies in operation in these sectors has either remained unchanged or declined, however, as the number of companies in both sectors has risen sharply in recent years. This is particularly true of tourism, which has seen a 40% increase in the number of firms in operation from the beginning of 2015. The number of unsuccessful distraint measures over the first eight months of 2018 declined year-on-year.

... but the outlook is cloudy ...

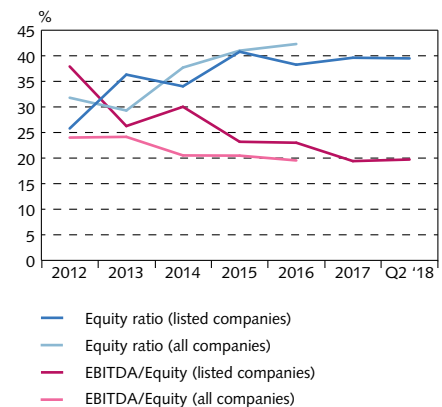
Corporate profits have grown in recent years, but the rate of growth has slowed markedly, and there are signs of a possible contraction in 2018. Executives from Iceland's largest companies are generally more pessimistic than they have been in the past few years, and more of them expect a downturn in profit between 2017 and 2018. Furthermore, share prices have fallen during the year, a sign of the

Chart II-17
Private consumption, disposable income and household wealth¹



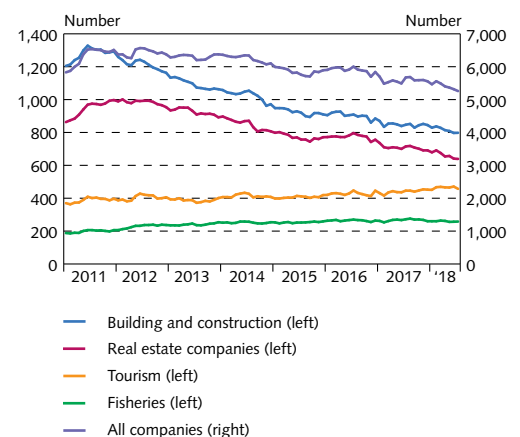
1. Central Bank baseline forecast for 2018, published in *Monetary Bulletin* 2018/3. Net household wealth is the sum of housing- and financial wealth net of pension rights and household debt.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart II-18
Companies: Profit and equity



Sources: Kodiak Excel, Statistics Iceland, Central Bank of Iceland.

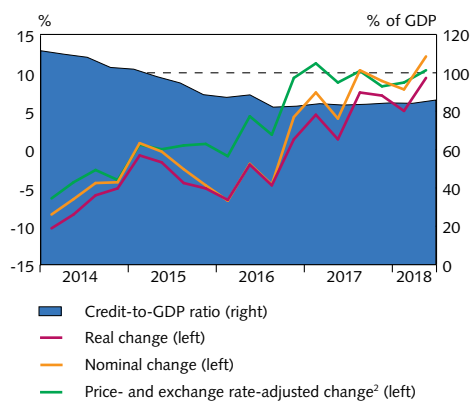
Chart II-19
Companies on default register



Source: CreditInfo.

11. *Monetary Bulletin* 2018/3.

Chart II-20
Corporate sector: Credit growth¹



1. Lines show yearly growth rates. 2. CPI-indexed credit at fixed prices and foreign-denominated credit at fixed exchange rate.
Sources: Statistics Iceland, Central Bank of Iceland.

market's more muted expectations about listed companies' performance. If poorer results go hand-in-hand with increased debt, equity ratios can be expected to fall.

Export sectors have probably been more strongly affected than other sectors, as they have had to adjust to a higher real exchange rate in the past few years. Terms of trade have deteriorated during the year, mainly because of rising oil prices, which have an adverse effect on oil-intensive activities such as fishing, transport and transit, and some segments of tourism. The outlook is for growth in tourism to keep slowing, as signs of operating difficulties have emerged recently, including in the restaurant business.

Corporate insolvencies appear to be on the rise, and the number of company failures in 2018 to date is somewhat higher than in the same period of 2017. The number of insolvencies is now about the same as in 2016. The increase is broad-based and cannot be traced to any particular sectors.

Uncertainty about near- and medium-term wage developments remains, although wages have increased considerably in recent years. Wage agreements will expire at the end of this year, and it is unclear how much scope firms have to absorb pay increases through streamlining.

... and debt is growing faster than before

Year-on-year growth in corporate debt remains relatively robust, measuring 7% in real terms at the end of Q2, and is driven by lending from domestic financial institutions. According to figures as of end-August, corporate debt owed to domestic financial institutions had increased by 10.7% year-on-year in real terms. Debt owed to foreign lenders has declined during the year, as has the share of debt denominated in foreign currencies. Market-based financing has remained broadly unchanged as a share of total debt in recent years.

The Central Bank's investment survey, carried out this past spring, indicates that firms expect to finance a smaller share of their investment with debt in 2018 than they did in 2017.¹² The Bank's most recent macroeconomic forecast assumes that business investment will contract this year but that residential investment will grow strongly. This indicates that growth in debt will remain broadly unchanged or perhaps slow down in the near future.

12. *Monetary Bulletin* 2018/2.

III Financial institutions and other lenders

Financial system assets equalled nearly four times GDP at the end of June 2018, after declining somewhat in recent quarters. Pension fund assets continue to grow in excess of GDP growth, however, and growth in deposit institutions' assets slightly outpaced GDP growth for the first time in quite a while. At the end of June, some 97% of deposit institutions' assets were held by systemically important banks (D-SIB). The banks' capital ratios have fallen somewhat in 2018, due to dividend payments and credit growth, and are approaching the regulatory minimum. Growth in assets held by financial market entities other than pension funds and deposit institutions has not kept pace with GDP growth in the recent term.

III a Systemically important banks

D-SIB lending to both corporate and household borrowers increased markedly in H1/2018. Loans continued to grow as a share of total assets in H1, as they have in the past five years, because of a decline in other assets. The banks' liquidity remains strong overall; however, their foreign-denominated liquidity is much stronger than their liquidity in krónur. The banks' access to market funding has improved substantially in recent years. Their market funding activity was successful both in Iceland and abroad until spring 2018, when external financing conditions tightened up temporarily. The markets normalised again in mid-summer, however, and the banks issued subordinated bonds abroad at the end of the summer. The banks' profits and returns shrank somewhat year-on-year in H1, owing mainly to reduced income from financial activities and increased wage expense.

The D-SIBs' capital declined somewhat in H1, as a result of large dividend payments. With a lower capital base and higher risk base, capital ratios have fallen steeply, leaving little scope for further reductions — a marked change from the recent past, when the banks' capital ratios were well above the minimum required by the Financial Supervisory Authority (FME).

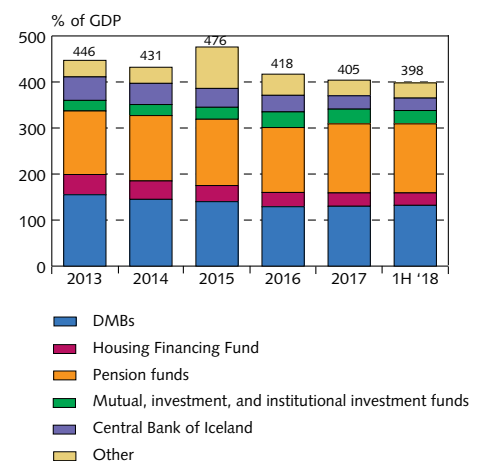
A milestone was reached in June 2018, when Arion Bank was listed on the stock exchanges in Iceland and Stockholm following an initial public offering. It was the first time in a decade that an Icelandic bank was listed on the Nasdaq Iceland Main List.¹ The Icelandic Government had previously sold its 13% stake in the bank. Demand exceeded available shares many times over, and the offering was the year's second-largest in Sweden.

Operations and equity²

Regular income has gained ground

The D-SIBs' combined profit totalled 24 b.kr. in H1/2018, after contracting by a fourth year-on-year. Their combined return on equity

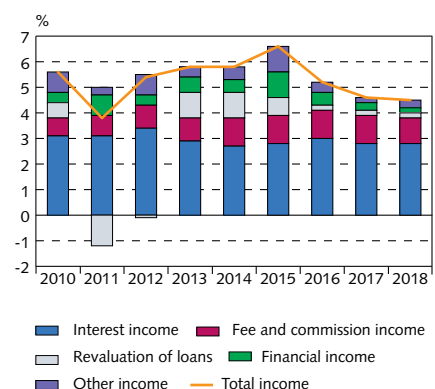
Chart III-1
Financial system: Assets as % of GDP¹



1. Parent companies.

Source: Statistics Iceland, Central Bank of Iceland.

Chart III-2
D-SIB: Ratio of income to total assets¹

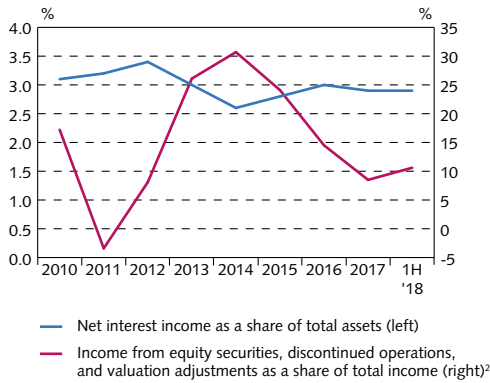


1. Domestic systemically important banks, consolidated figures.
Sources: Commercial banks' financial statements.

1. Kvika banki hf. was listed on the Nasdaq First North Iceland market in March 2018.

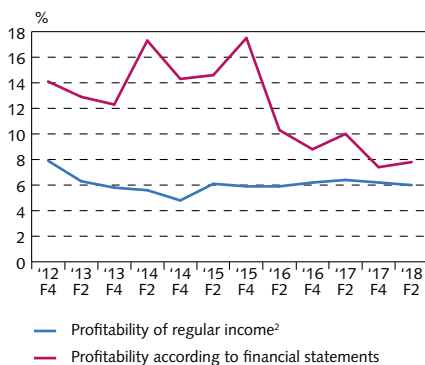
2. In 2015, the Financial Stability Council designated the three largest commercial banks — Arion Bank hf., Íslandsbanki hf., and Landsbankinn hf. — as Domestic Systemically

Mynd III-3

D-SIB: Net interest income and irregular income¹

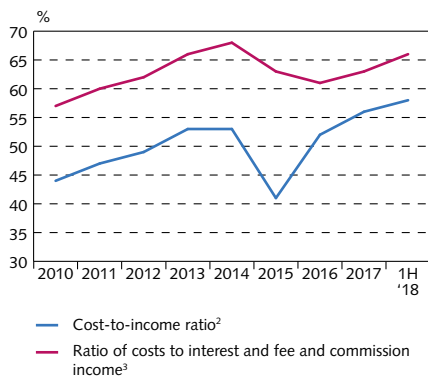
1. Domestic systemically important banks, consolidated figures.
 2. Income from equity securities in 2014-2018 includes income from sale and valuation adjustments of the largest affiliates.
 Sources: Commercial banks' financial statements.

Chart III-4

D-SIB: Profitability¹

1. Profitability is calculated from average equity. Domestic systemically important banks, consolidated figures. 2. Profitability of regular income is based on net interest and fee/commission income less regular cost. The tax rate is 20% and is based on average equity.
 Sources: Commercial banks' financial statements.

Chart III-5

D-SIB: Cost-to-income ratios¹

1. Domestic systemically important banks, consolidated figures.
 2. Operating expenses, adjusted for major irregular items, as a share of operating income, excluding loan revaluation changes and discontinued operations. 3. Operating expenses, adjusted for major irregular items, as a share of net interest income and net fee and commission income.
 Sources: Commercial banks' financial statements.

during the half was 7.8%, a decline of over two percentage points from the same period in 2017, and their return on total assets for the half was 1.4%, a decline of half a percentage point between years. Proportionally, their return on total assets fell more than their return on equity, as the banks' total assets have increased in the recent term while their equity has fallen. Net interest income rose slightly between years, with the increase in interest-bearing assets offsetting a lower interest rate environment. The D-SIBs' interest rate spread based on their average total assets was 2.9% in H1, a marginal decline between years. Net fee and commission income was virtually unchanged between the two periods, although developments differ from one bank to another. Arion Bank's fee and commission income grew by 17% year-on-year, whereas Íslandsbanki's and Landsbankinn's contracted by 15% and 13%, respectively. If regular income is defined to include net interest income and net fees and commissions, the weight of such regular income has increased in the recent past and the weight of irregular items such as valuation changes and capital gains on equity securities has declined accordingly (see Chart III-3). Alongside the reduction in irregular items, return on equity has fallen markedly in recent years (see Chart III-4), while returns on regular income have remained relatively stable at around 6%.³

The banks' income from financial activities was just over 4 b.kr., having declined by about half between years, owing mainly to reduced gains on equity securities. Other operating income rose somewhat between years, to about 6 b.kr., with the increase stemming from asset sales.

Loan valuation changes remain positive

In H1/2018, the banks' combined net increase in loan values amounted to 3.4 b.kr., about the same as in the same period of 2017. Just over 2 b.kr. of the increased value is due to a reversal of previously charged impairment of exchange rate-linked loans and claims, as the deadline for claims relating to unlawful indexation of exchange rate-linked loan agreements was in June 2018. The banks expect that further upward or downward loan valuation adjustments and claims due to exchange rate-linked loans will have little impact on their financial statements in the future. Upward loan valuation adjustments for reasons other than reversal of impairment of exchange rate-linked loans are due primarily to a favourable economic environment, a stronger collateral position, and increased loan retirement.

Loan valuation changes have had a positive impact on the D-SIBs' operating results in recent years. In the future, the banks will have to assume that they must enter costs due to loan valuation changes, and all else being equal, this will affect their operating results and returns.

Important Banks (D-SIBs). The discussion in this chapter is based on the H1/2018 consolidated accounts of these D-SIBs and comparison figures for H1/2017. Figures are consolidated unless otherwise stated. The aggregate position may diverge from that of individual financial companies.

3. Returns on regular income are based on net interest and net fee and commission income, less regular expenses, which are defined as salaries and related expenses plus other operating expenses, apart from one-off cost items. The tax rate is 20%, and it is based on average capital.

Developments in operating expenses

The D-SIBs' combined operating expenses totalled 44 b.kr. in H1/2018, an increase of nearly 5% from H2/2017, excluding one-off items. Negotiated wage rises weighed heaviest in the increase in operating expenses, in spite of a reduction in full-time position equivalents by about 30 over a twelve-month period. At the end of June 2018, the banks had a combined staff of nearly 3,300 employees. The reduction in staffing varies greatly from one bank to another, however. Arion Bank's staff grew somewhat during the period, due to an increase at Valitor, while Íslandsbanki and Landsbankinn reduced their staffing levels. Because the D-SIBs' expenses have risen in excess of their income in the recent term, their expense ratio is trending upwards, in part because of increased activity at Valitor. Icelandic banks' expense ratios are relatively high in international context, and higher than in the other Nordic countries. It is important that the banks continue to seek ways to cut costs and generate operating profits.

Strong credit growth

Lending to firms and individuals increased by 6% in H1/2018 and by nearly 12% over and above the same period in 2017. Credit growth is therefore outpacing GDP growth. Demand for credit has been strong from both households and businesses, and the banks are of the opinion that demand will not fall materially, even in the event of a slowdown in the economy.

The biggest risk facing the banks is credit risk. In H1/2018, their risk-weighted assets rose by over 4%, owing mainly to increased credit risk. In order to enhance financial system resilience, including resilience to potential credit losses in the wake of lending growth and cyclical systemic risk, the FME decided, upon the recommendation of the Financial Stability Council, to increase the countercyclical capital buffer by 0.5 percentage points in May. The new countercyclical capital buffer level, 1.75%, will take effect in mid-May 2019.

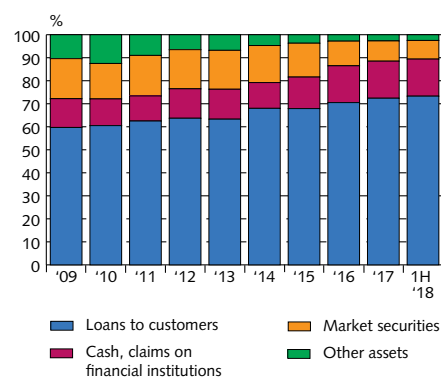
Limited downside scope for capital ratios

In June 2018, the D-SIBs' capital totalled 612 b.kr., after falling by just over 6% since the beginning of the year. The decline was due entirely to dividend payments totalling 73 b.kr. in the first half of the year.⁴ The banks' combined capital ratio was 22.6% at the end of June, a decline of 2.5 percentage points since year-end 2017, owing to dividend payments and an increase in their risk-weighted assets. Their leverage ratio fell by nearly 1½ percentage points in H1, to 15.4% by end-June. The Icelandic banks' leverage ratios are the highest in the European Economic Area, and well above the EEA average of just under 6%.⁵

The FME's total required capital base (SREP requirement)⁶ for the D-SIBs, after full implementation of capital buffers, ranges from

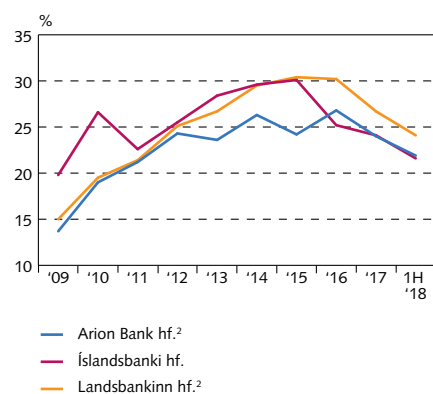
- Of this 73 b.kr., nearly 20 b.kr. are to be paid to shareholders in Q3, but the interim accounts for the second quarter take account of this payment.
- Leverage ratios are calculated in accordance with the Act on Financial Undertakings, no. 161/2002, and are subject to a minimum of 3%.
- Increase of the countercyclical capital buffer by 0.5 percentage points, effective as of May 2019.

Chart III-6
D-SIB: Assets distribution¹



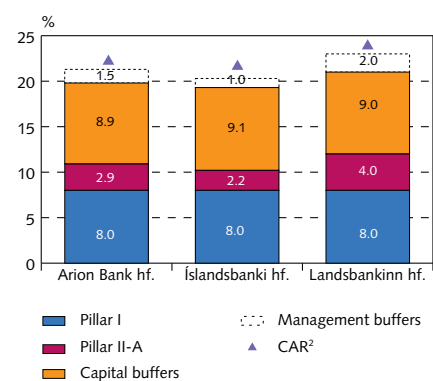
1. Domestic systemically important banks, consolidated figures. Sources: Commercial banks' financial statements.

Chart III-7
D-SIB: Capital adequacy ratios¹



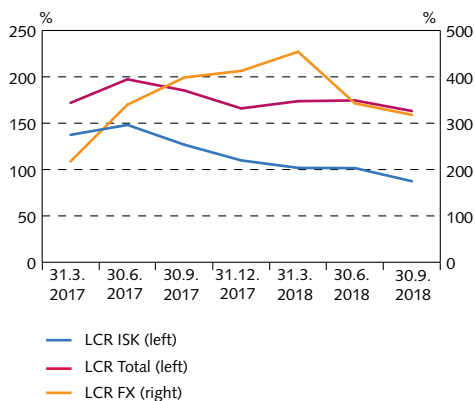
1. Domestic systemically important banks, consolidated figures. Capital base as % of risk-weighted assets. 2. A dividend of 10 b.kr. to Arion Bank's shareholders made in the third quarter 2018 and 9.5 b.kr. dividend to Landsbankinn shareholders made in the same quarter has been taken into account in calculation of the bank's Q2 2018 capital ratio. Sources: Commercial banks' financial statements.

Chart III-8
D-SIB: Capital requirements and capital adequacy ratios¹



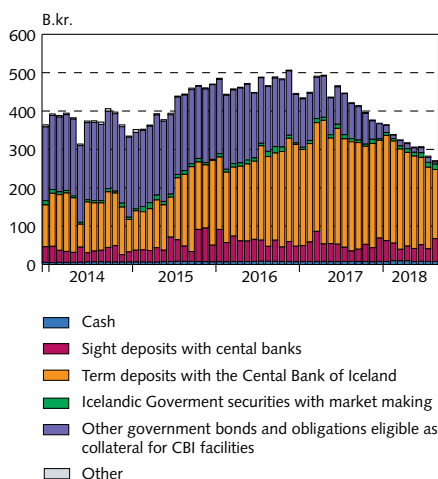
1. Domestic systemically important banks, consolidated figures. Pillar II according to SREP at year-end 2017. Capital buffers assuming full implementation, which includes an increase of CCyB from 1.25% to 1.75% in May 2019. Adjusted for reductions in systemic risk and countercyclical capital buffers for foreign exposures. 2. Capital ratio at June-end 2018. Sources: Commercial banks' financial statements and other published materials.

Chart III-9
D-SIB: Liquidity coverage ratio¹



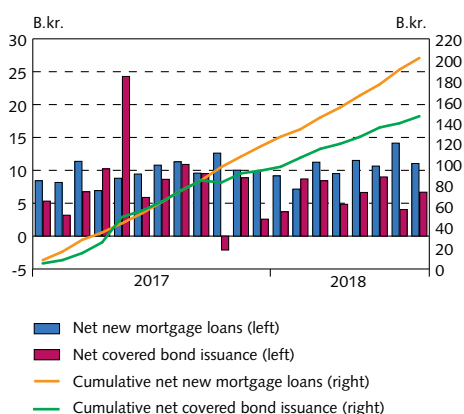
1. Domestic systemically important banks, consolidated figures.
Source: Domestic systemically important banks interim financial statements.

Chart III-10
D-SIB: Liquid assets¹



1. Liquid assets in Icelandic krónur. 2. Domestic systemically important banks, parent companies.
Source: Central Bank of Iceland.

Chart III-11
D-SIB: Net covered bond issuance and net new mortgage lending from January 2017



Source: Central Bank of Iceland.

19.3% to 21%. It is based on the banks' position as of end-2017. At the end of June, the D-SIBs' capital ratios were 2-3 percentage points above the FME requirement. The banks themselves define internal prudential buffers, or so-called management buffers, that they apply in addition to the FME's requirements. Each bank's internal prudential buffer is expressed as a given range. According to the median of each range, 1-2 percentage points must be added to the FME requirement. If consideration is given to the 0.5-percentage point increase in the countercyclical capital buffer in May 2019 plus the management buffer, there is little scope for a further decline in the D-SIBs' capital ratio. This represents a change in the banks' capital ratios, which have been well in excess of FME requirements in recent years. The D-SIBs' capital base consists almost solely of common Tier 1 equity (CET1); therefore, the banks have the option of changing the composition of their capital by issuing loans classifiable as additional Tier 1 securities or subordinated loans Tier 2. The banks themselves specify that their minimum criteria CET1 capital ratio must range between 16% and 18%, which is 4-6 percentage points lower than it was at the end of June. They have already begun to change the composition of their capital base by issuing subordinated bonds. A change in composition therefore opens the possibility of further dividend payments to shareholders, as a reduction in capital should lead to an increased return on equity, other things being equal. However, changes in the composition of the capital base must take place in accordance with capital base requirements, with full capital buffers, and the liquidity position. The banks must also be prepared for the possibility of an increase in required capital buffers such as the countercyclical capital buffer as the upward phase of the financial cycle gains strength.

Liquidity and funding

Ample liquidity and capital used for dividend payments

The banks' liquidity has been ample in recent years. Their liquidity ratios are all well in excess of the minimum levels provided for in the Central Bank's liquidity rules, both as a whole and in foreign currencies. The D-SIBs' combined liquidity ratio was 154% as of end-September, whereas the regulatory minimum is 100%.

The banks' króna-denominated liquid assets have declined by 86 b.kr. so far this year, and their liquidity ratio in domestic currency has fallen, owing to the aforementioned dividend payments in the amount of 73 b.kr. Their foreign-denominated liquid assets have risen, however, alongside their foreign bond issues. As before, term deposits with the Central Bank constitute the majority of their liquid assets. The banks' scope for growth or dividend payments is limited by their liquidity position, although capital requirements and internal criteria also put limits on potential dividends.

Domestic issuance in line with plans

The D-SIBs' domestic bond issuance in 2018 has been in line with their plans for the year. In the first eight months of the year, they issued covered bonds, most of them indexed, for more than 54 b.kr., or 17% of their outstanding bonds as of end-August. Over the same

period in 2017, their covered bond issues totalled about 75 b.kr. Outstanding covered bonds and bills accounted for just over 12% of the banks' total liabilities at the end of August. The banks' net new residential mortgages exceed their covered bond issuance in 2018, which accounts in part for the reduction in króna-denominated liquidity. As a share of their residential mortgage portfolio, the banks' covered bonds increased by three percentage points since the beginning of 2018, to 46% by mid-year.

Yields on non-indexed covered bonds have risen during the year, while indexed yields have remained stable. Terms on bills issued by the banks have moved broadly in line with six-month interbank market rates. The banks' encumbrance ratios have lowered in recent years, partly alongside retirement of collateralised bonds. At the end of June 2018, the Icelandic banks' ratio was 15%, whereas the average for European banks was 28%.

Subordinated bond issuance during the year

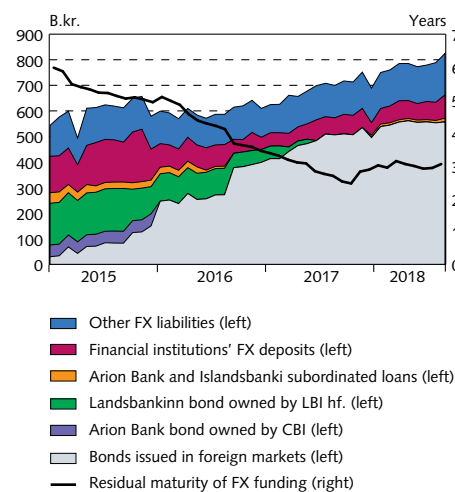
In August 2018, Landsbankinn issued its first subordinated bond. The 100 million euro (12.7 b.kr.)⁷ bond has a ten-year maturity and was sold at terms equivalent to a 285-point premium on the medium bid rate for interest swaps in the market. That same month, Íslandsbanki issued a subordinated bond. It had previously issued one in November 2017. The August 2018 issue, in the amount of SEK 500 million (5.9 b.kr.), bears a floating 250-point premium on three-month interbank rates in SEK, which is 50 points higher than the terms of the first issue. Íslandsbanki has therefore issued subordinated bonds in the amount of SEK 1,250 million (15.2 b.kr.). The three large commercial banks have all announced plans to issue subordinated bonds. These bond issues are an element in changing the banks' funding structure. All of the banks are planning to increase the share of subordinated issues in their capital base.

In 2018, two relatively large issues have taken place within the structure of their medium-term note (MTN) programmes. They have been used largely to retire previous debt at maturity. The net increase in the banks' foreign funding during the year totals 44 b.kr. As yet, this has not resulted in a comparable increase in foreign-denominated lending, and the banks' foreign-denominated liquid assets have therefore increased. The commercial banks' foreign-denominated loans relative to their total foreign funding have fallen by 4 percentage points in 2018, to 65%. The D-SIBs' funding ratio in foreign currencies was 165% at the end of September and has remained constant in 2018 to date.

Foreign refinancing risk declines despite deteriorating terms abroad

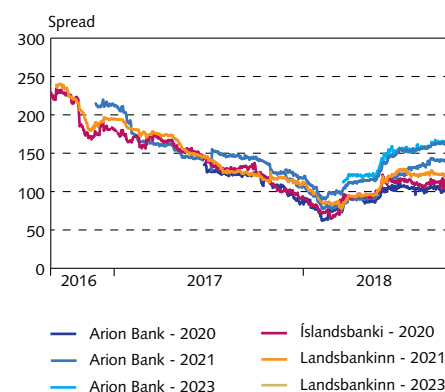
The residual maturity of foreign funding has been stable in the past year, after markedly decreasing in recent years. In 2019, the equivalent of 43 b.kr. in euros will mature. This represents 7% of the banks' foreign market funding and 1% of their combined balance sheet. Terms on the commercial banks' foreign bond issues have deteriorated some-

Chart III-12
D-SIB: Funding in foreign currency¹ and average residual maturity²



1. D-SIB: Domestic systemically important banks. At fixed rate.
2. Residual maturity of listed foreign bonds, Arion Bank and Íslandsbanki's subordinated loans, Arion Bank bond, and LBI bond.
Source: Central Bank of Iceland.

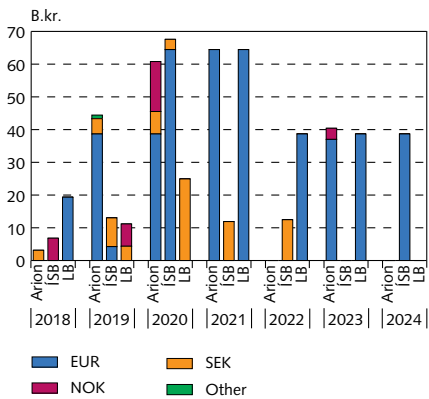
Chart III-13
D-SIB: Spread on listed foreign bonds, EUR¹



1. Spread on Euro benchmark curve.
Source: Thomson Reuters.

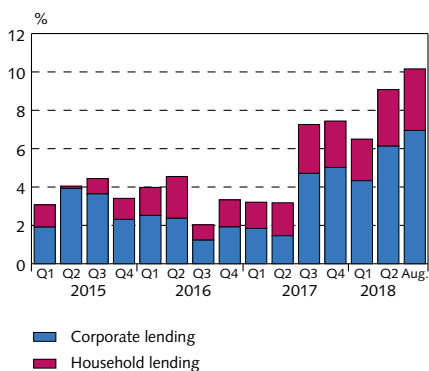
7. Amount in Icelandic krónur are based on the exchange rate on the date of Issue.

Chart III-14
D-SIB: Foreign bonds by maturity and currency¹



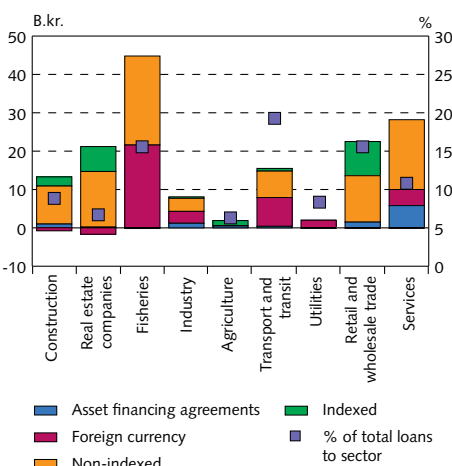
1. At 30 september 2018 exchange rate. Not included in the chart is Arion bank NOK issue maturing in 2027, in the total amount of 3.4 b.kr., Tier 2 issuance from Islandsbanki, in the total amount of 15.6 b.kr., maturing in 2027 and Tier 2 issuance from Landsbankinn, in the total amount of 12.9 b.kr., maturing in 2028. Source: Nasdaq Iceland.

Chart III-15
D-SIB: Real change in lending¹



1. Domestic systemically important banks, parent companies. Year-on-year real change. Adjusted for the Government's debt relief measures. Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-16
D-SIB: Net new corporate lending¹
By industry and loan form



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

what in 2018, in part due to increased global economic uncertainty. They are still favourable, however. In July, rating agency Standard & Poor's affirmed the banks' credit ratings at BBB+, with a stable outlook. In spite of this, terms are much better than they were a few years ago. As a result, the bonds maturing next year will bear higher interest rates than the banks have been offered in recent months.

With increased foreign market funding, the banks are more dependent on foreign market conditions than before. Foreign market funding terms have been subject to uncertainty, and further unrest in the global markets, with rising risk premia or reduced access to credit, would affect the three largest commercial banks. Their foreign refinancing risk has been addressed with ample foreign liquidity.

New Rules on Foreign Exchange Balance

New Rules on Foreign Exchange Balance, no. 784/2018, took effect at the end of August, and they now extend to consolidated credit institutions. Among other changes, the D-SIBs' maximum open foreign exchange position relative the capital base was lowered from 15% to 10% for individual currencies and for all currencies combined. The Rules also include a new prudential provision on a maximum foreign exchange balance of 25 b.kr., which applies to all credit institutions. Information requirements have also been expanded. Further discussion can be found in Box III-4 in *Financial Stability 2018-1*. The banks' foreign exchange balances have been in balance in 2018.

D-SIB lending: developments and loan quality

The ratio of the banks' loans to their total assets has risen to just over 74%, an increase of about 4 percentage points year-on-year. The banks' credit growth has picked up, and real growth in loans to the private sector measured 10.2% at the end of August, including 12.6% growth in corporate loans and 7% in household loans. Central Bank figures on the banks' new corporate loans indicate that, in 2018 to date, the banks have loaned most to fisheries, real estate firms, services firms, and companies in retail and wholesale trade. Relative to the size of each sector in their loan books, the banks have loaned proportionally the most to firms in transport and transit. For the most part, these are the sectors that have been predominant in the banks' new lending over the past three years. This is due in part to the tourism boom, although growth in commercial and residential real estate construction has also called for increased credit financing. The majority of net new corporate lending is non-indexed, and the proportion of non-indexed loans has increased.⁸ There is less foreign-denominated lending, however. Net new lending to households in 2018 to date has followed a similar pattern, with just under half of new loans non-indexed. Indexed loans account for some 62% of the banks' stock of household loans, although that percentage has been falling during the year.

8. Net new loans are new loans less retired loans and payments in excess of contractual requirements.

The banks' non-performing loan (NPL) ratios of loans to customers have remained relatively stable in recent years, both at the facility level and on a cross-default basis.⁹ At the facility level, the NPL ratio was 2.5% at the end of Q2, after rising slightly in 2018 to date. The increase is due mainly to changed methodology in calculating facility-level NPL ratios. Beginning in 2018, the European Banking Authority's (EBA) definition is used, which represents a minor change from the previous criteria.¹⁰ On a cross-default basis, 4.8% of loans were non-performing at the end of August and household NPLs have fallen thus far in 2018, whereas corporate NPLs have risen slightly. That increase is attributable to large companies, whereas small and medium-sized firms' NPLs have declined. No discernible increase in NPLs has been seen in individual sectors.

The value of collateral to meet the banks' credit risk has increased more than their maximum credit risk has. The increase in value is due primarily to increased property values, in line with the rise in corporate and residential real estate prices. Real estate accounts for about 74% of the collateral used to offset credit risk, according to the banks' interim financial statements.

The impairment coverage ratio is a measure of the banks' ability to absorb potential losses on non-performing loans. It is calculated as the amount of the impairment account divided by the total amount of non-performing loans.¹¹ In Q2, the impairment coverage ratio was 36%, a decrease of 4 percentage points since the beginning of the year. Iceland's ratio is somewhat below the European average but above that in most comparison countries.

III b Other lenders

The Housing Financing Fund's (HFF) position is broadly unchanged, and customer prepayments are still prominent. In order to mitigate the negative impact of the prepayments, the HFF has invested in asset-backed indexed bonds. In recent months, the pension funds have used capital inflows to invest abroad, mostly in unit shares. The shadow banking system has shrunk, and its connections with the conventional banking system have decreased.

HFF still subject to prepayments

The HFF recorded a profit of 1.5 b.kr. in the first six half of 2018. It has generated an operating profit since the end of 2015. The profit in recent quarters is due mainly to upward loan valuation adjustments and appropriated assets. The lower interest rate environment has had a negative impact on the HFF's interest income. Net interest income was negative by 109 m.kr. in H1, whereas it was positive by 532 m.kr. in H1/2017. The Fund's operating expenses rose by just under 14% year-on-year during the half, owing to an increase in staffing levels after the Fund took over the administration of housing benefits, which are financed with fiscal budget allocations. The HFF's capital ratio was

9. See the definitions in the Appendix.

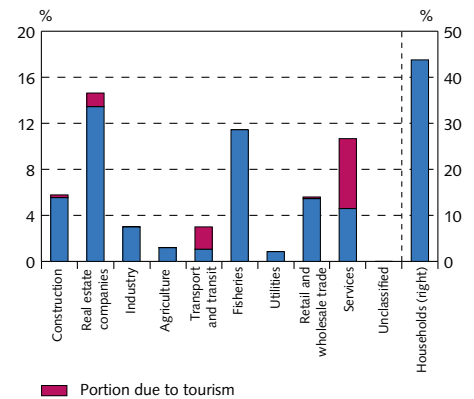
10. <https://www.eba.europa.eu/risk-analysis-and-data/eba-work-on-npls>.

11. The impairment coverage ratio based on the EBA definition is published on the Authority's risk dashboard: <https://www.eba.europa.eu/risk-analysis-and-data/risk-dashboard>.

Chart III-17

D-SIB: Sectoral classification of commercial bank lending¹

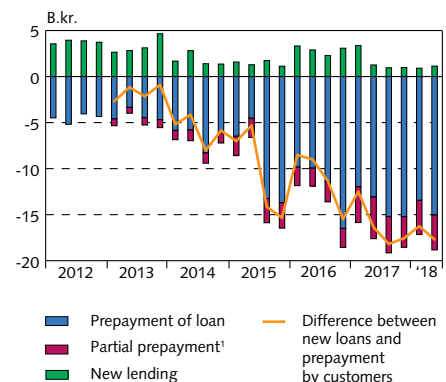
At end of Q2/2018



1. Loans to each sector as a share of total lending to households and operating companies as well as the portion in each sector due to tourism. SIB: Systemically important banks. Source: Central Bank of Iceland.

Chart III-18

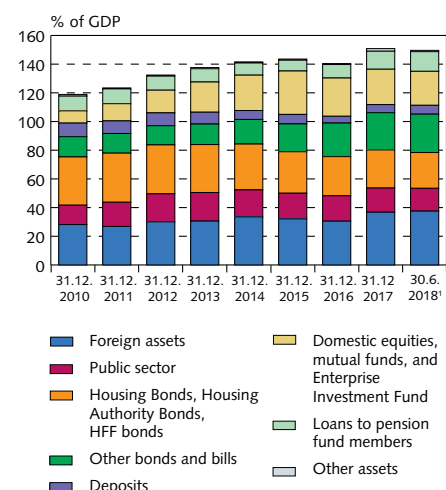
HFF: Prepayment of customer loans and new lending



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

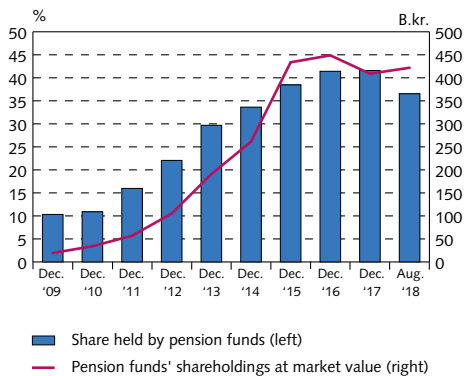
Chart III-19

Pension funds: Distribution of assets



1. Based on preliminary figures. Sources: Statistics Iceland, Central Bank of Iceland.

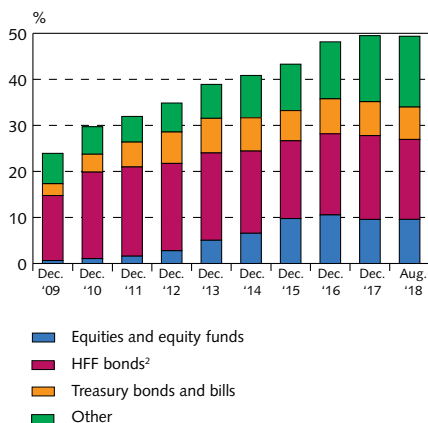
Chart III-20

Pension funds: Electronically registered equity securities¹

1. Pension funds' holdings as a share of total electronically registered equity securities.

Source: Nasdaq Iceland.

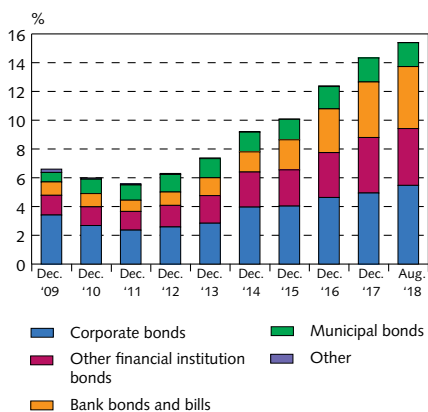
Chart III-21

Pension funds: Share of electronically registered securities¹

1. Pension funds' holdings as a share of total electronically registered securities. 2. Including Housing Bonds and Housing Authority Bonds.

Source: Nasdaq Iceland.

Chart III-22

Pension funds: Other assets as a share of electronically registered securities¹

1. Breakdown of category labelled "Other" in Chart III-21.

Source: Nasdaq Iceland.

9.1% at the end of June, the highest since the Fund was established and well above the long-term target of 5%.

Its loan portfolio has continued to contract due to retirement of loans and other extra payments from borrowers, including the allocation of third-pillar pension savings to mortgage debt. The loan portfolio was valued at 463 b.kr. at the end of June, including 330 b.kr. in loans to individuals. In the first half of the year, customers retired loans in the amount of 28 b.kr., whereas the Fund's assets outside the loan portfolio have increased by 21 b.kr. and now account for 37% of total assets. Non-loan assets will probably continue to increase in the near term, as the Fund's new lending is negligible and is limited almost entirely to loans compatible with its social role. The HFF's estimates assume that retirement of loans in 2017 and 2018 will total 150 b.kr.

In response to this, the Fund has invested in non-loan assets, mainly asset-backed indexed bonds with a payment profile similar to that of its funding. This enables the HFF to limit losses caused by the negative interest rate differential that accompanies early retirement and extra payments by customers.

Appropriated assets held by the HFF have declined in 2018 to date. The Fund sold 99 properties in H1 and appropriated 13. At the end of June, the majority of HFF-owned properties were being rented out.

Pension funds: foreign assets and domestic stock market activity

Pension funds' total assets amounted to one-and-a-half times GDP at the end of June. In the first eight months of the year, they increased by 188 b.kr., or by just under 3% in real terms. Loans to fund members totalled 394 b.kr. at the end of August, after increasing year-to-date by nearly 18% in real terms. All pension fund loans are backed by residential real estate, and loan-to-value ratios on new loans are modest, at below 75%; however, the average amount of new loans has declined slightly in comparison with the same period in 2017.

Almost 45% of the pension funds' assets are in marketable bonds and bills. Of these, 37% are indexed marketable bonds issued by the HFF, although that percentage has been falling in recent years, as the HFF has not issued any bonds since 2012, prompting the pension funds to invest in other issues.

Listed and unlisted domestic equity securities and unit shares comprise just under 16% of the funds' assets. The funds own about 40% of listed equities in the market. That share has fallen by over 10 percentage points since the beginning of the year, owing mainly to their proportionally small holdings in Arion Bank hf. and Heimavellir hf., which were listed earlier this year. The share of domestic equity securities in their total assets has contracted slightly in 2018 to date. However, the pension funds increased their holdings of real estate-backed bonds, through both direct lending and specialised investments. To diversify risk, the funds have stepped up their investments in foreign assets. At the end of August, some 26% of their assets were foreign, the majority of them unit shares. The funds can be expected to increase their foreign investment in coming years.

Shadow banking system assets contract

An estimate of the size of Iceland's shadow banking system¹² suggests that it has contracted by nearly 38 b.kr. since the beginning of the year. The reduction is due mainly to a contraction in the size of specialised investment companies, money market funds, and mutual funds. To some extent, this reflects falling stock prices, although shadow banks' deposits with the commercial banks have also contracted. The shadow banking system's links to the conventional banking system have therefore weakened.

12. See definition in Appendix III.

IV Central Bank stress test 2018

The Central Bank of Iceland's stress test is intended to assess the banks' resilience to hypothetical adverse scenarios. The stress scenario spans a three-year horizon and entails, among other things, a sharp contraction in exports, a severe deterioration in terms of trade, credit rating downgrades, and higher cost of capital for domestic borrowers. It also entails a steep depreciation of the króna, a spike in inflation, rising interest rates, reduced investment, a contraction in real disposable income, and elevated unemployment. GDP contracts by just over 6.5% in the first two years. The stress test extends to domestic systemically important banks, and the results indicate that their combined Tier 1 capital ratio could fall by some 4.7 percentage points from the initial position under this simulated severe stress situation.

Macroprudential stress test

The Bank's stress test assesses the banking system's ability to withstand a severely adverse macroeconomic scenario and is classified as a macroprudential stress test. The scenario is based on an assessment of the current financial cycle position, so that during a strong upswing with high asset prices, the shock reflected in the stress scenario will be larger than it would be under other conditions. The stress test also provides useful information for macroprudential policy formation, overall risk assessment, and financial market supervision, as well as creating an important foundation for discussion. The stress test is carried out in consultation with the Financial Supervisory Authority (FME).

The 2018 stress test included Iceland's systemically important banks (D-SIB),¹ which hold a combined 97% of deposit institutions' total assets. Two scenarios are presented: the baseline and the stress scenario. The impact of these scenarios on the banks is then assessed. The Central Bank's results are based on statistical models, discussions with the banks concerning the impact of the scenarios, and Bank staff assessments. The banks themselves also assess the impact of the scenarios using their own methodology, albeit within a framework provided by the Central Bank. A more detailed description of the Central Bank stress test and the methodology used can be found in the report entitled *The Central Bank of Iceland's approach to stress testing the Icelandic banking system*.²

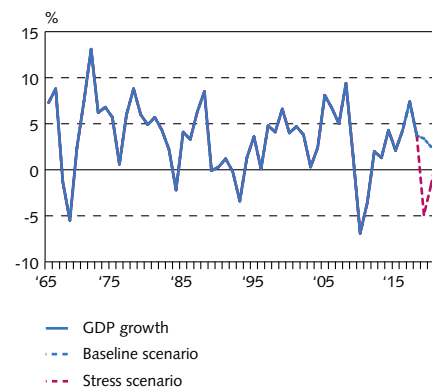
Baseline scenario 2018

The baseline scenario is based on assumptions concerning economic developments in the next few years, in line with the Bank's baseline forecast as published in *Monetary Bulletin* 2017/4. The policy interest rate is assumed to remain unchanged from the year-end 2017 level.

1. Arion Bank, Íslandsbanki, and Landsbankinn.

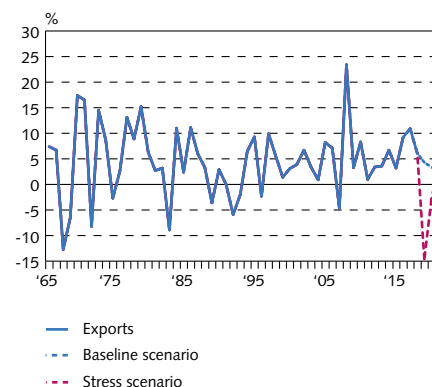
2. Central Bank of Iceland (2017), *Working Paper* No. 75. <https://www.cb.is/library/Skraarsafn/ymsar-skrar/WP75>.

Chart IV-1
Developments in GDP growth



Source: Central Bank of Iceland (QMM results Nov 2017).

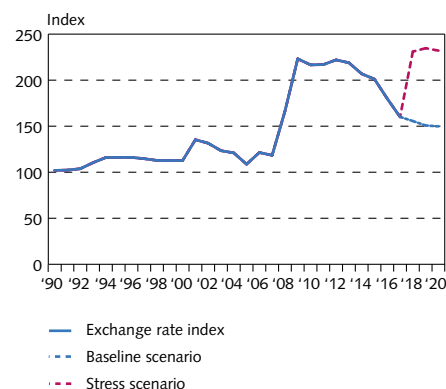
Chart IV-2
Developments in exports¹



1. Real change.

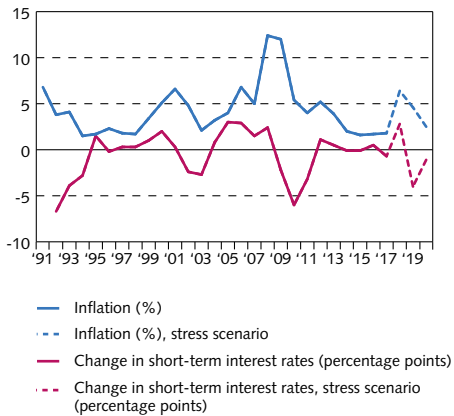
Source: Central Bank of Iceland (QMM results Nov 2017).

Chart IV-3
Developments in the exchange rate index



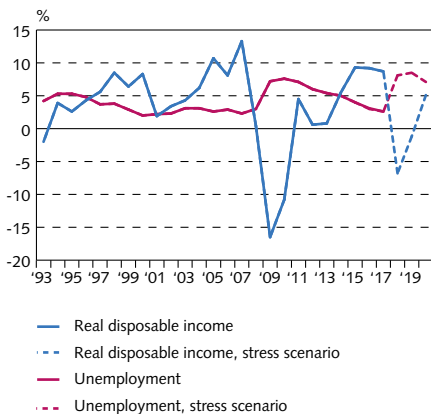
Source: Central Bank of Iceland (QMM results Nov 2017).

Chart IV-4
Developments in inflation and interest rates¹



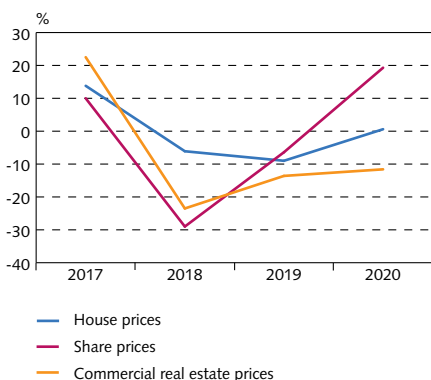
1. Annual average inflation and percentage points change in short-term interest rates.
Source: Central Bank of Iceland (QMM results from Nov 2017).

Chart IV-5
Developments in real disposable income and unemployment¹



1. Real change year-on-year for income; annual average unemployment.
Source: Central Bank of Iceland (QMM results Nov 2017).

Chart IV-6
Developments in asset prices, stress scenario¹



1. Change from year-end to year-end.
Source: Central Bank of Iceland.

Stress scenario 2018

The stress scenario is based on the Central Bank's analysis and assessment of risks to financial stability in Iceland at the beginning of the stress testing process.³ The stress scenario does not represent the Central Bank's forecast of possible developments in macroeconomic or other economic variables; it is merely a scenario that has been created for testing purposes.

In the stress scenario, exports contract ...

The stress scenario assumes a contraction and instability in the financial markets of Iceland's main trading partners. Terms of trade deteriorate sharply. The price of Iceland's most important export products fall, aluminium by 30% and marine products by 20%, while oil prices rise 50%. Tourism-generated export revenues contract by 35% year-on-year in the first year of the scenario (2018) and another 10% in the second year. They remain flat in year three. According to this, revenues from exported goods and services will fall, including revenues from foreign tourists, which will fall to 2013-2014 levels. The year-on-year contraction in total exports will measure 15% in the first year and 3% in the second.

... and the króna depreciates

The economic outlook for Iceland deteriorates, and Iceland's sovereign credit ratings are downgraded. Foreign investors unwind their positions in Iceland, and capital outflows occur in several asset classes, including securities, although outflows of deposits are not assumed. Interest premia charged to Icelandic banks and firms rise by 250 basis points for domestic financing and about 600 points for external financing. The trade-weighted exchange rate index rises by 44% in the first year, owing to reduced tourism revenues and increased capital outflows. Inflation rises as a result, although falling real estate prices act to contain it somewhat. Short-term interest rates rise by 3 percentage points in the first year and then fall markedly in the second year.

Asset prices fall ...

Share prices fall by 34% in the first two years under the stress scenario. A downturn in tourist visits affects the real estate market, owing partly to a contraction in short-term private rentals to tourists. The house price index falls by 15% in the first two years, and the commercial real estate index falls by 42% over the three-year horizon of the scenario.

... and GDP contracts by 6.5% in the first two years

Unemployment rises, real wages fall, and private consumption and investment contract. Real estate firms, construction companies, and tourism operators suffer a shock due to reduced activity, higher interest rates and interest premia, and reduced property prices. The impact extends to services in general and spreads to other sectors. GDP

3. The 2018 stress testing process began in November 2017 with scenario design. Risk factors for financial stability may have changed in the interim.

Table IV-1 Development of key variables in the stress test^{1,2}

	Baseline scenario			Stress scenario		
	2018	2019	2020	2018	2019	2020
Private consumption	6.3	3.7	2.8	-1.1	-5.9	0.8
Public consumption	1.6	1.5	1.8	1.5	1.2	1.8
Gross capital formation	-0.4	5.5	4.5	-3.7	-7.8	3.1
Exports of goods and services	4.3	3.4	2.4	-14.6	-2.9	3.4
Imports of goods and services	5.2	5.9	3.3	-6.9	-8.0	2.1
GDP (output growth)	3.4	2.5	2.5	-4.9	-1.7	2.2
Terms of trade for goods and services	0.3	0.0	-0.1	-9.4	-2.9	0.3
Unemployment. Statistics Iceland labour force survey (annual average. % of labour force)	2.7	3.0	3.3	8.1	8.5	7.1
Real disposable income	6.3	5.6	2.2	-6.8	-1.2	5.1
Trade-weighted exchange rate index (TWI)	155.6	150.8	149.8	231.0	234.7	232.1
Inflation (consumer price index. CPI)	2.5	2.3	2.8	6.4	4.6	2.5
Real exchange rate in terms of CPI	3.6	3.7	1.5	-27.0	0.3	1.6
Change in Icelandic short-term interest rates (percentage points) ³	-0.6	0.0	0.0	2.8	-4.0	-1.1

1. Change from previous year (%) unless otherwise specified. 2. Figures for the stress scenario are obtained with QMM-simulation. 3. The change in interest rates in the baseline scenario is based on unchanged interest rates from year-end 2017, not the yield curve in the forecast from *Monetary Bulletin* 2017/4. In the stress scenario, the development of interest rates is based on the Taylor rule.

Source: Central Bank of Iceland.

will contract by 4.9% in the first year and 1.7% in the second year. Developments in key economic variables according to the baseline and stress scenarios can be seen in Table IV-1.

Results

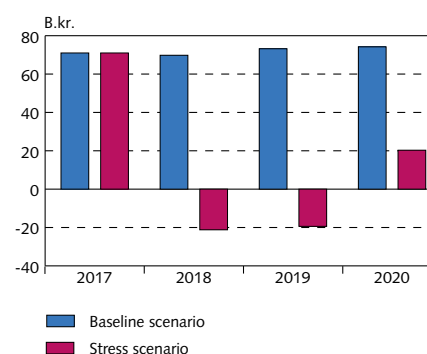
The results show the Central Bank's assessment of the effects of the scenarios on the banks' capital ratio, capital, and risk-weighted assets, including loan losses and developments in their income and expenses. The assessments carried out by the Central Bank and the three D-SIBs were broadly similar as regards developments in profits under the stress scenario; however, the banks' assessments differed with respect to developments in loan portfolio and risk-weighted assets. This is due in part to differing methodologies and differences in the position of the banks' borrowers at the beginning of the stress test, but in addition to this, the banks have somewhat divergent views of the impact of the stress scenario after an upward cycle of many years' duration.

The results of the stress test are sensitive to changes in assumptions and methodology. The stress scenario presented here is one specific scenario. If developments diverge from it, the banks' performance and capital ratio will differ from that indicated here. In addition, it is well to bear in mind that the stress scenario represents a stylised example and that it may not cover all aspects, such as the consequences of spillovers and temporary pessimism. As a result, the effects of the stress test could be underestimated, especially the short term effects.

Key assumptions concerning execution of the stress test

The starting position of the stress test is based on the banks' consolidated annual accounts at year-end 2017, albeit with consideration given to changes due to the new international financial reporting standard for financial instruments, IFRS9, which took effect at the beginning of 2018. It is assumed in the stress scenario that the

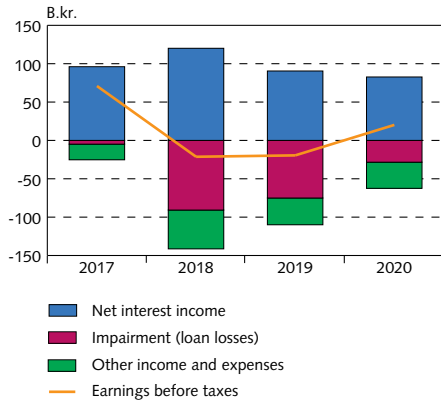
Chart IV-7
Earnings before taxes, Central Bank estimates



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

Chart IV-8

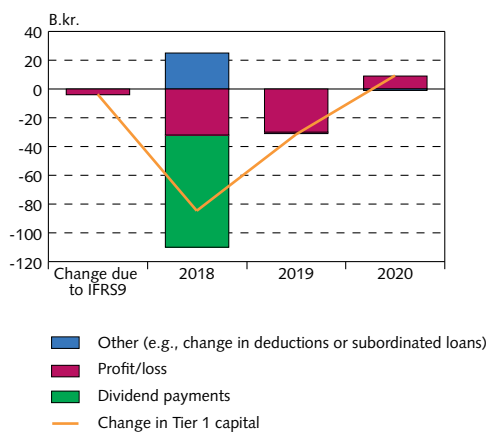
Earnings before taxes and contribution of various components, Central Bank estimates, stress scenario



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

Chart IV-9

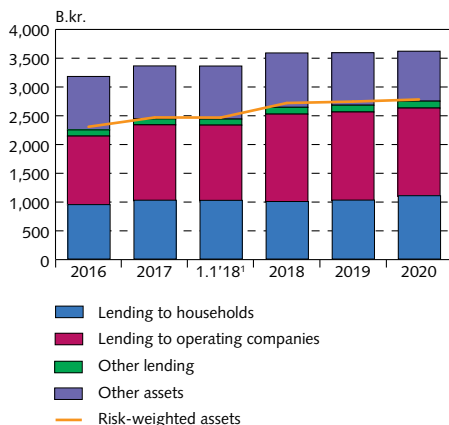
Developments in Tier 1 capital, Central Bank estimates, stress scenario



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

Chart IV-10

Developments in loans, other assets, and risk-weighted assets, Central Bank estimates, stress scenario



1. Change due to IFRS9.

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

dividends planned for H1/2018 will be paid, but no further dividend payments are assumed over the remainder of the stress test horizon.⁴ Requirements concerning liquidity ratios are not relaxed, and it is assumed that the banks will fulfil their requirements according to funding rules during the period. The stress test does not assume that the banks will change their strategies or plans other to discontinue dividend payments after H1/2018. Potential changes in strategy or other mitigating measures by the banks could offset the effect of an actual shock and thereby cushion against the impact of such a shock on their balance sheets and profit and loss accounts.

The banks' performance under the baseline scenario is similar to their business plans

The Central Bank's results for the baseline scenario are in line with the banks' business plans. Net interest income is assumed to increase modestly over the time horizon, particularly due to an increase in interest-bearing assets. Net fee and commission income also rises modestly, in part due to increased lending activity. On the other hand, loan valuation adjustments are expected to be negative. In recent years, loan valuation adjustments have had a significantly positive effect on the banks' operating results. The forecasted pre-tax profit according to the baseline scenario can be seen in Chart IV-7.

Operating losses in the first two years of the stress scenario

In the stress scenario, the banks will generate operating losses for the first two years. Net interest income increases during the first year of the scenario, however, owing to rising inflation and interest rates, but it declines when inflation and interest rates start to taper off. Other income, such as net commission and fee income and net income from financial activities, will contract because of weaker economic activity and falling asset prices. The loss due to falling securities prices is small in comparison with loan losses, however, as the importance of marketable securities in the banks' balance sheets has diminished.

Loan impairment will increase during the stress scenario, in the wake of the economic contraction. Reduced demand affects companies' revenues and debt service capacity, and elevated unemployment and reduced purchasing power erode individuals' debt service capacity. Impairment as a share of total lending will measure 3.4% in the first year and about 7.3% over the three-year horizon. According to the new financial reporting standard, IFRS9, impairment should be based on expected losses and not incurred losses. As a result, impairment must be charged earlier than under the previous standard. The timing of impairment according to IFRS9 differed somewhat from bank to bank.⁵ Chart IV-8 shows developments in the banks' profits under the stress scenario.

4. Plans for the sale of Valitor, a subsidiary of Arion Bank, involved an extraordinary dividend payment of 25 b.kr. Those plans have not materialised, however. Changes in deductions, particularly those due to the Valitor sale, offset the extraordinary dividend payment; therefore, the result of the stress test is broadly the same with or without the sale.

5. For further discussion of changes due to IFRS9, see Box III-2 in *Financial Stability 2018-1*, "IFRS 9: a new financial reporting standard for financial instruments."

Capital base contracts, while risk-weighted assets increase

The reduction in the three banks' Tier 1 capital relative to the initial position is greatest in the second year of the stress scenario (2019) and amounts to a combined 117 b.kr. Because of IFRS9 implementation, there will be an additional reduction of 4 b.kr. at the outset; therefore, Tier 1 capital will be 121 b.kr. lower than at year-end 2017, when it totalled 600 b.kr. The contraction in capital is attributable to operational losses, particularly in year two, but also to dividend payments in H1/2018. The three banks' losses in the first two years of the scenario amount to 62 b.kr. Planned dividend payments in H1/2018 and changes in deductions amount to 55 b.kr. combined.

Risk-weighted assets increase by 10% in the first year of the stress scenario. The rise stems primarily from an increase in the book value of the banks' loans, which in turn is attributable to inflation and the depreciation of the króna, even though write-downs will increase and reduced demand will cut into lending. The book value of corporate loans rises proportionally more than that of loans to individuals in the stress scenario, as about 30% of the banks' corporate loans were denominated in foreign currencies at the end of 2017. Such loans will increase substantially due to the 44% rise in the exchange rate index in the first year. Corporate loans generally have a higher risk weight than loans to individuals, and when they increase as a proportion of the loan portfolio, the average risk weight in the risk-weighted assets rises as well. By the end of the stress scenario, risk-weighted assets are about 13% higher than at the outset. It should be noted that the banks' own assessment of developments in risk-weighted assets varied somewhat. The Central Bank's assessment of developments in the banks' risk-weighted assets and assets can be seen in Chart IV-10.

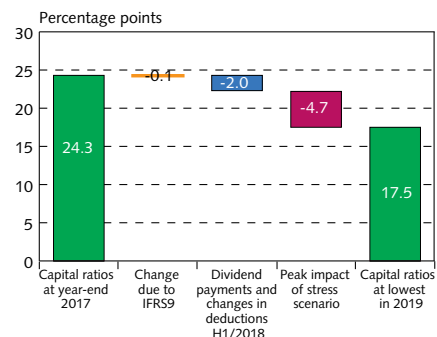
The banks' Tier 1 capital ratio falls by 4.7 percentage points due to the effects of the stress scenario

The reduction in the three banks' Tier 1 capital ratio relative to end-2017 is greatest in the second year of the scenario, at a combined 6.8 percentage points. About 4.7 percentage points of the reduction can be traced to the effects of the stress scenario, about 0.1 percentage points to IFRS9, and about 2 percentage points to the H1/2018 dividend payments. The reduction in the Tier 1 capital ratio due to the stress scenario stems from both a reduction in capital and an increase in risk-weighted assets. The Tier 1 ratio ranged between 22.6% and 26.3% at the end of 2017.

The banks' combined leverage ratio falls by 4.2 percentage points at the trough in year two of the scenario. Of that reduction, 0.1 percentage points can be traced to IFRS9, about 1.5 percentage points to the H1/2018 dividend payments, and 2.5 percentage points to the effects of the stress scenario. The decline stems from a contraction in capital and an increase in total exposure measure, which is attributable for the most part to developments in the balance sheet. At the end of 2017, the banks' leverage ratios lay in the 15.4-18.4% range.

Chart IV-11

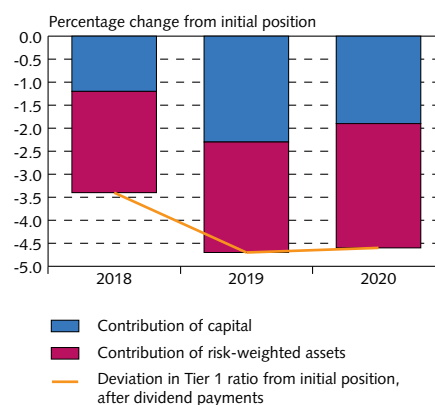
Decrease in three largest banks' capital ratios since 2017, stress scenario, Central Bank estimates



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

Chart IV-12

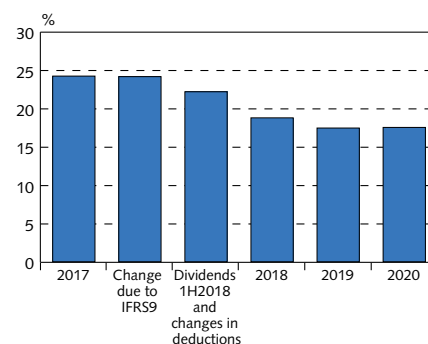
Impact of stress scenario on Tier 1 ratio, cumulative contribution of components, Central Bank estimates



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

Chart IV-13

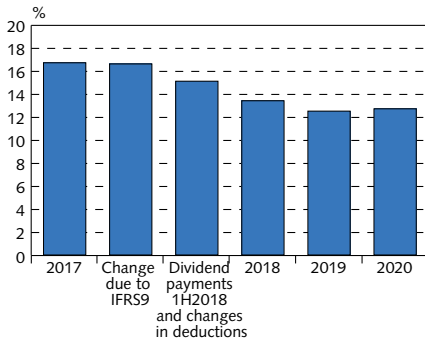
Three largest banks' Tier 1 ratios, Central Bank estimates, stress scenario



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

Chart IV-14

Three largest banks' combined leverage ratio, Central Bank estimate, stress scenario



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

Recent stress tests abroad

The US Federal Reserve Bank published stress test results earlier this year, and the Bank of England did so at the end of 2017. The average decline in the Common Equity Tier 1 capital ratio in the US stress test peaked at 4.4 percentage points. The test included 35 banks whose total consolidated assets exceeded 100 billion US dollars.⁶ In the Bank of England's 2017 stress test, common equity Tier 1 capital fell by 5.1 percentage points after adjusting for mitigating measures such as reducing payments of dividends and performance-linked bonuses.⁷ The stress test included the UK's seven largest banks.⁸ The decline in the capital ratio in the US and UK stress tests was due to both a reduction in capital and an increase in risk-weighted assets. The stress scenarios differ from one central bank to the next, although they all include a worldwide recession. Furthermore, the balance sheets and policies of the various banks differ. As a result, the comparison only gives a broad idea of the different effects of stress events on the respective companies' banking systems.

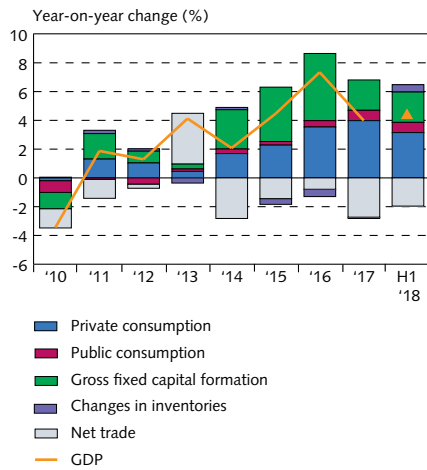
6. Dodd-Frank Act Stress Test 2018: Supervisory Stress Test Methodology and Results, Board of Governors of the Federal Reserve System, June 2018.
7. Without mitigating measures, the decline in the capital ratio would be 2.2 percentage points larger, or 5.9 percentage points.
8. Stress testing the UK banking system: 2017 results, Bank of England, November 2017.

Appendix I

Charts

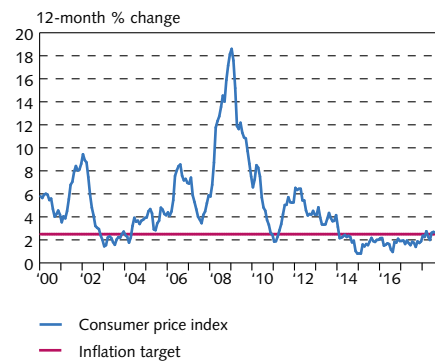
I Macroeconomic environment

Chart I-1
Output growth¹



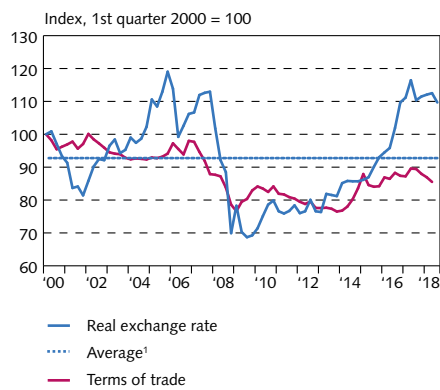
1. Contribution of individual components to output growth.
Sources: Statistic Iceland, Central Bank of Iceland.

Chart I-2
Consumer price inflation



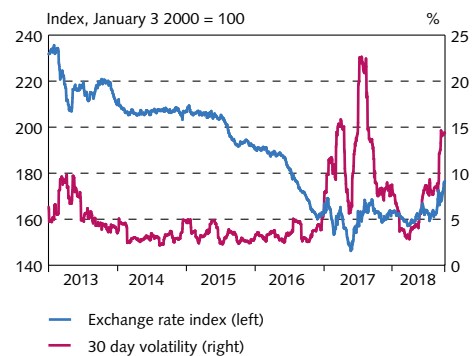
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-3
Real exchange rate of the króna
and terms of trade



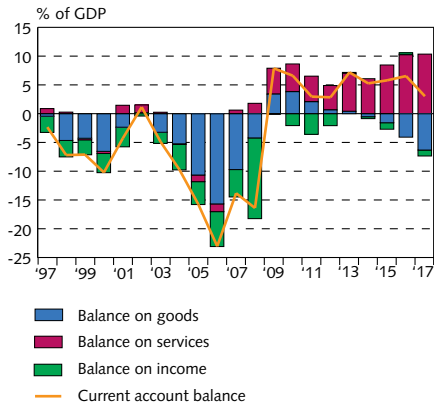
1. Real exchange rate average over the whole period.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-4
Exchange rate of the króna¹



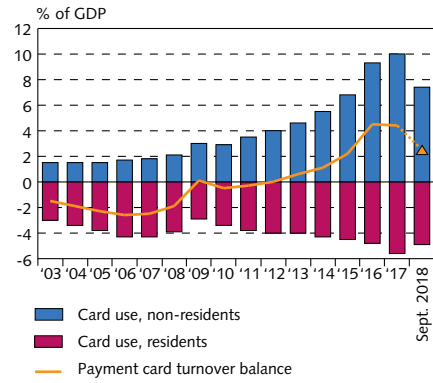
1. Exchange rate index based on average imports and exports, narrow trade basket (1%).
Source: Central Bank of Iceland.

Chart I-5
Current account balance¹



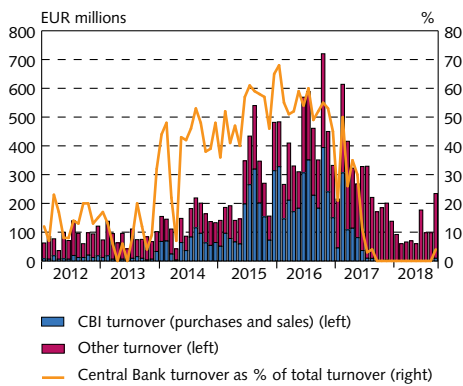
1. Effects of the old banks on factor income and the balance on services from Q4/2008 are ignored. From 2009 through 2012, the effect of Actavis on the balance on income is also ignored, owing to inaccurate data during the period. Secondary income is included in factor income.
 Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-6
Payment card turnover balance¹



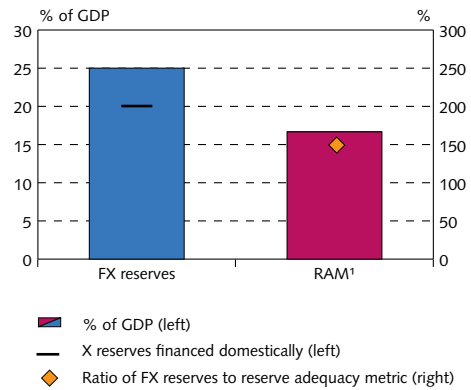
1. Residents' card use abroad is expressed with a negative sign. The card turnover balance shows the difference between foreign payment card use in Iceland and Icelanders' payment card use abroad.
 Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-7
Foreign exchange market turnover



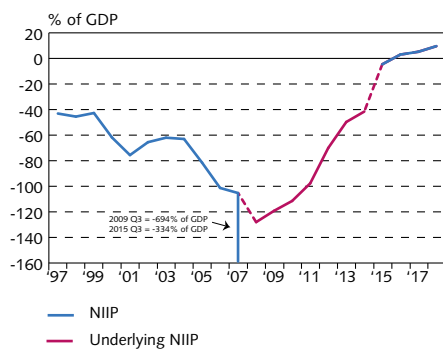
Source: Central Bank of Iceland.

Chart I-8
Central Bank reserve adequacy
Position as of end-Q2/2018



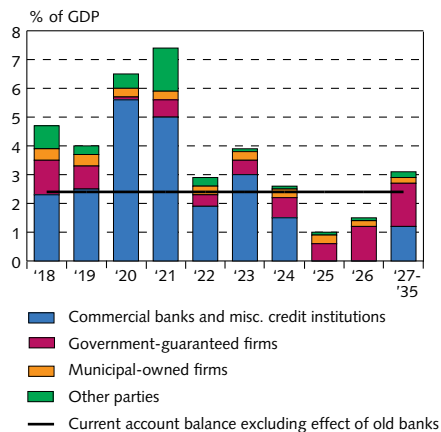
1. IMF reserve adequacy metric.
 Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-9
Net international investment position¹



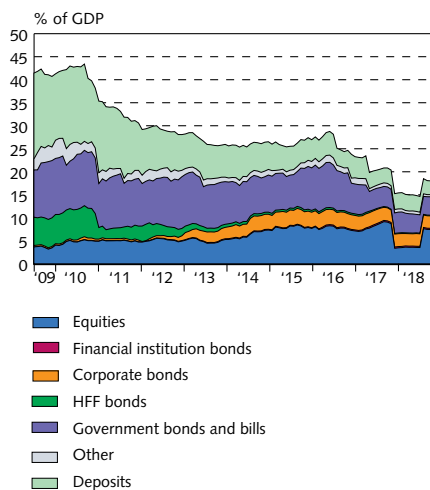
1. Based on underlying position from 2008 through end-2015; i.e., adjusted for the effects of settling the failed banks' estates and assuming equal distribution of assets to general creditors. At the end of 2015, the estates of the failed financial institutions reached composition agreements entailing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

Chart I-10
Repayment profile of long-term foreign loans, excluding the Treasury¹



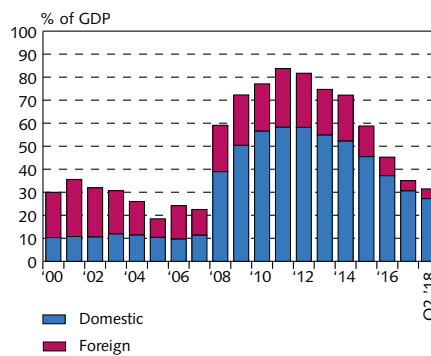
1. Foreign long-term loans based on position as of end-Q2/2018 and exchange rate of 6 September 2018, plus commercial banks' foreign issuance in Q3/2018, adjusted for refinancing.
Sources: Financial information from DMBs, Statistics Iceland, Central Bank of Iceland.

Chart I-11
Foreign-owned deposits and electronically registered securities in Iceland



Sources: Statistics Iceland, Nasdaq CSD Iceland, Central Bank of Iceland.

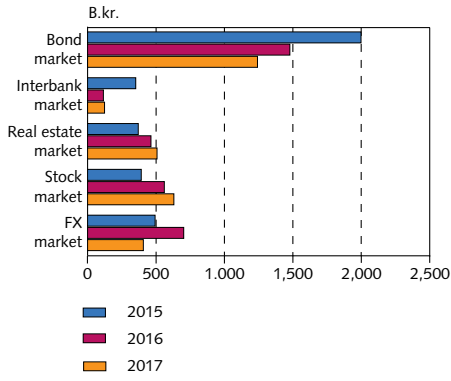
Chart I-12
Treasury debt



Sources: Statistics Iceland, Government Debt Management.

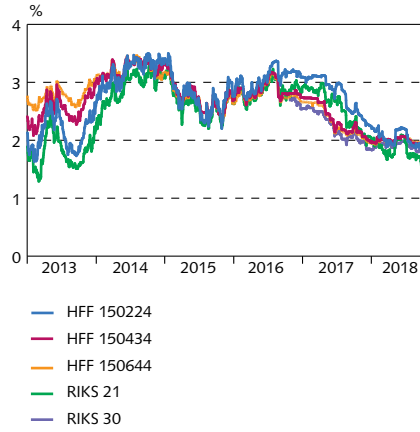
II Financial markets

Chart II-1
Domestic financial market turnover



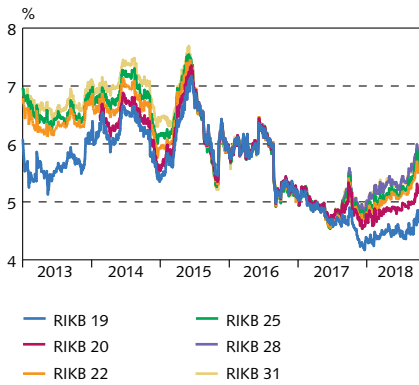
Sources: Nasdaq Iceland, National Registry Iceland, Central Bank of Iceland.

Chart II-2
Indexed bond yields



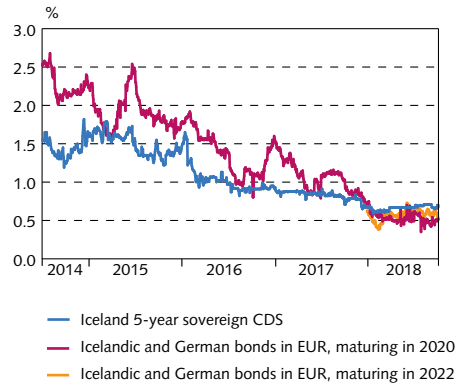
Source: Nasdaq Iceland.

Chart II-3
Treasury bond yields



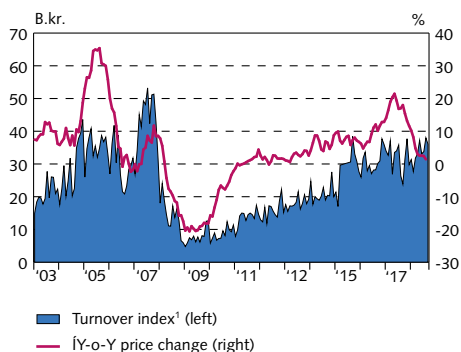
Source: Nasdaq Iceland.

Chart II-4
Government bond spreads



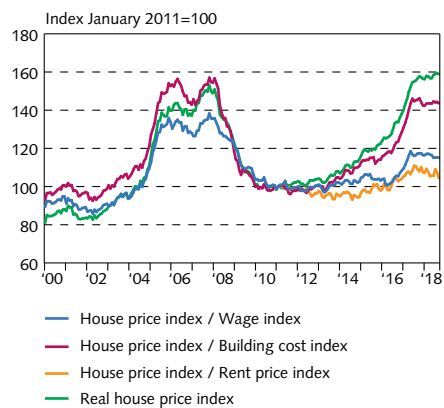
Source: Thomson Reuters.

Chart II-5
Real house price increase and turnover
in capital area



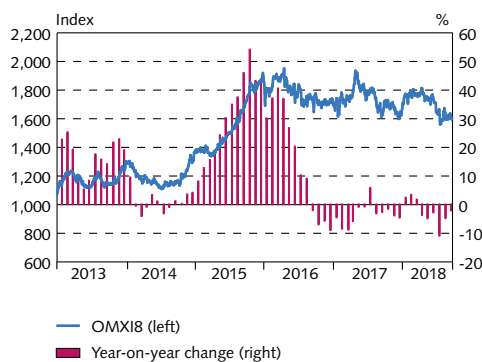
1. Year-on-year change in the capital city area house price index, deflated by the consumer price index. Turnover in the capital area according to the magistrate's office. Mars-August 2015 data is linearly interpolated to correct for the effects of a strike at the magistrate's office.
Sources: Statistics Iceland, Registers Iceland.

Chart II-6
Capital city area house prices
and determining factors¹



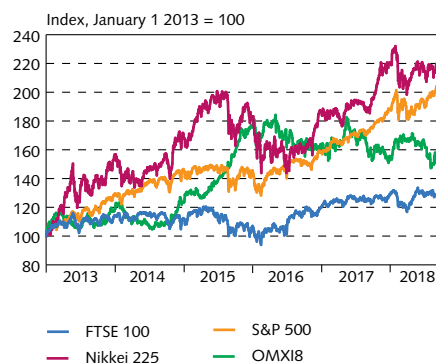
1. Capital city area house price index, deflated with the consumer price index and in a ratio with other indices.
Sources: Statistics Iceland, Registers Iceland, Central Bank of Iceland.

Chart II-7
OMX18 share price index



Source: Nasdaq Iceland.

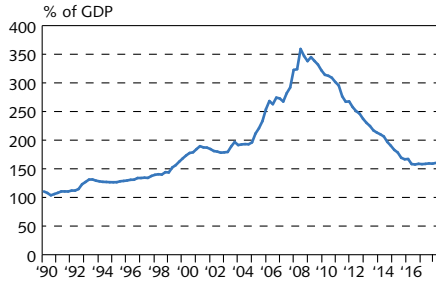
Chart II-8
Share price indices



Source: Thomson Reuters.

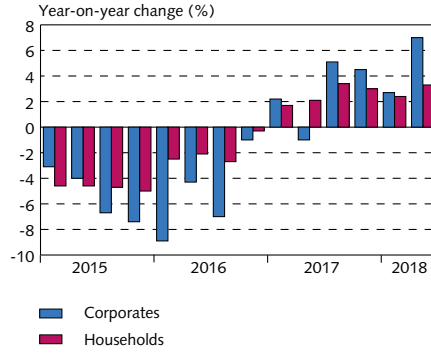
III Households and businesses

Chart III-1
Credit-to-GDP ratio¹



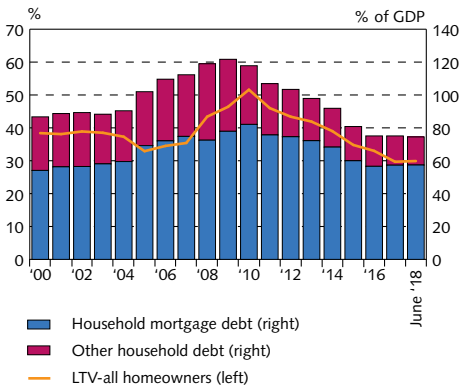
1. Credit to households and nonfinancial firms, excluding holding companies, in relation to gross domestic product. Retroactive revision of national accounts causes a change since the last publishing.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-2
Real credit growth to households and firms¹



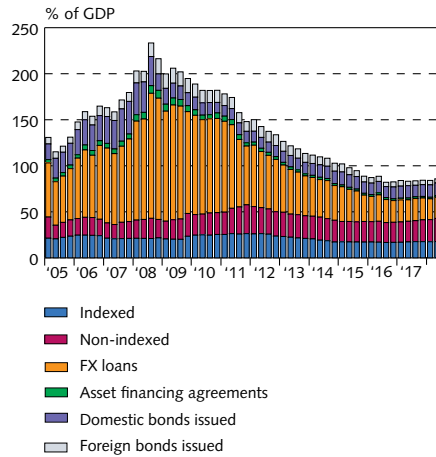
1. Year-on-year change in total credit to households and nonfinancial firms, excluding holding companies, deflated with the consumer price index. Claim value.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-3
Household debt relative to real estate value and GDP



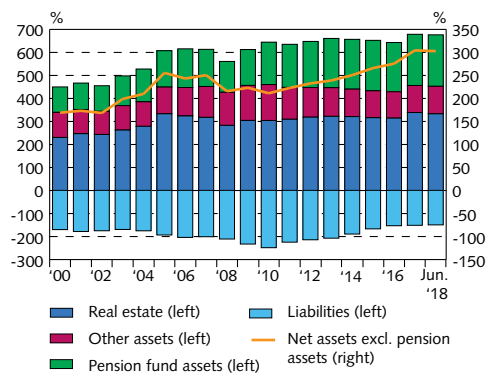
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-4
Companies: Debt as % of GDP¹



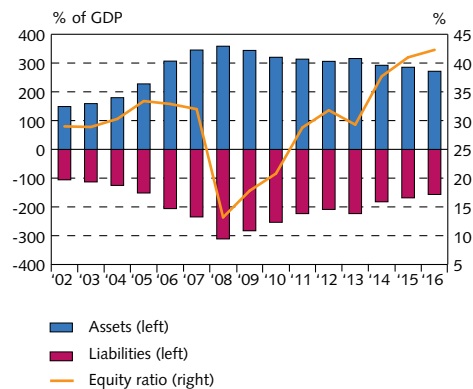
1. Debt owed to domestic and foreign financial undertakings and market bonds issued. Excluding debt owed by holding companies.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-5
Households: Assets and liabilities as share of disposable income¹



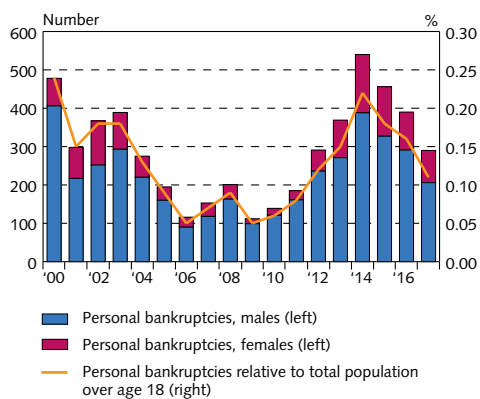
1. Pension fund assets are based on payouts after deduction of 30% income tax.
 Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-6
Companies: Assets and liabilities as % of GDP and equity ratio¹



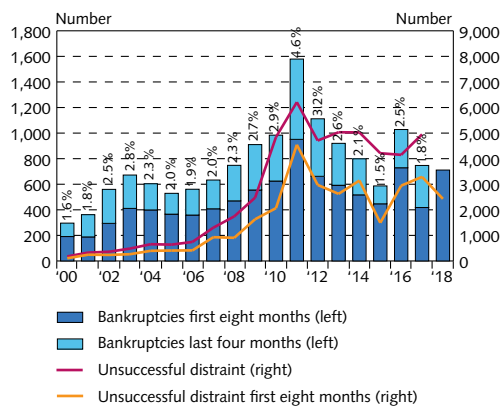
1. Commercial economy excluding pharmaceuticals, financial, and insurance companies (ISAT no. 03-20, 22-63, 68-82, 95-96).
 Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-7
Individuals: Personal bankruptcies¹



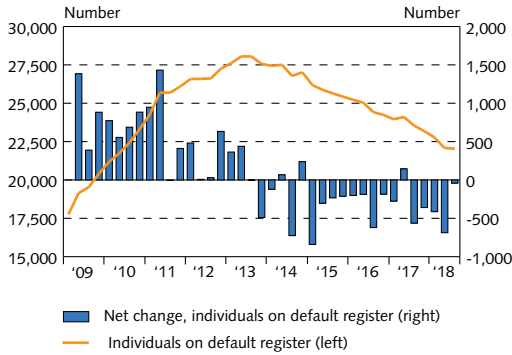
1. Total for entire year.
 Sources: Council of District Court Administration, Statistics Iceland.

Chart III-8
Companies: Bankruptcies and unsuccessful distraint actions¹



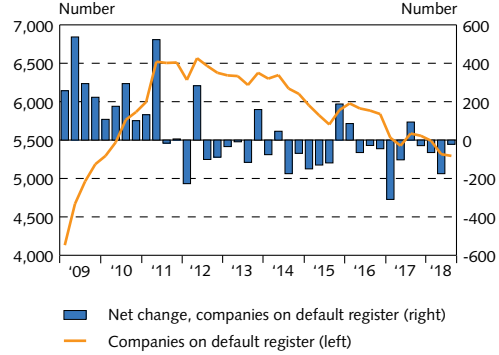
1. The percentages show bankruptcies as a share of the total number of firms.
 Sources: Registers Iceland, Statistics Iceland, Central Bank of Iceland.

Chart III-9
Individuals: Number on default register



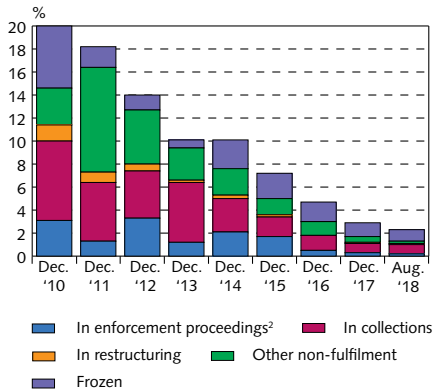
Source: CreditInfo.

Chart III-10
Companies: Number on default register



Source: CreditInfo.

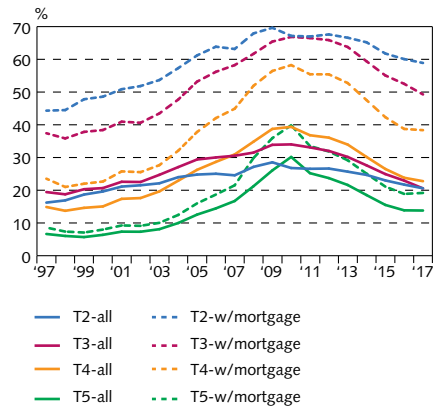
Chart III-11
Households: Non-performing loans from D-SIBs and the HFF¹
Cross-default method



1. Domestic systemically important banks, parent companies, book value. 2. The share of loans in enforcement proceedings and collections declined in December 2011 because the HFF did not send out dunning letters or forced sale requests in the latter half of the month.

Source: Financial Supervisory Authority.

Chart III-12
Share of taxpayers owing more than 300% of disposable income¹
By income group and debtor type

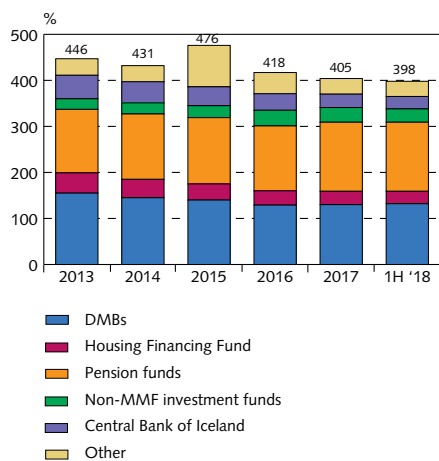


1. The broken lines show the share of taxpayers with mortgage debt whose total debt exceeds 300% of their disposable income. The lowest-income group, G1, is not shown.

Sources: Statistics Iceland, Central Bank of Iceland.

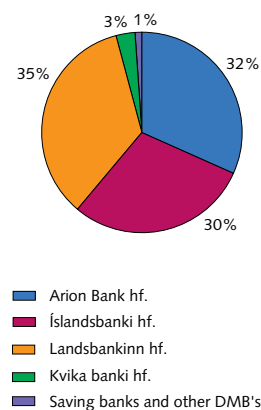
IV The financial system

Chart IV-1
Financial system: Assets as % of GDP¹



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

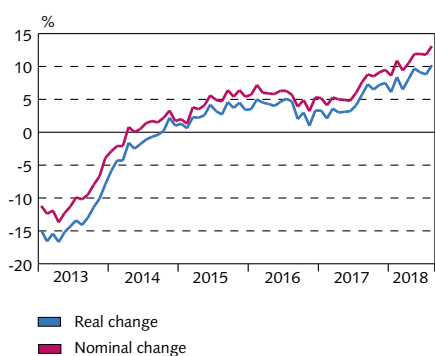
Chart IV-2
DMBs: Share of total assets¹
August 2018



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

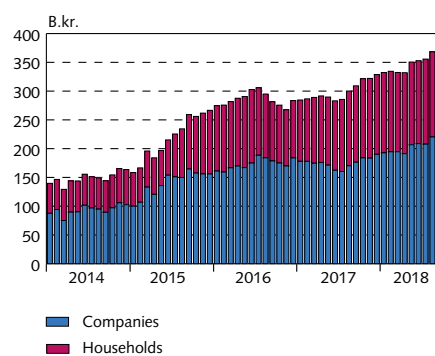
V Systemically important banks and deposit institutions – lending

Chart V-1
D-SIB: Lending to households and companies¹



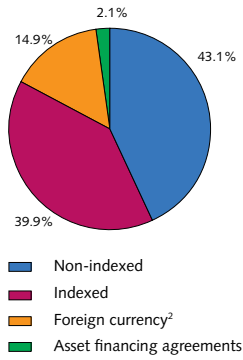
1. Annualised changes. Adjusted for Government debt relief measures.
Source: Central Bank of Iceland.

Chart V-2
D-SIB: Net new lending to households and companies¹



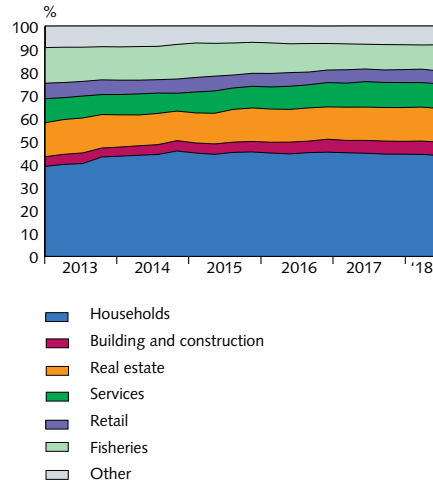
1. D-SIB: Domestic systemically important banks. New loans net of prepayments and final payments. 12-month moving total. Prepayments are payments in excess of contractual payments.
Source: Central Bank of Iceland.

Chart V-3
DMBs: Distribution of loans by type¹
End of June 2018



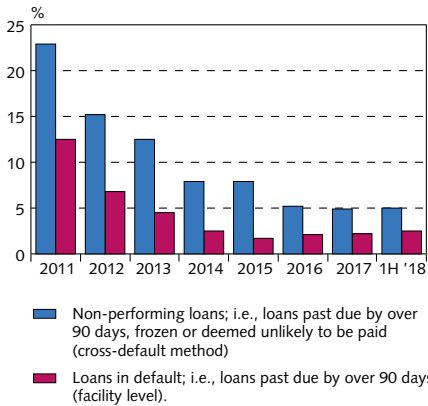
1. Parent companies. 2. Foreign currency loans include exchange rate-linked loans.
Source: Central Bank of Iceland.

Chart V-4
D-SIB: Lending classified by borrower¹



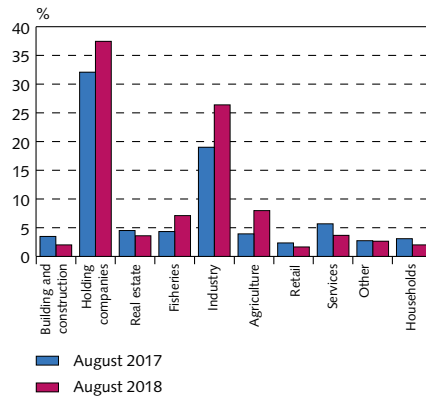
1. Loans to each sector as a share of total lending to households and operating companies.
Source: Central Bank of Iceland.

Chart V-5
D-SIB: Default ratios¹



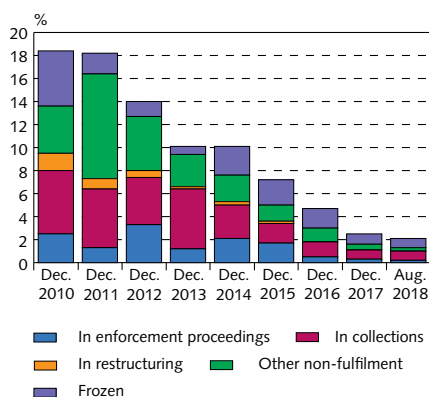
1. Domestic systemically important banks, parent companies, book value. EBA definition for non-performing loans used from 2018 onwards (red).
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-6
D-SIB: Non-performing loan ratios¹



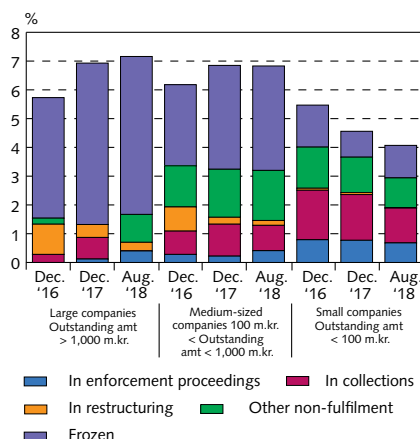
1. Domestic systemically important banks, parent companies, book value.
Source: Financial Supervisory Authority.

Chart V-7
D-SIB: Status of non-performing loans to households¹



1. Parent companies, book value.
Source: Financial Supervisory Authority.

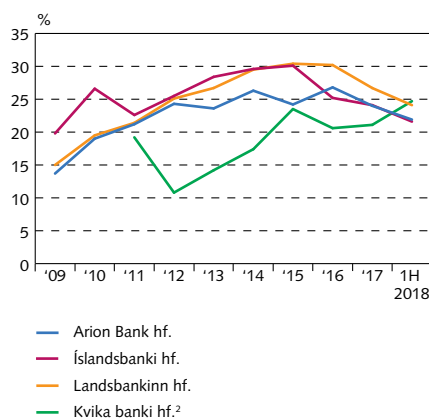
Chart V-8
D-SIB: Status of non-performing corporate loans, by claim amount¹



1. Percentage of total loans in each size category. Domestic systemically important banks, parent companies, book value.
Source: Financial Supervisory Authority.

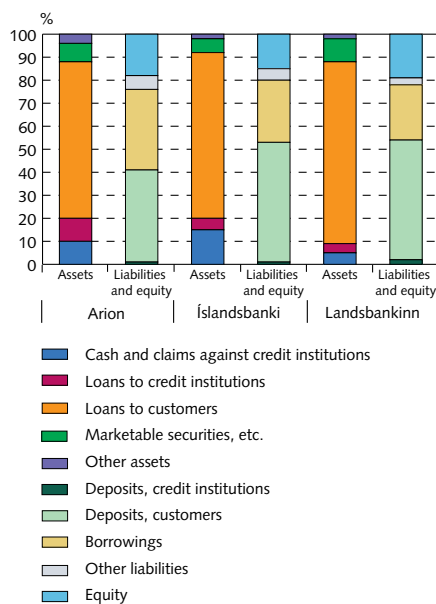
VI Systemically important banks and other deposit institutions – operations and liquidity

Chart VI-1
Commercial banks: Capital adequacy ratios¹



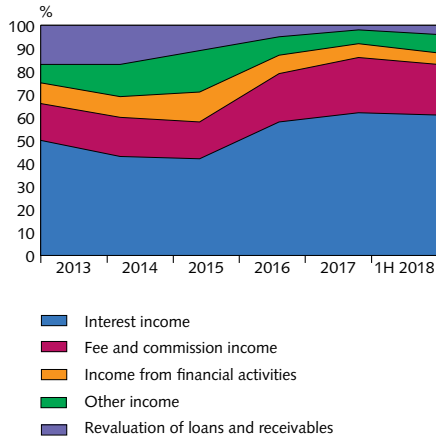
1. Consolidated figures. Capital base as % of risk-weighted assets.
2. CAR for MP bank until 2015.
Sources: Commercial banks' financial statements.

Chart VI-2
D-SIB: Assets and liabilities¹
End of June 2018



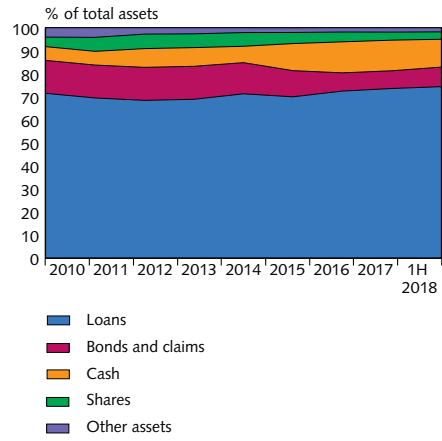
1. Domestic systemically important banks, consolidated accounts.
Sources: Commercial banks' financial statements, Central bank of Iceland.

Chart VI-3
D-SIB: Operating income¹



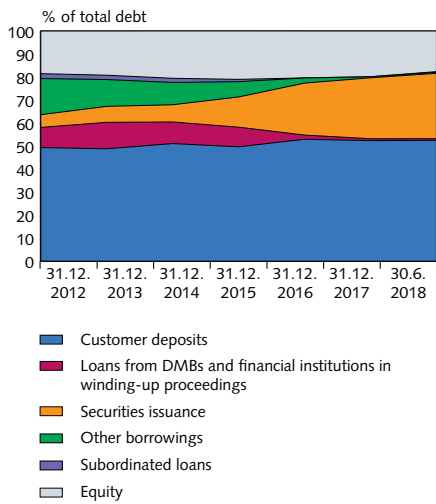
1. Domestic systemically important banks, consolidated figures.
Sources: Commercial banks' financial statements, Central bank of Iceland.

Chart VI-4
D-SIB: Assets¹



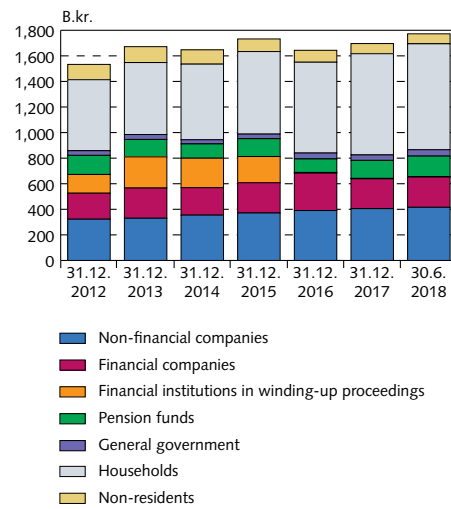
1. Domestic systemically important banks, parent companies.
Source: Central Bank of Iceland.

Chart VI-5
D-SIB: Funding¹



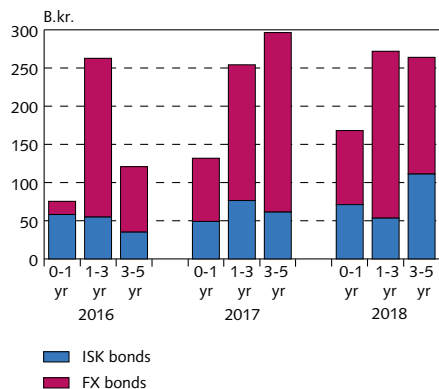
1. Domestic systemically important banks, parent companies.
Including pension fund deposits.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-6
D-SIB: Depositors¹



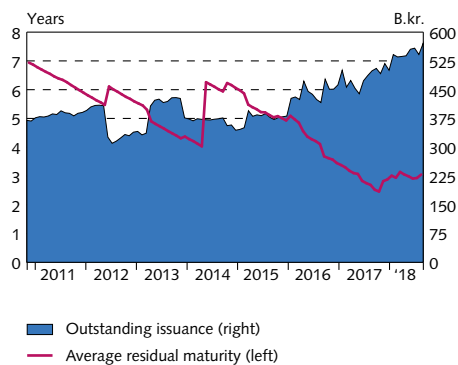
1. Domestic systemically important banks, parent companies.
Source: Central Bank of Iceland.

Chart VI-7
D-SIB: Bond maturities¹



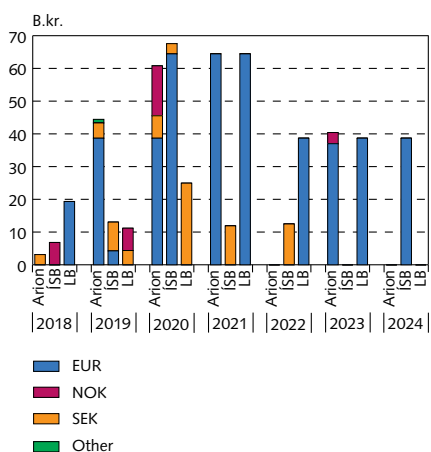
1. Instalments and interest. Domestic systemically important banks, parent companies figures. As of end-August each year.
Source: Central Bank of Iceland.

Chart VI-8
D-SIB: Average residual maturity and total issuance of funding in foreign currency¹



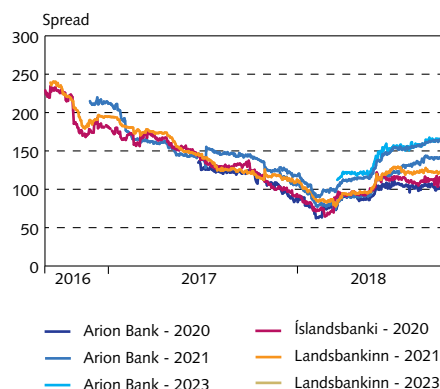
1. D-SIB: Domestic systemically important banks.
Sources: Nasdaq Iceland, Central Bank of Iceland.

Chart VI-9
D-SIB: Foreign bonds by maturity and currency¹



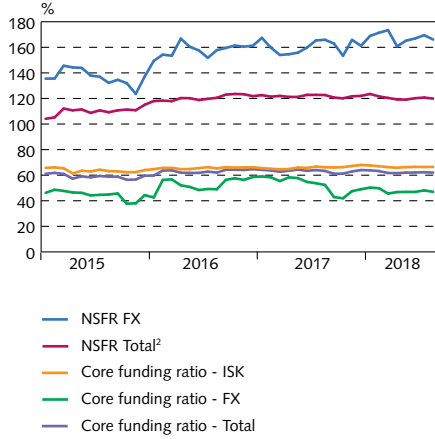
1. At 30 september 2018 exchange rate. Not included in the chart is Arion bank NOK issue maturing in 2027, in the total amount of 3,4 b.kr., Tier 2 issuance from Íslandsbanki, in the total amount of 15,6 B.kr., maturing in 2027 and Tier 2 issuance from Landsbankinn, in the total amount of 11,1 B.kr. maturing in 2028.
Source: Nasdaq Iceland.

Chart VI-10
D-SIB: Spread on listed foreign bonds, EUR¹



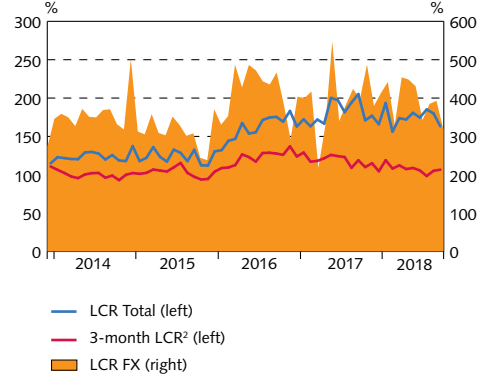
1. Spread on Euro benchmark curve.
Source: Thomson Reuters.

Chart VI-11
D-SIB: NSFR ratio and ratio of core funding to total funding¹



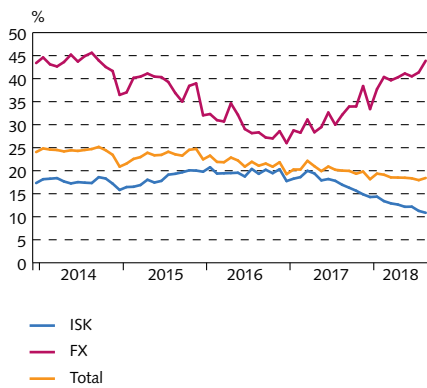
1. D-SIB: Domestic systemically important banks. Core funding is defined here as deposits held by resident individuals and non-financial companies (excluding pension funds), plus capital, subordinated loans, and issued negotiable securities with a residual maturity of more than three years. 2. According to Central Bank rules on stable funding, the Bank also monitors the NSFR for all currencies combined.
Source: Central Bank of Iceland.

Chart VI-12
D-SIB: Liquidity coverage ratio¹



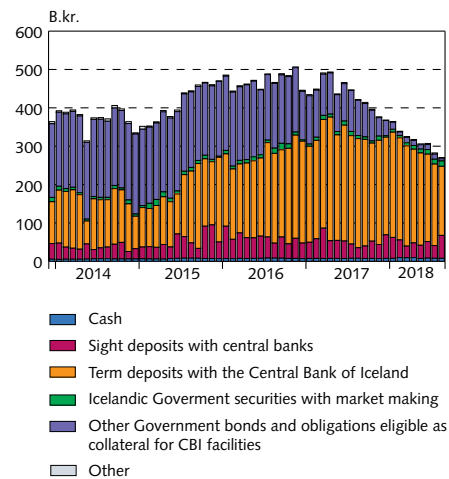
1. Domestic systemically important banks, consolidated figures
2. In accordance with older liquidity rules. New LCR rules were implemented in march 2017.
Source: Central Bank of Iceland.

Chart VI-13
DMBs: Ratio of liquid assets to total assets¹



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

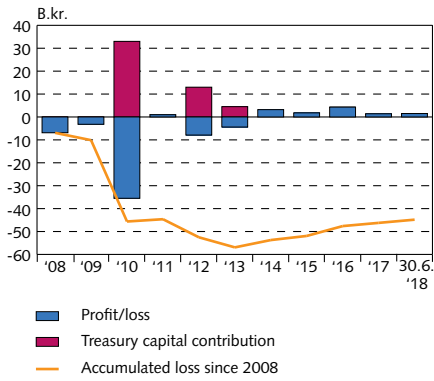
Chart VI-14
D-SIB: Liquid assets¹



1. Liquid assets in Icelandic krónur. 2. Domestic systemically important banks, parent companies.
Source: Central Bank of Iceland.

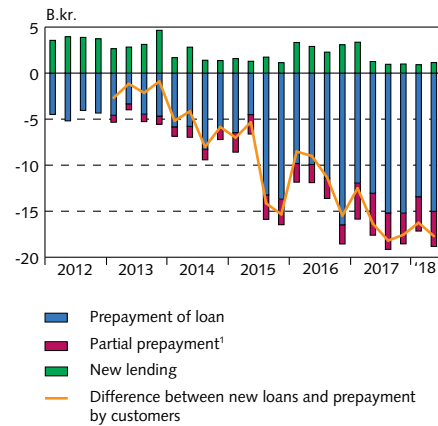
VII Other financial market entities

Chart VII-1
HFF: Profit/loss and Treasury capital contribution



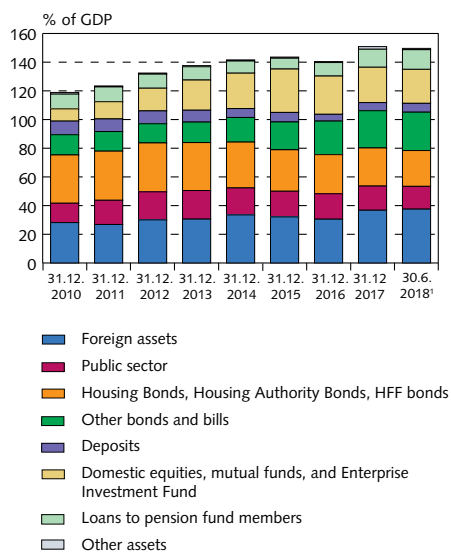
Sources: HFF annual and semi-annual accounts.

Chart VII-2
HFF: Prepayment of customer loans and new lending



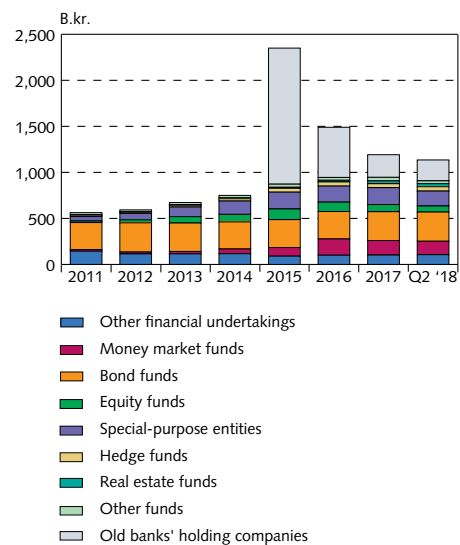
1. Data for 2012 not available.
Source: Housing Financing Fund.

Chart VII-3
Pension funds: Distribution of assets



1. Based on preliminary figures.
Sources: Statistics Iceland, Central Bank of Iceland.

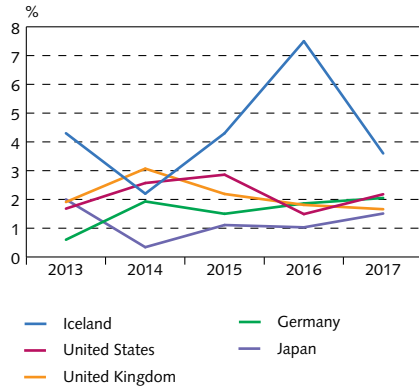
Chart VII-4
Size of the shadow banking system



Source: Central Bank of Iceland.

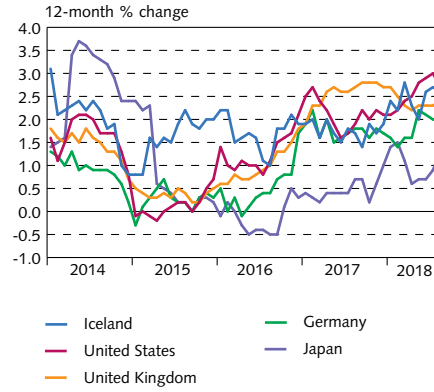
VIII International comparison

Chart VIII-1
Output growth



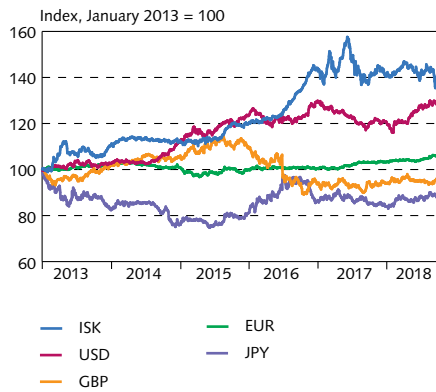
Source: Statistics Iceland, Thomson Reuters.

Chart VIII-2
Inflation¹



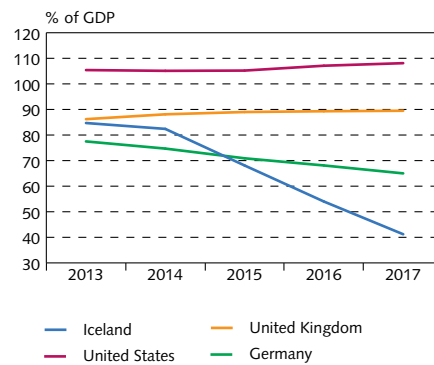
1. Consumer price index.
Source: Statistics Iceland, Thomson Reuters.

Chart VIII-3
Currency exchange rates¹



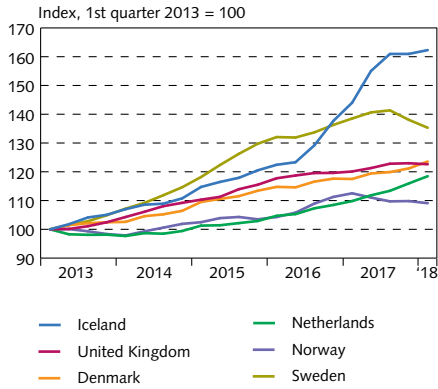
1. BIS nominal indices.
Source: BIS.

Chart VIII-4
Government debt



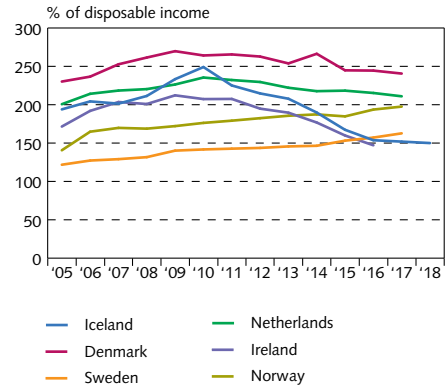
Source: IMF.

Chart VIII-5
Real estate prices



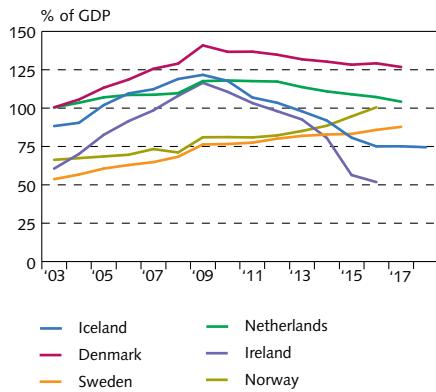
Source: OECD.

Chart VIII-6
Households: Debt as share of disposable income
2005 - Q2/2018



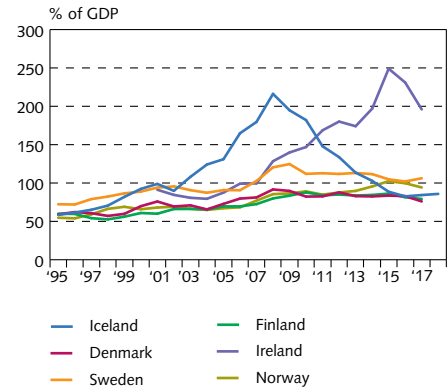
Sources: Eurostat, Statistics Iceland, Central Bank of Iceland.

Chart VIII-7
Households: Debt as share of GDP
2003 - Q2/2018



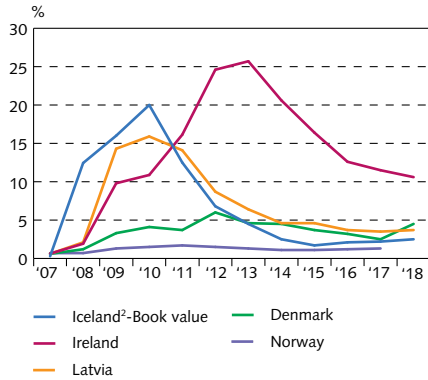
Sources: Eurostat, Statistics Iceland, Central Bank of Iceland.

Chart VIII-8
Corporate debt as percentage of GDP
in international comparison¹
1995 - Q2/2018



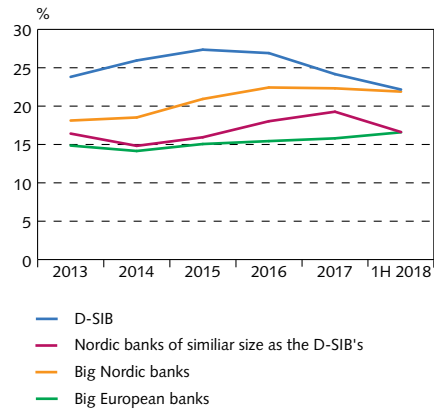
1. Debt owed to domestic and foreign financial undertakings and market bonds issued.
Sources: Eurostat, Statistics Iceland, Central Bank of Iceland.

Chart VIII-9
Default ratios¹



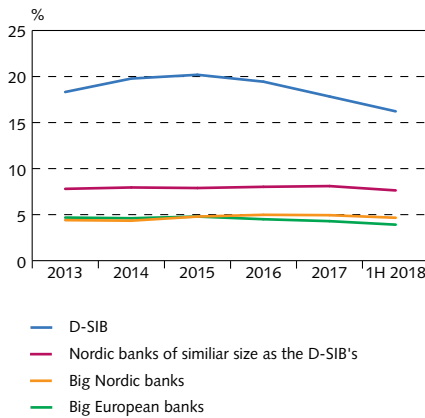
1. Households and corporates. Banks' non-performing loans as a percentage of gross loan portfolio w/o write-downs. 2018-Q1 figures for Denmark, Ireland and Greece and 2017-Q4 figures for Norway.
2. 2007: Figures estimated from the annual accounts of the failed banks. 2008: Central Bank estimates.
Sources: Financial Supervisory Authority, International Monetary Fund, World Bank, Central Bank of Iceland.

Chart VIII-10
Tier 1 ratio
Average of ratios



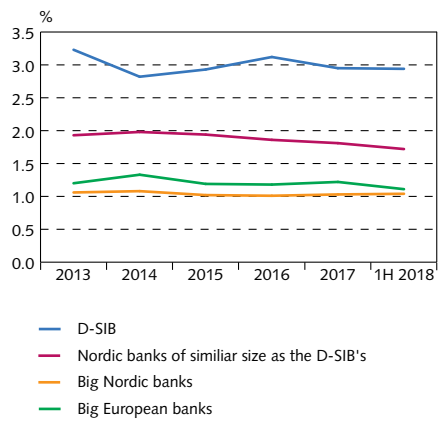
Source: S&P Global Market Intelligence.

Chart VIII-11
Leverage ratio¹
Average of ratios



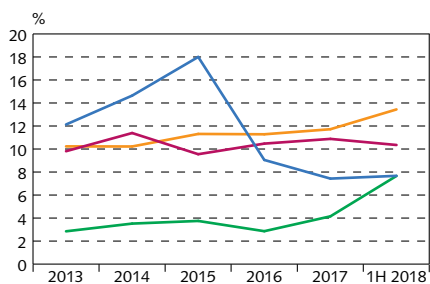
1. IFRS Tier 1 leverage ratio.
Source: S&P Global Market Intelligence.

Chart VIII-12
Net interest margin
Average of ratios



Source: S&P Global Market Intelligence.

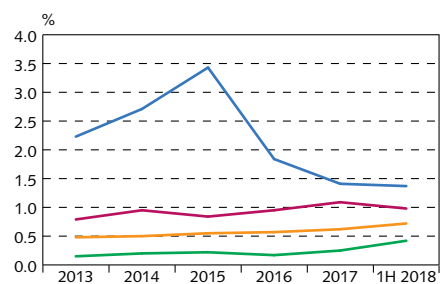
Chart VIII-13
Return on equity
Average of ratios



— D-SIB
— Nordic banks of similar size as the D-SIB's
— Big Nordic banks
— Big European banks

Source: S&P Global Market Intelligence.

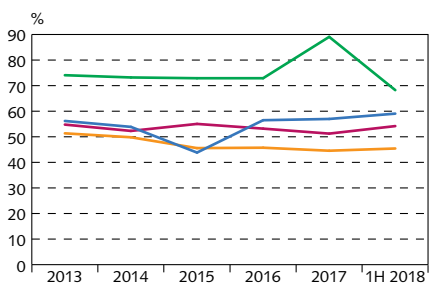
Chart VIII-14
Return on total assets
Average of ratios



— D-SIB
— Nordic banks of similar size as the D-SIB's
— Big Nordic banks
— Big European banks

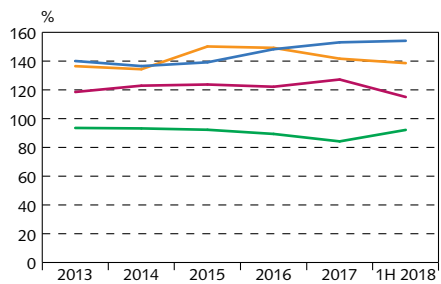
Source: S&P Global Market Intelligence.

Cost-to-income
Average of ratios



— D-SIB
— Nordic banks of similar size as the D-SIB's
— Big Nordic banks
— Big European banks

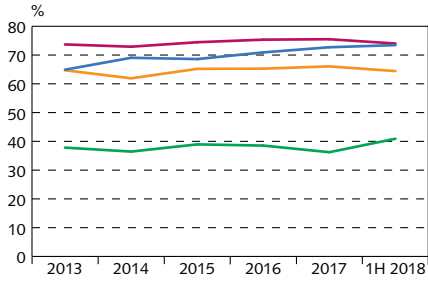
Chart VIII-16
Loans/ deposits
Average of ratios



— D-SIB
— Nordic banks of similar size as the D-SIB's
— Big Nordic banks
— Big European banks

Source: S&P Global Market Intelligence.

Chart VIII-17
Loans/ assets
Average of ratios



- D-SIB
- Nordic banks of similar size as the D-SIB's
- Big Nordic banks
- Big European banks

Source: S&P Global Market Intelligence.

Appendix II

Tables

Table 1 Financial system assets¹

Assets, b.kr	31.12. 2014	31.12. 2015	31.12. 2016	31.12. 2017	30.6. 2018	Change from 31.12. 2017, %
Central Bank of Iceland	957	948	901	765	729	-5
Deposit-taking corporations excluding the Central Bank	2,997	3,197	3,222	3,405	3,599	6
– Commercial banks	2,939	3,175	3,199	3,381	3,574	6
– Savings banks and other deposit-taking corporations	59	22	23	24	25	5
Money market funds	51	93	177	158	146	-8
Non-MMF investment funds ²	437	506	668	686	656	-4
Other financial intermediaries ³	1,328	2,653	1,720	1,407	1,387	-1
– Housing Financing Fund	824	803	787	761	745	-2
Financial auxiliaries	59	41	52	55	48	-12
Insurance corporations	169	171	177	186	198	6
Pension funds	2,935	3,284	3,584	3,945	4,079	3
Total assets	8,932	10,893	10,500	10,606	10,844	2

1. Including the old banks' holding companies from 31 December 2015 onwards. 2. Effective 31 December 2016, specialised investment companies are included with equity, investment, and institutional investment funds. 3. Effective 31 December 2015, after finalisation of composition agreements, the old banks' holding companies are classified as other financial corporations.

Source: Central Bank of Iceland.

Table 2 DMB assets

Assets, b.kr.	31.12. 2014	31.12. 2015	31.12. 2016	31.12. 2017	30.6. 2018	Change from 31.12. 2017, %
Cash and cash balance with Central Bank	139,069	294,599	385,056	378,700	358,246	-5
Deposits in domestic deposit-taking corporations	5,286	2,888	4,176	6,075	945	-84
Deposits in foreign deposit-taking corporations	91,729	99,074	56,299	77,887	105,670	36
Domestic credit	1,980,343	2,072,205	2,187,741	2,407,764	2,555,837	6
Foreign credit	162,477	142,601	132,419	133,857	174,893	31
Domestic marketable bonds and bills	270,133	263,711	206,056	116,001	99,125	-15
Foreign marketable bonds and bills	133,415	99,227	53,590	85,778	107,107	25
Domestic equities and unit shares	144,260	152,631	130,720	114,561	121,707	6
Foreign equities and unit shares	2,786	1,844	2,197	14,276	2,308	-84
Other domestic assets	63,576	62,516	56,906	57,445	61,709	7
Other foreign assets	4,315	5,767	6,703	12,478	11,106	-11
Total	2,997,389	3,197,062	3,221,861	3,404,812	3,598,653	6

Source: Central Bank of Iceland.

Table 3 Other financial corporations' assets

Assets, b.kr.	31.12. 2014	31.12. 2015	31.12. 2016	31.12. 2017	30.6. 2018	Change from 31.12. 2017, %
Cash and cash balance with Central Bank	41,944	38,819	77,712	92,311	79,448	-14
Deposits in domestic deposit-taking corporations	72,135	233,424	73,233	46,283	53,428	15
Deposits in foreign deposit-taking corporations	76,326	616,589	60,734	37,924	49,369	30
Domestic credit	1,013,568	944,089	873,757	798,749	782,534	-2
Foreign credit	7,900	163,189	136,426	64,940	50,082	-23
Domestic marketable bonds and bills	42,401	241,551	217,461	178,233	197,661	11
Foreign marketable bonds and bills	1,076	4,965	3,501	998	741	-26
Domestic equities and unit shares	11,864	221,386	160,510	104,899	96,329	-8
Foreign equities and unit shares	7,603	94,481	68,507	46,380	38,998	-16
Other domestic assets	50,667	68,700	35,655	29,627	29,994	1
Other foreign assets	2,521	25,483	12,323	6,268	8,886	42
Total	1,328,006	2,652,676	1,719,819	1,406,611	1,387,470	-1

Source: Central Bank of Iceland.

Table 4 Pension fund assets

Assets, b.kr.	31.12. 2014	31.12. 2015	31.12. 2016	31.12. 2017	30.6. 2018	Change from 31.12. 2017, %
Deposits in domestic deposit-taking corporations	129,275	151,726	117,992	148,299	168,277	13
Deposits in foreign deposit-taking corporations	6,273	8,605	18,450	20,451	24,110	18
Domestic credit	171,063	175,253	238,182	332,072	378,349	14
Foreign credit	-	80	200	268	291	9
Domestic marketable bonds and bills	1,408,405	1,509,429	1,751,677	1,809,087	1,838,281	2
Foreign marketable bonds and bills	3,269	1,777	1,011	609	609	0
Domestic equities and unit shares	511,373	692,267	681,198	644,009	645,851	0
Foreign equities and unit shares	685,428	724,540	750,092	940,192	998,158	6
Domestic insurance and pension assets	13,291	14,281	17,313	19,217	18,343	-5
Foreign insurance and pension assets	-	35	44	63	47	-26
Other domestic assets	6,695	6,335	7,874	30,321	6,961	-77
Other foreign assets	-	3	1	1	1	0
Total	2,935,072	3,284,331	3,584,033	3,944,589	4,079,278	3

Source: Central Bank of Iceland.

Table 5 Insurance company assets

Assets, b.kr.	31.12. 2014	31.12. 2015	31.12. 2016	31.12. 2017	30.6. 2018	Change from 31.12. 2017, %
Cash and cash balance with Central Bank	-	1,753	2,053	1,122	1,846	65
Deposits in domestic deposit-taking corporations	8,394	7,258	4,452	4,673	5,775	24
Deposits in foreign deposit-taking corporations	68	1,395	208	149	123	-17
Domestic credit	2,880	1,239	1,487	3,449	3,945	14
Foreign credit	1	0	0	0	0	0
Domestic marketable bonds and bills	70,578	66,092	67,595	67,446	65,822	-2
Foreign marketable bonds and bills	4,495	3,999	3,740	4,467	5,097	14
Domestic equities and unit shares	43,745	53,421	60,664	65,696	65,441	0
Foreign equities and unit shares	6,932	6,457	5,945	8,182	7,951	-3
Domestic insurance and pension assets	19,911	17,024	17,869	20,662	28,680	39
Foreign insurance and pension assets	1,521	7,257	7,451	5,815	7,534	30
Other domestic assets	8,771	3,835	4,426	3,284	4,338	32
Other foreign assets	1,269	1,117	1,312	1,546	1,471	-5
Total	168,565	170,847	177,202	186,491	198,025	6

Source: Central Bank of Iceland.

Table 6 D-SIB: Income and expenses¹

<i>Income and expenses, b.kr</i>	31.12. 2014	31.12. 2015	31.12. 2016	31.12. 2017	30.6. 2018	<i>Change from 31.12. 2017, %</i>
<i>Arion Bank hf.</i>						
Operating income	25,527	35,930	27,637	30,526	26,586	-13
Net interest income	11,966	13,175	14,626	15,320	14,521	-5
Net fee and commission income	6,593	7,434	6,747	6,838	8,034	17
Other operating income	6,968	15,321	6,264	8,368	4,031	-52
Operating expenses	12,802	13,029	15,156	16,509	17,368	5
Change in loan values	-2,001	81	-945	-1,289	291	-123
Income tax	3,842	3,756	3,667	4,840	4,028	-17
Net after-tax gain from discontinued operations	6,525	262	0	0	112	-
Profit	17,409	19,326	9,759	10,466	5,011	-52
<i>Íslandsbanki hf.</i>						
Operating income	21,199	22,272	30,161	22,718	22,780	0
Net interest income	13,568	13,550	15,895	15,211	15,342	1
Net fee and commission income	5,672	6,423	6,659	6,813	5,810	-15
Other operating income	1,959	2,299	7,607	694	1,628	135
Operating expenses	11,777	12,466	13,424	13,441	14,301	6
Change in loan values	-5,739	-4,308	-369	-440	-1,934	340
Income tax	4,765	4,248	5,213	4,075	4,077	0
Net after-tax gain from discontinued operations	4,259	924	1,124	2,399	794	-67
Profit	14,655	10,790	13,017	8,041	7,130	-11
<i>Landsbankinn hf.</i>						
Operating income	21,811	27,034	26,307	27,987	27,291	-2
Net interest income	15,240	16,198	17,611	18,176	19,476	7
Net fee and commission income	2,921	3,394	3,894	4,432	3,876	-13
Other operating income	3,650	7,442	4,802	5,379	3,939	-27
Operating expenses	11,787	12,058	12,256	12,048	12,154	1
Change in loan values	-11,446	-1,845	-2,275	-1,301	-1,727	33
Income tax	6,592	4,416	5,028	4,587	5,251	14
Net after-tax gain from discontinued operations	0	0	0	0	0	-
Profit	14,878	12,405	11,298	12,653	11,613	-8
<i>D-SIBs</i>						
Operating income	68,537	85,236	84,105	81,231	76,657	-6
Net interest income	40,774	42,923	48,132	48,707	49,339	1
Net fee and commission income	15,186	17,251	17,300	18,083	17,720	-2
Other operating income	12,577	25,062	18,673	14,441	9,598	-34
Operating expenses	36,366	37,553	40,836	41,998	43,823	4
Change in loan values	-19,186	-6,072	-3,589	-3,030	-3,370	11
Income tax	15,199	12,420	13,908	13,502	13,356	-1
Net after-tax gain from discontinued operations	10,784	1,186	1,124	2,399	906	-62
Profit	46,942	42,521	34,074	31,160	23,754	-24

1. Figures are based on methodology used by SNL Financial. Figures on operating income and expense could differ from those published in the banks' annual accounts.

Source: SNL Financial.

Table 7 D-SIB: Key ratios

%	31.12.2014	31.12.2015	31.12.2016	31.12.2017	30.6.2018
Return on equity	14.1	16.8	8.9	7.4	7.8
Return on assets	2.7	3.5	1.8	1.4	1.4
Expenses as a share of net interest and commission income	68.0	63.0	62.0	61.0	65.7
Expenses as a share of total assets	2.5	2.5	2.6	2.5	2.5
Net interest and commission income as a share of total income	64.0	58.0	81.0	88.0	83.8
Net interest as a share of total assets	2.7	2.9	3.0	2.9	2.9
Capital ratio	28.5	28.2	27.7	25.0	22.6
Foreign exchange as a share of the capital base	6.1	2.2	-0.5	0.5	-0.2
Liquidity coverage ratio (LCR), total	137.4	130.5	163.0	165.9	166.2
Liquidity coverage ratio (LCR), FX	501.8	371	403.8	412.8	345.8
Net stable funding ratio (NSFR), total	104.5	115.4	123.0	122.2	120.7
Net stable funding ratio (NSFR), FX	136.7	136.9	161.8	161.5	166.4

Source: Central Bank of Iceland.

Table 8 Commercial banks' foreign bond issues last 12 months (1 Oct 2017 - 30 Sep 2018)

Issuer	Date	Currency	Amount (b.kr.)	Maturity (years)	Premium on interbank rate, ¹ %
<i>Arion Bank</i>					
	March 2018	EUR	37.0	5.0	1.0 fixed
Total			37.0		
<i>Íslandsbanki</i>					
	November 2017	SEK	9.3	10.0	2
	January 2018	EUR	38.0	6.0	1.125 fixed
	January 2018	SEK	1.3	1.9	0.34 fixed
	February 2018	SEK	1.3	3.0	0.74 fixed
	February 2018	SEK	1.3	3.0	0.6
	May 20 18	SEK	11.9	4.0	0.8
	July 2018	SEK	4.1	3.0	1
	July 2018	SEK	1.2	2.5	1
	August 2018	SEK	2.9	1.5	0.7
	August 2018	SEK	3.5	3.0	1
	August 2018	SEK	5.9	10.0	2.5
Total			80.7		
<i>Landsbankinn</i>					
	November 2017	EUR	36.7	5.5	1.0 fixed
	September 2018	EUR	12.7	10.0	3.125 fixed
Total			49.4		

1. Interest premium on three-month interbank rate in the relevant currency unless otherwise specified.

Source: Nasdaq Iceland.

Table 9 Capital buffers

Capital buffer	FSC recommendation	FME decision/ announcement	Value %	Effective date
Systemic risk buffer, D-SIB	22.1.2016	1.3.2016	3	1.4.2016
Systemic risk buffer, other DMBs	22.1.2016	1.3.2016	2	1.1.2018
	13.4.2018	15.5.2018	3	1.1.2020
Capital buffer on systemically important institutions	22.1.2016	1.3.2016	2	1.4.2016
Countercyclical capital buffer	30.9.2016	1.11.2016	1.25	1.11.2017
	13.4.2018	15.5.2018	1.75	15.5.2019
Capital conservation buffer			2.5	1.1.2017

Sources: Financial Supervisory Authority, Ministry of Finance and Economic Affairs.

Table 10 Indicators pertaining to the international investment position

	Unit	2013	2014	2015	2016	2017	2018
Net IIP ¹	% of GDP	-49.7	-41.6	-4.6	3.0	5.2	9.6
External debt ²	% of GDP	158.6	151.2	116.2	101.4	81.6	79.8
Treasury' FX debt as a share of total debt	%	26.9	27.9	23.0	18.1	12.8	13.5
Commercial banks' foreign-denominated bonds	% of GDP	19.2	16.6	16.9	18.6	19.6	20.9
Current account balance ³	% of GDP	7.2	5.3	5.8	6.5	3.0	2.4
International reserves	% of GDP	24.9	25.6	28.5	32.6	26.3	25.0
International reserves financed in krónur	% of GDP	-4.0	1.0	13.3	23.7	21.1	20.1
International reserves/RAM	%	70.0	80.1	115.9	177.6	156.1	150.1
Terms of trade	Value	77	84	84	87	87.96	85.51
Nominal exchange rate ⁴	Value	210.1	206.6	191.5	161.7	162.85	161.96
Real exchange rate ⁵	Value	81.19	85.7	93.02	109.68	111.49	112.5
Treasury's highest credit rating	Rating	Baa2/BBB	Baa2/BBB	Baa1/BBB+	A3/A-	A2/A	A2/A

1. Based on underlying IIP until 2015. 2. External debt net excluding equity, unit shares, derivatives, and other investment investment. Excluding old banks. 3. Q1/2018 figures based on the previous four quarters. Excluding the effects of the old banks for the entire period; excluding the effects of Actavis in 2012. 4. Trade-weighted exchange rate index — narrow trade basket.* 5. In terms of relative consumer prices.

Sources: Financial information from DMBs and old banks' holding companies, Statistics Iceland, Central Bank of Iceland.

Appendix III

Glossary

Balance on goods	The difference between the value of exported and imported goods.
Balance on income	The difference between revenues and expenses due to primary income and secondary income.
Balance on services	The difference between the value of exported and imported services.
Bill	A debt instrument with a short maturity, generally less than one year.
Bond	A written instrument acknowledging the issuer's unilateral and unconditional obligation to remit a specified monetary payment.
Book value of a loan	The nominal value or outstanding balance of a loan once haircuts or loan loss provisions have been deducted.
Capital base	The sum of Tier 1 and Tier 2 capital after adjusting for deductions; cf. Articles 84-85 of Act no. 161/2002.
Capital buffer	Additional capital required by the Financial Supervisory Authority upon receiving recommendations from the Financial Stability Council. Capital buffers currently in effect are: capital conservation buffer, countercyclical capital buffer, capital buffer for systemically important institutions, and systemic risk buffer.
Calculated return on equity	The profit for a given period as a percentage of average equity over the same period.
Capital ratio	The ratio of the capital base to risk-weighted assets (risk base).
Claim value of a loan	The nominal value or outstanding balance of a loan before deducting discounts or loan loss provisions.
Commercial bank	A financial institution that has been granted an operating licence pursuant to Article 4, Paragraph 1, (1) of the Act on Financial Undertakings, no. 161/2002.
Credit institution (credit undertaking)	A company whose business is to receive deposits or other repayable funds from the public and to grant credit on its own account.
Cross-default nonperforming loans	Based on the cross-default method, all of a given customer's loans are considered to be in default if one loan is 90 days past due, frozen, or deemed unlikely to be repaid.
Current account balance	The sum of the goods, services, and income account balances.
Deposit institutions	Commercial banks and savings banks licenced to accept deposits.
Disposable income	Income net of taxes.
Domestic systemically important banks (D-SIB)	Banks that, due to their size or the nature of their activities, could have a significant impact on the stability of the financial system and the general economy, in the opinion of the Financial Stability Council. Currently, D-SIBs in Iceland are Arion Bank hf., Íslandsbanki hf., and Landsbankinn hf. In addition, the Housing Financing Fund (HFF) is considered a systemically important supervised entity.
Economic outlook index	Corporate expectations concerning economic developments and prospects, based on the Gallup survey carried out among executives from Iceland's 400 largest firms.
Encumbrance ratio	The proportion of a bank's assets that are hypothecated for funding.
Equity	Assets net of liabilities.
Expense ratio	The ratio of operating expense net of the largest irregular items to operating income, excluding loan valuation changes and discontinued operations.

Facility-level default	Based on the facility method, a given customer's loan is considered to be in default if it is past due by 90 days or more.
Financial system	Deposit institutions; miscellaneous credit institutions (including the Housing Financing Fund, HFF); pension funds; insurance companies; mutual, investment, and institutional investment funds; and State credit funds.
Foreign exchange balance	The Central Bank of Iceland sets rules on credit institutions' foreign exchange balance. According to the rules, neither the overall foreign exchange balance nor the open position in individual currencies may be positive or negative by more than 15% of the capital base.
Foreign exchange imbalance	Difference between assets and liabilities in foreign currencies.
Foreign exchange reserves	Foreign assets managed by monetary authorities and considered accessible for direct or indirect funding of an external balance of payments deficit.
Funding rules	The Central Bank of Iceland sets rules on foreign currency funding ratio. The rules are based on the net stable funding ratio (NSFR) developed by the BCBS. The rules are designed to limit the extent to which banks can rely on unstable, short-term foreign funding to finance long-term loans granted in foreign currency. The ratio is subject to a minimum of 100%.
Holding company	A company whose sole objective is to acquire stakes in other companies, administer them, and pay dividends from them without participating directly or indirectly in their operations, albeit with reservations concerning their rights as shareholders.
Indexation imbalance	Difference between indexed assets and indexed liabilities.
Interbank market	A market in which deposit institutions lend money to one another for a period ranging from one day to one year.
International investment position (IIP)	The value of residents' foreign assets and their debt to non-residents. The difference between assets and liabilities is the net international investment position (NIIP), also referred to as the net external position.
Interest burden	Interest payments as a percentage of disposable income.
Interest premium	A premium on a base interest rate such as the interbank rate.
Key Central Bank of Iceland interest rate (policy rate)	The interest rate that is used by the Central Bank in its transactions with credit institutions and is the most important determinant of developments in short-term market interest rates. The interest rate that has the strongest effect on short-term market rates and is therefore considered the Central Bank's key rate may change from time to time.
Liquidity coverage ratio (LCR)	The ratio of high-quality liquid assets to potential net outflows over a 30-day period under stressed conditions; cf. the Rules on Liquidity Coverage Requirements for Credit Institutions no. 266/2017.
Liquidity rules	The Central Bank's liquidity rules are based on the liquidity coverage ratio (LCR) requirements developed by the Basel Committee on Banking Supervision (BCBS) and are largely harmonised with European Union liquidity rules. Credit institutions must always have sufficient high-quality assets to cover potential liquidity needs over the coming 30 days under stressed conditions. The LCR may not fall below 100% for all currencies combined or for all foreign currencies combined.
Loan-to-value (LTV) ratio	A debt as a percentage of the value of the underlying asset (for instance, mortgage debt as a percentage of the value of the underlying real estate).
Net stable funding ratio (NSFR)	The ratio of available stable funding to required stable funding; cf. the Rules on Funding Ratios in Foreign Currencies, no. 1032/2014.
Payment card turnover balance	The difference between foreign nationals' payment card use in Iceland and Icelandic nationals' payment card use abroad.
Real exchange rate	Relative developments in prices or unit labour costs in the home country, on the one hand, and in trading partner countries, on the other, from a specified base year and measured in the same currency. The real exchange rate is generally expressed as an index.

Real wage index	An index showing changes in wages in excess of the price level. It is the ratio of the wage index to the consumer price index (CPI).
Risk-weighted assets	Assets adjusted using risk weights; cf. Article 84(e) of Act no. 161/2002.
Risk-weighted assets (risk base)	The sum of the weighted risks of financial institutions (e.g., credit risk, market risk, operational risk, etc.), cf. Article 84(e) of Act no. 161/2002.
Shadow bank	Definition based on the methodology of the Financial Stability Board (FSB). Shadow banking is defined as credit intermediation involving entities and activities outside the regular banking system. Shadow banks include money market funds, bond funds, equity funds, investment funds, specialized investment companies, securities companies, brokers, specialized funds and other credit institutions. Government operated credit institutions, pension funds, insurance companies and financial auxiliaries are excluded. A detailed discussion on the methodology can be found in the Committee on Shadow Banking's March 2015 report to the Ministry of Finance and Economic Affairs.
Terms of trade	The price of goods and services imports as a percentage of the price of goods and services exports.
The IMF's reserve adequacy metric (RAM)	The reserve adequacy metric (RAM) was developed by the International Monetary Fund (IMF) as a criterion for desirable size of foreign exchange reserves, which can be determined with respect to a number of factors that affect a country's balance of payments and could provide indications of potential capital outflows. The RAM consists of four elements: i. Export revenues: Reflect the risk of contraction in foreign currency accumulation ii. Money holdings: Reflect potential capital flight in connection with liquid assets iii. Foreign short-term liabilities: Reflect the economy's refinancing risk iv. Other foreign debt: Reflects outflows of portfolio assets The RAM is the sum of 30% of current foreign short-term liabilities, 15% of other foreign debt (20% at constant exchange rates), 5% of money holdings (10% at constant exchange rates), and 5% of export revenues (10% at constant exchange rates).
Tier 1 capital base	Common equity after adjusting for deductions (common equity Tier 1, or CET1), plus additional Tier 1 capital.
Trade-weighted exchange rate index (TWI)	The index measuring the average exchange rate in terms of average imports and exports, based on the narrow trade basket.
VIX implied volatility index	The expected volatility of the S&P 500 index according to the pricing of options related to it. It gives an indication of investors' risk appetite or aversion.
Yield	The annualised return that an investor requires on funds invested.
Yield curve	A curve that plots the interest rates, at a set point in time, of bonds with equal credit quality but differing maturity dates.