MONETARY BULLETIN

2013•4

Contents

The objective of the Central Bank of Iceland's monetary policy is to contribute to general economic well-being in Iceland. The Central Bank does so by promoting price stability, which is its main objective. In the joint declaration made by the Government of Iceland and Central Bank of Iceland on 27 March 2001, this is defined as aiming at an average rate of inflation, measured as the 12-month increase in the CPI, of as close to 2½% as possible.

Professional analysis and transparency are prerequisites for credible monetary policy. In publishing *Monetary Bulletin* four times a year, the Central Bank aims to fulfil these principles.

Monetary Bulletin includes a detailed analysis of economic developments and prospects, on which the Monetary Policy Committee's interest rate decisions are based. It also represents a vehicle for the Bank's accountability towards Government authorities and the public.

The framework of monetary policy and its implementation and instruments are described in the chapter entitled "Monetary policy and instruments", on pp. 87-89 of this edition of *Monetary Bulletin*.

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Icelandic letters:

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

Symbols:

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

Statement of the Monetary Policy Committee 6 November 2013

The Monetary Policy Committee (MPC) of the Central Bank of Iceland has decided to keep the Bank's interest rates unchanged.

According to the Bank's forecast, the outlook for 2013 is for somewhat stronger output growth than in the August forecast, or 2.3%, whereas the outlook for the next two years is broadly unchanged. The recovery of the labour market continues with increased strength, with total hours worked rising more this year than in any year since 2007.

After having risen somewhat in the third quarter, inflation has tapered off again. According to the Bank's forecast, the outlook is for gradual disinflation in coming quarters. Inflation will be lower than previously assumed in the near term, but the outlook through 2016 is broadly in line with the previous forecast. Inflation is expected to subside to target towards the end of 2015. Disinflation will therefore be slow and, as before, depend on near-term exchange rate and wage developments.

Iceland's terms of trade have continued to deteriorate for some time, eroding the current account surplus and putting pressure on the exchange rate of the króna. Looking ahead, there is uncertainty about how foreign debt deleveraging, the settlement of the failed banks' estates, and capital account liberalisation will affect the exchange rate.

At present, however, the upcoming wage negotiations are the most important source of uncertainty. As before, the forecast assumes, based on past experience, that wage increases in the forthcoming wage settlements will be larger than is consistent with the inflation target. If wage increases are in line with the forecast, it will probably be necessary to raise the Bank's nominal interest rates, other things being equal, particularly if the margin of spare capacity in the economy continues to narrow. If wages rise in excess of the forecast, it is even more likely that the Bank will raise interest rates. If wage increases are consistent with the inflation target, however, inflation will fall more quickly than is currently forecast and interest rates will be lower than would otherwise be necessary, other things being equal. Fiscal policy will also affect the monetary stance. Therefore, it is important that the final Budget maintain a level of fiscal consolidation at least equivalent to that provided for in the proposal.

The accommodative monetary stance has supported the economic recovery in the recent term. It is still the case that as spare capacity disappears from the economy, it is necessary that slack in monetary policy should disappear as well. The degree to which such normalisation takes place through changes in nominal Central Bank rates will depend on future inflation developments, which in turn will depend on wage developments and exchange rate movements.

Economic and monetary developments and prospects[1]

GDP growth outlook stronger for 2013 but broadly unchanged for the forecast horizon as a whole

The GDP growth outlook for Iceland's main trading partners is broadly unchanged since the publication of the August Monetary Bulletin. *Although the global economic situation remains cloudy, uncertainty has subsided and the probability of a new global recession has diminished from a year ago. Iceland's terms of trade are expected to continue deteriorating, as in previous Central Bank forecasts, but the outlook has improved since August. In Iceland, year-2012 output growth was slightly weaker than previously estimated, or 1.4% instead of 1.6%. In the first half of this year it was considerably stronger than in the August forecast, however, measuring 2.2% instead of remaining unchanged year-on-year. The outlook for 2013 has therefore improved somewhat, with output growth projected at 2.3%, as opposed to 1.9% in the August forecast. The improved outlook is due primarily to a smaller-than-projected contraction in investment. The output growth outlook for the next two years is marginally weaker, however. Output growth is projected at 2.6% in 2014 instead of the 2.8% in the August forecast, and in 2015 it is projected at 2.8% instead of 2.9%. The outlook for the forecast horizon as a whole is therefore similar to the forecast in August. If the forecast materialises, output growth will average 2.4% per year over the forecast horizon, which is close to the 30-year average and above the average for Iceland's main trading partners. The labour market recovery continues and has proven stronger than was forecast in August. Registered seasonally adjusted unemployment measured 4.5% in Q3, while the Statistics Iceland labour market survey indicated a jobless rate of 5.4%. Unemployment has fallen by ½-1 percentage point year-on-year. The employment rate has risen by 2 percentage points over the same period, and total hours worked increased by 5.6%, much more than was forecast in August. The recovery of the labour market is expected to continue, with unemployment falling to just under 4% by 2016. The exchange rate of the króna has held relatively stable since the Central Bank began intervening in the market in the spring. It has fallen in the recent term but has more or less kept pace with the August forecast. Inflation has also developed in line with the August forecast, rising to 4% in Q3. Underlying inflation is somewhat higher, and long-term inflation expectations have remained close to 4%. As a result, some inflationary pressures are still discernible, as can be seen in strong increases in unit labour costs, among other things. Near-term wage developments are highly uncertain, as the existing wage agreements have expired. Assuming that the exchange rate holds steady and some spare capacity remains in the economy, inflation will subside to target during the forecast horizon; however, it will decline slowly because of the excessive wage increases assumed in the forecast. If pay increases are better aligned with the inflation target, the pace of disinflation will be more rapid, other things being equal. Other uncertainties pertain to the strength and durability of the domestic economic recovery, particularly in light of difficulties in quantifying the margin of spare capacity in the economy. A weak recovery in Iceland's main market areas could also prove to be a greater drag on the economy than is assumed in the present forecast.*

I Economic outlook and key uncertainties

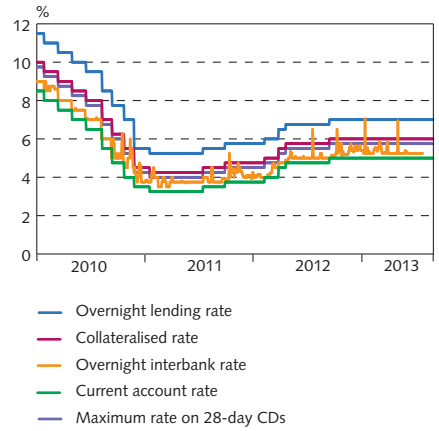
Monetary policy

Central Bank interest rates remain unchanged

The Central Bank of Iceland Monetary Policy Committee (MPC) has held the Bank's interest rates unchanged since raising them by 0.25 percentage points last November. Therefore, prior to the publication of this *Monetary Bulletin*, the current account rate was 5%, the maximum rate on 28-day certificates of deposit (CDs) 5.75%, the seven-day collateralised lending rate 6%, and the overnight lending rate 7%. Demand for Central Bank liquidity facilities is limited due to abundant

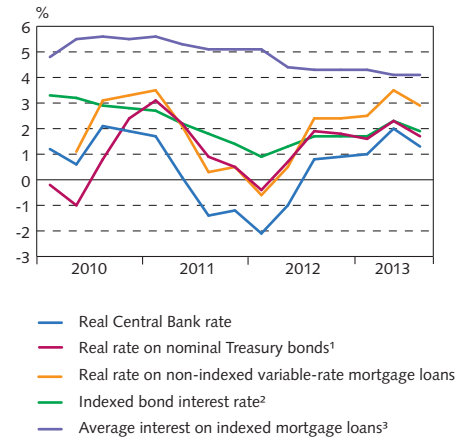
1. The analysis presented in this *Monetary Bulletin* is based on data available in early November.

Chart I-1
Central Bank interest rates
and short-term interbank rates
Daily data 1 January 2010 - 1 November 2013



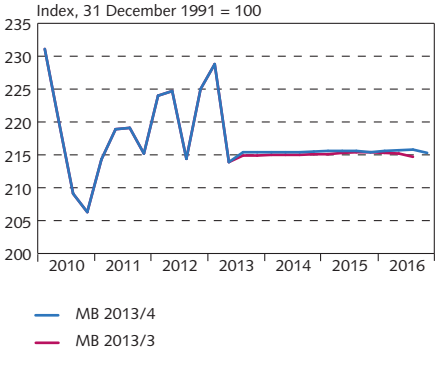
Source: Central Bank of Iceland.

Chart I-2
Real Central Bank interest rate
and real market rates



1. Estimated interest rate from the Treasury bond yield curve. 2. Based on yield curve of indexed Treasury bonds and HFF bonds. 3. Weighted average of lending rates. Fixed rate period for 5 years or more.
Source: Central Bank of Iceland.

Chart I-3
Trade-weighted exchange rate index of
the króna - comparison with MB 2013/3



Source: Central Bank of Iceland.

financial system liquidity; therefore, the Bank's effective policy rate lies close to its deposit rate. Calculating the simple average of the interest rates on financial institutions' deposit accounts with the Central Bank and the maximum rate on 28-day certificates of deposit gives an effective policy rate of about 5.4%. The Bank's interest rates have risen by 1.75 percentage points from the trough in August 2011 and by 0.25 percentage points in the past year. Short-term interbank rates have developed broadly in line with Central Bank rates. They were 5.25% just before this *Monetary Bulletin* went to press and had risen by 0.4 percentage points in the past year. Long-term nominal rates on Treasury bonds have fallen in the past year, however. Market agents appear to expect Central Bank rates to begin rising again in 2014.

Changes in the Bank's real rate have been passed through to the real economy

The Central Bank's real rate is now about 1½%, in terms of both the twelve-month rise in the CPI and the average of various measures of inflation and inflation expectations, and is broadly unchanged since the August *Monetary Bulletin*. It fell this autumn, in line with the spike in inflation, and is currently up by almost 1 percentage point from a year ago. As Chart I-2 shows, changes in the Bank's real rate have by and large been passed through to other real rates, although the effects are least discernible in indexed rates on new mortgages. Asset prices have continued to rise, and private sector financial conditions are improving. Companies' position varies, however, depending on whether they operate in the tradable or non-tradable sector. Interest rate developments and private sector financial conditions are discussed in greater detail in Section III.

Króna depreciated in Q3, in line with the August forecast

The króna has remained relatively stable since the Central Bank stepped up its intervention in the foreign exchange market in May. The Bank has both purchased and sold foreign currency during this period. The króna has slid in the recent term, however, and in trade-weighted terms it was approximately 2% weaker as this *Monetary Bulletin* went to press than it was just before the August issue. The decline is due primarily to the continued effects of resident entities' accumulation of foreign currency for foreign debt service, the continued erosion in terms of trade (see also Box II-1), and diminishing foreign currency inflows from the summer tourist season. The króna is nonetheless approximately 3% stronger in trade-weighted terms than in November 2012.

In Q3, the trade-weighted exchange rate index (TWI) was almost exactly as projected in August. As before, the Bank's baseline forecast is based on the technical assumption that throughout the forecast horizon, the exchange rate of the króna will remain broadly stable at the level prevailing when the forecast was prepared. As a result, it is assumed that the TWI will be about 215 points through the forecast horizon, which is virtually unchanged from the August forecast. As is discussed later in this section, this assumption is shrouded in uncertainty. Further discussion of developments in the exchange rate and the foreign exchange market can be found in Sections II and III.

Highlights of the Central Bank's baseline forecast

Global output growth gains momentum, though uncertainty remains

As was forecast in August, output growth has gained strength among Iceland's main trading partners as the year has progressed. In line with the August forecast, output growth in trading partner countries is projected to average just under 1% this year, just under 2% in 2014, and just over 2% in 2015-2016. There was some market unrest this summer and autumn due to uncertainty in the US, centring on the future of the Federal Reserve Bank's bond purchase programme and dispute about the fiscal budget and the debt ceiling. The situation has eased again, and in general, uncertainty about the global output growth outlook has abated, as has the risk of a global recession (see below). The outlook remains uncertain, however, and the risk to the output growth outlook is tilted to the downside.

Terms of trade to deteriorate less markedly this year, but weaker export growth expected

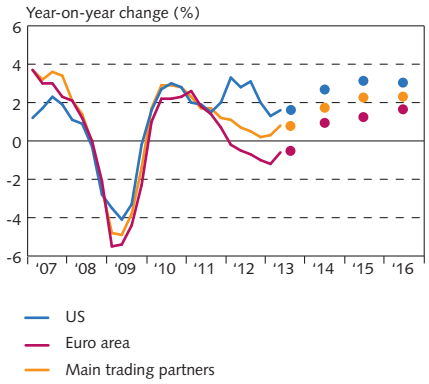
Iceland's terms of trade have deteriorated almost without interruption for about six years and are projected to be nearly 17% poorer this year than in 2007, owing to the combined effects of weak global output growth and adverse developments in the price of its main export products, particularly marine products (see also Box II-1). The outlook for developments in terms of trade has improved since August, but it is still assumed that they will deteriorate during the forecast horizon. They are expected to be about 2% poorer in 2016 than in 2013.

Although the outlook for demand among Iceland's trading partners has changed little since August, it appears that goods exports will be somewhat stronger than previously assumed, due largely to increased marine product export values. The outlook for next year has improved as well. Because of weaker growth in services exports year-to-date, the outlook is for exports of goods and services to grow more slowly this year than was forecast in August; however, the outlook for 2014 and 2015 has improved. Even though services exports will not be as strong this year as was previously projected, 2013 looks set to be yet another record year, with a roughly 50% increase in services exports since 2008. At the same time, goods exports have grown broadly in line with trading partners' imports. Terms of trade for goods have deteriorated sharply, while terms of trade for services are more or less unchanged. Further discussion of the global economy, exports, and external conditions can be found in Section II.

Outlook for shrinking trade surplus

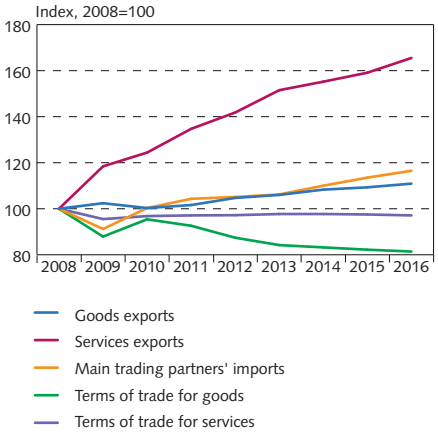
The outlook is for the surplus on goods and services trade to be just over 6% of GDP in 2013, as was forecast in August. Although the surplus in the following years is expected to be larger than was projected in August, it is still expected to shrink over the course of the forecast horizon. The underlying current account surplus will also shrink in line with reduced gross national saving and will flip from a surplus of just

Chart I-4
Global output growth[1]



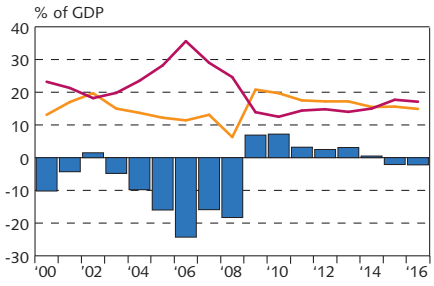
1. Dots indicate Consensus Forecasts and Global Insight projections for 2013-2016.
Sources: Consensus Forecasts, Macrobond, OECD, Central Bank of Iceland.

Chart I-5
External trade in the wake of the financial crisis[1]



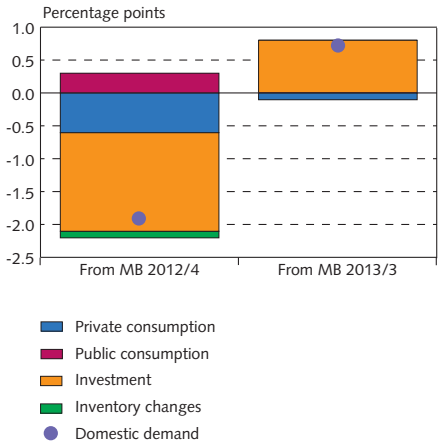
1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-6
Current account balance 2000-2016[1]



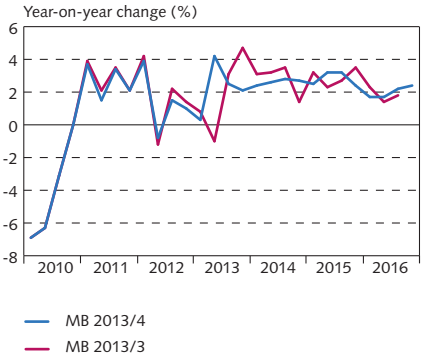
1. Current transfers, net included in balance on income. Central Bank baseline forecast 2013-2016. 2. Adjusted for the calculated income and expenses of DMBs in winding-up proceedings, the effects of the settlement of their estates, and Actavis until 2012.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-7
Contribution of expenditure items to changes in outlook for domestic demand 2013



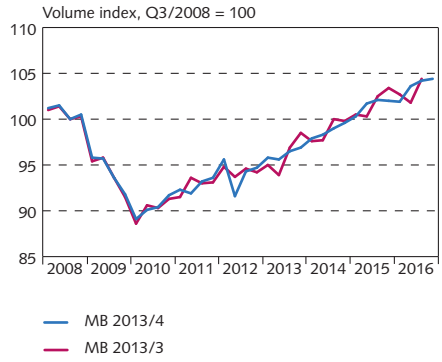
Source: Central Bank of Iceland.

Chart I-8
GDP growth – comparison with MB 2013/3



Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-9
Seasonally adjusted GDP – comparison with MB 2013/3[1]



1. Seasonally adjusted Central Bank data.
Sources: Statistics Iceland, Central Bank of Iceland.

over 3% this year to a deficit of about 2% by 2015, which is nonetheless smaller than was forecast in August. The external balance is discussed further in Section VII.

Domestic demand growth stronger in 2013 but broadly unchanged for the forecast horizon as a whole

Revised year-2012 national accounts figures from Statistics Iceland indicate that domestic demand growth was somewhat weaker than previous figures had indicated. The change is due primarily to weaker private consumption growth and a more pronounced contraction in public consumption, although it was offset to a degree by stronger growth in investment. However, the outlook is for domestic demand to grow by 0.7% this year instead of remaining unchanged, as in the August forecast. Investment is projected to contract less this year than was forecast in August, while the outlook for public and private consumption is broadly unchanged. Domestic demand growth will nonetheless remain somewhat weaker than was projected last November, due primarily to considerably weaker investment growth than in that forecast.

With increased investment, including in the energy-intensive sector, demand is expected to gain momentum next year, rising to almost 3%, which is in line with the August forecast. The 5% growth projected for 2015 is also due primarily to energy-intensive investment, which will taper off in 2016, causing a slowdown in domestic demand growth. As in previous Central Bank forecasts, increased investment and continued private consumption growth are the main drivers of the recovery of demand. As is discussed later in this section, the outlook for business investment – energy-intensive investment in particular – is somewhat uncertain. Further discussion of private and public sector demand can be found in Sections IV and V.

GDP growth outlook for 2013 revised upwards since August …

According to revised figures from Statistics Iceland, output growth measured 1.4% in 2012, as opposed to the previous estimate of 1.6%. In the Bank's August forecast, it was assumed that output growth would lose pace in the first half of this year and then resume as the year progressed. Preliminary figures from Statistics Iceland indicate, however, that H1 growth was well above the Bank's forecast, or 2.2%, due primarily to increased investment and weaker import growth. As a result, it is now expected to be more even throughout the year, averaging 2.3% for the year as a whole, as opposed to 1.9% in the August forecast. The increase in growth is due primarily to stronger investment, as other expenditure items and the contribution from net trade are more or less unchanged.

… but the outlook for coming years is slightly poorer

The output growth outlook for the next two years is slightly weaker than in the August forecast. Growth is projected at 2.6% in 2014, as opposed to the previous forecast of 2.8%, and 2.8% in 2015, instead of 2.9%. According to the Bank's forecast for 2016, now published for the first time, output growth will lose pace somewhat during that year,

owing to a marked slowdown in energy-intensive investment. Growth is projected at 2% for the year as a whole. If the forecast materialises, output growth will average 2.4% over the forecast horizon, which is close to the 30-year average. As in previous Central Bank forecasts, domestic demand is the main driver of growth.

GDP broadly in line with the August forecast at the end of the forecast horizon

GDP has grown by over 7% since bottoming out in Q1/2010 but is still about 6% below the level in autumn 2008, when the crisis struck.[2] If the Bank's forecast materialises, it will have risen by about 9% from the estimated Q2/2013 level by the end of the forecast horizon (Q4/2016), and almost 3% above the previous peak in autumn 2008.[3] At the end of the forecast horizon, GDP is estimated to be broadly in line with the August forecast, as the overall output growth outlook is more or less unchanged.

Output growth in Iceland forecast to outpace trading partner countries

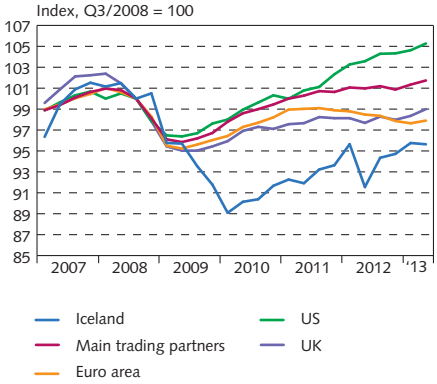
Iceland's post-crisis economic contraction was more severe than that in other industrialised countries and more severe than the average among trading partners, which is unsurprising in view of the imbalances that had built up during the prelude to the crisis. It is important to bear in mind that Iceland sustained both a systemic banking crisis and a severe currency crisis. Research findings indicate that the economic contraction following a twin banking and currency crisis is, on average, up to three times deeper and about twice as long as that following a conventional banking crisis (see, for example, Box I-2 in *Monetary Bulletin* 2012/4).

Since the contraction reached its trough in early 2010, Iceland's GDP has grown somewhat more than the average among trading partner countries and appears set to continue in this vein throughout the forecast horizon (see Chart I-11). Further discussion of Iceland's GDP growth and outlook can be found in Section IV.

Robust labour market recovery to continue

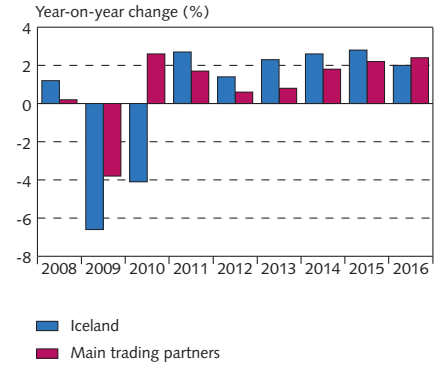
Unemployment has continued to fall in line with the August forecast. Seasonally adjusted unemployment as registered by the Directorate of Labour (DoL) measured 4.5% in Q3, while the Statistics Iceland labour market survey indicated a jobless rate of 5.4%. Unemployment has fallen by ½-1 percentage point year-on-year, and by about 2½-4 percentage points from its post-crisis peak. The number of jobs was up 4.3% in Q3, and the employment rate increased by 2 percent-

Chart I-10
Post-crisis developments in GDP[1]



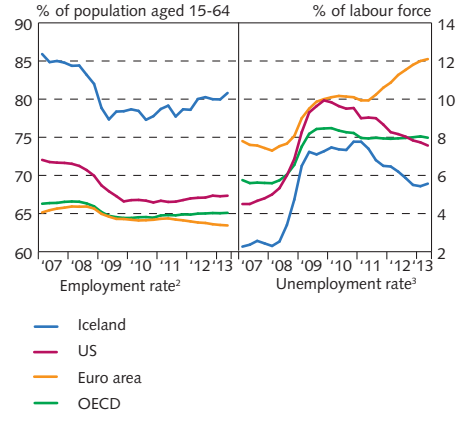
1. Seasonally adjusted data for Iceland are from the Central Bank of Iceland.
Sources: OECD, Central Bank of Iceland.

Chart I-11
Output growth in Iceland and main trading partner countries 2008-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-12
Employment rate and unemployment[1]
Q1/2007 - Q2/2013

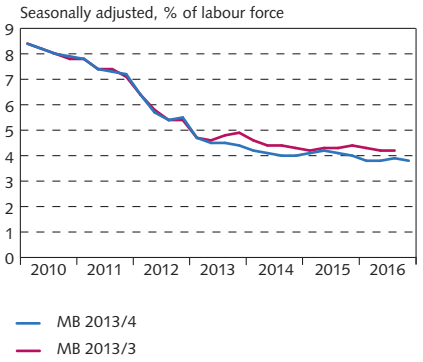


1. Seasonally adjusted figures. 2. Number of employed persons as a share of the population aged 15-64. 3. Number of unemployed as a share of the labour force (harmonised OECD measure).
Source: OECD.

2. This refers to seasonally adjusted figures based on Central Bank estimates. As is discussed in Box IV-1 in *Monetary Bulletin* 2012/4, Statistics Iceland's method for seasonal adjustment does not appear suitable for interpreting intrayear economic developments; therefore, the Central Bank chooses to use other methods.

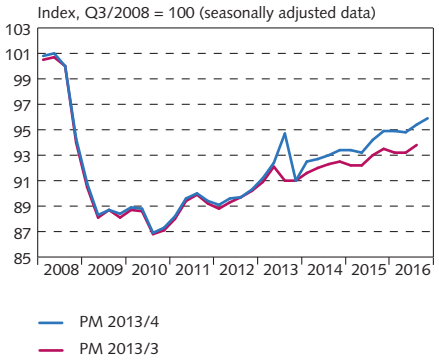
3. GDP will be weaker, however, than it would have been had it grown in line with long-term trend growth before the crisis. In that sense, a portion of GDP has been lost permanently in the financial crisis. In this context, however, it must be borne in mind that output had risen far above sustainable levels during the pre-crisis boom. As such, a portion of the loss reflects an inevitable adjustment to pre-crisis overheating. For further discussion, see Box IV-1 in *Monetary Bulletin* 2011/4.

Chart I-13
Unemployment – comparison with MB 2013/3



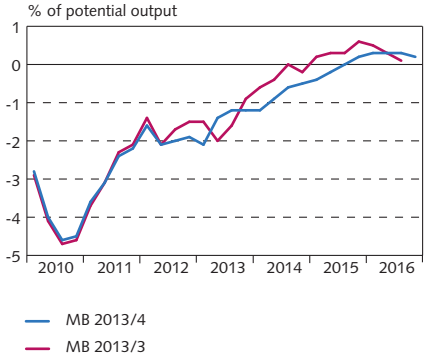
Sources: Directorate of Labour, Central Bank of Iceland.

Chart I-14
Total hours worked – comparison with MB 2013/3



Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-15
Output gap – comparison with MB 2013/3



Source: Central Bank of Iceland.

age points. Total hours worked rose by 5.6% year-on-year, outpacing the August forecast. This was the third quarter in a row to see a greater-than-forecast increase in total hours worked. The recovery of the domestic labour market therefore appears stronger than was anticipated in August. As Chart I-12 shows, Iceland's recovery has also been stronger than that in most other industrialised countries: the employment rate is higher and has risen more rapidly, and at the same time unemployment has remained lower and has fallen by more.

Most labour market indicators imply that the labour market recovery will continue. As a result, growth in total hours worked is projected to outpace previous forecasts and to continue at a quickened pace throughout the forecast horizon. Unemployment will also be lower throughout the forecast horizon than was projected in August. Seasonally adjusted registered unemployment will be about 4% in Q4/2014 and just under 4% in Q4/2016.

Average underlying productivity growth is estimated at about 1½% per year during the forecast horizon. This is somewhat weaker than in earlier recovery periods but close to the 30-year average. According to the forecast, however, it will not suffice to contain the cost effects of wage increases during the forecast horizon. As in the Bank's previous forecasts, it is assumed that the wage increases in the upcoming settlements will not be in line with the inflation target. This assumption is based on experience of recent wage settlements. As is discussed later in this section, more modest wage increases would be conducive to lower inflation and a more rapid economic recovery, other things being equal. Further discussion of the labour market can be found in Section VI.

Output slack appears slightly more pronounced than previously estimated

The slack in the economy is estimated to narrow by just under a percentage point this year, to just over 1% of potential output. It is slightly larger than was forecast in August but, as was projected then, it is expected to continue to narrow and then disappear by the second half of 2015, somewhat later than previously thought. The current forecast assumes that, although growth in potential output is recovering gradually after the financial crisis, it will be below long-term trend growth for the majority of the forecast horizon. As is discussed later in this section, this assumption is highly uncertain. Further discussion of potential output and output slack can be found in Section IV.

Excessive wage increases will impede disinflation

In line with the August forecast, inflation measured 4% in Q3/2013, after having risen from 3.3% in Q2. The increase is due primarily to adverse base effects from the previous year. Inflation measured 3.6% in October and is expected to taper off again in Q4. Core inflation, which excludes various volatile items, also declined in October but remains somewhat above CPI inflation. Inflation expectations have also proven persistent. Therefore, some inflationary pressure remains, and the disinflation process will therefore be a slow one if wages rise at the rate assumed in the forecast. Some spare capacity remains

in the economy, however, and as in the August forecast, this spare capacity and the relative stability of the króna should contribute to disinflation beginning in early 2014 and the attainment of the inflation target late in 2015. A number of the premises of the forecast are subject to considerable uncertainty, which is discussed below. Further discussion of global price level developments can be found in Section II, and developments in domestic inflation and inflation expectations are discussed in Section VIII.

Key uncertainties

The baseline forecast reflects an assessment of the most likely economic developments over the next three years. It is based on forecasts and assumptions concerning developments in the external environment and the effects of those developments on the domestic economy. The forecast is also based on assumptions about how individual markets function and how monetary policy is transmitted to the real economy. All of these factors are subject to uncertainty. The outlook for economic developments, whether domestic or international, could easily deviate from the baseline scenario. The following is a discussion of several important uncertainties in the baseline forecast.

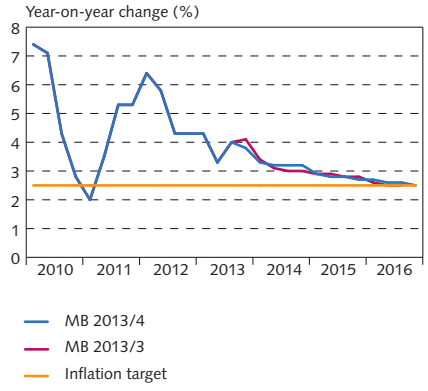
Global economic developments

According to the baseline forecast, a gradual recovery is ahead in the global economy, with heavy debt burdens and vulnerabilities in the international financial system continuing to impede GDP growth in developed countries. The likelihood of a new global recession has diminished, however, as has the uncertainty about the global output growth outlook, as can be seen in declining dispersion in international growth forecasts and reduced stock price volatility (Chart I-17) and reduced uncertainty in the International Monetary Fund's (IMF) output forecasts (Chart I-18). The risk of a setback remains, however, as recent output growth figures from developed countries have repeatedly disappointed (Chart I-18) and output growth forecasts have been revised downwards (Chart I-19). Weaker global output growth, particularly among Iceland's main trading partners, could undermine export growth in Iceland, further erode Iceland's terms of trade, and obstruct access to foreign capital markets. Under such circumstances, Iceland's economic recovery would be weaker than is assumed in the baseline forecast.

Exchange rate of the króna

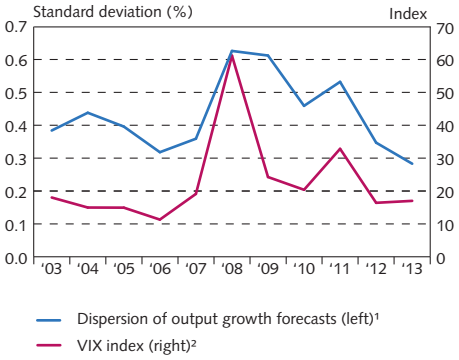
In general, it has proven extremely difficult to forecast the exchange rate of the króna. It is uncertain how domestic parties' access to foreign credit markets will develop in the near term and whether their rapid deleveraging of foreign debt will continue. Developments in the global economy are also uncertain, which could affect the exchange rate. Another uncertainty concerns how and when the failed banks' estates will be settled and, as a result, when the capital controls can be lifted. Under such conditions, forecasting the exchange rate involves perhaps even more uncertainty than usual. As a result, the baseline forecast is based on the technical assumption that throughout the

Chart I-16
Inflation – comparison with MB 2013/3



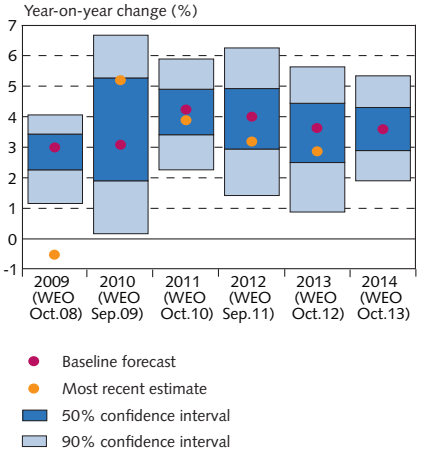
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-17
Dispersion of output growth forecasts and implied stock market volatility



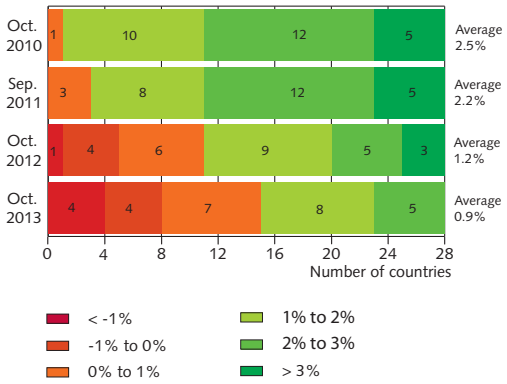
1. Weighted average standard deviation in output growth forecasts of forecasters compiled by Consensus Forecasts for the G7 (weighted with PPP-adjusted GDP). Each year's October forecast for the following year. 2. Chicago Board Option Exchange S&P 500 Implied Volatility Index. October average for each year.
Sources: Consensus Forecasts, Macrobond.

Chart I-18
Confidence interval of IMF output growth forecasts¹



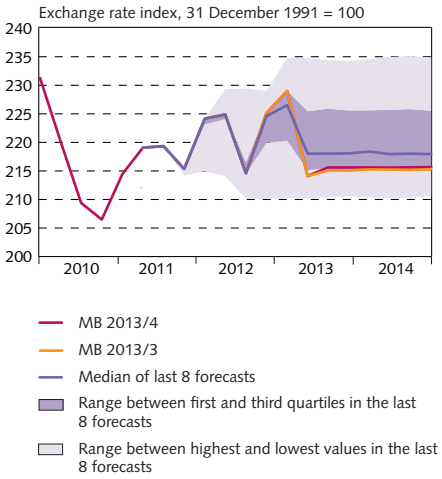
1. IMF autumn forecasts for global output growth in the following year.
Sources: IMF, World Economic Outlook (WEO), various issues.

Chart I-19
IMF forecast of average GDP growth in 28 developed countries, 2012-2014



Sources: IMF, World Economic Outlook (WEO), various issues.

Chart I-20
Exchange rate assumptions in *Monetary Bulletin* baseline forecasts – range of last eight forecasts[1]



1. The chart shows the exchange rate assumptions in the baseline forecasts in *Monetary Bulletin* 2011/4-2013/4 for the period of the oldest forecast (through Q4/2014).
Source: Central Bank of Iceland.

forecast horizon, the exchange rate of the króna will remain broadly stable at the level prevailing when the forecast was prepared. As experience has shown, the outlook can easily change in a short period of time (see Chart I-20). Other things being equal, the continued erosion of terms of trade will also put pressure on the exchange rate (Iceland's terms of trade are discussed in Box II-1). The results of the upcoming wage settlements and Landsbankinn's refinancing of its foreign-denominated debt to the former Landsbanki Íslands could also affect exchange rate developments. As a result, the exchange rate outlook is highly uncertain. The outlook will depend heavily on current account developments and the repayment profile of foreign debt. For the short term, however, the Central Bank's new intervention policy reduces exchange rate uncertainty, although that policy will also be affected by the above-mentioned factors.

Public sector finances

The current fiscal budget proposal assumes a small surplus on Treasury operations in 2014 and continued reduction of Treasury debt relative to GDP (see Box V-1). The surplus is smaller than previous estimates assumed and is based to a degree on premises that are fragile and unclear. By the same token, it is not certain how the Government's intentions relating to general write-downs of indexed household debt will be put into action and whether and how such action will affect Treasury finances. Another unresolved issue centres on the Housing Financing Fund (HFF). As a consequence, the outlook for public sector finances is highly uncertain, and there is the risk that key assumptions will not be borne out. In view of Iceland's high public debt level, a poorer public sector performance could have widespread negative effects and could delay capital account liberalisation or exacerbate the risk associated with it. The Central Bank could be forced to respond to a laxer fiscal stance with a tighter monetary stance in order to prevent inflation from rising further. The economic recovery could therefore proceed more slowly than in the baseline forecast.

Domestic wage developments

Based on the experience of recent years, the Bank's baseline forecast assumes that upcoming wage increases will be larger than is consistent with the inflation target. Sufficiently tight monetary policy, a relatively stable exchange rate, and the presence of some spare capacity in the economy are conducive to bringing inflation back towards the target as the forecast horizon progresses. This will happen slowly, however, and could be disrupted entirely in view of the uncertainty surrounding the upcoming wage settlements. If general wage costs rise in line with the 1990-2012 average, for instance, inflation will rise considerably higher than is assumed in the baseline forecast (see Chart I-21), both because firms will pass higher costs through to prices and through a depreciation of the króna. The domestic economic recovery would then be more muted as well, both because labour demand would be weaker than in the baseline forecast and because the Central Bank would have to raise its interest rates to combat additional inflationary

pressures. Moreover, business investment would be reduced and output growth slower. If wage increases are more closely in line with the inflation target, however, inflation will be lower, the króna stronger, business investment and labour demand stronger, and the domestic recovery more robust.

The slack in the economy

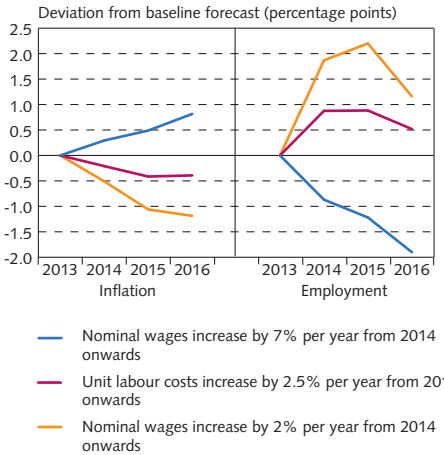
According to the baseline forecast, there is still some spare capacity in the economy, and it is not expected to disappear entirely until the latter half of 2015. Inflation will therefore subside to the target even though the forecast provides for continuing output growth and declining unemployment. The size of the slack in the economy is unclear, however, as is the resistance it provides against inflationary pressures. This uncertainty is especially pronounced in the wake of a deep financial crisis like that in Iceland because of the difficulty in estimating how much potential output has been lost in the wake of the crisis. The effects on potential output of the shift of the factors of production from non-tradable sectors to the tradable sector are also highly uncertain (See Box IV-2). The large pay increases in the 2011 wage settlements and the persistent inflationary pressures since that time could indicate that the slack in the economy is overestimated in the baseline forecast. A recent assessment of the equilibrium unemployment level supports this hypothesis (Chart I-22). According to this assessment, it is possible that the slack in the economy had perhaps disappeared by H2/2011 or, very probably, H2/2012. If this is correct, underlying inflationary pressures are underestimated in the baseline forecast.

The outlook for business investment

According to the baseline forecast, business investment will continue to grow in coming years, as the investment-to-GDP ratio is close to an all-time low. This projection is quite uncertain, however. Many firms' indebtedness cuts into their capacity to invest.[4] On the other hand, companies' expectations of improvements in their performance in the near future indicate that their willingness and ability to invest is underestimated (see Chart I-23). The projected increase in business investment is also based on the assumption that plans for investment in energy-intensive industry and energy procurement – such as the construction of the Helguvík aluminium smelter and the silicon plant at Bakki – will be realised. Financing is uncertain, however, as is the outlook on the global aluminium market. Plans related to these development projects have repeatedly been postponed in the Bank's baseline forecasts. If they do not materialise during the forecast horizon, investment – and therefore output growth – will be weaker than in the baseline forecast (see Chart I-24): other things being equal, investment relative to GDP would be about 2-3 percentage points less than in the baseline forecast in 2015, and GDP would be about 1% less.

4. See, for example, *Financial Stability* 2013/2 and Competition Authority, "Are we entering a lost decade?", *Competition Authority Report* no. 3/2013.

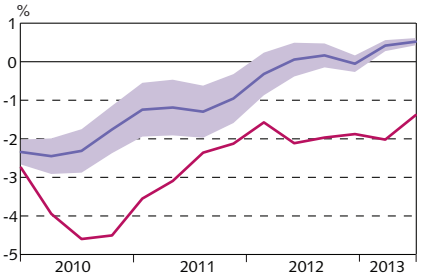
Chart I-21
Inflation and employment with different wage scenarios[1]



Nominal wages increase by 7% per year from 2014 onwards
Unit labour costs increase by 2.5% per year from 2014 onwards
Nominal wages increase by 2% per year from 2014 onwards

1. Deviation in twelve-month inflation and annual growth in total hours worked from the baseline forecast (average of various Central Bank models).
Source: Central Bank of Iceland.

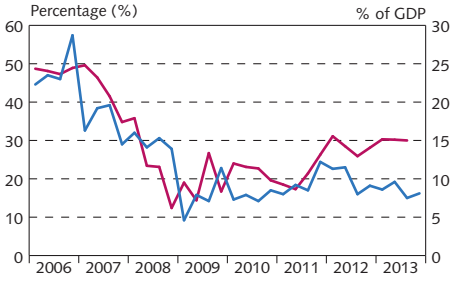
Chart I-22
Various measures of spare capacity in the economy



Output gap (% of potential output)
Average of various estimates of the slack in the labour market (% of labour force)
Range of different estimates of the slack in the labour market[1]

1. Difference between registered unemployment and estimated equilibrium unemployment.
Sources: Bjarni G. Einarsson and Jósef Sigurðsson (2013), "How 'natural' is the natural rate? Unemployment hysteresis in Iceland". Central Bank of Iceland *Working Paper* no. 64, Directorate of Labour, Central Bank of Iceland.

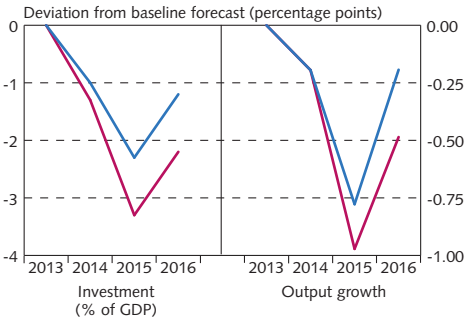
Chart I-23
Business investment and indications of firms' profit expectations



Business investment as % of GDP (right)
Percentage of firms that expect their EBITDA to rise in the next 6 months (left)

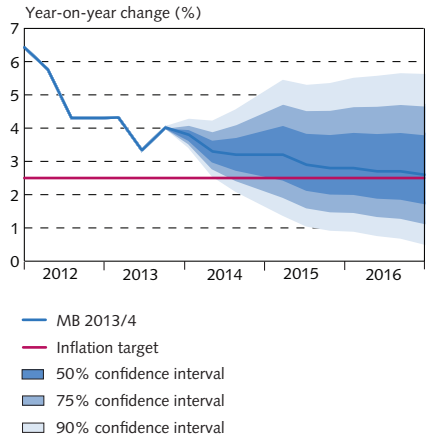
Sources: Capacent Gallup, Statistics Iceland, Central Bank of Iceland.

Chart I-24
Output growth and investment based on various energy-intensive investment scenarios[1]



1. Deviation of accumulated annual output growth and investment-to-GDP ratio from the baseline forecast.
Source: Central Bank of Iceland.

Chart I-25
Inflation forecast and confidence intervals



Sources: Statistics Iceland, Central Bank of Iceland.

Inflation outlook

All of the uncertainties described above create uncertainty about the inflation outlook. For example, if the króna is weaker or wage increases larger than in the baseline forecast, there is the risk that the inflation outlook in the forecast or the assumptions concerning the Central Bank interest rate level that will suffice to bring inflation back to target are too optimistic.[5] The same is true if the level of fiscal consolidation is overestimated in the baseline forecast or if the slack in the economy proves to be less than is currently thought. The risk that underlying inflationary pressures are underestimated is also greater than it would be otherwise because long-term inflation expectations appear poorly anchored. If the global economic recovery proves weaker than is assumed in the baseline forecast, however, economic activity in Iceland will be weaker and inflationary pressures correspondingly less. The same applies if a weaker global economic recovery also entails larger declines in global oil and commodity prices, at least insofar as the króna does not weaken as a result. Domestic inflationary pressures could also prove less pronounced than in the baseline forecast if pay increases in the upcoming wage settlements are better aligned with the inflation target or if the domestic economic recovery is weaker; for instance, if energy-intensive investment is weaker than is assumed in the forecast.

The confidence intervals for the inflation forecast are shown in Chart I-25. The shaded areas show the 50%, 75%, and 90% probability distribution of the forecast (the methodology used for the calculations is described in Appendix 3 in *Monetary Bulletin* 2005/1). The level of uncertainty is considered similar to that in previous Central Bank forecasts. As before, it is considered more likely that inflation has been underforecast than overforecast, but this, too, is unusually uncertain at the present juncture.

5. The baseline forecast is based on the assumption that monetary policy will be applied so as to ensure that the inflation target is reached within the forecast horizon.

II External conditions and exports

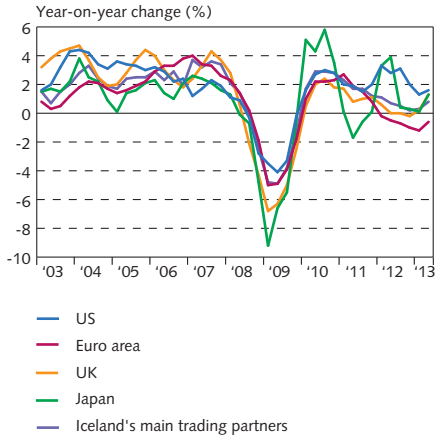
The economic recovery in Iceland's main trading partner countries appears to have firmed up at mid-year, after a period of waning growth. Headwinds remain, however, and the recovery is fragile. Unrest mounted in global financial markets early this summer, but concerns related to the fiscal debate in the US in October did not appear to have moved financial markets to a significant degree by the time a resolution was achieved. Growth rates in emerging economies have been disappointing, but the outlook for output growth in Iceland's trading partners is similar to that in August. While uncertainty remains, it is generally considered to have diminished. Inflation has continued to decline in Iceland's trading partner countries, and the inflation outlook is virtually unchanged. Terms of trade are still expected to deteriorate in 2013, albeit somewhat less than was forecast in August, owing primarily to less marked declines in aluminium prices. Expectations concerning trading partner countries' imports are broadly unchanged from the August forecast; however, the outlook for Iceland's goods exports is for somewhat stronger growth this year, as marine export volumes are considerably greater than previously projected. The outlook for goods and services exports has deteriorated for this year but has improved for the forecast horizon as a whole.

Slow recovery ahead, but the outlook remains uncertain …

An economic turnaround appears to have occurred in Iceland's main trading partner countries in Q2, with most of them recording increased output growth. The contraction in the euro area ended and the economic recovery gained momentum in core countries, while peripheral countries remain weak. The UK recorded strong output growth, and the economic recovery there appears to be relatively well-grounded. Output growth figures for the US were revised sharply upwards in Q2, and expectations of relatively strong near-term growth are intact. The fourth quarter could see a setback, however, due to the government shutdown in October, following fiscal budget disputes and uncertainty about the debt ceiling. Growth has lost pace in China recently, but the most recent indicators imply that it will be stronger than previously expected, albeit not as robust as in recent years. On the whole, output growth has been below expectations in emerging countries this year. Several of them were adversely affected by the unrest in global financial markets this spring (discussed in greater detail below), when sharp capital outflows undermined their currency exchange rates. The currency depreciation can be expected to support exports, however, and growth should regain strength as the year progresses.

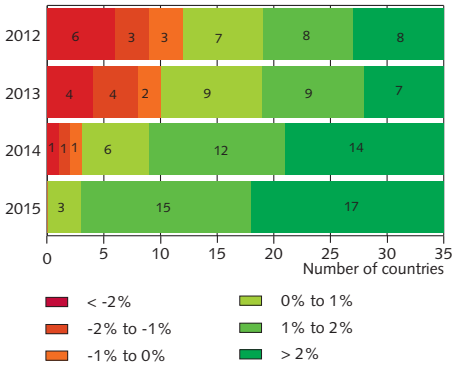
Most indicators for the euro area and the US that have appeared since the publication of the August *Monetary Bulletin* have exceeded market expectations. At the same time, indicators for emerging economies have been broadly as expected after having been below expectations for some time. According to the recently published International Monetary Fund (IMF) forecast, output growth will measure less than 3% in all industrialised countries this year, and the number of countries where a contraction is expected will decline very little from a

Chart II-1
GDP growth in Iceland's main trading partners and selected industrialised countries
Real GDP growth Q1/2003 - Q2/2013



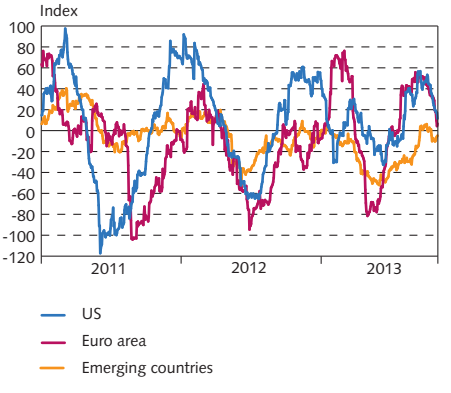
Sources: Macrobond, Central Bank of Iceland.

Chart II-2
Distribution of GDP growth among 35 industrialised countries



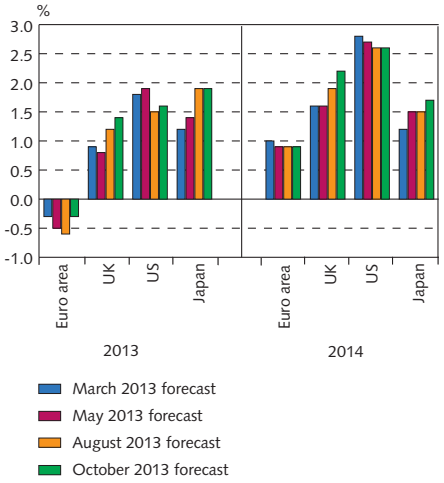
Source: IMF.

Chart II-3
Economic surprise index[1]
Daily data 1 January 2011 - 1 November 2013



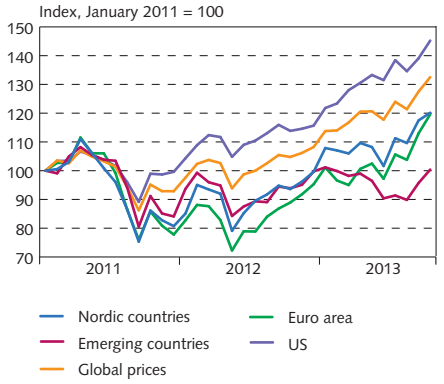
1. When the index is lower than 0, the indicators are more negative than expected; when the index is higher than 0, the indicators are more positive than expected. The index does not imply that the indicators are positive or negative.
Source: Macrobond.

Chart II-4
GDP forecasts for 2013 and 2014[1]



1. Based on monthly forecasts from 250 forecasting agencies which are weighted together.
Source: Consensus Forecasts.

Chart II-5
Equity prices in selected markets[1]
January 2011 - October 2013



1. Monthly averages.
Source: Macrobond.

Chart II-6
Credit growth in the US and the euro area[1]
Q1/2006 - Q2/2013

1. Non-financial companies and households.
Source: IMF.

year ago. The forecast assumes that growth will pick up in 2014 in all industrialised countries except Japan, and that it will continue to rise in coming years in most of them. Heavy debt burdens and weaknesses in the global financial system are still expected to be a drag on output growth, however, particularly in industrialised countries.

... and weak growth is forecast for Iceland's main trading partners

The forecast from Consensus Forecasts (CF) is similar to that from the IMF. According to the CF projection, output growth among Iceland's trading partners will average 0.8%, which is unchanged since the last *Monetary Bulletin*. Nonetheless, the forecast is slightly poorer for most of Iceland's trading partners apart from the euro area and the UK. Output growth in Iceland's trading partners is forecast at 1.8% in 2014 and just over 2% per year in 2015-2016, which is unchanged since August but somewhat weaker than the forecast a year ago. Dispersion in global output growth forecasts has diminished, and uncertainty and the risk of a global contraction are generally considered to have abated (see also Section I). Considerable uncertainty remains, however, and the risk to the output growth outlook is thought to be tilted to the downside.

Global financial market unrest has diminished

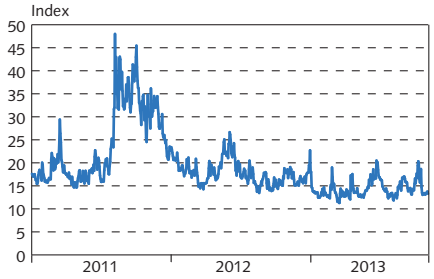
Global financial markets were shaken this spring and early summer by fears that the US Federal Reserve Bank would start tapering off its bond purchasing programme earlier than previously anticipated: interest rates rose, asset prices sagged, many emerging countries' currencies depreciated, and economic outlooked worsened. Major central banks around the world tried to mitigate the unrest by providing increased forward guidance on their future monetary policy conduct, and the Federal Reserve reiterated that its bond purchasing programme would remain unchanged. The situation eased somewhat thereafter, but the Federal Reserve and the Bank of England are still expected to tighten their monetary stance sooner than previously anticipated. Some emerging countries responded to the sharp capital outflows triggered by the unrest with interest rate hikes or other intervention measures to protect their currencies, with varying results, and according to the most recent IMF forecast, there is the risk that certain countries could end up facing balance of payments problems.

In the southern part of the euro area, the problems stemming from weak banking, corporate, and public sector balance sheets still appear resistant to resolution. The effects of heavy indebtedness and a poor competitive position in some eurozone countries, together with the weak capital position of many euro area banks, show clearly in the difficult financial conditions of heavily leveraged firms with limited scope to absorb rising cost of capital. As a result, default levels have continued to rise, and lending to households and businesses is still contracting in the euro area as a whole, although it is growing in the US.[1]

1. About half of corporate loans in Portugal, for instance, have been extended to firms whose operating profit is insufficient to cover the interest on the debt. The same is true of approximately 40% of corporate loans in Spain and about 30% in Italy. For further information, see International Monetary Fund (2013). "Transition challenges to stability", *Global Financial Stability Report*, October 2013.

Nevertheless, some optimism can be detected in global equity markets. Positive economic indicators on both sides of the Atlantic have spurred demand for equity securities, and share prices have risen markedly this year, predominantly in the euro area, although share prices in emerging countries have fallen. In the US, the stock market grew restive this spring and summer, due to uncertainty about Federal Reserve policy, and again slightly in October, owing to the contention surrounding the fiscal budget and debt ceiling. The uncertainty has abated somewhat once again, however, and market volatility has diminished.

Chart II-7
Implied volatility (VIX)[1]
Daily data 1 January 2011 - 1 November 2013



1. Chicago Board Option Exchange S&P 500 Implied Volatility Index.
Source: Macrobond.

Inflation outlook virtually unchanged since August

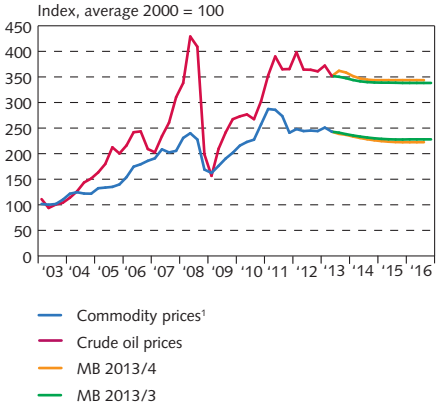
Inflation has tapered off in Iceland's main trading partner countries in recent months, owing to falling food and commodity prices. In Japan and Norway, however, rising energy prices have triggered increased inflation. For Iceland's main trading partners, the inflation outlook for this year and for 2014-2015 is virtually unchanged since the August *Monetary Bulletin* was published. Inflation is projected to average almost 2% during the forecast horizon.

Smaller rise in oil prices, but commodity prices develop in line with the August forecast

Oil prices rose slightly in late summer and then fell again in the autumn, but on the whole they have been marginally higher than was assumed in the last *Monetary Bulletin*. They are now forecast to fall by almost 3% this year instead of the 4.4% provided for in the August forecast. The outlook for 2014 is broadly in line with that forecast, however, with prices projected to continue falling to about 4% below this year's average. Weaker growth in demand for oil, particularly in China, India, and the Middle East, is a factor here; however, it is offset somewhat by concerns about the effects of instability in the Middle East and North Africa on supplies.

Global commodity prices have continued to slide in recent months, and food prices, for instance, have fallen sharply since mid-summer. The average decline in commodity prices this year is estimated at just over 1%, broadly similar to the August forecast. For the next two years, prices are projected to continue to fall, but this forecast is highly uncertain, particularly on the upside, as inclement weather can easily affect the supply of commodities such as food and can push prices upwards.

Chart II-8
Commodity prices
Q1/2003 - Q4/2016

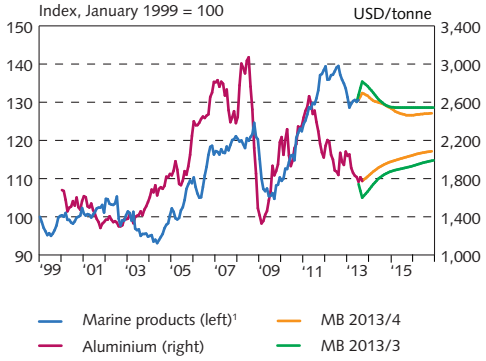


1. Non-oil commodity prices in USD.
Sources: Macrobond, Central Bank of Iceland.

Outlook for marine product prices in 2013 poorer than in August ...

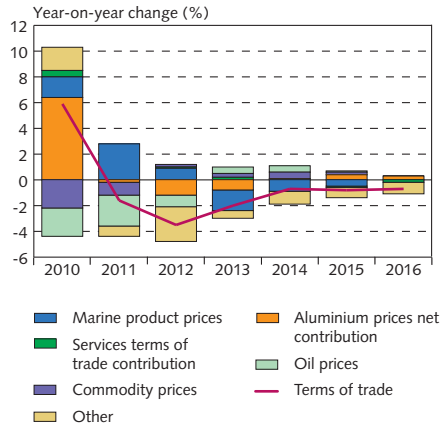
The decline in marine product prices appears to have slowed down. Producers assume that the slide in demersal fish prices, which began early last year, is at an end, and prices have risen slightly in the recent term. Nonetheless, the price of salted fish products and frozen-at-sea demersals is now considerably below the peak it reached early in 2012. On the other hand, pelagic fish product prices have risen more than 6% year-on-year so far in 2013, with a robust increase in prices of cod liver oil and fishmeal products. The increase is less than was assumed in the August forecast, however, and because of

Chart II-9
Prices of marine exports and aluminium
In foreign currency



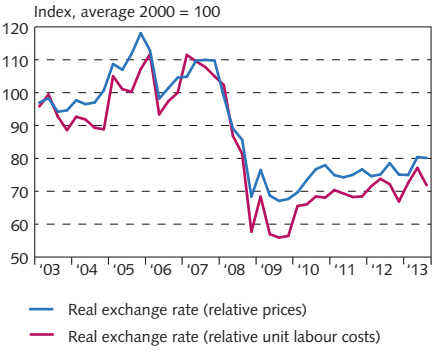
1. Foreign currency prices of marine products are calculated by dividing marine product prices in Icelandic krónur by the export-weighted trade basket.
Sources: London Metal Exchange, Statistics Iceland, Central Bank of Iceland.

Chart II-10
Terms of trade and their main components
2010-2016[1]



1. Central Bank baseline forecast 2013 - 2016. The contribution of the main sub-indices to year-on-year changes in terms of trade is determined by weighting the annual change in the sub-index concerned together with its weight in the import or export of goods and services. The item "other" is a residual.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart II-11
Real exchange rate
Q1/2003 - Q3/2013



Source: Central Bank of Iceland.

this and the smaller rise in demersal product prices, this year's decline in marine product prices as a whole is forecast at about 4.5%, or ½ a percentage point more than was projected in August. Next year's developments in marine product prices are highly uncertain. Demersal prices are expected to rise slightly, while fishmeal and cod liver oil are projected to fall, based on futures prices. Developments in prices of frozen pelagic fish (capelin, mackerel, and herring) are highly uncertain; however, the mackerel supply will increase next year while the herring supply will shrink. The current forecast assumes that marine product prices will fall by about 2% per year in the next two years, in line with the general trend in global food and commodity prices and the slow pace of growth in Iceland's main market areas.

... while aluminium prices are expected to fall less steeply this year

Aluminium prices have continued to fall in line with other commodity prices. The year-on-year decline in global aluminium prices has been significant, measuring a full 14% this September. So far this year, market prices have been down about 7% year-on-year. However, this forecast assumes that they will be only 4% lower for the year as a whole instead of 7% lower, as in the August forecast. The somewhat improved outlook is due mainly to the fact that prices for the type of aluminium produced in Iceland seem to have developed more favourably this year than global market prices have. Further ahead, the outlook is for aluminium prices to rise by 3-5% per year in the next three years, which is broadly in line with the August forecast.

Terms of trade continue to deteriorate

The outlook is for terms of trade to deteriorate by 2% in 2013 instead of the 3% assumed in the August forecast. The smaller decline in aluminium prices is a factor here, although it is offset by less favourable developments in oil and marine product prices. This year's erosion of terms of trade comes on the heels of a 3.5% deterioration last year and a 1.6% downturn in 2011. If this forecast materialises, terms of trade will be almost 17% weaker this year than in 2007, when the downward trend began. Even though the outlook has improved marginally since August, they are still projected to continue worsening throughout the forecast horizon, to almost 19% below the 2007 level by 2016. The major contributor to this trend is the aforementioned decline in marine product prices (see Box II-1).

Real exchange rate relatively stable in the recent term

So far this year, the real exchange rate of the króna has risen by about 3.2% year-on-year in terms of relative prices. It rose sharply between February and April, with the increase in April the largest in a single month in over four years. In recent months, however, the real exchange rate has changed little. The average so far this year is the highest since the financial crisis struck, yet in terms of relative prices, it is now more than 16% below the 30-year average.

Iceland's competitive position improved markedly in the wake of the crisis, and in terms of relative unit labour costs, the real exchange

rate fell by over 45% in two years. Since 2010, however, unit labour costs have risen much more rapidly in Iceland than in its major competitor countries, and the real exchange rate has risen again and the competitive position deteriorated. As in previous forecasts, the baseline forecast assumes that the nominal exchange rate will remain relatively stable during the forecast horizon and the real exchange rate will rise slightly in coming years, owing to more rapidly rising prices and wages than in competitor countries. The real exchange rate will remain low in historical terms, however.

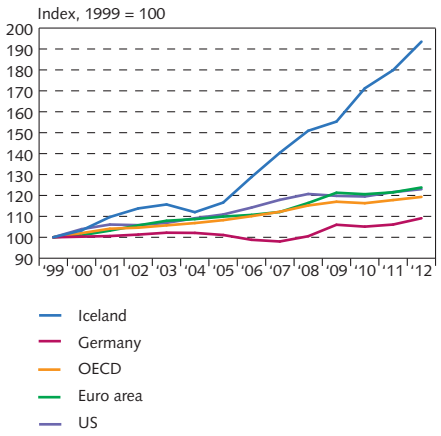
Outlook for increased world trade, but with demand growth in trading partner countries broadly unchanged from August

Growth in world trade slowed markedly last year, concurrent with declining global output growth. In its most recent forecast, the IMF projects that growth in world trade will increase somewhat this year in spite of a slowdown in output growth, although the outlook is somewhat poorer than in the Fund's April forecast. Nevertheless, the outlook for imports among Iceland's main trading partners is broadly unchanged since August. In Iceland's main trading partner countries, imports are expected to grow by 1.1% this year and 3.6% next year, which is slightly less than in the August forecast. They are projected to grow by around 2½-3% per year in 2015 and 2016, respectively, as was forecast in August.

Outlook for total exports slightly poorer this year but broadly unchanged for the remainder of the forecast horizon

Goods exports are projected to increase by 1.3% this year, somewhat more than in the August forecast, owing mainly to stronger marine product exports. The forecast in the last *Monetary Bulletin* assumed that marine product export volumes would contract by just under 1%; however, according to figures for the first nine months of the year, which are now available, as well as other indicators, marine exports are expected to grow by 3½% this year. It appears that this is due largely to increased production value – that is, the proportion of higher-priced products has increased – but it also seems that the share of year-2012 production exported in the first few months of 2013 was larger than expected based on previous experience. On the other hand, it is now assumed that aluminium exports will be somewhat weaker than was forecast in August. In volume terms, aluminium exports are forecast to grow by 1.8% this year because of a slight rise in domestic aluminium production; however, this increase is just over a percentage point less than was projected in August. The outlook for total goods exports in 2014 has also improved, with growth projected at 2.1% instead of the 1.6% in the August forecast. Aluminium exports are expected to grow, as the effects of the recent expansion of the Straumsvík smelter are expected to take full effect next year. Marine product exports are expected to grow as well, although each year's fish catches are always a source of uncertainty because they are determined by the total allowable catch set in the coming year. Growth in goods exports is expected to slow down significantly in 2015 and 2016, to around 1-1½% per year, slightly below the August forecast.

Chart II-12
Unit labour costs

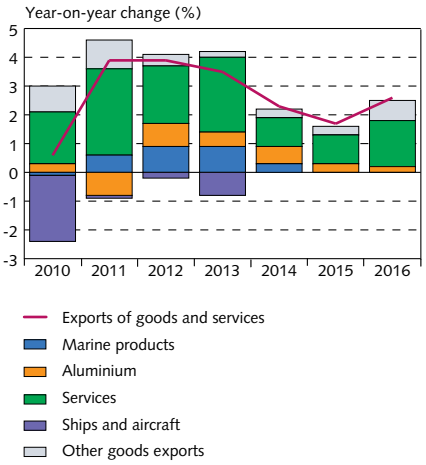


Sources: Macrobond, Central Bank of Iceland.

Chart II-13
World trade and Icelandic exports
2000-2016[1]

1. Central Bank baseline forecast 2013 - 2016. 2. Imports of goods and services in Iceland's main trading partners.
Sources: Macrobond, OECD, Statistics Iceland, Central Bank of Iceland.

Chart II-14
Export development and its main components 2010-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Growth in services exports is expected to be somewhat weaker this year than according to the August forecast, as growth in H1 was below expectations. Nonetheless, 2013 is well on its way to being yet another record year in terms of tourist visits to Iceland, with more foreign travellers visiting the country in the first 10 months of the year than in all of 2012. Services exports are forecast to grow by 6.8% this year, although the rapid growth seen in the recent past will taper off somewhat in the next few years. Services exports are expected to grow by 2½-4% per year throughout the forecast horizon.

If this forecast materialises, the outlook is for total exports to increase by 3.4% this year, somewhat slower than was expected in August. The outlook for next year has improved, however: total exports are expected to grow by over 2%, nearly ½ a percentage point stronger than in the August forecast. The outlook for export growth for the remainder of the forecast period is similar to the August forecast, however.

Table II-1 Exports and main assumptions for developments in external conditions

	Change from prior year (%) unless otherwise specified[1]			
	2013	*2014*	*2015*	*2016*
Goods exports	1.3 (0.0)	2.1 (1.6)	1.0 (1.4)	1.5
Services exports	6.8 (11.6)	2.4 (2.2)	2.5 (1.5)	4.1
Exports of goods and services	3.4 (4.4)	2.2 (1.8)	1.6 (1.4)	2.5
Exports of goods and services, excluding ships and aircraft	4.2 (5.2)	2.2 (1.8)	1.6 (1.4)	2.5
Marine production for export	3.6 (-0.9)	1.4 (0.9)	0.0 (0.0)	0.0
Aluminium production for export	1.8 (3.1)	2.4 (1.8)	1.1 (0.7)	0.7
Foreign currency prices of marine products	-4.6 (-4.0)	-1.9 (-2.2)	-2.0 (-1.4)	0.0
Aluminium prices in USD[2]	-4.0 (-7.2)	3.3 (3.0)	4.7 (5.2)	2.9
Fuel prices in USD[3]	-2.9 (-4.4)	-4.0 (-4.0)	-0.9 (-0.7)	0.0
Terms of trade for goods and services	-2.0 (-3.0)	-0.7 (-1.4)	-0.8 (-1.1)	-0.7
Inflation in main trading partners[4]	1.6 (1.5)	1.8 (1.6)	2.0 (2.0)	2.1
GDP growth in main trading partners[4]	0.8 (0.8)	1.8 (1.8)	2.2 (2.2)	2.4
Short-term interest rates in main trading partners (%)[5]	0.4 (0.4)	0.4 (0.4)	1.0 (1.3)	1.9

1. Figures in parentheses from forecast in *Monetary Bulletin* 2013/3. 2. Forecast based on aluminium futures and analysts' forecasts. 3. Forecast based on fuel futures and analysts' forecasts. 4. Forecast from Consensus Forecasts and Global Insight. 5. Based on weighted average forward interest rates of Iceland's main trading partner countries.

Sources: Bloomberg, Consensus Forecasts, Global Insight, IMF, New York Mercantile Exchange, Statistics Iceland, Central Bank of Iceland.

Box II-1

Reasons for the post-crisis deterioration in terms of trade

Since onset of the global financial crisis in 2007, Iceland's terms of trade have deteriorated by about 15%. As of last year, they were some 7% below the post-World War II average. If the Central Bank's current baseline forecast materialises, they will continue to deteriorate, to roughly 11% below the long-term average by 2016. By that time, they will have worsened for eight consecutive years, falling by a total of 18½%, something not seen since 1964.

These unfavourable developments in terms of trade have had broad-based impact on domestic economic developments in recent years. For example, Icelandic exports have lost some of their share in global export values as a result. This is particularly the case for goods exports, where Iceland's trade share has declined steadily since 2007, even though Icelandic export industries have withstood the post-crisis contraction in world trade volumes better than most other countries' exports have. As Chart 2 indicates, Iceland's goods exports grew markedly as a share of global export volume in 2007-2009, although they have tapered off again in the past three years.

As has been discussed in previous issues of *Monetary Bulletin*, poorer terms of trade have been the most important cause of the gradual narrowing of Iceland's trade surplus. As a result, they have exerted pressure on the exchange rate and complicated the resolution of the current balance of payments problem. Poorer terms of trade have also contributed to reduced national income and a slowdown in the recovery of domestic demand. If the erosion proves to be permanent, the domestic income level will also fall permanently relative to trading partners.

But what are the main reasons for these unfavourable developments, and is the erosion of terms of trade unusually pronounced in view of recent developments in global output growth and the price of Iceland's main export products? What explains the outlook for a continuing deterioration in terms of trade throughout the forecast horizon?

Terms of trade and global economic developments

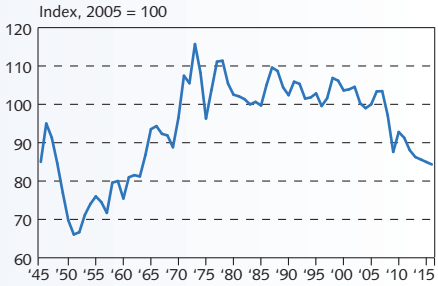
Because it is a small, open economy, Iceland is largely a price-taker in international trade; that is to say, its import and export prices are mainly determined by international economic conditions rather than by domestic factors.[1] The same is true of terms of trade (defined as the ratio of export prices to import prices). As Chart 3 shows, terms of trade have a tendency to evolve in line with global economic developments, particularly those in Iceland's trading partner countries, and they generally deteriorate during global economic downturns.[2] Chart 4 shows clearly the importance of terms of trade for domestic economic developments. It also suggests the importance of terms of trade shocks for the transmission of international business cycle shocks into the domestic economy.[3]

Comparison of developments in terms of trade following three global contractions

Since the onset of the global economic crisis in 2007, Iceland's terms of trade have deteriorated by about 15%, the largest decline since

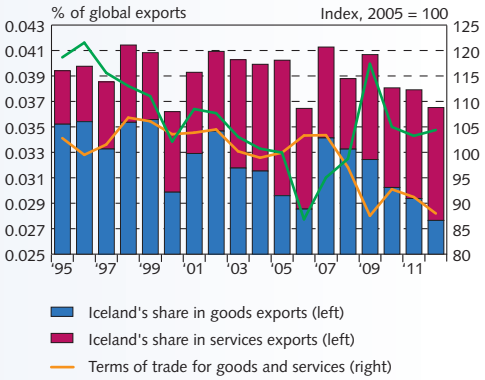
1. For certain product types, it can be argued that Icelanders have some price-setting power, but in the main, Iceland is a price-taker in international trade.
2. As is commonly done, global economic contractions are defined as periods when global output growth falls below 3%.
3. The importance of terms of trade shocks for the domestic business cycle is analysed in M. Gudmundsson, A. Sighvatsson and T. G. Pétursson (2000). "Optimal exchange rate policy: The case of Iceland". In *Macroeconomic Policy: Small Open Economies in an era of Global Integration*, (eds.) G. Zoega, M. Gudmundsson and T. T. Herbertsson. Reykjavík: Háskólaútgáfan.

Chart 1
Terms of trade for goods and services[1]



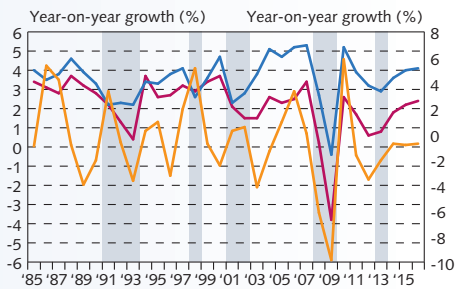
1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2
Terms of trade and Iceland's share in world trade



Sources: OECD, Statistics Iceland, United Nations database.

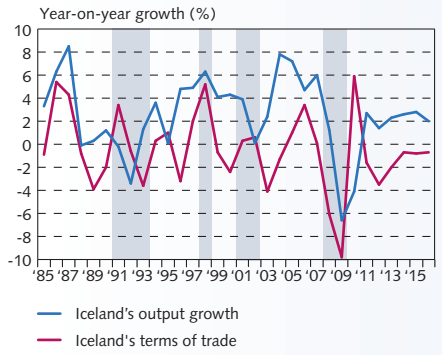
Chart 3
Global output growth and Iceland's terms of trade[1]



1. Periods during which global output growth falls below 3% are shaded. Global output growth in 2013-16 is IMF forecast from *World Economic Outlook*, October 2013. The terms of trade forecast is from the Central Bank of Iceland.
Sources: IMF, Macrobond, Central Bank of Iceland.

Chart 4

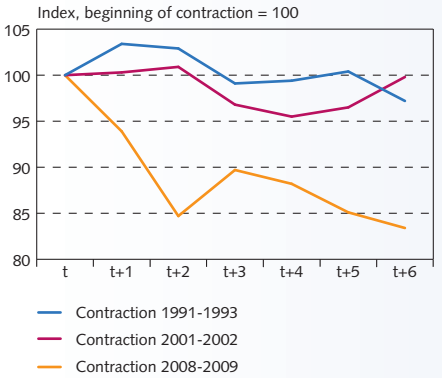
Iceland's output growth and terms of trade[1]



1. Periods during which global output growth falls below 3% are shaded. Global output growth in 2013-16 is IMF forecast from *World Economic Outlook*, October 2013. The terms of trade forecast is from the Central Bank of Iceland.
Sources: IMF, Macrobond, Central Bank of Iceland.

Chart 5

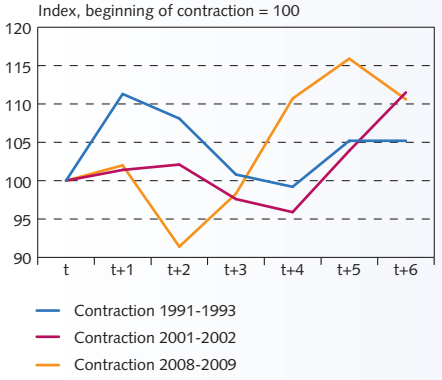
Developments in terms of trade following three global contractions[1]



1. For the 1991-93 contraction, year t is 1990, for the 2001-2 contraction it is 2000, and for the 2008-9 contraction it is 2007.
Sources: IMF, Statistics Iceland, Central Bank of Iceland.

Chart 6

Developments in foreign currency prices for marine products following three global contractions[1]



1. For the 1991-93 contraction, year t is 1990, for the 2001-2 contraction it is 2000, and for the 2008-9 contraction it is 2007.
Sources: IMF, Statistics Iceland, Central Bank of Iceland.

the late 1940s. As Chart 3 shows, this reflects in part the severity of the recent global contraction. This can also be seen in Chart 5, which compares developments in terms of trade for a period of six years following three global contractions.[4] As the chart shows, terms of trade improved immediately after the recession in 1991, but the effects had all but disappeared three years later. The effects of the 2001-2002 contraction were somewhat more pronounced early on but had disappeared six years later. They were nowhere near as strong as in 2008-2009, when terms of trade had deteriorated by about 15% two years after the onset of the crisis. After a brief turnaround a year later, they began to worsen again, and now, six years after the crisis struck, they are over 16% poorer.

As Charts 6 and 7 show, the price of marine products and aluminium products fell in the wake of the 2007 crisis. For the first two years after crisis struck, marine product prices developed much more unfavourably than in the wake of the two previous contractionary periods. They began to rise again a year later, and five years after the contraction started they were somewhat higher than at the onset. If the Bank's forecast materialises, however, they will fall somewhat this year. Aluminium prices fell much more sharply after the 2007 crisis than after the contraction at the beginning of the century. Early on, they developed in a manner similar to that following the contraction in the early 1990s, although the two patterns diverged somewhat as time passed. In comparing the most recent crisis and previous contractionary periods as regards the effects of fluctuations in aluminium prices on Iceland's terms of trade, it is appropriate to bear in mind that aluminium has become a much more important export product for Iceland in recent decades. For instance, exports of aluminium and ferrosilicon products accounted for an average of 8% of goods and services exports in 1991-1993, just under 15% in 2001-2002, and almost 27% by 2008-2009 (see Chart 8).

The main reasons for recent developments in terms of trade

A simple regression analysis can be used to assess the most important determinants of developments in terms of trade. This can provide a better understanding of the main reasons for the unfavourable developments in terms of trade in recent years and the continued erosion projected in the Bank's forecast. It can be assumed that the global price of Iceland's most important export products – marine products and aluminium – will weigh heavily, as will the above-described effects of the global business cycle. The estimated equation in the appendix to this Box explains about 80% of the fluctuations in terms of trade between 1985 and 2012.

As Chart 9 indicates, trading partner output growth and falling marine product prices are the main causes of the deterioration in terms of trade in 2008-2009, although declining aluminium prices are a factor as well. The turnaround in 2010-2012 is due primarily to rising marine product prices, although it is offset by rising export prices and weak output growth among Iceland's main trading partners. The baseline forecast assumes that terms of trade will continue to deteriorate from this year through 2016. As Chart 9 indicates, this is due largely to the drop in marine product prices this year and the prospect of a continued decline throughout the forecast horizon. Although the baseline forecast assumes that GDP growth will gain pace in trading partner countries, for most of the forecast horizon it will not be strong enough to turn this trend around. As the chart

4. The global contraction in 1998 is omitted from this comparison because of its short duration and limited impact in Iceland. The Central Bank's baseline forecast is used for 2013, the sixth year following the most recent crisis.

shows, factors not explained by the estimated equation have an offsetting effect. The deterioration in the next few years will therefore be somewhat greater according to the equation than according to the baseline forecast, which could indicate that the forecast is too optimistic, at least in view of the projected decline in marine product prices.

On the whole, it appears therefore that the deterioration between 2008 and 2016 is due primarily to weak output growth among Iceland's main trading partners and a sharp decline in marine product prices relative to trading partners' export prices. Furthermore, fluctuations in marine product prices seem to be the major cause of the recent volatility in terms of trade and the forecasted developments for the next few years. The effects of adverse developments in aluminium prices, however, are considerably less pronounced, according to the empirical relationship between these variables. It should be noted, however, that aluminium product exports increase in importance somewhat at the expense of marine products during the period analysed. As a result, the empirically estimated relationship may underestimate to a degree the effects of fluctuations in aluminium prices on terms of trade in recent years. Furthermore, the effect of global output growth could be underestimated, as it will also affect terms of trade indirectly through its impact on the price of aluminium and marine products.

Appendix

Fluctuations in terms of trade between 1985 and 2012 can be explained by trading partner output growth and the price of two of Iceland's most important export products relative to global export prices (figures in parentheses are *t*-values; R^2 represents the portion of the variability of terms of trade that the equation explains, and *SE* is the standard deviation of the residual of the equation):[5]

$$\Delta\overline{tot} = \underset{(2.3)}{0.044}(\Delta\overline{pxa} - \Delta\overline{wpx}) + \underset{(6.1)}{0.366}(\Delta\overline{pxm} - \Delta\overline{wpx}) + \underset{(2.9)}{0.767}\Delta\overline{wy}$$

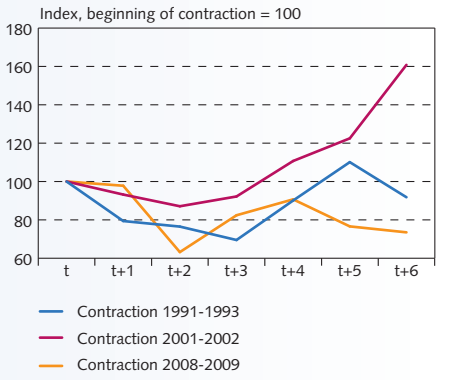
$R^2 = 0{,}78$, $SE = 1.8\%$, sample period: 1985-2012

where $\Delta\overline{tot}$ is the deviation of annual changes in terms of trade from the 1985-2012 average, $\Delta\overline{pxa}$ is the deviation of annual changes in the foreign currency price of aluminium from the 1985-2012 average, $\Delta\overline{pxm}$ is the deviation of annual changes in foreign currency marine product prices from the 1985-2012 average. $\Delta\overline{wpx}$ is the deviation of annual changes in Iceland's trading partners' foreign currency export prices from the 1985-2012 average, and $\Delta\overline{wy}$ is the deviation of output growth in Iceland's main trading partners from the 1985-2012 average.

5. The equation was originally estimated without any parameter restrictions on trading partner export prices, but the possibility that the price effects were proportional was not rejected statistically (that is, that the sum of the parameters on the three price variables was zero). An attempt was also made to include the effects of global commodity and oil prices, but the effects of these two variables proved statistically insignificant from zero.

Chart 7

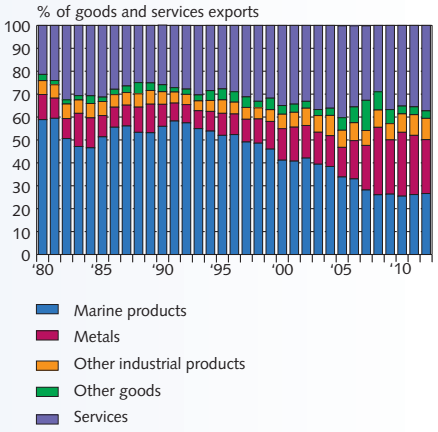
Developments in foreign currency prices for aluminium following three global contractions[1]



1. For the 1991-93 contraction, year t is 1990, for the 2001-2 contraction it is 2000, and for the 2008-9 contraction it is 2007.
Sources: IMF, Statistics Iceland, Central Bank of Iceland.

Chart 8

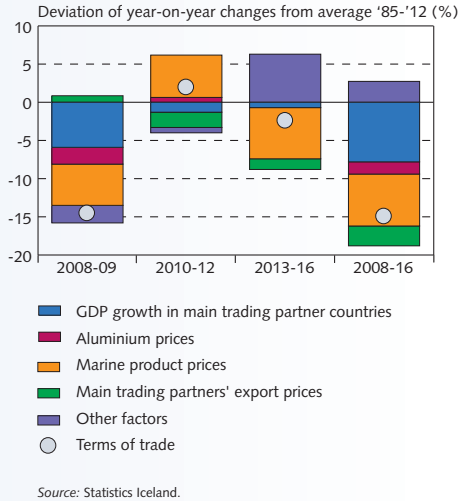
Composition of Iceland's exports 1980-2012



Source: Statistics Iceland.

Chart 9

Contribution of factors determining developments in terms of trade 2008-2016

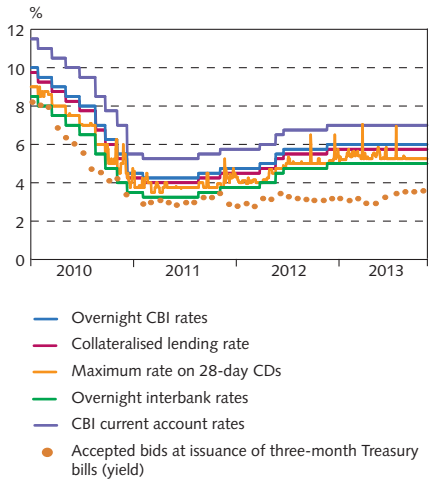


Source: Statistics Iceland.

III Financial conditions

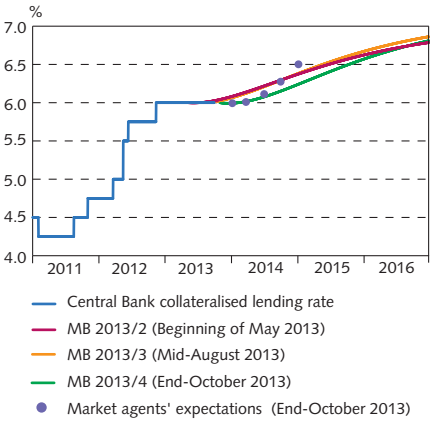
Central Bank interest rates have remained unchanged since the publication of the August *Monetary Bulletin*, and the monetary stance is broadly unchanged as well. Market agents appear to expect rates to remain unchanged through this year but to rise in 2014. The exchange rate has fallen since August but was broadly in line with the August forecast in Q3. Broad money is growing again, and new lending to households and businesses has increased. In the main, private sector financial conditions have improved. Default and debt levels have continued to decline and house prices have risen, although private sector debt is still high in international comparison. In addition, corporate bond issuance is on the rise. Profitability was low for many large companies last year, particularly those that had undergone financial restructuring. Companies' position and profitability varies greatly, however, depending on whether they operate in the tradable sector or the non-tradable sector.

Chart III-1
Central Bank of Iceland interest rates and short-term market interest rates
Daily data 1 January 2010 - 1 November 2013



Source: Central Bank of Iceland.

Chart III-2
Collateralised lending rate, forward market interest rates[1] and market agents' expectations concerning collateralised lending rate[2]
Daily data 1 January 2011 - 31 December 2016



1. Interbank interest rates and Treasury bonds were used to estimate the yield curve. Treasury bonds maturing within two years are excluded, however, because their pricing is assumed to be affected by the capital controls. 2. According to the median response in the Central Bank's market expectations survey for the period 28-30 October 2013.
Source: Central Bank of Iceland.

Central Bank interest rates remain unchanged ...

The Central Bank Monetary Policy Committee (MPC) announced its decision to keep interest rates on hold on 21 August, which coincided with the publication of *Monetary Bulletin* 2013/3, and again on 2 October. Prior to the publication of this *Monetary Bulletin*, the current account rate was 5%, the maximum rate on 28-day certificates of deposit (CDs) 5.75%, the seven-day collateralised lending rate 6%, and the overnight lending rate 7%. The Bank's interest rates have therefore been unchanged since last November. Overnight interest rates in the interbank market have remained below the centre of the interest rate corridor, owing to abundant deposit money bank (DMB) liquidity, and have developed broadly in line with Central Bank rates. They have held steady at 5.25% since the last *Monetary Bulletin* was published, with no trading in the interbank market in September (a development not seen since September 2009) and only 11 b.kr. in October. Interbank market turnover for the first 10 months of the year is broadly unchanged year-on-year, however. In Treasury bill auctions, interest rates have remained somewhat below the interest rate corridor. Further discussion of the domestic money market can be found in Box III-1.

Table III-1 The monetary stance (%)

Real interest rates based on:[1]	*Current stance (1 Nov. 2013)*	*Change from MB 2013/3 (16 Aug. 2013)*	*Change from MB 2012/4 (9 Nov. 2012)*
Twelve-month inflation	1.7	0.2	0.8
Business inflation expectations (one-year)	1.3	0.0	0.4
Household inflation expectations (one-year)	0.4	0.0	0.8
Market inflation expectations (one-year)[2]	1.3	0.2	0.7
One-year breakeven inflation rate[3]	1.8	0.3	1.3
Central Bank inflation forecast[4]	2.1	-0.1	0.5
Average	1.4	0.1	0.8

1. The effective Central Bank nominal policy rate is the average of the current account rate and the maximum rate on 28-day CDs. 2. Based on survey of market participants' expectations. This survey was first carried out in mid-February 2012. 3. The one-year breakeven inflation rate based on the difference between the nominal and indexed yield curves (five-day rolling average). 4. The Central Bank forecast of twelve-month inflation four quarters ahead.

… and the monetary stance is broadly unchanged

The monetary stance is broadly unchanged since the last *Monetary Bulletin*. The Bank's effective real rate is now about 1.7% in terms of the current inflation level and 1.4% in terms of the average of various measures of inflation and inflation expectations. This average is virtually unchanged since mid-August, just before the publication of *Monetary Bulletin* 2013/3, but about 0.8 percentage points higher than in early November 2012.

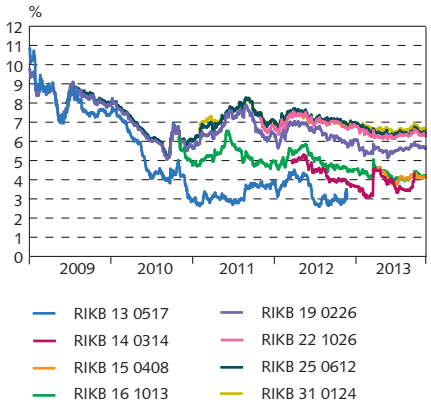
Market agents still expect unchanged interest rates in 2013 and a modest increase in 2014

The indications provided by forward interest rates concerning market agents' expectations of Central Bank rates have changed little since August. Examination of the yield curve still suggests that the market expects interest rates to remain unchanged this year and rise in 2014.[1] According to the forward yield curve, market agents expect the Bank's collateralised lending rate to rise by 0.25 percentage points, to 6.25%, by the end of 2014. They expect it to rise to 6.75% by the end of the forecast horizon, as was indicated by the forward yield curve in August but 0.5 percentage points below market expectations in early November 2012. The market expectations survey carried out by the Central Bank in late October 2013 indicates that market agents expect interest rates to remain unchanged through this year, rise by 0.25 percentage points in Q2/2014, and then rise by another 0.25 percentage points, to 6.5%, by the end of the year.

Bond interest rates have risen slightly

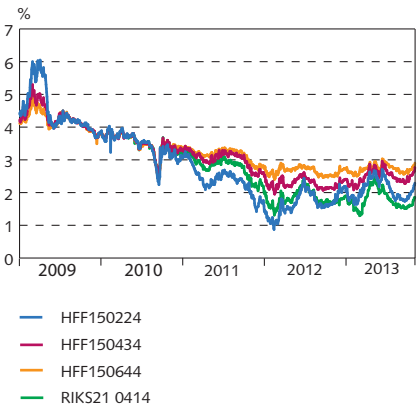
Yields on nominal Treasury bonds have risen slightly since the August *Monetary Bulletin*, perhaps due in part to the increase in inflation in the third quarter of the year. Government Debt Management (GDM) also announced that the Treasury was considering increasing its bond issuance by up to 20 b.kr. by the year-end, owing to expectations of reduced Treasury bill issuance. GDM had reached its year-2013 Treasury bond issuance target of 90 b.kr. by the end of the third quarter. Increased demand for shorter Treasury bonds among non-residents may have contained the rise in yields, however. These non-resident investors owned about 181 b.kr. in Treasury bonds as of end-September, indicating that they have reinvested a large share of the proceeds from the Treasury bond maturing in May. Yields on indexed bonds have also risen and are now 0.2-0.4 percentage points higher than just before the publication of the August *Monetary Bulletin*.

Chart III-3
Yields on nominal Treasury bonds
Daily data 2 January 2009 - 1 November 2013



Source: Central Bank of Iceland.

Chart III-4
Yields on indexed bonds
Daily data 2 January 2009 - 1 November 2013



Source: Central Bank of Iceland.

1. Measurement problems at the short end of the yield curve introduce a measure of uncertainty into the indications provided by the yield curve, as is discussed in Box III-1. Also, Treasury bonds maturing within two years are excluded in the yield curve estimation because their pricing is assumed to be affected by the capital controls.

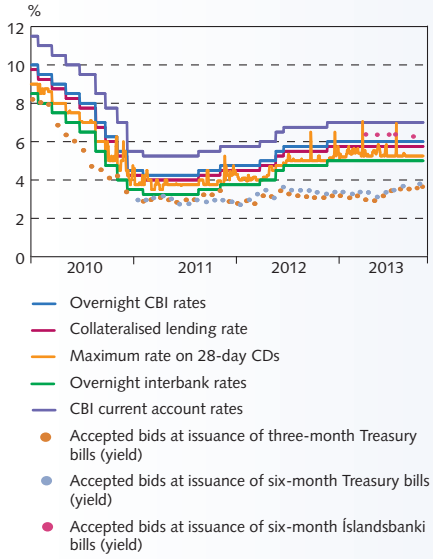
Box III-1

Effects of money market inefficiencies on monetary policy transmission and reliability of indicators of market expectations

Chart 1

Central Bank of Iceland interest rates and short-term market interest rates

Daily data 1 January 2010 - 1 November 2013

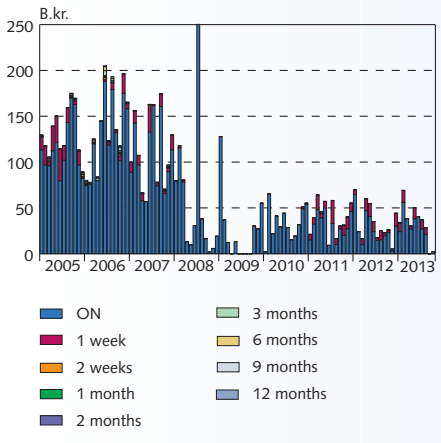


Sources: Íslandsbanki, Central Bank of Iceland.

Chart 2

Turnover on interbank market for krónur

January 2005 - October 2013



Source: Central Bank of Iceland.

The markets for short-term securities such as Treasury bills and commercial bank bills are an important factor in monetary policy conduct and its transmission throughout the financial system. These markets' effectiveness is also important for the reliability of the information that can be extracted from them as regards expectations about the future policy stance. Ineffective price formation in money market securities can therefore impede the transmission of monetary policy through the financial system and dilute the information on market expectations that can usually be inferred from interest rate formation.

In general, the interbank market plays an important role in the management of banking system liquidity, as commercial banks use it to deposit or withdraw funds for varying lengths of time, generally ranging from overnight to twelve months. Over the years, interbank market turnover in Iceland has been low, and concentrated primarily in the shortest maturities. It contracted sharply after the collapse of the banking system, most likely because of abundant market liquidity, but perhaps also due to a lack of trust in the market and a tendency among banks to meet temporary liquidity needs internally rather than in the market. A similar trend has been discernible in neighbouring countries' interbank markets.

From the beginning of 2009 to the beginning of 2011, the Central Bank's collateralised lending rate fell by 13.75 percentage points, to 4.25%. Then, from August 2011 to November 2012, it was raised to 6% in six increments and has remained unchanged since. Market liquidity has been ample, and in order to reduce it, the Bank began issuing certificates of deposit (CD) in September 2009, so that short-term market rates would be consistent with the intended monetary stance. CD issuance now totals just over 111 b.kr. Since that time, overnight interbank rates have developed more or less in line with Central Bank rates. Because of abundant deposit money bank (DMB) liquidity, they have remained below the centre of the Bank's interest rate corridor since the latter half of 2009, apart from a few days when they moved up to the upper half of the corridor due to temporary changes in market liquidity. Short-term interbank market rates have therefore developed broadly in line with the level the Monetary Policy Committee (MPC) considers desirable at any given time.

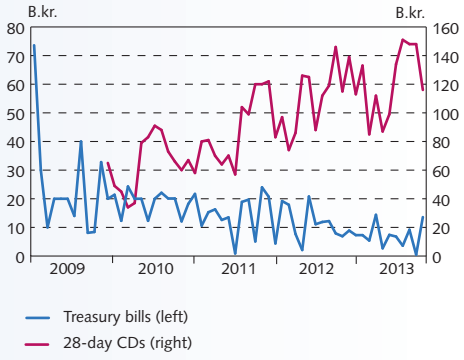
Interest rates on issued Treasury bills have not been consistent with developments in Central Bank rates, however. Interest rates in Treasury bill auctions kept pace with Central Bank rates during the period of monetary easing, but since the MPC began raising rates again, they have diverged. For instance, rates in Treasury bill auctions have been somewhat below the floor of the interest rate corridor in the recent term, and they are just over half the rate in a recent commercial bank bill issue.[1] At the same time, participation in Treasury bill auctions has dwindled, and non-residents, once keenly interested in Treasury bills, are moving farther out the yield curve. This shift can be interpreted in a variety of ways. It could mean that non-residents locked in by the capital controls have become more patient, but it could imply that they expect the liberalisation process to be delayed still further. Another possibility is that they consider the terms offered in Treasury bill auctions unacceptable in comparison with terms available in the market. According to Government Debt Management's (GDM) *Prospect* for the fourth quarter of 2013, GDM is considering compensating for reduced Treasury bill issuance by issuing more Treasury bonds, which could prove more

1. This is not the first time that Treasury bill interest rates and interbank market rates have diverged. See, for example, Appendix 1 in *Monetary Bulletin* 2005/1.

economical for the Treasury than accepting higher Treasury bill interest. On the other hand, reduced Treasury bill issuance weakens the foundations of the short end of the yield curve, making the pricing of short-term obligations more difficult and possibly impeding monetary policy transmission.

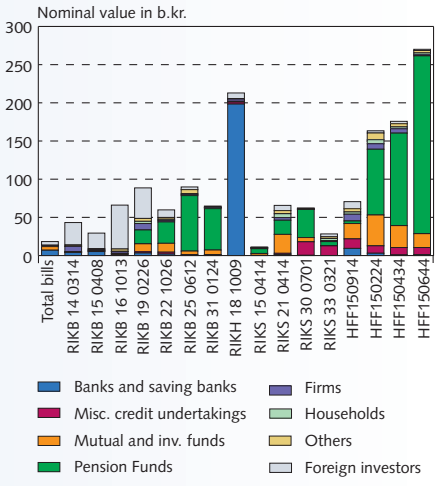
Reduced Treasury bill issuance and limited interbank market turnover greatly complicate the interpretation of the short end of the yield curve. Consequently, the Central Bank obtains a cloudier view of market expectations concerning the future policy rate path, and it has responded to this uncertainty by conducting questionnaires. Such surveys can never take the place of effective price formation in the market, however. In order to enhance the effectiveness of the market for short-term securities, improve price formation, and strengthen monetary policy transmission, it would be desirable for the Treasury to maintain an efficient benchmark yield curve and support effective price formation for money market securities in its debt management planning.

Chart 3
Issuance of Treasury bills and 28-day CDs
December 2008 - October 2013



Source: Central Bank of Iceland.

Chart 4
Owners of Government securities and HFF bonds
Balance as of 30 September 2013

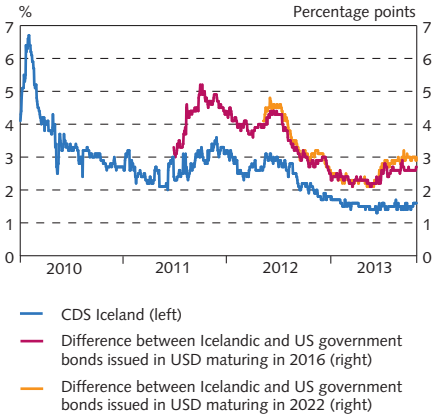


Source: Central Bank of Iceland.

Risk premium on Treasury obligations broadly unchanged

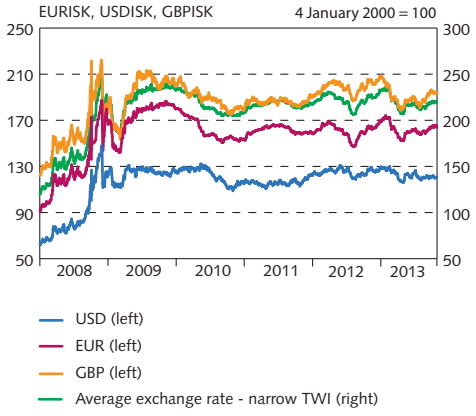
In mid-October, Fitch Ratings affirmed Iceland's sovereign credit rating. The risk premium on Treasury obligations has changed very little since the August *Monetary Bulletin*. The CDS spread on five-year Treasury obligations is virtually unchanged at 1.6% but is about 0.4 percentage points narrower than in early November 2012. The risk premium in terms of the spread between the Icelandic Treasury's US dollar bonds maturing in 2016 and 2022 and comparable bonds issued by the US Treasury have widened slightly since August, to 2.7 and 2.9 percentage points, respectively. The spread widened in June after having narrowed almost without interruption since mid-2012, due most likely to a general rise in interest premia prompted by mar-

Chart III-5
Risk premia on the Icelandic Treasury
Daily data 1 January 2010 - 1 November 2013



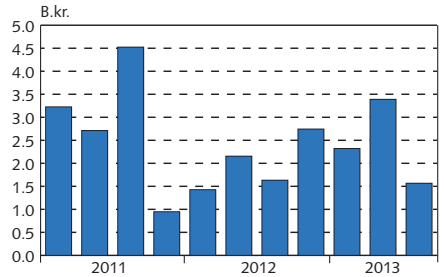
Source: Bloomberg.

Chart III-6
Exchange rate of the króna
Daily data 3 January 2008 - 1 November 2013



Source: Central Bank of Iceland.

Chart III-7
Non-residents' repatriation of domestic interest payments[1]
Q1/2011 - Q3/2013



1. The figures are based on information provided to the Central Bank by domestic financial institutions, on non-residents' foreign exchange transactions involving payments of interest and indexation on deposits with domestic financial institutions and ISK-denominated bonds issued by domestic parties. In comparing the amounts, it should be borne in mind that regulatory provisions on foreign exchange transactions involving interest payments have changed between periods. The Central Bank considers data from the years 2009 and 2010 not reliable enough for official publication. The data imply, however, that foreign exchange transactions resulting from non-residents' interest payments have been on the decline between these periods.
Source: Central Bank of Iceland.

ket concerns that the US Federal Reserve Bank would begin soon to scale down its bond purchase programme (see Section II). The rise in spreads reversed to an extent after the Federal Reserve announced in September that its bond purchase programme would continue unchanged. The spread is still about 0.5-0.7 percentage points wider than in early June, but about 0.2 percentage points narrower than in early November 2012.

Króna depreciates

The króna has weakened by about 1.9% in trade-weighted terms since the publication of the August *Monetary Bulletin*. Over this same period it has fallen 2.8% against the pound sterling, 1.8% against the euro, and 0.7% against the US dollar. Foreign exchange market turnover has increased somewhat since last year and was just over 5% more in the first ten months of the year than over the same period in 2012. Central Bank transactions have accounted for about 9% of total trading volume during the period and have contracted by 29% year-on-year.

The króna did not appreciate this summer, as it did in 2012, in spite of an increase in tourist numbers and a surplus on goods trade in the third quarter. At the same time, deleveraging of foreign loans by domestic entities has continued, with the associated pressure on the exchange rate, and terms of trade have deteriorated (see Box II-1). The Central Bank has also taken more concerted action to dampen exchange rate volatility. When the May issue of *Monetary Bulletin* was published, the MPC announced the Bank's intention to try to reduce exchange rate volatility through increased foreign exchange market participation. Since that time, the Bank has been a net purchaser of foreign currency in the amount of 6 million euros. Its net accumulated foreign currency purchases, including forward transactions conducted in February 2013, total some 5.9 b.kr. since the beginning of 2012 and 48.5 b.kr. since August 2010, when it began its regular foreign exchange purchase programme.

Non-resident investors seem somewhat more patient

It can be assumed, based on foreign exchange transactions deriving from domestic bond interest payments to non-residents, that non-residents are somewhat more patient than is sometimes implied. The amount of bond interest actually converted to foreign currency is below the permissible limit. At the same time, these foreign investors have shifted from short-term Government-guaranteed investments such as Treasury bills to instruments farther out the yield curve (See Box III-1).

Deposits rise ...

Total deposits held by Icelandic residents in DMBs increased by 2.3% year-on-year in Q3, after having contracted for the three preceding quarters. Over this period, holding company deposits grew by 12.2% and those owned by non-banking financial institutions – primarily mutual and investment funds – increased by 7.1%. Net mutual and investment fund assets have risen by over 60 b.kr. in the past year,

but deposits as a share of total assets are broadly unchanged. Other companies' deposits contracted by 1.4% year-on-year in Q3, however, whereas household deposits remained more or less unchanged.

Service companies' deposits weigh heaviest in corporate deposits and have been on the rise as a share of the total in recent years. Service companies' deposits accounted for 45% of corporate deposits at year-end 2004 and are now 53% of the total. Since 2011, it has been possible to segregate real estate companies from service companies. At present, real estate firms account for about a third of service company deposits. Most likely, companies specialising in commercial property leasing weigh heavily in this category, as they have greatly expanded their activities in recent years.

... and M3 is on the rise again

Broad money (M3) has grown year-on-year for four consecutive months, after a steady decline beginning in September 2012. In the third quarter, it was up 2.3% from Q3/2012. Excluding holding company deposits, it grew by only 0.7%. In recent years, demand deposits and other sight deposits have contracted, while term deposits have increased. Narrower measures of the money supply have therefore grown less strongly. For instance, M1 was up by 0.4% and M2 down by 0.2% year–on-year in Q3. At the same time, Central Bank base money is virtually unchanged. Growth in the money supply is still somewhat outpaced by nominal GDP growth; therefore, M3 relative to GDP continued to decline year-on-year in Q2.

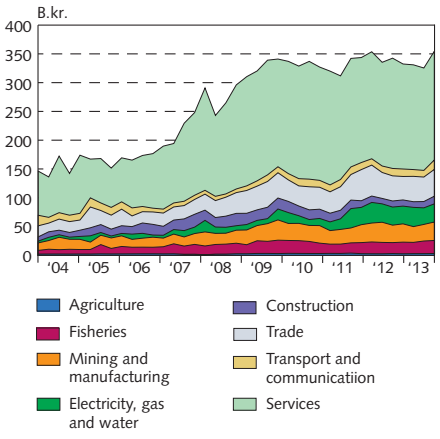
The money supply grew strongly in real terms during the pre-crisis period but has been contracting for most of the last four years, partly because households have used savings for consumption in an attempt to compensate for declining real disposable income. Real money growth has taken longer to recover in comparison with other countries that have experienced a recession.[2]

Private sector loan stock still shrinking in real terms ...

In terms of book value, the exchange rate- and inflation-adjusted stock of loans from DMBs, pension funds, and the Housing Financing Fund (HFF) to households and non-holding companies has continued to fall. The total stock of loans to households, for instance, declined by 1.6% in the first nine months of the year and by 0.9% year-on-year in Q3. The contraction is due for the most part to a decline in the HFF's inflation-adjusted loan stock, which has fallen due to loan prepayments and shrinking demand for new credit. The stock of DMB loans to households grew, however, by 2.0% from the beginning of the year through September and by 3.3% year-on-year in the third quarter. The increase is concentrated mainly in non-indexed loans, while exchange-rate linked loans have contracted. The changes are due in part to refinancing and to the recalculation of exchange rate-linked loans that have been deemed illegal.

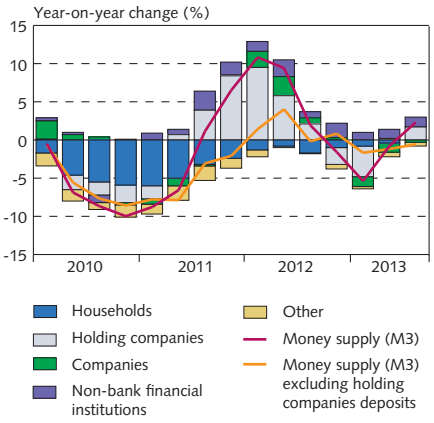
2. The turnaround in money supply growth is generally slower in countries that have undergone a financial crisis concurrent with a cyclical contraction. See European Central Bank (2012), "Money and credit growth after economic and financial crises – Historical global perspective", *Monthly Bulletin,* February 2012.

Chart III-8
Composition of corporate deposits
Q1/2004 - Q3/2013



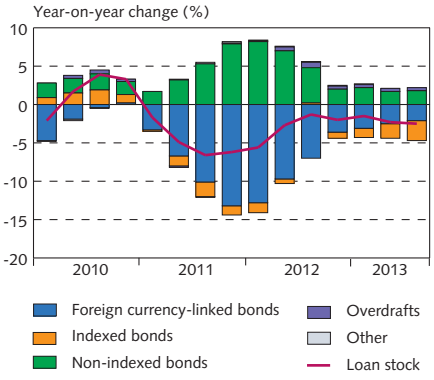
Source: Central Bank of Iceland.

Chart III-9
Components of money supply
Q1/2010 - Q3/2013



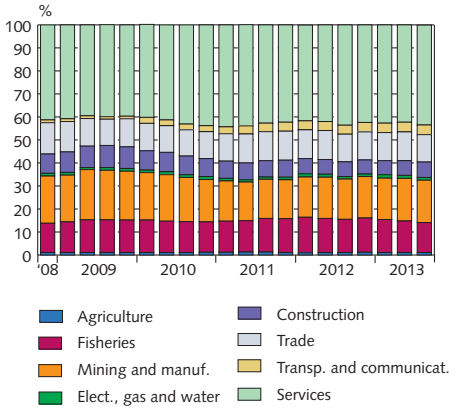
Source: Central Bank of Iceland.

Chart III-10
Contribution to growth in lending[1] to households and firms by DMBs, pension funds, and the Housing Financing Fund[2]
Q1/2010 - Q3/2013



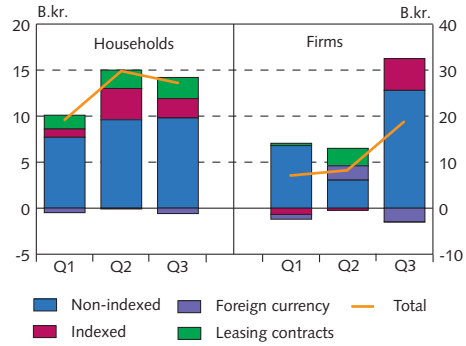
1. Adjusted for estimated effects of price level and exchange rate movements on CPI-indexed and exchange rate-linked loans. Loans of DMBs are assessed at book value. 2. Excl. holding companies.
Source: Central Bank of Iceland.

Chart III-11
Composition of DMBs loan stock[1] to companies[2]
Q4/2008 - Q3/2013



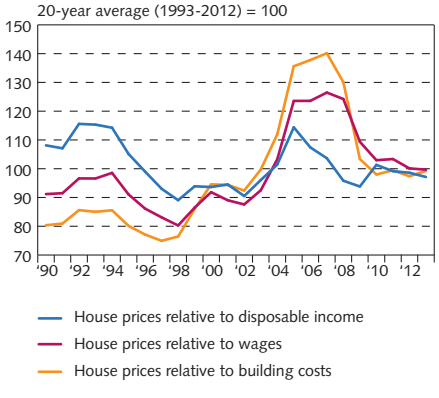
1. DMB loans are assessed at book value. 2. Excluding holding companies.
Source: Central Bank of Iceland.

Chart III-12
Net new lending from the three commercial banks to households and firms[1]
Q1/2013 - Q3/2013



1. New loans net of prepayments.
Source: Central Bank of Iceland.

Chart III-13
House prices, wages, disposable income and building costs 1990-2013



Sources: Statistics Iceland, Central Bank of Iceland.

The adjusted total stock of DMB and HFF loans to non-holding companies declined by 2.5% in the first nine months of the year and by 4.8% year-on-year in Q3. The downturn is due primarily to a contraction in the stock of exchange rate-linked and inflation-indexed loans granted by DMBs, although the stock of non-indexed and overdraft loans has grown. As Chart III-11 shows, since year-end 2008 the loan stock has consisted predominantly of loans to service companies, whose share has averaged about 42% during the period in question. Service companies have also accounted for the largest share of corporate deposits, as is stated above.

… but some growth in new DMB loans to households and businesses

At mid-year, the Central Bank began to compile more detailed information on new private sector loans from DMBs, as previous figures did not fully account for prepayments, which made it difficult to extract information on credit creation within the banking system. According to these more detailed figures, net new lending by the three large commercial banks to households – that is, new lending net of prepayments – has grown in 2013, totalling about 38 b.kr. in the first nine months of the year. Over the same three-quarter period, net new HFF lending was negative by about 4.4 b.kr. The majority of the commercial banks' loans, or 27.1 b.kr., were non-indexed, including 20 b.kr. secured by residential property. New indexed lending grew from Q2 onwards and amounted to 6.4 b.kr. in the first three quarters of 2013, net of prepayments. The majority of net new indexed mortgage loans bear variable interest, whereas non-indexed loans bear fixed and variable interest in roughly equal proportions.

According to information from the three large commercial banks, net new lending to non-holding companies totalled about 50.7 b.kr. over this period, or an average of about 5.6 b.kr. per month, almost entirely non-indexed. Domestic companies therefore appear to be financing their activities with credit to some extent, although the majority of their investment appears to be financed from retained earings (see Section IV). The contraction in the total stock of DMB loans to companies indicates that write-offs and valuation changes have exceeded new loans granted this year.

House prices up marginally since the last *Monetary Bulletin* …

In the first nine months of the year, the number of house purchase contracts registered nationwide rose by almost 12% year-on-year. The increase in the greater Reykjavík area was just over 13%. House prices have risen by just over 1% since the last *Monetary Bulletin*. They were up by about 6% year-on-year in nominal terms in the first nine months of the year and about 2% in real terms. The increase in the first nine months is therefore broadly in line with the Bank's August forecast. Nominal house prices have risen 22½% from their end-2009 trough, and real prices are up 8% since bottoming out in late 2010. Real prices are now back to the level seen in mid-2004, just before the major structural changes in the domestic mortage market.

... and increases are well in line with developments in wages, income, and construction costs ...

The past three years' rise in house prices has been well in line with increases in wages, disposable income, and construction costs, and the ratio of house prices to these variables is close to the 20-year average. According to the Bank's baseline forecast, house prices will continue to rise in coming years. If the forecast materialises, real house prices will be about 18% above the early-2010 trough by year-end 2016.

... but smaller than the rise in rent

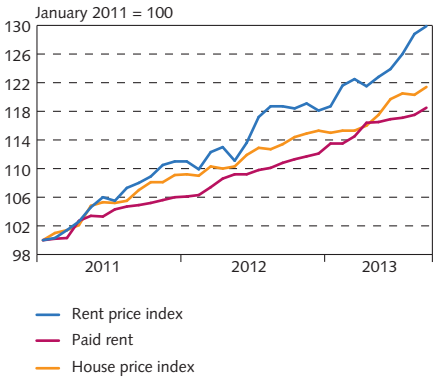
Rent has risen somewhat faster than house prices in the past two years. In the first nine months of 2013, rent in greater Reykjavík had risen by nearly 9% year-on-year. This could be due to a number of factors. The demand for large down payments and extraordinary circumstances such as forced sales has prompted a number of people, young people in particular, to turn to the rental market. The incongruity between demand and the types of housing available on the market could affect this somewhat, as could the low level of residential investment in the past five years. Another possible contributor is a temporary surge in demand due to tourism.

Equity market buoyant

As is discussed in Section II, share prices have risen year-to-date in Europe and the US. They have been rising in Iceland as well, with the Main Market index rising 21.6% and the OMXI6 rising by 12.9%. Domestic share prices have tapered off slightly in the recent term, however; the Main Market index has risen 6.2% and the OMXI6 by 0.6% since the publication of the August *Monetary Bulletin*. Turnover was up about 240% year-on-year in the first ten months of 2013, although it is still far below pre-crisis levels. There are now 15 companies listed on the NASDAQ OMX Iceland exchange, and at least three more listings are planned before the end of 2014. In response to substantial excess demand in the initial public offerings of two insurance companies admitted for trading on the exchange this spring, the Financial Supervisory Authority (FME) issued an announcement concerning the legality of bids in such offerings, with reference to legislation on market abuse. The FME also stated that, in publishing the results of the offerings, counting invalid bids as legitimate demand could be a violation of the law. The statement was made in order to prevent public discussions of demand that is actually non-existent from triggering price increases and attracting buyers on false pretences. But at the same time, price formation in the market appears to have grown more effective. Share prices were affected more strongly by six-month earnings reports than they were by end-2012 reports published at the beginning of the year, when news about performance below expectations appeared to make little impact.

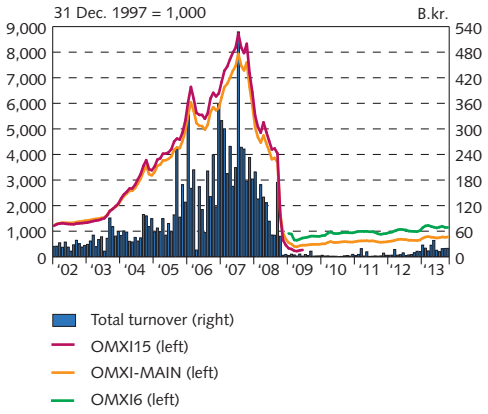
In the past year, domestic equities have increased as a share of net pension fund assets, to just over 8% as of August. The pension funds' holdings in domestic and foreign equity securities combined account for just over 12% of their net assets, well below the permissible limit of 60%. Each pension fund may own a maximum of 15%

Chart III-14
Indices for house prices, rent, and imputed rent
January 2011 - September 2013



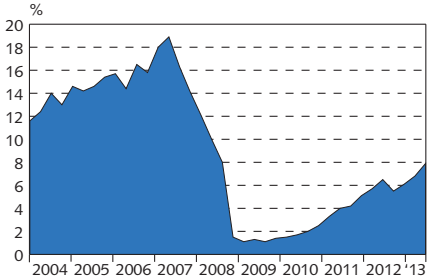
Sources: Registers Iceland, Statistics Iceland.

Chart III-15
Equity market[1]
January 2002 - October 2013



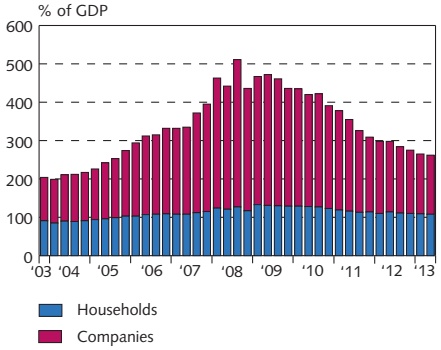
1. Total monthly volume of listed shares and monthly average of main stock indices.
Source: Nasdaq OMX Iceland.

Chart III-16
Pension funds' domestic equity securities holdings as a percentage of net assets
Q1/2004 - Q2/2013



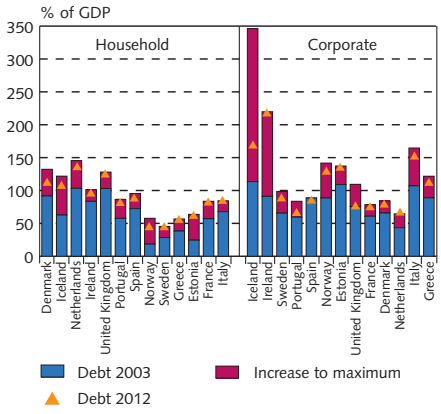
Source: Central Bank of Iceland.

Chart III-17
Corporate and household debt[1]
Q4/2003 - Q2/2013



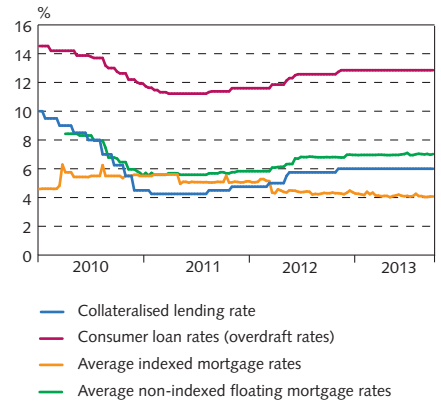
1. According to seasonally adjusted GDP figures from the Central Bank of Iceland.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-18
Developments in household and corporate debt in selected European countries[1]



1. The blue columns show household and corporate debt at year-end 2003. The red columns show the increase in debt to the highest year-end value, and the triangles show the position at year-end 2012.
Sources: Eurostat, Central Bank of Iceland.

Chart III-19
Central Bank collateralised lending rate and retail lending rates to households[1]
1 January 2010 - 21 October 2013



1. Weighted average lending rates, based on loan amount, from Arion Bank, Íslandsbanki, and Landsbankinn. Indexed mortgages bear fixed interest for at least five years and up to the entire loan period.
Source: Central Bank of Iceland.

of shares in any given company, however, and some funds' holdings in certain shares are approaching that limit. In addition, the percentage of unlisted shares has risen.

Overall, private sector financial conditions have improved

In the main, households' and firms' financial conditions have improved in the recent term. Debt to financial corporations has continued to fall and asset prices have risen, thereby increasing the private sector's net wealth. Household debt amounted to 108% of GDP at the end of Q2, a decline of 2 percentage points since the beginning of the year and about 25 percentage points from the Q1/2009 peak. Corporate debt has fallen by 11 percentage points of GDP so far in 2013. It measured 154% of GDP at the end of June, some 230 percentage points lower than in autumn 2008.[3] Private sector deleveraging therefore continues.

A similar development can be seen in the sectoral financial accounts published recently by Statistics Iceland.[4] According to the financial accounts, the book value of households' and businesses' financial net worth has grown each year for the past four years. Households' and non-profit institutions' net financial worth amounted to 125% of GDP at year-end 2012, or six percentage points higher than in 2007 and 21 percentage points higher than in 2008. The increase is due to increased pension assets and debt reduction, which weighs more heavily than the reduction in other financial assets. Non-financial corporations' financial net worth is still negative by 126% of GDP, an improvement of 62 percentage points of GDP since 2008 and 128 percentage points of GDP from the year-2007 trough. The post-crisis reduction in private sector debt has been more pronounced in Iceland than in other countries, yet debt levels remain high in international context. Private sector financial conditions will probably continue to improve when the settlement of illegal exchange rate-linked loans has been concluded. Recalculation of these loans is proceeding apace, although some cases still await judicial handling.

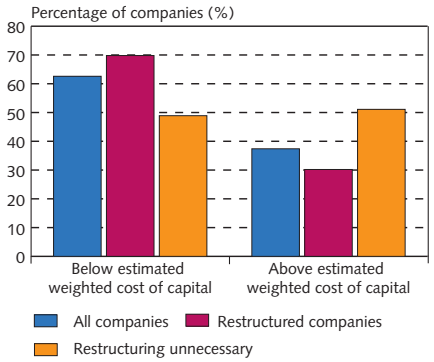
The percentage of households in default to the three largest commercial banks and the HFF has continued to fall. The number of individuals on the default register declined by 208 month-on-month in August but was still almost 1,600 higher than in August 2012 (see *Financial Stability* 2013/2). Credit appears to be relatively available to those with adequate collateral, and new household loans granted by the commercial banks have been on the rise since the beginning of the year. Interest rates on the three large banks' indexed mortgages have fallen slightly during the year, but rates on non-indexed variable-rate mortgages have remained more or less unchanged. Real interest rates on the non-indexed loans have risen in terms of current inflation after falling in Q3; however, they are still below real rates on comparable indexed mortgages.

3. The debt figures for Icelandic firms include debt of financial holding companies, as they have not been categorised specifically. Corporate debt excluding holding companies peaked at 274% of GDP in the third quarter of 2008.

4. These accounts are not prepared on a consolidated basis, however, which complicates interpretation.

There has also been a notable increase in corporate bond issuance so far this year, and the domestic equity market is gaining strength, although companies' investments still appear to be financed largely with their own cash flow. Corporate debt restructuring appears to be moving forward as well. The three large banks' corporate default levels have continued to fall this year, and bankruptcy is on the decline. However, a sizeable percentage of large Icelandic companies reported low profitability in 2012, according to a recent report by the Competition Authority.[5] Companies' position varies greatly, depending on whether they operate in the tradable sector or the non-tradable sector. The Competition Authority report also reveals that companies that have undergone financial restructuring are generally weaker than those that did not need such assistance. Even though these restructured firms' debt has been reduced significantly, they remain highly leveraged, and the firms that received deferred three-year loans on advantageous terms will have to refinance them in the near future. As a result, many firms' financial position remains relatively fragile.

Chart III-20
Profitability of large companies 2013[1]



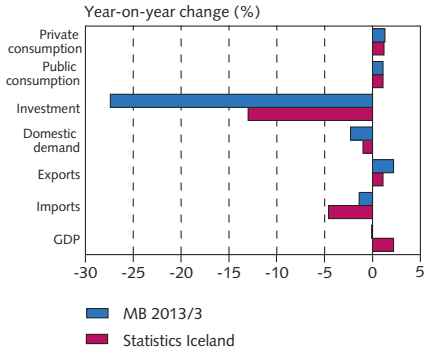
1. According to the Competition Authority's assessment of the position of 120 large operating companies, excluding banks, energy companies, energy-intensive companies, real estate firms, firms with the bulk of their turnover abroad (apart from fisheries), and most holding companies. The weighted cost of capital is estimated at 10% with reference to the analysis of Icelandic companies in 2013. Just over a third of all companies in the sample have profitability below the policy rate, as do just over half of restructured firms.
Source: Competition Authority, "Are we entering a lost decade?", *Competition Authority Report* no. 3/2013.

5. Icelandic Competition Authority, "Are we entering a lost decade?", *Competition Authority Report* no. 3/2013.

IV Domestic demand and production

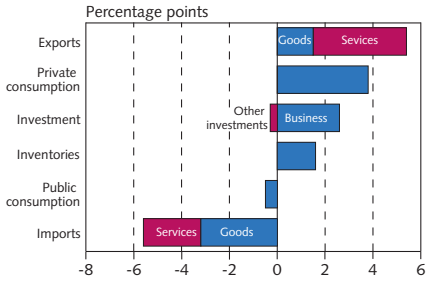
From the end of the contraction (Q1/2010) until the second quarter of 2013, GDP grew by just over 7%. The economic recovery may seem rather weak in view of the severity of the contraction following the banks' collapse, but at about 2% per year, it has proven twice as strong as the average among Iceland's principal trading partners. The recovery has been driven by growth in domestic private sector demand, which collapsed in the wake of the financial crisis, while public demand, which has been affected by necessary consolidation measures during the post-crisis period, offset growth in other domestic demand-side items. Exports – services exports in particular – have also been an important driver of the economic recovery. At the outset, a strong contraction in imports cushioned Iceland's GDP against further declines, but since the recovery began, imports have grown in tandem with the increase in domestic demand. The baseline forecast assumes that the economic recovery will continue broadly at the present pace throughout the forecast horizon. According to the forecast, output growth will measure 2.3% this year and about 2½% per year, on average, over the forecast horizon. The output slack is projected to continue narrowing in coming quarters and to disappear in the latter half of the forecast horizon.

Chart IV-1
National accounts for H1/2013 and Central Bank estimate



Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-2
Contribution of GDP components to economic recovery[1]



1. From H1/2010 - H1/2013.
Sources: Statistics Iceland, Central Bank of Iceland.

Year-2012 GDP growth broadly unchanged upon review

According to revised figures published by Statistics Iceland in September, GDP growth measured 1.4% in 2012, roughly 0.2 percentage points less than previously estimated. The revision is due primarily to a downward adjustment of growth in private and public consumption, although it was partially offset by the revision of public investment figures. Year-2011 GDP growth was also revised downwards, to 2.7%, which is exactly the average forecast in the 2011 issues of *Monetary Bulletin*.[1] Statistics Iceland's first preliminary figures estimated GDP growth at 3.1%, however. As is discussed in Box IV-1, gross national product has developed in line with GDP since the economic recovery gained a foothold in mid-2010, whereas gross national income has grown much more slowly, reflecting the erosion of terms of trade during the period (see Box II-1).

1. A review of the Bank's forecasting performance can be found in Appendix 2.

Box IV-1

Various measures of economic activity and performance

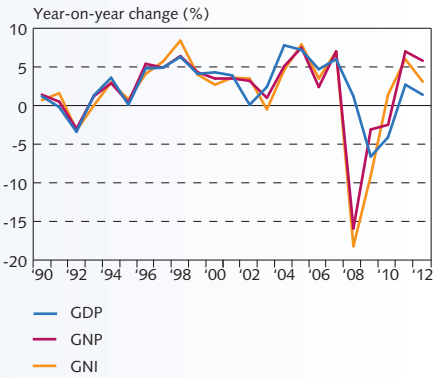
Output growth is usually measured in terms of gross domestic product (GDP), which takes account of the market value of the goods and services produced in the economy, irrespective of whether the producer is domestic or foreign. It can also be measured in terms of the market value of the nation's output, regardless of whether the production takes place domestically or abroad. This is referred to as the gross national product (GNP). The difference between the two lies in the fact that a portion of the proceeds from domestic economic activity reverts to non-residents working in Iceland, in the form of investment income and wage income. This income is there-

fore included in GDP but not in GNP. By the same token, Icelanders have investment and wage income from activities abroad that are included in GNP but not GDP. The difference between GDP and GNP therefore lies in net investment and wage income from abroad – namely, the balance on income. Because Icelanders' foreign debt exceeds their foreign assets, GNP is usually lower than GDP, largely due to the interest Icelanders pay on foreign loans. The third measure of economic activity is gross national income (GNI), which measures how much the economy receives for its production. At the price level of each year, GNI is equal to GNP, but at constant prices, GNI is adjusted for the effects of terms of trade on real export revenues: if terms of trade improve, export prices rise more than import prices and GNI at constant prices rises more than GNP. The opposite is true if terms of trade deteriorate.

As Chart 1 shows, these three measures followed broadly the same path for quite a while: in terms of changes in GDP, output growth averaged 3.3% during the period 1990-2007, whereas in terms of GNP and GNI it averaged 3.2%.

Chart 1

Gross domestic product, gross national product, and gross national income 1990-2012[1]



1. Gross national product is gross domestic product adjusted for factor income. Gross national income adjusts gross national product for the effects of changes in terms of trade. Based on official balance of payments data.

Sources: Statistics Iceland, Central Bank of Iceland.

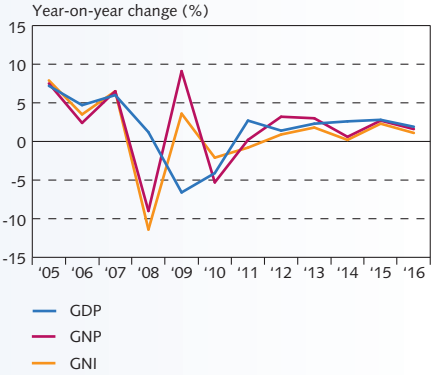
Problems in interpreting GNP and GNI in the wake of the financial crisis

As Chart 1 indicates, these three measures of economic activity began to diverge widely when the financial and economic crisis struck in 2008. GNP appears to have contracted by almost 16% in 2008 and GNI by over 18%, whereas output growth in terms of GDP measured 1.2%. GDP then contracted by 6.6% the following year, and by another 4% in 2010. The contraction in GNP appears to have been smaller over these two years, however, and GNI began to rise again as early as 2010.

The problem with these figures lies in the fact that they are based on official income account calculations. As has been discussed frequently in *Monetary Bulletin* and other Central Bank publications,[1] the official calculations give an extremely distorted view of actual developments in the balance on income, as they include calculated accrued interest income and expense on the failed banks' foreign assets and liabilities. Because the failed banks' foreign liabilities greatly exceed their assets, these amounts are substantial, but they do not reflect actual disbursements from the estates, as they will probably never be paid. In its estimates of actual developments in Iceland's balance on income, current account balance, and foreign liabilities, the Bank has attempted to adjust for the effects of these items.[2] The same should be done for estimates of GNP and GNI from 2008 onwards in order to obtain a more accurate view of developments in these variables since the collapse of the banking system.

Chart 2

Gross domestic product, gross national product, and gross national income 2005-2016[1]



1. Gross national product is gross domestic product adjusted for factor income. Gross national income adjusts gross national product for the effects of changes in terms of trade. Based on estimated underlying factor income. Central Bank baseline forecast 2013-2016.

Sources: Statistics Iceland, Central Bank of Iceland.

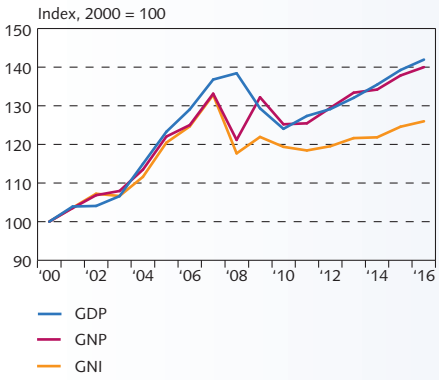
Estimating GNP and GNI after adjusting for the effects of the failed banks on the balance on income

Chart 2 illustrates developments in these three variables from 2005 onwards, using the Central Bank's estimate of the underlying balance on income to calculate GNP and GNI. The contraction in GNP and GNI in 2008 is much smaller in terms of the underlying balance on income (i.e., if adjustments are made for the effects of the failed banks) than in terms of the official balance on income. Moreover, a slight improvement in both measures can be seen in 2009 instead of

1. For a more detailed discussion and explanation of the methodology, see Section VII of this report and previous issues of *Monetary Bulletin* and the Central Bank report "Iceland's underlying external position and balance of payments", *Special Publication* no. 9.
2. Also adjusted for the effects of the settlement of their estates and for the effects of the pharmaceuticals company Actavis.

Chart 3

Gross domestic product, gross national product, and gross national income 2000-2016[1]



1. Gross national product is gross domestic product adjusted for factor income. Gross national income adjusts gross national product for the effects of changes in terms of trade. Based on estimated underlying factor income. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

a contraction. Estimates of economic developments in 2008-2009 therefore differ greatly, depending on whether developments are viewed in terms of GDP or in terms of GNP and GNI, or whether the estimates are based on the official balance on income or the estimated underlying balance on income.

The interpretation of the estimate of underlying GNP and GNI in 2008-2009 is complicated, however by the fact that the failed banks' liabilities are included in the assessment of the underlying balance on income for the first three quarters of 2008 but are then omitted in the fourth quarter, when the banks became insolvent. As a result, the underlying income account deficit grew markedly in 2008, as did the official income account deficit,[3] but then narrowed sharply in 2009, when the factor income and expense related to the failed banks were excluded. This explains why GNP and GNI fluctuate widely between 2008 and 2009 when the underlying balance on income is used for the calculations.

In interpreting the divergent developments in the three measures of economic activity from 2008 onwards, it is therefore preferable to focus on the period as a whole rather than examining growth from year to year, particularly in the early part of the period. Such a comparison is shown in Chart 3. The chart shows that the contraction in GDP from its pre-crisis peak to its post-crisis trough measured about 10½%, while the contraction in underlying GNP was about 9% and the contraction in underlying GNI was 11½%.[4] The economic contraction in the wake of the financial crisis is therefore highly similar in terms of these three variables, although GDP contracted somewhat more than GNP. Because terms of trade deteriorated during this period, GNI contracted more than GDP.

By the same token, since the economic recovery began in 2010, it has followed a similar path in terms of either GDP or GNP. Based on the Central Bank's forecast for 2013, GDP and GNP have grown by about 6½% since 2010. The increase in GNI has been much smaller, however, at only 1.9%, owing to the above-mentioned deterioration in terms of trade. If the baseline forecast materialises, GDP and GNP will continue to develop along similar lines throughout the forecast horizon, whereas GNI growth will remain weak. Output will therefore grow somewhat faster than the economy's proceeds from its output, as the outlook for terms of trade is unfavourable.[5]

3. This abrupt widening of the income account deficit reflects, among other things, the steep depreciation of the króna in 2008.
4. Based on the official balance on income, the contraction in GNP measured 21½% and the contraction in GNI nearly 26%.
5. Further discussion of developments and prospects for terms of trade can be found in Box II-1 in this *Monetary Bulletin*.

Output growth stronger in H1/2013 than projected in the August forecast

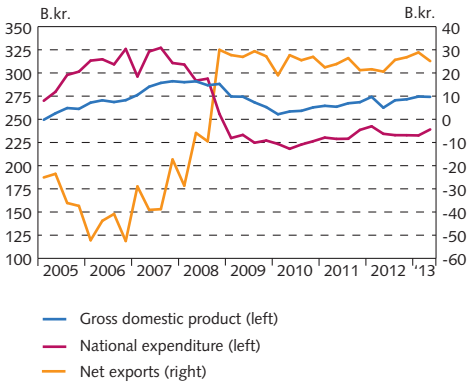
In September, Statistics Iceland published its first national accounts estimates for Q2, together with a revision of the previous estimates for Q1. Annual GDP growth in Q2/2012 measured 4.2%; however, seasonally adjusted GDP contracted by 0.1% from the previous quarter.[2] Because of wide fluctuations in inventory changes, a more accurate view of underlying economic developments can usually be obtained by examining the first two quarters of the year together. Such an examination reveals that output growth measured 2.2% in H1, well above the forecast in the August *Monetary Bulletin*, which assumed that GDP would remain virtually unchanged. The deviation is due primarily to stronger business investment and a sharper contraction in services imports. The contraction in business investment was nearly 9 percentage points less than previously forecast, as business investment excluding investment in ships and aircraft grew by about 4.8% in the first half of the year. Services imports contracted by about 5%, as opposed to the 3.9% contraction assumed in the August forecast. As before, the economic recovery has been fuelled mainly by domestic private sector demand and exports, particularly services exports. As is discussed in Box IV-2, this reflects the strong shift in the factors of production from the non-tradable to the tradable sector in the wake of the financial crisis.

Chart IV-3

GDP, national expenditure and net exports

Q1/2005 - Q2/2013.

Seasonally adjusted at the year-2005 prices[1]



1. Because of chain linkage, the sum of national expenditure and net exports does not necessarily add up to GDP. The figures are seasonally adjusted by the Central Bank of Iceland.

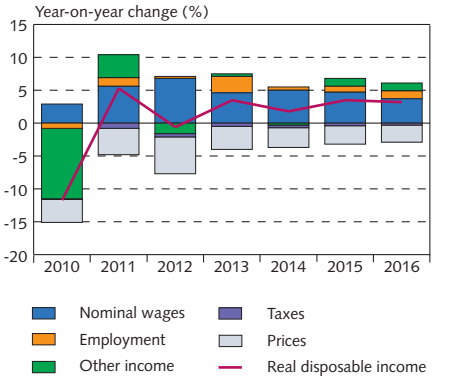
Sources: Statistics Iceland, Central Bank of Iceland.

Real disposable income less in 2012 than previously forecast

According to the household disposable income accounts published by Statistics Iceland in October, households' real disposable income contracted by 0.6% year-on-year in 2012.[3] This diverges considerably from the forecast in the August *Monetary Bulletin*, which projected that real disposable income had grown by some 3%. It should be noted that a number of factors are considered when accounting for household disposable income. Among other things, there is the estimated operating surplus generated by living in owner-occupied housing, which accounts for about a third of the forecasting error. Wage income also rose less markedly than forecast, as did net investment income. On the other hand, income from transfers was higher than was assumed in the forecast. Nevertheless, real wages rose by 3.2% in 2012, whereas the increase in total hours worked was just under ½%; therefore, real labour income rose markedly.

Chart IV-4

Developments in real disposable income and its main components 2010-2016[1]



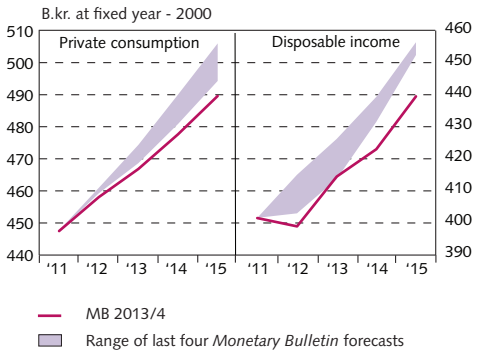
1. Central Bank baseline forecast 2013-2016. The contribution of the main underlying factors in the yearly changes in real disposable income is calculated based on each factor's weight in disposable income. The combined contribution of underlying factors does not add up to the total change due to rounding and incomplete income accounts for households from Statistics Iceland.

Sources: Statistic Iceland, Central Bank of Iceland.

2. Based on seasonally adjusted figures from the Central Bank. Statistics Iceland's seasonally adjusted figures showed a 6.5% contraction between quarters. The difference lies in the methods used for seasonal adjustment. The Central Bank adjusts GDP directly, while Statistics Iceland calculates the sum of seasonally adjusted subcomponents of GDP. The Central Bank also uses forecasts of GDP through 2016 in its calculations in order to avoid known problems with the endpoint of the seasonally adjusted series. As is discussed in Box IV-1 in *Monetary Bulletin* 2012/4, the approach used by Statistics Iceland is quite flawed: the figures are highly volatile, and revisions of them between publications are often substantial and far in excess of the revision of the original data. The problem with the Statistics Iceland figures is manifest, for instance, in the fact that, according to those figures, the contraction between Q1 and Q2/2013 was the largest in the period covered by quarterly national accounts, and over a percentage point more than when the economic crisis struck in the beginning of 2009.

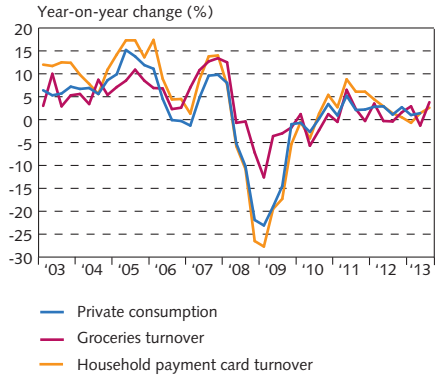
3. According to Statistics Iceland figures, real disposable income contracted by about 0.2%. The difference is due to the fact that the Central Bank uses the private consumption price index to deflate disposable income, while Statistics Iceland uses the CPI.

Chart IV-5
Private consumption and disposable income
Comparison to last four *Monetary Bulletin* forecasts



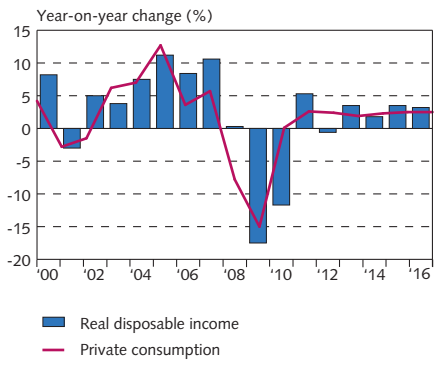
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-6
Private consumption, groceries and payment card turnover
Q1/2003 - Q3/2013[1]



1. Figures for private consumption are only available until Q2/2013.
Sources: Centre for Retail Studies, Statistics Iceland, Central Bank of Iceland.

Chart IV-7
Private consumption and real disposable income 2000-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Although the part of the forecasting error due to the calculated operating profit from living in owner-occupied property may not have a major impact on households' consumption decisions, at least in the short run, the fact remains that households' disposable income was somewhat less than was projected in August. This could explain in part why the Bank's forecasts of this year's private consumption have repeatedly been revised downwards (see Chart IV-5). Real disposable income is estimated to grow by about 3.5% this year, due largely to an increase in real labour income. It is expected to grow by just under 2% next year, due also to real labour income, but including as well the income tax reduction and increase in the personal deduction provided for in the 2014 fiscal budget proposal. Real disposable income is forecast to grow by 3-3½% change per year in 2015-2016.

Private consumption growth has diminished in recent quarters

Private consumption growth in the first half of the year was well in line with the August forecast, even though the forecasted distribution between the first and second quarters was different from that indicated in the preliminary figures. H1 growth was measured from a lower level, however, as year-2012 private consumption was adjusted downward by 0.3 percentage points in Statistics Iceland's revised figures. As expected, private consumption growth has been weaker in recent quarters than it was in 2011 and H1/2012. This may be because growth in real labour income has not sufficed to offset the reduction in stimulative measures such as third-pillar pension savings withdrawals and the special mortgage interest allowances paid out in 2011 and 2012.

Indicators for Q3 suggest minimal quarter-on-quarter growth in private consumption, and the forecast estimates year-on-year growth at 2.1% during the quarter. For the year as a whole, growth is projected at 1.9%, similar to the August forecast. In view of the recent recovery of the labour market, the forecast may be on the low side, yet high-frequency indicators of private consumption imply that growth will be modest.

Private consumption unchanged relative to GDP for most of the forecast horizon

The outlook for private consumption over the next few years is highly uncertain. The Government has issued a statement on relief measures for indebted households, and according to the coalition agreement, changes to the tax system are proposed as well. At the same time, the Government aims to bring public finances into balance; therefore, changes on the expenditures side of the budget can be expected. It is clear that changes of the type proposed could make a profound effect on household demand; therefore, the outlook for private consumption is uncertain until it is known how extensive the changes will be. The upcoming wage negotiations are another source of uncertainty. Moreover, household debt is still quite high, and although it has tapered off in the recent term, it will probably continue to impede private consumption growth (see Section III).

As the forecast horizon progresses, private consumption is projected to follow developments in the chief determinants of demand,

such as employment levels, real wages, and households' net worth. The forecast assumes that private consumption will grow by 2.3% in 2014 and by approximately 2½% per year throughout the forecast horizon, somewhat lower than in the August forecast. As a share of GDP, it is expected to grow only marginally from last year's 54%. The share of private consumption in GDP bottomed out at 51% in 2009.

Outlook for public consumption and investment broadly unchanged from the previous forecast

Estimated public consumption figures for 2012 changed markedly with the revision of the national accounts in September. Public consumption is now projected to have contracted by 1.4% instead of the previously estimated 0.2%. Offsetting this, however, the contraction in public investment was adjusted downwards upon revision. Public consumption is expected to grow by 1.2% this year and by 0.4-0.7% per year through 2016, which is broadly in line with the August forecast. Public investment growth is projected at 12% instead of the 8½% provided for in the previous forecast. The pace of growth is forecast to slow down in coming years, and a contraction of just over 4% is expected in 2016, when the Vaðlaheiðargöng tunnel and other development projects are scheduled for completion. The outlook is for the contribution of public spending to output growth to be broadly in line with previous assumptions. A positive contribution in the amount of 0.5 percentage points is expected this year, followed by 0.1-0.3 percentage points per year through 2016. Public sector finances are discussed in Section V.

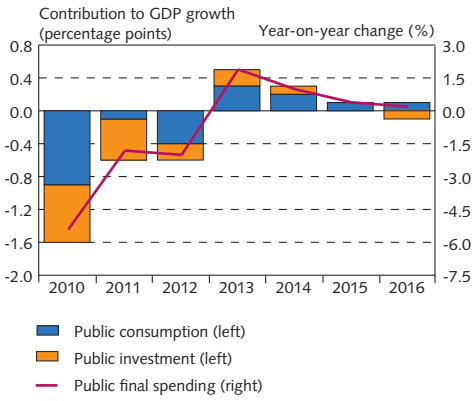
Energy-intensive investment to rise in the next two years ...

According to preliminary data from Statistics Iceland, investment related to the energy-intensive sector contracted by over a fourth in 2012 and by a further 17½% in the first half of 2013. This is over 5 percentage points more than was assumed in the August forecast. These figures do not accord with data for companies in the energy-intensive sector, which indicate more large-scale investment than is projected in the August forecast. Offsetting this, however, growth in 2014 is expected to be somewhat weaker than was assumed in the last *Monetary Bulletin*. As in the August forecast, a surge in energy-intensive investment is projected for 2015, followed by a steep contraction when projects are completed in 2016. Overall, the forecast assumes that investment will be about 6½% more over the forecast horizon than was expected in August.

... and other business investment to grow more strongly than previously forecast

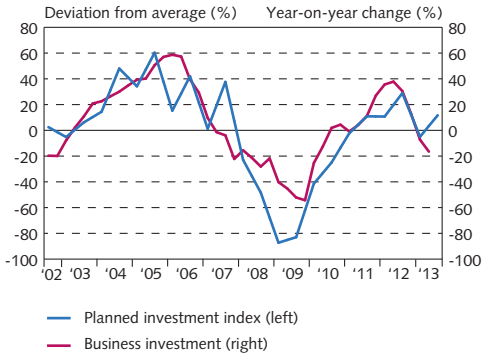
As has previously been shown, output growth outpaced the August forecast in H1/2012, largely because of stronger business investment. General business investment (i.e., excluding energy-intensive industry and ships and aircraft) was stronger than expected in H1/2013, at about 6% of GDP. This was a full ½ percentage point above the August forecast, which was more pessimistic than previous Central Bank forecasts as regards the outlook for investment. Recent indi-

Chart IV-8
Public consumption and investment 2010-2016[1]



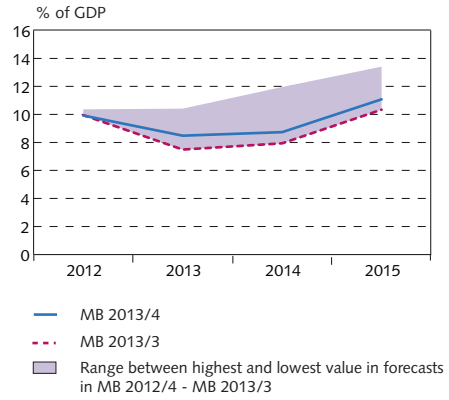
1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-9
Business investment and planned investment index[1]



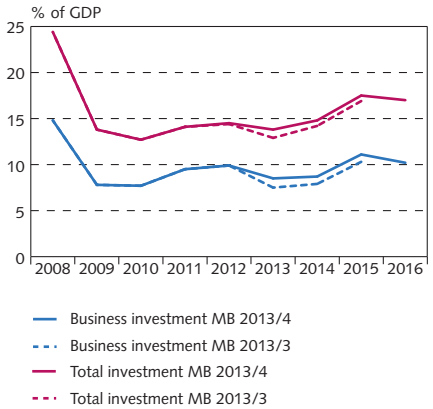
1. The blue line shows the index of year-on-year changes in business investment according to the Capacent Gallup survey among Iceland's 400 largest firms. The red line shows the four-quarter moving average of annual changes in business investment. Figures for investment extend only to Q2/2013.
Sources: Capacent Gallup, Statistics Iceland, Central Bank of Iceland.

Chart IV-10
Business investment in *Monetary Bulletin* forecasts 2012/4-2013/4[1]



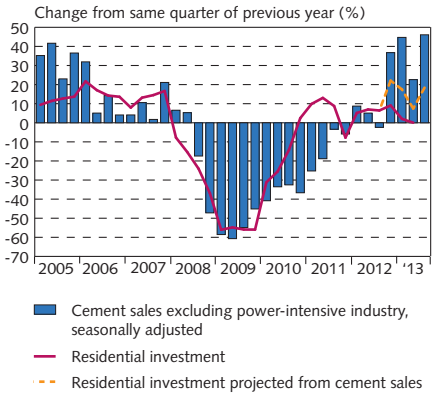
1. Central Bank baseline forecast 2013-2015.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-11
Investment relative to GDP 2008-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-12
Residential investment and cement sales excluding power-intensive manufacturing[1]



1. Residential investment in real terms and cement sales in tonnes.
Sources: Aalborg Portland Ísland hf., Sementsverksmiðjan hf., Statistics Iceland, Central Bank of Iceland.

cators of developments in business investment point in the same direction. According to the Central Bank's autumn 2013 survey of 55 firms' investment plans, respondents are somewhat more interested in investing than in the previous survey, conducted in March. A separate survey among hotels and guesthouses indicated an increase in planned hotel investments in 2013 and 2014. In addition, projects financed through the Central Bank Investment Programme will contribute somewhat to investment next year. These surveys also indicate that increased investment will be credit-financed to a greater degree in 2014, whereas in the recent past, firms have financed their investments with retained earnings. Indications of increased willingness to invest can also be seen in the Capacent Gallup survey from September, in which the percentage of executives who expect to invest more this year than last year rose by about 3 percentage points, to 25%, from the spring 2013 survey, and the proportion who envisaged a reduction in investment over the same period fell from 30% to 24%.

Table IV-1 Survey of corporate investment plans (excluding ships and aircraft)

Largest 55 firms B.kr.	*2012*	*Change between 2012 and 2013 (last survey)[1]*	*Change between 2013 and 2014*
Fisheries (11)	8.1	-1.0% (-19.1%)	-11.1%
Manufacturing (9)	6.2	-13.1% (35.3%)	36.2%
Wholesale and retail sale (8)	4.2	-17.7% (-22.9%)	-14.4%
Transport and tourism (7)	10.2	-6.3% (5.7%)	37.4%
Finance/Insurance (4)	2.8	-2.7% (20.2%)	47.1%
Media and IT (8)	5.4	21.8% (15.6%)	4.1%
Services and other (8)	9.0	-0.2% (-3.1%)	0.7%
Total (55)	45.9	-2.6% (-6.4%)	4.2%

1. In parentheses is a paired comparison with the last survey, discussed in *Monetary Bulletin* 2013/2, in which respondents from 134 firms were asked about investment plans for 2012 and 2013.

Business investment outlook stronger than in the last forecast

This year's business investment figures show a steep contraction in investment in ships and aircraft, following strong growth in 2012. In line with investment plans in the fisheries and transport sectors, investments in ships and aircraft are now expected to contract less in 2013 than according to the August forecast, and to grow more markedly in the coming two years.

Business investment has played an important role in the economic recovery since 2010 and is forecast to continue doing so. On the whole, it is expected to be somewhat stronger this year than was projected in August. The forecast is for a 13% contraction, which is an improvement of almost 8 percentage points over the August forecast. Business investment is expected to grow by nearly 5% next year, somewhat less than in the last forecast, owing to weaker growth in energy-intensive investment. In 2015, growth is projected to gain further momentum, measuring over 30%, due to increased activity in the energy-intensive sector. A contraction of almost 6% is expected in 2016, however, when these projects are completed. If the forecast materialises, the ratio of business investment to GDP will be just over 10% by the end of the forecast horizon, as was assumed in August, or about 2 percentage points below the 30-year average.

Residential investment weaker in 2013 according to Statistics Iceland than assumed in the August forecast

Residential investment has grown rather steadily since the economic recovery began, rising by nearly a fifth from its Q2/2010 trough until Q2/2013. The pace seems to have slowed in the past two quarters, however. In Q2/2013, it was unchanged year-on-year and up by slightly more than 1% from the previous six-month period. This modest growth was somewhat surprising in view of the main indicators of residential investment. According to figures compiled by the Federation of Icelandic Industries in September, about 1,700 flats are currently under construction in Southwest Iceland, some 400 more than at this time a year ago. This total includes about 900 flats that are weather-proof or at a more advanced stage of construction. In addition, imports of building materials rose by 9% and in particular, cement sales net of sales to the energy-intensive industry, have risen by 37% year-on year over the first nine months of 2013. The forecast therefore assumes that residential investment will gain momentum in H2 but will grow less over the year as a whole than was assumed in the August forecast, or about 20%. For 2014-2016, growth is estimated to average just under 18% per year. In 2016, residential investment is projected at 4.8% of GDP, close to the 30-year average.

Total investment approaches its long-term average

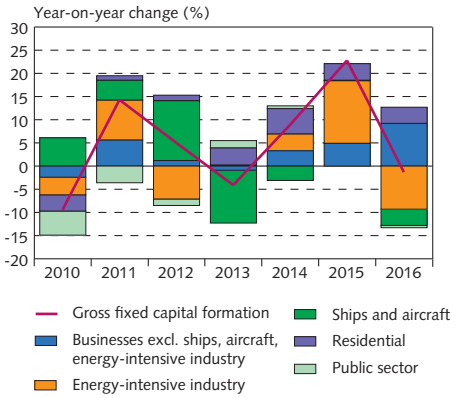
Since the economic crisis struck, the investment level has been considerably below its long-term average. Between 2009 and 2012 it averaged just shy of 14% of GDP, well below the 30-year average of slightly over 20%. The forecast assumes that the contribution of business investment to total investment will fluctuate rather widely over the forecast horizon. This is caused primarily by fluctuations in investments in energy-intensive industry and ships and aircraft, whereas the contribution from residential investment is expected to remain relatively stable. Total investment is projected to contract by 4.1% this year (but grow to nearly 10% excluding investments in ships and aircraft) and then grow by 9% in 2014 and nearly 23% in 2015, when energy-intensive development projects peak. In 2016 it is projected to contract by just over 1%, as these projects will be more or less complete by then. If the forecast materialises, investment will be about 17% of GDP towards the end of the forecast horizon, somewhat more than was projected in August.

Net trade a major contributor to output growth in 2013 ...

Export growth measured 1.1% in the first half of the year, which is below the August forecast, primarily due to weaker-than-expected services exports (see Section II). In the first half of the year, imports contracted by 4.6%, far more than the 1.4% assumed in the August forecast. The deviation is due primarily to weaker-than-expected services imports, particularly the subcomponent "other services", which grew strongly in the wake of the crisis (see Section VII). Even though imports are forecast to grow less strongly than was assumed in August, the contribution from net trade will be somewhat less than

Chart IV-13

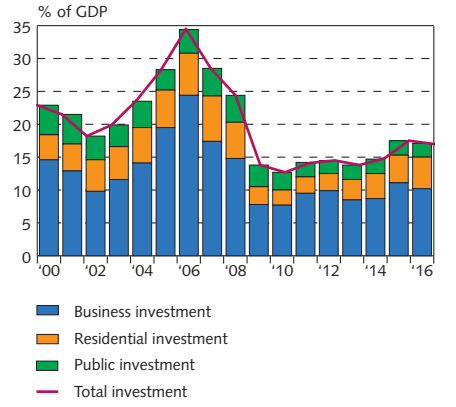
Gross fixed capital formation and contribution of its main components 2010-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-14

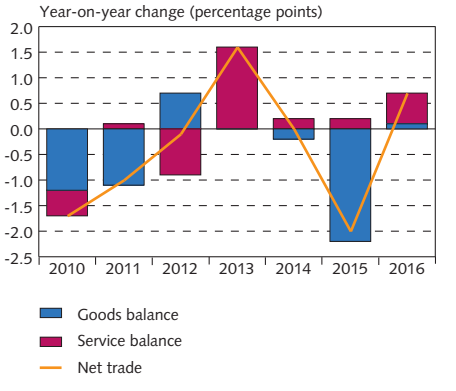
Investment relative to GDP 2000-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

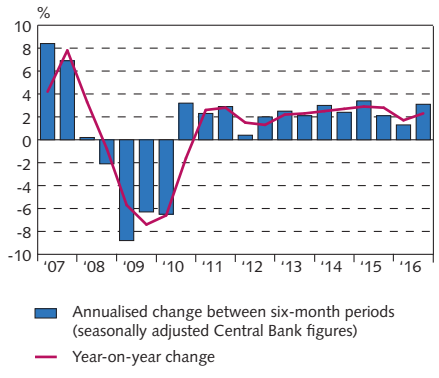
Chart IV-15

Contribution of net trade to GDP growth 2010-2016[1]



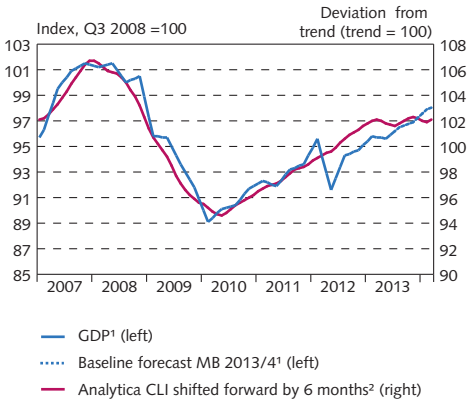
1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-16
GDP growth by six-month periods[1]
H1/2007 - H2/2016



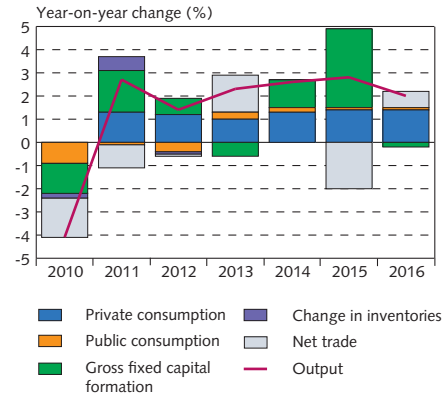
1. Central Bank baseline forecast H2/2013 - H2/2016.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-17
Analytica's Composite Leading Indicator[1]
January 2007 - March 2014



1. GDP (seasonally adjusted by the Central Bank) and Central Bank baseline forecast Q3/2013 - Q1/2014. Monthly figures obtained with linear interpolation. 2. Composed of fish catches, inflation-adjusted debit card turnover, number of tourists visiting Iceland, the MSCI world equities index, inflation-adjusted imports, and the Gallup Consumer Confidence Index.
Sources: Analytica, Statistics Iceland, Central Bank of Iceland.

Chart IV-18
GDP growth and contribution of underlying components 2010-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

was expected at that time, owing to the prospect of weaker exports and stronger imports in the latter half of the year. Nevertheless, if the forecast materialises, the contribution from net trade will be positive by 1.6 percentage points this year, making trade the primary driver of 2013 output growth.

… but a weak contributor over the forecast horizon as a whole

Goods and services imports are projected to grow in 2014, but export growth is expected to be strong enough to prevent the contribution of net trade to output growth from being negative. In 2015, however, imports are expected to grow strongly in connection with energy-intensive investment projects, and the contribution of net trade to output growth is forecast to be negative by 2 percentage points. A mild turnaround is expected in 2016, with the contribution from net trade projected to be positive by just over ½ a percentage point. In comparison with the August forecast, trade will contribute more strongly to output growth in 2014, whereas the outlook for 2015 is broadly unchanged.

H2/2013 output growth broadly unchanged from recent periods

As is stated above, output growth measured 2.2% in H1 and, from the trough in Q1/2010 until Q2/2013, GDP grew by just over 7%. In H2/2013, output growth is expected to measure about 2.3%, very similar to that in the first half. If this forecast is borne out, year-2013 output growth will be 2.3%, or 0.4 percentage points more than was forecast in August. The main drivers of this year's output growth are external trade and private consumption, although their contribution is expected to be weaker than in the last forecast. Output growth is forecast at 2.5% in H1/2014 and 2.6% for 2014 as a whole, which is slightly below the August forecast. Analytica's Composite Leading Indicator (CLI) may suggest that output growth for the next two quarters is overestimated in the Bank's forecasts; however, it should be noted that the CLI implied that growth in 2012 and into 2013 would be stronger than Statistics Iceland figures indicate.[4] On the other hand, the improving employment situation and indicators of investment suggest that this year's growth could exceed the forecast.

Recovery of domestic demand drives output growth

Year-2014 output growth is due in large part to growth in private consumption and investment. The same is true of 2015, when output growth is projected at 2.8%, or 0.1 percentage point less than was forecast in August. Investment growth will be a prominent factor in 2015, but it will be supplemented by private consumption, which will contribute nearly 1½ percentage points to output growth, while the contribution from net trade will be negative. The forecast horizon now extends to 2016, when output growth is expected to measure 2%. It

4. Analytica's Composite Leading Indicator (CLI) is composed of six components (fish catches, inflation-adjusted debit card turnover, number of tourists visiting Iceland, the MSCI world equities index, inflation-adjusted imports, and the Gallup Consumer Confidence Index). It is based on OECD methodology and is intended to give an indication of developments in GDP six months ahead, particularly to include reversals in GDP. As yet, experience of this CLI is too limited to allow for an appraisal of its applicability to Iceland.

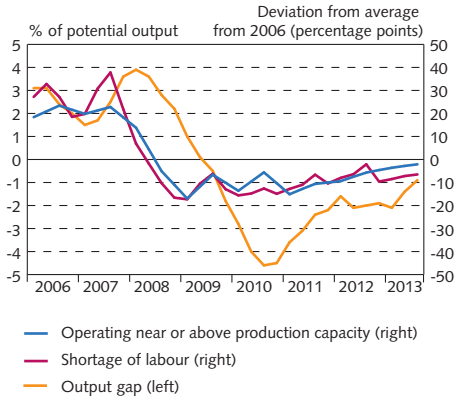
will be driven largely by private consumption, although net trade will also make a positive contribution.

Output close to its potential in the latter half of the forecast horizon

Estimates of potential output are generally subject to some uncertainty, and major changes like those taking place in Iceland in the wake of the financial system collapse are hardly conducive to reducing that uncertainty. Previous issues of *Monetary Bulletin* have included discussions of the possibility that a portion of potential output may have been permanently lost as a result of the crisis, which means that the output slack (that is, the difference between output and potential output) developing after 2008 may have been somewhat smaller than the contraction in GDP alone would indicate.[5] Output growth has been at or below the long-term average since the economic recovery began, but growth in potential output has been estimated to be even slower, owing to a weak investment level that has not kept pace with depreciation and stagnation in the number of persons of working age in the country. Because of these two factors, the margin of spare capacity in the economy has narrowed. Other indicators of developments in the output gap point in the same direction. For instance, the percentage of executives who consider their firms to be operating at or above capacity has risen steadily in the recent term. In the last Capacent Gallup survey among executives of Iceland's 400 largest companies, this percentage was just below its average and was at its highest point since spring 2008. The percentage of firms that consider themselves understaffed has risen as well. These indicators and labour market developments could perhaps suggest that the slack in the economy has been overestimated in Central Bank forecasts (see Box VI-1).

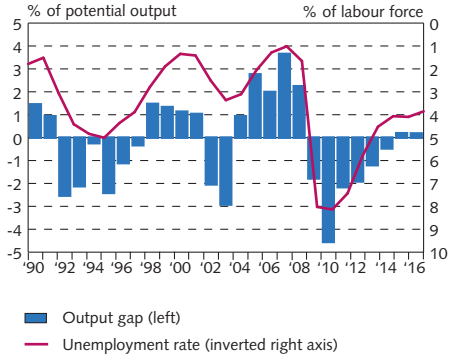
The output slack in 2012 is estimated at just under 2% of potential output, which is 0.3 percentage points less than in 2011. The slack has diminished more slowly than was assumed in the August forecast, reflecting in part the downward adjustment of 2011-2012 output growth figures in the revision of the national accounts. The slack is expected to continue to narrow, measuring just over 1% in 2013 and ½% in 2014. In 2015 and 2016, output is projected to be close to its potential.

Chart IV-19
Indicators of use of production factors and output gap[1]



1. According to Capacent Gallup Sentiment Survey among Iceland's 400 largest firms. Data on response to unexpected demand are reported semiannually; therefore, a linear interpolation is used to generate quarterly data. Output gap is the Central Bank's estimate.
Sources: Capacent Gallup, Central Bank of Iceland.

Chart IV-20
Output gap and unemployment 1990-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

5. For further discussion, see Box IV-1 in *Monetary Bulletin* 2011/4.

Box IV-2

Indicators of internal adjustment of the economy and the shift of production from the non-tradable to the tradable sector

Economies are always adjusting, in that the factors of production shift from sector to sector and individual sectors' share in output inevitably changes over time. However, the adjustment taking place in the Icelandic economy in recent years is much more pronounced than that occurring under normal conditions. This Box describes that adjustment. It shows that production takes place increasingly in the tradable sector, which benefits from the low real exchange rate of the króna, instead of the non-tradable sectors, which grew rapidly during the pre-crisis upswing.[1]

Economic recovery driven by exports and related sectors

The expenditure approach in the national accounts shows the adjustment that has taken place in consumption, investment, and net trade, and it shows clearly, for instance, how a portion of the contractionary effect of the financial crisis was directed out of the domestic economy through a steep contraction in imports. With the production approach to the national accounts, it is possible to analyse economic developments by sector and to examine both the adjustment that has taken place in production and the contribution of various sectors to both the post-crisis contraction and the economic recovery that began in 2010.[2]

The post-crisis contraction in gross factor income (GFI) was most pronounced in the sectors that had grown the most before the crisis, particularly construction, financial services, and retail trade (see Chart 1). The Statistics Iceland labour market survey bears this out: between 2008 and 2010 the number of jobs fell by 7,500 in construction, nearly 5,000 in retail trade, and about 800 in financial services (see Chart 2). Jobs in the construction sector continued to decline in number, with the number of jobs lost in 2008-2012 equal to all of the jobs in the financial services sector at the top of the upswing.

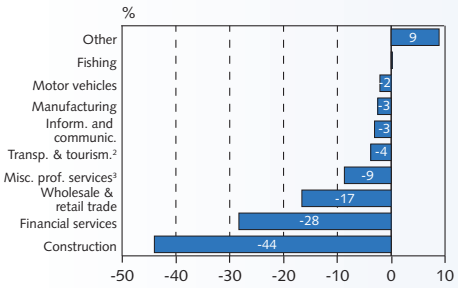
From 2010 to 2012, the economic recovery was driven by exports and related activities. About 41½% of the increase in GFI since 2010 is due to growth in transport, travel agency operations, hotels and restaurants, and non-real estate leasing (such as motor vehicle rentals). The fisheries sector contributed another 14% to the recovery. In the domestic private sector, the contribution was greatest in wholesale and retail trade (apart from motor vehicles). This reflects both the increase in private consumption during the period and the fact that the wholesale and retail trade sector benefits from growth in tourism (see Chart 3). The labour market survey supports this. According to the survey, since 2008 some 2,000 jobs have been created in hotel and restaurant services, nearly 1,300 in the fishing industry, and 500 in transport and transportation (see Chart 2).

Firms' adjustment appears to have centred on cutting employee compensation in response to increased cost of capital and reduced demand

The production accounts can also be used to examine the distribution of the returns on production between wage-earners and com-

Chart 1

Sectoral contributions to the economic contraction in 2008-2010[1]

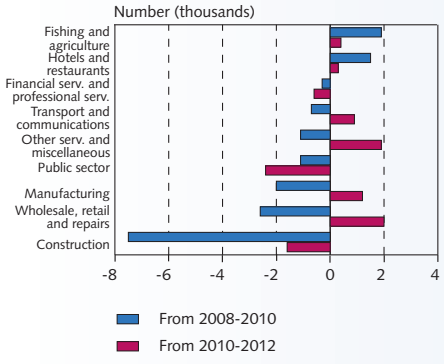


1. Based on gross domestic factor income according to the production approach to the national accounts. 2. This group includes transport and storage, accommodation and food services, travel agencies, and rental and leasing activities (other than housing). 3. Without travel agencies and rental and leasing activities.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2

Changes in the number of employed[1]



1. People are classified as employed if they worked one hour or more during the reference week or were absent from the work they usually carry out.

Sources: Statistics Iceland, Central Bank of Iceland.

1. An analysis can never be better than the available data allow, and among the problems involved in interpreting and analysing these data is the challenge of determining which companies belong to the tradable sector. This Box is based on the production approach to national accounts, together with other data on the labour market and companies' operations, fixed capital, financial assets, and liabilities.
2. The expenditure approach shows the distribution of GDP by allocation to private consumption, public consumption, investment, and external trade. On the other hand, the production approach shows in which sectors output is generated. Gross factor income (GFI) measures the value of the production of goods and services taking place in the economy. The difference between GDP and GFI is that indirect taxes are not included in factor income, as they are not part of companies' revenues, whereas manufacturing subsidies are included. Figures on year-2012 GFI at constant prices are not yet available, but volume indices can be used to produce an estimate.

pany owners, as GFI is the sum of employee compensation, operating surplus, and consumption of fixed capital.[3] Until 2007, the pre-crisis upswing was characterised by rapid growth in wage costs and an increase in wage-earners' share of the returns on production. An abrupt turnaround took place in 2007-2009, however, when employee compensation contracted by nearly a fourth at constant prices and wage-earners' share declined (see Chart 4). The contraction in wage costs was greatest in construction and domestic services, where the most jobs were lost, and least in export sectors. The contraction in total hours worked was even steeper than the loss of jobs indicates, as average hours worked declined. Wage-earners' share of the returns on production has increased somewhat since 2009 in nearly all sectors of the economy.

Firms' operating surplus and their owners' share of the returns on production rose sharply in 2007-2009, when employee compensation fell (see Charts 4 and 5). It should be borne in mind, however, that according to the production approach, firms' operating surplus shows their profit before interest payments; therefore, it does not indicate what their actual profits will be net of the cost of capital. Nonetheless, Statistics Iceland's financial accounts of enterprises can be used to estimate how much firms' net profit has deviated from their operating surplus.[4] The difference was substantial in 2008, when nearly all economic sectors generated huge net losses in spite of positive operating surpluses. The lion's share of their enormous cost of capital in 2008 was due to the depreciation of the króna and the resultant spike in inflation. In 2009-2011, their operating surpluses reflected their net profit more closely. It is clear that firms in the tradable sector performed much better than those in the non-tradable sector (see Chart 6), but losses in 2008 weighed so heavily that the entire period from 2008-2011 shows a net loss for most sectors. It is clear that, if this year's and last year's profits prove to be similar to those in 2011, companies in the tradable sector have been generating strong profits for the entire period from 2008 to 2013, while firms in domestic services and construction still have some ground to cover to make up for the previous period's losses.

Firms' capital stock grew only marginally despite heavy pre-crisis debt accumulation, and the recovery of investment has been weak

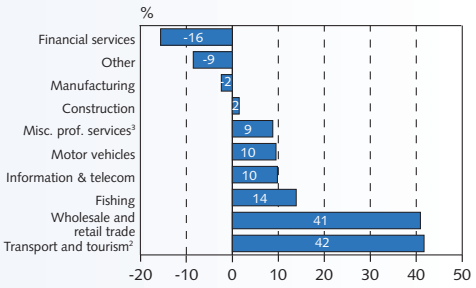
It is clear from the discussion above that production has shifted increasingly to the tradable sector and that the labour force has shifted as well. On the other hand, a major adjustment must also take place in other factors of production, and there is the risk that such an adjustment could take considerable time. An examination of developments in capital stock by sector suggests that firms' rapid debt accumulation before the crisis was due to the acquisition of financial assets rather than investment in capital stock accumulation. This is a key factor because the importance of capital stock lies in its being used to produce other goods and services, which tends to strengthen the potential output of the economy. Growth in capital stock dur-

3. The income approach would be preferable, as it is based on estimating added value after it has been allocated to the sectors that participate in its creation. Unfortunately, income accounts are not yet available for all sectors in Iceland.

4. Statistics Iceland compiles statistics for financial accounts of enterprises, mostly using standard annual accounts submitted to the tax authorities by firms in all sectors. This information now extends to over 90% of all companies in the country, but the accounts are published with a considerable time lag, and the figures for 2012 have not yet been released. This Box is based on these data, but they have been entered at fixed year-2005 prices, and they exclude financial companies and the category "real estate companies and miscellaneous professional services", in which holding companies predominate.

Chart 3

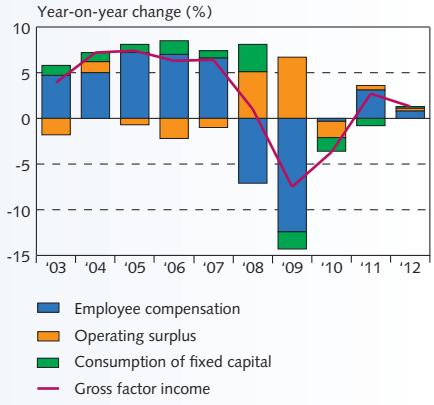
Selected sectors' estimated contribution to the economic recovery in 2010-2012[1]



1. Based on gross domestic factor income according to the production approach to the national accounts 2010-2012 where the 2012 value is assessed from volume indices. 2. This group includes transport and storage, accommodation and food services, travel agencies, and rental and leasing activities (other than housing). 3. Without travel agencies and rental and leasing activities.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4

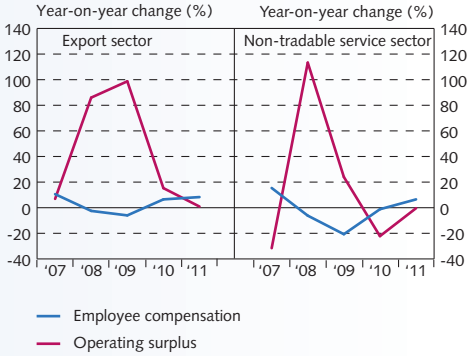
Gross factor income development and main components[1]



1. GFI is the sum of employee compensation, operating surplus and consumption of fixed capital. All variables are at constant prices. Employee compensation is remuneration in return for work. The operating surplus measures the surplus before taking account of any interest, rent or similar charges/receipts. The value of gross factor income in 2012 is assessed from volume indices and the share of the main components is assumed to stay unchanged from the previous year.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 5

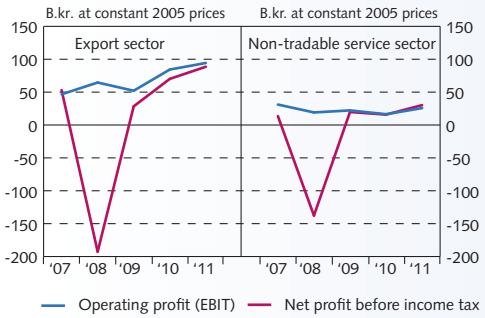
Development in operating surplus and employee compensation by sectors[1]



1. Based on the production approach to the national accounts. Employee compensation is remuneration in return for work. The operating surplus measures the surplus accruing from production before taking account of any interest, rent or similar charges payable/receivable.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 6

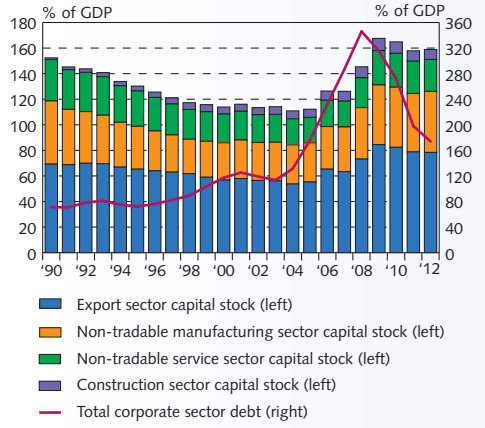
Development in profits by sectors[1]



1. According to Statistics Iceland's financial accounts of enteprises, which are compiled from annual accounts submitted to the tax authorities. Financial institutions and the category "real estate and various professional services", which includes holding companies, are excluded. Operating profit (EBIT) is the difference between revenues and operating costs, taking into account depreciation but before financial income/expenses. Net profit before income tax includes financial income/expenses and extraordinary items.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-7

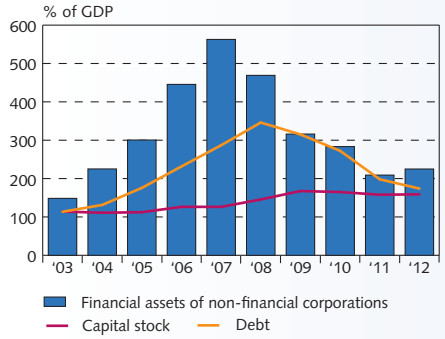
Business sector capital stock and debt 1990-2012[1]



1. Capital stock is the accumulated but depreciated value of the capital that derives from gross capital formation, excluding natural resources. The tradable sector includes fisheries, marine product processing, metals manufacturing, tourism, and 75% of utilities operations. Other sectors are considered non-tradable and are classified as production, services, and construction.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 8

Business sector capital stock, financial assets, and debt 2003-2012[1]



1. Capital stock is the accumulated but depreciated value of the capital that derives from gross capital formation. The value of financial assets is taken from financial accounts; however, shares, loans, and securities holdings are reduced by the difference between liabilities according to the financial accounts and Central Bank figures, as this difference reflects to a large degree the debt owed between companies within the same group.
Sources: Statistics Iceland, Central Bank of Iceland.

ing this period was due mostly to large-scale investment in energy-intensive industry and commercial real estate. Following the recent reduction in corporate debt levels, there is now greater consistency between indebtedness and capital stock in the corporate sector as a whole (see Charts 7 and 8).

Investment activity has increased slowly since the economic recovery began in 2010. It is clear, however, that investment in tourism infrastructure will increase substantially in coming quarters, and it is assumed that fisheries will continue to invest in ships in the next few years. Fisheries and aluminium manufacturers are limited by capacity constraints, however, and cannot be expected to make radical changes in their investment activity even if their competitive position changes, as they cannot respond to a surge in demand by stepping up production.

Signs of a major adjustment in production and a shift of jobs from non-tradable to the tradable sectors

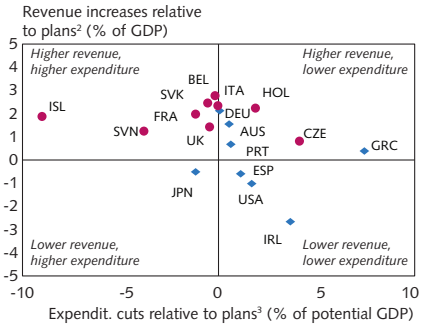
From the above, it is clear that the domestic economy has undergone a major adjustment in the wake of the shocks it sustained during the financial crisis. Thousands of jobs have shifted from non-tradable sectors to the tradable sector, a large number of companies have undergone financial restructuring, quite a number of firms have gone bankrupt, and the economic recovery has advanced relatively slowly. This adjustment will doubtless continue in coming quarters, and analysing its progress will remain an interesting subject of study for some time to come.

V Public sector finances

The fiscal policy formulated by the Icelandic authorities in 2008 in collaboration with the International Monetary Fund (IMF) remained in place from 2009 to 2013. The programme underwent several changes over that period, as has been discussed in previous issues of *Monetary Bulletin*. According to the fiscal budget proposal for 2014, the improvement in the primary balance will be somewhat smaller than was aimed at in previous budget plans. It is assumed that there will be a small Treasury surplus next year, and if the authorities' plans materialise, it will be the first time in six years that Iceland has operated without a fiscal deficit. The surplus will be somewhat smaller than previously assumed, however, not least due to a poorer performance this year. Important assumptions in the budget proposal appear to be based on a somewhat uncertain foundation, and medium-term budget plans have changed markedly for the worse. The outlook for general government debt has therefore deteriorated from previous estimates, and the debt ratio looks set to decline more slowly than previously hoped.

Chart V-1

Advanced economies: deviation from planned measures 2009 - 2013[1]

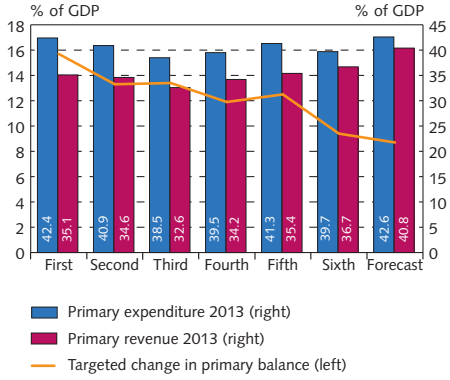


1. Countries depicted with red bullets are those for which the composition of adjustment has shifted more toward revenue. Estimates are calculated comparing the change in expenditure and revenue for the period 2009–13 in the October 2010 *Fiscal Monitor* with that in the October 2013 *Fiscal Monitor*. 2 Change in revenue items assumes an elasticity of revenue to GDP of 1. 3 Change in expenditure items assumes an elasticity of expenditure to GDP of 0. A positive value means cuts in expenditure were larger than originally planned.

Sources: IMF, *Fiscal Monitor* October 2013.

Chart V-2

Development in Stand-By Arrangement targets for 2009 - 2013 in the six IMF reviews



Source: IMF.

Treasury deficit for 2013 expected to exceed budgetary assumptions

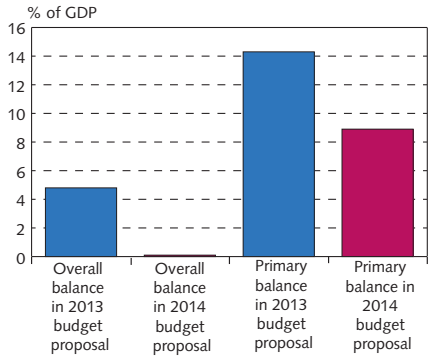
This year appears likely to be the first year since the onset of the financial crisis to see a substantial deviation from published fiscal budget plans. In 2010 through 2012, the budget was implemented broadly in line with plans, in that the outcome was close to the target and the deviation averaged less than 1% of revenues for the three-year period, excluding irregular revenue and expenditure items such as those relating to the Avens agreement and SpKef Savings Bank, which were not included in the budget.

The deviations from the 2013 budget are due in large part to economic developments, which were less favourable than was assumed in the macroeconomic forecast underlying the budget preparation. This had a significant effect on Treasury revenues. There are also some deviations on the expenditures side, related to spending promises made last spring but not provided for in the budget. Among these are the equal pay campaign in healthcare institutions and reimbursements of children's dental care expense. There were weaknesses on the revenues side of the budget as well, as the revenue measures put on the budget in connection with additional investment under the last Government's investment strategy for 2013-2015 included income from asset sales and dividends that will not materialise in full. Finally, measures undertaken by the new Government weaken this year's performance by just under 5 b.kr. The Ministry of Finance and Economic Affairs now estimates this year's deficit at 31 b.kr. on an accrual basis, or 1.7% of GDP, as compared with the 3.7 b.kr. provided for in the budget. The deviation is significant, at 5.6% of estimated year-2013 revenues.

Primary balance to improve by only half of the intended amount between 2009 and 2013

The original plan drafted by the Icelandic authorities and the IMF provided for an accumulated improvement in the primary balance of

Chart V-3
Comparison of accumulated overall and primary balance from 2014 to 2016 in 2013 and 2014 budget proposals



Source: Ministry of Finance and Economic Affairs.

16% of GDP from 2009 through 2013. The estimated improvement was then reduced, first to 12% in the 2011 budget, owing to a more favourable debt position than previously assumed, and then to 10% in the 2012 and 2013 budgets. Because of the deviation from the 2013 budget, the improvement in the primary balance will total only 8% of GDP in the 2009-2013 period. A discussion of the post-crisis improvement in the primary balance in international context can be found later in this section.

500 m.kr. surplus on an accrual basis targeted for 2014

The target of a surplus in 2013 was set at the time of the first review of the IMF programme, but in the 2012 budget it was postponed until 2014. The budget proposal for 2014 provides for a Treasury surplus on an accrual basis next year. If that target is reached, it will be an important step towards reducing the debt of the Treasury and therefore the general government. The surplus is 500 m.kr., or just under 0.1% of GDP. The outcome following Parliamentary handling has yet to be determined.

According to the fiscal budget proposal in its current form, the outlook is for the year-on-year improvement in the primary and overall balances to be close to 1.5% of GDP (see the discussion of the 2014 fiscal budget proposal in Box V-1). On a cash basis, however, the performance will still be negative by about 10 b.kr., or 0.5% of GDP. A deficit on a cash basis means that funds must still be allocated to Treasury operations during the year. The deficit is small enough, however, that it can be funded with the Treasury's deposits in the Central Bank. Although it has yet to come to light whether the consolidation measures on the expenditures side of the budget will be implemented successfully, two other salient weaknesses in the budget proposal can be identified. First of all, the Treasury wants to extend the five-year bond used to recapitalise the Central Bank at the beginning of the crisis, amending the terms so that it will bear no interest and will mature in 20 years. The Ministry of Finance and Economic Affairs estimates that this would save the Treasury nearly 11 b.kr. per year in interest expense. This action, if implemented, would be the equivalent of transferring capital to the Treasury, as it would reduce the Central Bank's capital by a corresponding amount unless the nominal value of the bond remained unchanged in present value terms. Such a measure is dubious and based on uncertain legal grounds.[1] It is uncertain whether this plan will be implemented, as discussions between the Ministry and the Bank concerning the financial transactions between the Bank and the Treasury are currently in progress.[2] Second, the budget proposal provides for over 11 b.kr. in revenues deriving from a special tax levied on the estates of banks in winding-up proceed-

1. This measure could be in contravention of the Act on the Central Bank of Iceland, which prohibits the Bank from lending money directly to the Treasury and assumes that the Treasury's share in the Bank's profits is in the form of a dividend. These plans could also be considered monetary financing by the Treasury and would entail monetary easing, which is the purview of the Bank's Monetary Policy Committee.
2. The baseline forecast assumes, however, that no matter what the outcome of these discussions, mitigating measures will be adopted so as to achieve the revenue targets in the budget proposal.

ings. Clearly, such taxation is a temporary measure. According to the budget proposal, these two items will contribute a total of 22 b.kr., or 3.7% of estimated revenues for 2014.

Radical change in medium-term fiscal plans

The medium-term plans published in fiscal budget proposals from the beginning of the collaboration with the IMF revealed the Government's fiscal strategy for the upcoming four years. The ultimate goal was always a primary surplus of 5% of GDP and a sizeable overall surplus, so as to create the scope to deleverage and facilitate capital account liberalisation. The 2014 budget proposal departs from this basic strategy, and the medium-term plan is merely a simple extrapolation; therefore, it is not possible to use the medium-term plan to determine the Government's strategy for coming years. According to the extrapolations, it does not appear as though the current Government is aiming to achieve the previous goal of generating a sizeable surplus in the next four years. It is extremely important that a medium-term strategy centring on reduction of general government debt be formulated in a manner that will strengthen fiscal policy so as to facilitate increased national saving and the accumulation of precautionary buffers to address potential future shocks.[3]

Outlook for smaller public sector surplus

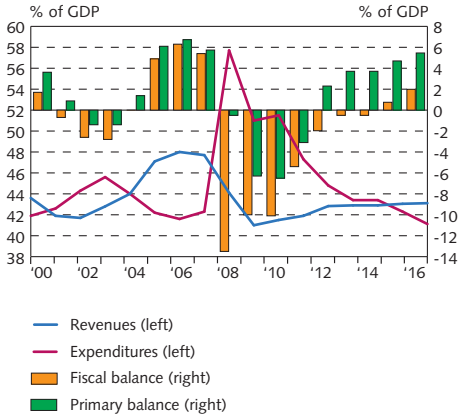
In line with the fiscal budget proposal, the Bank's baseline forecast assumes that Treasury operations will be in balance next year but that, as in the May forecast, general government operations will not be in balance until 2015. As regards the performance in 2015 and 2016, it is assumed that Treasury operations will generate a somewhat larger surplus than is provided for in the medium-term plan accompanying the budget proposal. The surplus is not a large one, however, and in view of the debt position, the Treasury will have little scope to boost demand. The uncertainty about fiscal performance in coming years is primarily on the downside. The economic recovery has lost some momentum, and although the output growth assumptions in the budget proposal are well in line with the Bank's forecast, they could prove too optimistic (see Section I), which would put pressure on the revenues side of the budget and reduce resilience against unexpected spending proposals. There is also reason to give consideration to the IMF's criticism of ideas concerning self-funding tax cuts.[4] Taxation in Iceland is nowhere near high enough to make self-funding an option, except possibly in the case of goods that are taxed heavily with the aim of reducing their use.

An additional weakness of the medium-term plan concerns the Housing Financing Fund (HFF). The current budget proposal includes a contribution to HFF operations in the amount of 4.5 b.kr. per year through 2017. These contributions will not reduce the HFF's write-off need (that is, recorded operational losses), however; they will only

3. See, for example, Central Bank of Iceland (2010). "Monetary policy in Iceland after capital controls", *Special Publication* no. 4.

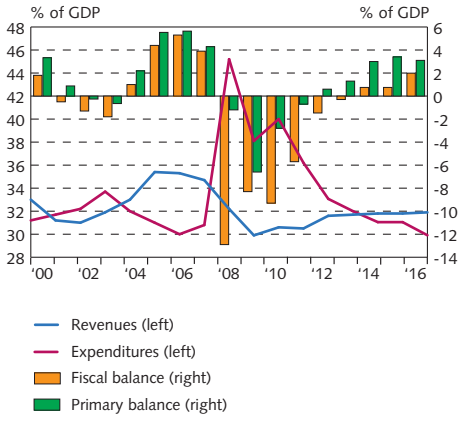
4. See, for example, International Monetary Fund, *Article IV Consultation and Third Post-Program Monitoring Discussions with Iceland*, August 2013, p. 15.

Chart V-4
General government finances 2000-2016[1]



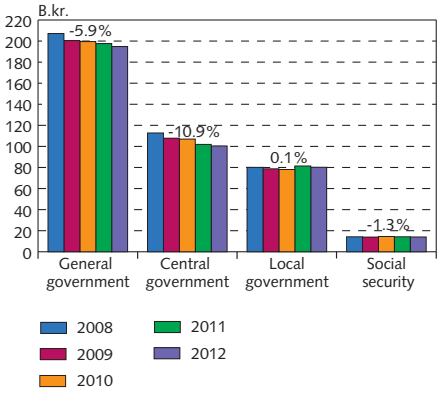
1. Central Bank baseline forecast 2013 - 2016. On accrual basis.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-5
Treasury finances 2000-2016[1]



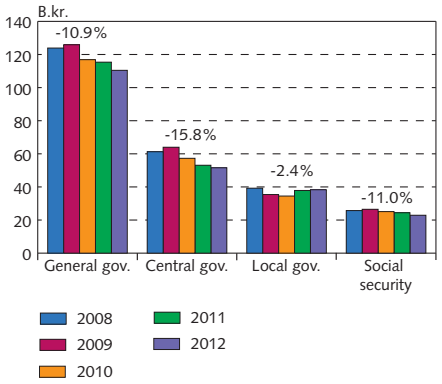
1. Central Bank baseline forecast 2013-2016. On accrual basis.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-6
Labour costs[1]
Percentages show change between 2008 and 2012



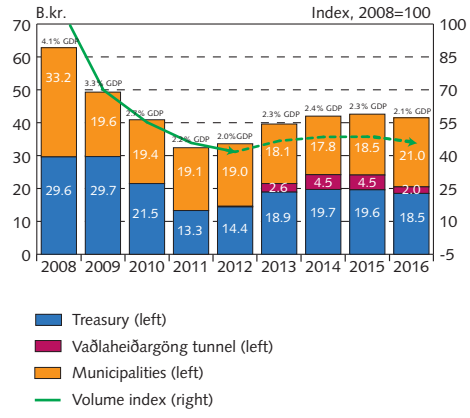
1. Deflated with the public employees' wage index.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-7
Purchase and sale of goods and services[1]
Percentages show change between 2008 and 2012



1. Deflated with public sector wage index.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-8
Public investment in 2008-2016



Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

reduce the unfunded portion of these losses. Consequently, the forecast does not take into account possible increases in such write-offs, although it is reasonably likely that they will be needed.

Public consumption growth resumes

In 2008-2012, public consumption contracted by about 6.7%. The contraction varied among the three subsectors that comprise public consumption, however. Treasury consumption contracted by approximately 9.9%, municipal consumption by 1.6%, and social security consumption by 7.7%. The municipalities stand out in terms of consolidation levels. The contraction in Treasury consumption explains nearly 80% of the reduction in public consumption during the period, whereas the municipalities account for only 8%. Because the municipalities account for 37% of public consumption, lack of consolidation at the municipal level has a significant impact on the contraction in total public consumption.

The Treasury stands out in terms of consolidation of wage costs, as wages constitute nearly ⅔ of public consumption expense. The volume of labour purchased from Government employees contracted by nearly 11% during the 2008-2012 period,[5] and the volume of labour purchased by the social security system contracted by just over a percentage point, whereas there was no change at the municipal level. The contraction in the other large cost item – the purchase and sale of goods and services – diverged less among the three subsectors of public consumption. Deflating this cost item by the CPI in order to estimate the volume change gives a contraction of just under 11%. As with wage and salary expenses, the Treasury reduced spending the most (12½%), followed by the social security system (11%) and the municipalities (just under 9%).

In recent issues of *Monetary Bulletin*, it has been forecast that the contraction in public consumption would come to an end in the election year 2013, but the increase in spending has proven to be larger than projected. The baseline forecast in this *Monetary Bulletin* assumes that public consumption will grow by 1.2% in volume terms. Treasury consumption is forecast to grow by 1.6% and municipal consumption by 1.3%, while social security consumption is expected to contract by 0.8%.

In 2014-2016, wages are forecast to rise in excess of the public employees' wage index, increasing the labour component of public consumption for all three public employee groups. Goods and services purchases by municipalities are also expected to change in volume terms, and the Treasury and the social security system are expected to reduce spending in this category on the basis of declared consolidation targets included in the 2014 budget proposal. The result will nonetheless be an increase in public consumption.

Public investment begins to rise from historical low

As with public consumption, 2013 marks the end of the recent contraction in public investment. Even though Statistics Iceland adjusted

5. Approximated by deflating nominal wage expenses by the Government employees' wage index.

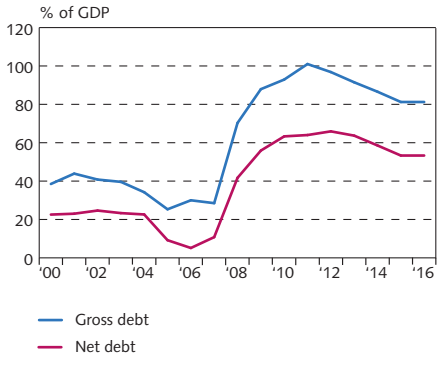
municipal investment upwards by about 3 b.kr. upon revising the 2012 national accounts, public investment was at an all-time low relative to GDP. Although it has averaged 3.6% of GDP since 1997, it measured only 2% in 2012.

Ever since the previous Government announced a radical increase in investment under the aegis of its Investment Plan for Iceland 2013-2015, Treasury investment has been expected to grow substantially. The current Government has scaled down those plans significantly on the grounds that the revenues with which the investment initiative was to be financed will not materialise as expected and that the initiative is unfunded to a large extent. Most of the investments that were not advanced enough to oblige the Treasury to carry them out have been abandoned, including the natural history museum and the centre for Icelandic studies. It proved impossible to discontinue some projects, however, such as the new prison and the Norðfjarðargöng tunnel. The forecast in the last *Monetary Bulletin*, which was prepared during a period of considerable uncertainty about the fate of the Investment Plan, assumed larger cutbacks this year than are likely to be implemented. As a result, investment growth was adjusted upwards again for the 2013 forecast, but it remains somewhat below the forecast that was prepared when it was assumed that the Investment Plan would materialise in its entirety.

Information on investments planned for the next few years can be obtained from the 2014 budget proposal and from municipal budgets. The forecast is based on developments in investment as presented in the budgets of Iceland's ten largest municipalities. As can be seen in Chart V-8, the municipalities cut back on investment as early as 2009, when it was just over 19 b.kr., and kept it around that level until 2012. It is assumed to remain slightly lower throughout the forecast horizon. Treasury investment remained unchanged year-on-year in 2009 but then contracted sharply until last year. The level of Treasury investment in next year's budget will surpass municipal investment during the forecast horizon. Added to Treasury investment is the Vaðlaheiðargöng tunnel project, which has a Government guarantee and is therefore classified as public investment in the national accounts. In 2016 it is assumed that public investment relative to GDP will grow to 2.1%, which is 1.5 percentage points below the 30-year average.

It should be noted that, as in previous *Monetary Bulletin* forecasts, it is not assumed that the new Landspítali hospital will be built during the forecast horizon, as the project cannot be accommodated within the fiscal plan accompanying the 2014 budget proposal. Furthermore, even if the authorities should decide to poroceed, there is no confirmed plan of action for the project. At the spring 2013 legislative session, changes in the role of Nýi Landspítalinn ohf. were incorporated into the law. As a result, the construction of the hospital will not be considered a public-private partnership but will be included in the fiscal budget. In the absence of mitigating measures, such a large-scale investment would drastically alter the medium-term fiscal plan for building up surpluses on the fiscal accounts.

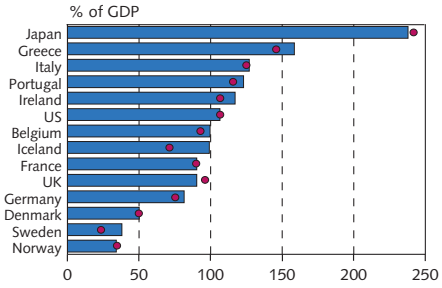
Chart V-9
General government debt 2000-2016[1]



1. Central Bank baseline forecast 2013-2016.
Sources: Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

Chart V-10

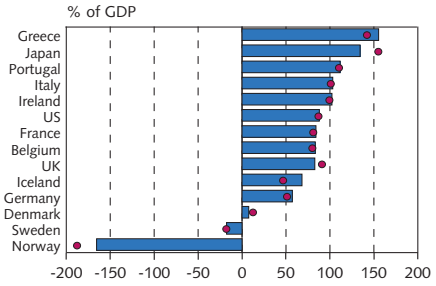
General government gross debt in selected industrial countries for 2012 and 2018[1]



1. IMF forecasts for 2018 are shown with red dots.
Sources: IMF, Central Bank of Iceland.

Chart V-11

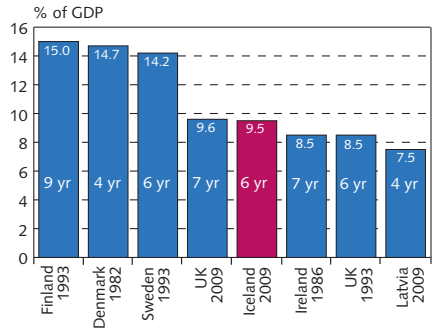
General government net debt in selected industrial countries for 2012 and 2018[1]



1. IMF forecasts for 2018 are shown with red dots.
Sources: IMF, Central Bank of Iceland.

Chart V-12

Fiscal reversal in primary balances in selected countries



Sources: ECB, IMF, Ministry of Finance and Economic Affairs.

Indirect tax hikes raise the CPI by 0.3%

According to the 2014 budget proposal, indirect tax increases will affect the CPI more strongly than they did in this year's budget. In the 2013 National Budget, most of the planned increases in fixed-amount levies were abandoned just before they were approved. According to the new budget proposal, indirect taxes such as those on carbon, petrol, and alcoholic beverages will rise in line with the price level. The effect of these increases on the CPI has been estimated at 0.3 percentage points (see also Section VIII).

Bleaker outlook for general government debt

Because of a weaker medium-term plan for Treasury finances, the general government debt level will decline more slowly relative to GDP than was projected when the last National Budget was passed. The previous Government's medium-term plan assumed that total debt would decline to 66% of GDP by 2016, after having peaked at 90% of GDP in 2011. This was to be achieved by keeping nominal debt unchanged or reducing it slightly and allowing the ratio to fall primarily due to growth in nominal GDP. According to the current fiscal budget proposal, the aim is to bring debt down to 70% of GDP by 2017. The nominal debt level is estimated to grow slowly throughout the period, but nominal GDP is expected to grow more rapidly, thereby ensuring that the ratio of debt to GDP declines.

According to the Bank's forecast of developments in the debt level, general government debt relative to GDP is estimated to fall to 85% by 2016, the end of the forecast horizon. The outlook has deteriorated somewhat since the publication of the Bank's last general government debt forecast, in *Monetary Bulletin* 2013/2. That forecast assumed that the debt ratio would fall to just over 85% of GDP by 2015, some 2 percentage points below the ratio in the current forecast. Net general government debt also declines more slowly than previously forecast, but those estimates include only monetary assets in the form of cash. This is a narrower definition than is usually used, as it is customary to include other monetary assets as well, apart from stock, equity holdings, and initial capital. If these are included, the net general government debt position is stronger than is described here.

In 2012 the Central Bank of Iceland and the Treasury of Iceland made two prepayments on upcoming instalments of loans connected with the Government-IMF programme in order to reduce the cost of maintaining the foreign exchange reserves. The Bank's forecast does not provide for further prepayments. If additional payments are made, they will reduce gross Treasury debt but will not affect the net debt level.

Iceland's debt position in international context

Iceland's general government debt equalled just under one GDP at year-end 2012. This is similar to the gross debt level in a number of other industrialised countries, such as the United States and Belgium, but somewhat lower than in Greece, Italy, Ireland, Portugal, and Japan. As Charts V-11 and V-12 show, if the planned consolidation

measures are implemented, the outlook is for the debt situation to improve in the next few years and for Iceland's debt ratio to be similar to that of Germany and France by 2018. It will remain high, however.

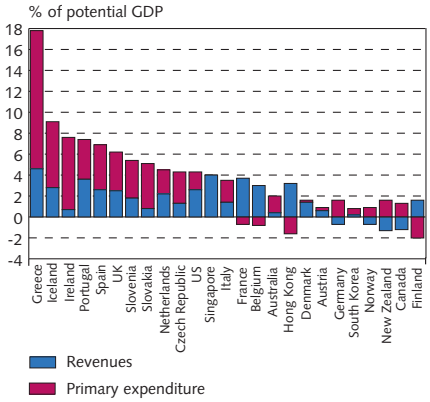
In terms of net general government debt, the Treasury's monetary assets equal a third of GDP. Net debt is therefore 68% of GDP, which is right between Germany and the UK. The IMF projects that Iceland and Germany's net debt will be around 50% of GDP by 2018.

2009-2013 consolidation measures in international context

At this juncture, when information on the actual improvement in the primary balance from 2009 to 2013 is expected, it is appropriate to review the discussion in previous issues of *Monetary Bulletin* focusing on the improvement in the primary balance in international context. Finland, Denmark, and Sweden stand out in terms of broad-based post-crisis consolidation as reflected in an improvement in the primary balance. The most dramatic improvement, 15%, was achieved by Finland in 1993-2000 and Denmark in 1983-1986. In Sweden the improvement was slightly less, or just over 14%, in 1993-1998. As has been discussed previously, the improvement in Iceland looks set to measure 8% between 2009 and 2013, and if the plans in the 2014 fiscal budget proposal are implemented, it will be 9.5% for the 2009-2014 period. No further improvement in the primary balance is projected in the medium-term plan accompanying the budget proposal. The scope of the consolidation undertaken in Iceland is therefore close to that in Ireland (1986) and the UK (1993), when measures undertaken improved the primary balance by 8½% of GDP in just over six years. It is also similar in scope to the consolidation currently planned by those same countries. The UK intends to achieve an improvement of almost 10% of GDP in a six-year period, and the Irish are aiming at a 9% improvement in 2011-2014. Latvia, also hit hard by the financial crisis, has similar plans and aims to achieve an improvement of 7½% of GDP in four years. As Chart V-13 shows, one-third of the consolidation measures in Iceland are on the revenues side and two-thirds on the expenditures side, which is similar to the plans adopted by the UK and Greece, while consolidation has been mainly on the expenditures side in Ireland and mainly on the revenues side in Denmark and the US.

Chart V-13

Composition of adjustment in several industrialised countries, 2009-2013[1]



1. Adjustment of cyclically adjusted primary balance.
Sources: IMF, *Fiscal Monitor*, October 2013.

Box V-1

National budget proposal for 2014

One of the main objectives of the fiscal budget proposals for 2012 and 2013 was to achieve a surplus on the overall balance in the amount of 1% of GDP in 2014. According to the budget proposal for 2014, there will be an overall surplus during the year, but it will be much smaller, or just under 0.1% of GDP. The medium-term plan accompanying the budget proposal also deviates considerably from those accompanying the 2012 and 2013 budget proposals. The current medium-term plan does not include the Government's strategy for fiscal policy but is merely a simple extrapolation for the next few years. The proposal assumes that the primary balance will be positive by 56 b.kr., or 2.9% of GDP, in 2014, an improvement of 1.5 percentage points over the previous year. If this is borne out, the improvement in the primary balance from 2009 through 2014 will total 9.5% of GDP (see Section V).

Overall balance slightly positive on an accrual basis but negative on a cash basis

The budget proposal provides for an overall surplus amounting to 0.1% of GDP, measured on an accrual basis. On a cash basis, however, the balance will be negative by some 10 b.kr., which means that expenditures in excess of revenues must be funded. The deficit is small enough, however, that it can be funded with the Treasury's deposits in the Central Bank.

In order to achieve this year-on-year improvement, the Government aims, as it has in recent years, to pursue a mixed approach based on increased revenues and reduced expenditures. Special measures will total an estimated 1% of GDP. In krónur terms, measures aimed at improving Treasury performance total 19 b.kr., with 7 b.kr. in revenue-generating measures and 12 b.kr. in expenditure cuts.

Table 1 Estimated Treasury performance 2014-2017 according to the 2014 medium-term budget plan

B.kr.	*2014*	*2015*	*2016*	*2017*
Total revenues	587.6	606.1	624.6	663.7
Tax revenues	534.3	551.4	566.5	600.7
Total expenditures	587.1	603.5	624.3	644.7
Operating expenses	239.8	246	254.6	263.5
Cost of capital	76	80.2	86.1	89.3
Transfer outlays	241.4	248	255.2	264.6
Maintenance	8.7	8.8	9	9.3
Investment	21.2	20.6	19.4	18.1
Overall Treasury balance	0.5	2.6	0.3	19
as % of GDP	0	0.1	0	0.8
Improvement from prior year	1.8	0.1	-0.1	0.8
Primary revenues	567.1	584.6	600.4	635.1
Primary expenditures	511.1	523.4	538.3	555.4
Primary Treasury balance	55.9	61.2	62.2	79.7
as % of GDP	2.9	3.1	2.9	3.6
Improvement from prior year	1.5	0.1	-0.1	0.6

Source: Ministry of Finance and Economic Affairs.

2014: the revenues side

According to the budget proposal, increased taxes and excise taxes will generate 8.9 b.kr. in increased revenues, while lower dividend payments and fishing fees will reduce revenues by 4.4 b.kr. Revenues are estimated to increase by 27.4 b.kr. due to growth in nominal GDP during the year. As a result, revenues will increase by nearly 32 b.kr. from the year-2013 estimate.

It is assumed that tax bases such as individual income tax and investment tax will change but that the corporate tax rate will remain unchanged. It has also been proposed that changes be made in indirect taxes in coming years, but the budget proposal does not include any details. The payroll tax will continue to decline. The following tax changes are planned:

- The combined percentage of employers' payroll tax and Wage Guarantee Fund contributions will decline by 0.1 percentage points. The reduction specifies as follows: the employees' payroll tax will decline by 0.6 percentage points and the contribution paid to the Wage Guarantee Fund as a safeguard against bankruptcy will decline by 0.25 percentage points, while the general payroll tax will increase by 0.75 percentage points. Treasury revenues will decline by an estimated 1 b.kr. next year because of

these changes. Furthermore, the payroll tax is to be reduced by an additional 0.24 percentage points in 2015 and 2016 combined, to 7%.

- The financial administration tax levied on financial and insurance firms' wage payments will be reduced from 6.75% to 4.5%, and revenues will decline by an estimated 1.1 b.kr. as a result.
- The so-called bank tax levied on credit institutions' and deposit institutions' total liabilities will increase from 0.041% to 0.145%. In addition, the legislation on this tax is to be amended so as to include legal entities in winding-up proceedings. Treasury revenues will increase by an estimated 14.3 b.kr. in 2014 as a result of these measures.
- The personal income tax is to be reduced by lowering the tax rate in the middle bracket by 0.8 percentage points, from 25.8% to 25%. This measure is estimated to reduce Treasury revenues by as much as 5 b.kr. in 2014.
- The tax-free threshold for financial income tax on individuals' investment income will be raised from 100,000 kr. to 125,000 kr., but the change will not affect revenues until 2015.
- Value-added tax on disposable paper diapers will be reduced to the lower rate. Value-added tax revenues will decline by an estimated 200 m.kr. as a result.
- Stamp fees on loan documents will be cancelled, and stamp fees on asset transfer agreements will rise. The impact on revenues is expected to be insignificant.

Table 2 gives a summary of year-on-year changes in revenues. Revenues from expected dividend payments decline by 3.8 b.kr., and revenues from fishing fees decline by roughly 600 m.kr. because of the changes made to the fee structure at the summer legislative session. Alcoholic beverage tax, motor vehicle tax, per-kilometre charges, and fuel taxes are expected to rise by about 3%, in line with the price level, and generate additional revenues in the amount of 2 m.kr

Table 2 Year-on-year revenue changes

	B.kr.
Estimated revenues 2013	555.6
Year-on-year revenue changes	
Increase in GDP between 2013 and 2014	27.4
Expansion of bank tax (financial entities in winding-up proceedings)	11.3
Increase in bank tax (from 0.041% to 0.145%)	2.9
Reduction in individual income tax; middle bracket lowered from 25.8% to 25%.	-5.0
Reduction in financial administration tax from 6.75% to 4.5%	-1.1
Payroll tax reduced (from 7.34% to 7.24%)	-1.0
VAT on diapers reduced to lower tax bracket	-0.2
Excise taxes	2.0
Fishing fees	-0.6
Dividends	-3.8
Estimated year-2014 revenues according to budget proposal	587.6
Increase from 2013 estimates	31.9

Source: Ministry of Finance and Economic Affairs.

2014: the expenditures side

Treasury expenditures are expected to decline by 12 b.kr., or 0.6% of GDP, in 2014 as a result of special consolidation measures. The consolidation requirements equal 1.2% of turnover. In 2015-2017, consolidation is expected to be broadly similar, at around 1%, with

Table 3 Consolidation measures, economic breakdown

Accrual basis, b.kr.	*Reduction 2014*	*Turnover 2013*	*Reduction %*
Operations	-3.1	220.1	-1.4
Transfers	-4.9	229.5	-2.1
Maintenance and investment	-4.0	27.8	-14.3
Total	-12.0	477.4	-2.5

Source: Ministry of Finance and Economic Affairs.

the ministries expected to cut expenditures by about 5 b.kr. per year through special consolidation measures.

Of the 12 b.kr. expenditure reduction estimated for 2014, about 3.6 b.kr. are turnover-related consolidation measures and 2.6 b.kr. are special consolidation measures. The most important of these is the abandonment of plans for new road construction (0.8 b.kr.) to offset tunnel construction projects. Finally, a cutback of 5.8 b.kr. will be achieved by abandoning projects that are not yet underway or are in early stages and that the Government has not yet pledged to undertake. The lion's share of that reduction (4.5

Table 4 Changes in expenditures between 2013 and 2014

Accrual basis	*M.kr.*
Expenditures according to 2013 National Budget	583,028
Year-on-year expenditure changes	
Pension insurance and social assistance, statutory amendments and contractual expenditures	5,039
Housing Financing Fund, temporary yearly capital contribution 2013-2017	4,500
Health insurance (excess expenditures)	1,538
Contribution to wage equality campaign in 2014	1,490
Infrastructure development due to Bakki in Norðurþing	1,477
Pension insurance and social assistance, year-on-year increase in number of recipients and excess expenditures 2013	1,000
Increase in Iceland's contribution to the EFTA Development Fund	749
Increase in the Treasury contribution for Norðfjarðargöng tunnel	670
Reinforcement of general law enforcement	500
Mortgage interest subsidies, revised estimate based on 2012 and 2013 results	-2,000
Unemployment benefits, temporary campaigns conclude and unemployment reduced	-1,790
Child benefits	-393
Contribution to equalisation of moving costs expires in 2014	-197
Change in formulation of broadcasting fee delayed until 1 January 2016	-500
40 nursing home spaces at Vífilsstaðir	350
Increased contributions to the University of Iceland Centennial Fund	300
Increase in ceiling on payments to parents on maternity/paternity leave	400
Other committed expenditures	9,807
Total expenditure increases	22,940
Cancelled capital contributions (e.g., equipment purchases for FSA and LSH, -700 m.kr.)	-7,863
Expenditures financed with State revenues	-951
Consolidation measures	-11,968
Primary expenditures 2014 at 2013 price level	500,510
Effects of 1 March 2013 wage increases that apply through 2014	863
Wage supplements due to 2011 wage agreement with medical transport workers	41
Wage, exchange rate, and price level changes in the 2014 budget proposal	9,719
Total wage, exchange rate, and price level changes	10,623
Primary expenditures 2014 at 2014 price level	511,133
Change in interest expense (including -10,700 m.kr. due to amendment of Central Bank bond)	-8,713
Total 2014 expenditures according to national budget proposal	587,096

Source: Ministry of Finance and Economic Affairs.

b.kr.) is due to various projects included in the Investment Plan for 2013-2015, for which the previous Government provided budgetary allocations in the 2013 Budget but whose financing is no longer secure. An economic breakdown of the consolidation measures can be found in Table 3.

If these plans materialise, the scope of consolidation measures will be greater next year by 1 percentage point of turnover, according to the plans outlined in the budget proposal for this year. To place the proposed consolidation measures for 2014 into the context of the post-crisis period, consolidation peaked in 2010 at 3.6%, as opposed to the 0.6% estimated for next year.

The total increase in expenditures over the 2013 fiscal budget amounts to 4.1 b.kr., which stems primarily from changes in expenditure obligations for various Treasury-operated systems (14.1 b.kr.), whereas changes in wages, exchange rates, and prices since 2013 total 10.6 b.kr. Finally, the Treasury's interest expense is estimated to decline by about 8.7 b.kr., in part because it is assumed that the bond issued to the Central Bank of Iceland for its assumption of failed financial institutions' collateralised and overnight loans will be lengthened and the terms amended. If the amendments should take effect, the Treasury's interest expense would decline by about 10.7 b.kr. per year. The entire reduction does not show as a reduction of interest expense, as the plans set forth in the 2013 National Budget, to convert from indexed interest to non-indexed interest, did not materialise.[1] Increases on the expenditures side therefore total 24.7 b.kr., but they are offset by the above-described consolidation measures amounting to 12 b.kr. and the 9 b.kr. reduction in interest expense, leaving a net increase of 4 b.kr. between years. Changes in expenditures from the 2013 National Budget to the 2014 budget proposal are itemised in Table 4.

New fiscal framework expected in new legislation on public finances

A bill of legislation intended to create a stronger foundation for fiscal policy is to be presented before Parliament in November. The bill was drafted following consultation with the International Monetary Fund (IMF) on possible ways to strengthen the fiscal framework. The main objective is to ensure Parliamentary involvement in setting government and public sector finance targets for use in budget preparation. With improved planning and increased discipline in budget implementation, the outcome of each year's national budget should be the same as that in the central government accounts. The possibility of adopting fiscal rules to anchor public sector finances five years ahead is under consideration. It is assumed that fiscal policy will be defined in the discussions during the upcoming spring Parliamentary session and will be reflected in summer budget preparation work and autumn Parliamentary discussions on the fiscal budget. Also planned is the establishment of an independent three-member fiscal council that will supervise and give commentary on fiscal policy implementation.[2]

1. Interest on a non-indexed bond is recognised in the Treasury's profit and loss account, whereas if the loan is indexed, real interest is recognised in the profit and loss account and the indexation as revaluation in the balance sheet.
2. Such fiscal councils have been established in numerous countries. Sweden, for instance, has operated a fiscal council for years with excellent results. See, for example, International Monetary Fund, *Case Studies of Fiscal Councils – Functions and Impact,* July 2013.

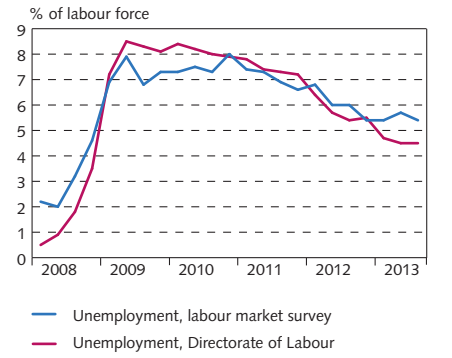
VI Labour market and wage developments

Unemployment continued to fall in Q3 and was somewhat below the August forecast. Most labour market indicators imply a continued recovery in the labour market. The increase in total hours worked, for instance, significantly outpaced the Bank's last forecast. However, a survey from September indicates that firms are less interested in adding new staff than in March and May, when similar surveys were last conducted. Increased economic activity is expected to generate a larger rise in total hours worked and more rapidly declining unemployment than according to the August forecast. Wage increases in Q3/2013 were more or less in line with the August forecast, albeit somewhat larger, and the near-term outlook is broadly unchanged, as the ongoing wage negotiations are still in the early stages. Unit labour costs are expected to grow more or less as forecast in August. That notwithstanding, they are forecast to grow in excess of the Bank's inflation target during the forecast horizon.

Chart VI-1
Different measures of unemployment
Q1/2003 - Q3/2013

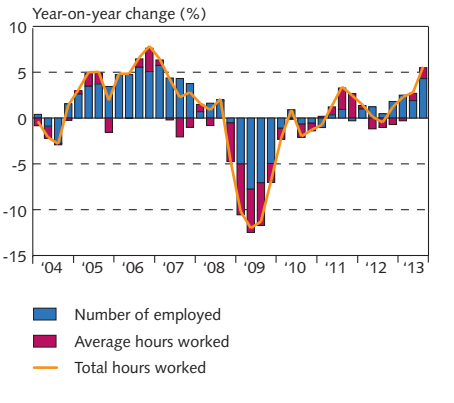
Sources: Directorate of Labour, Statistics Iceland.

Chart VI-2
Seasonally adjusted unemployment
Q1/2008 - Q3/2013



Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

Chart VI-3
Changes in employment and hours worked
Q1/2004 - Q3/2013



Source: Statistics Iceland.

Unemployment somewhat lower than forecast in August ...

Unemployment has continued to fall and was somewhat below the August forecast in Q3. Unemployment as registered by the Directorate of Labour (DoL) measured 3.9% during the quarter, after declining by ½ a percentage point between quarters and about 0.9 percentage points year-on-year. Seasonally adjusted unemployment according to the DoL measured 4.5% in Q3, the same as in the preceding quarter but 1 percentage point less than in November 2012. Because of changes in entitlement to unemployment benefits, which took effect at the end of 2012, the Statistics Iceland labour market survey is probably a more accurate measure of actual developments in unemployment at present, as it includes persons no longer entitled to benefits.[1] Unemployment according to the labour market survey was slightly higher than the DoL figure, or 4.4%. When adjusted for seasonality, it was 5.4%, a decline of 0.2 percentage points quarter-on-quarter and 0.6 percentage point year-on-year. Excluding those who are defined as unemployed in the labour market survey but have become employed, the survey-based unemployment rate and the DoL rate are the same (see Chart VI-1).[2] As is discussed in Box VI-1, equiliblium unemployment has declined as well.

... and the rise in total hours worked considerably larger

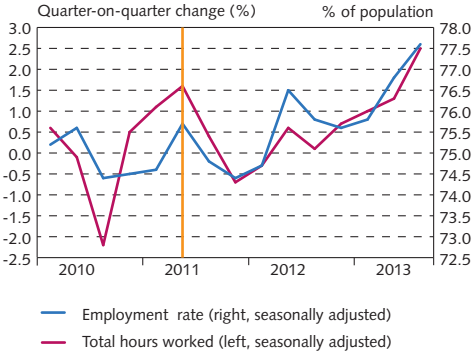
According to the labour market survey, labour demand was considerably stronger in Q3 than was assumed in the August forecast, which provided for a 0.5% year-on-year increase in total hours worked, as opposed to the actual increase of 5.6%. This is the third quarter in a

1. Because the statutory provision temporarily lengthening entitlement to benefits from three years to four was not extended at the end of 2012, it can be assumed that unemployment as measured by the labour market survey will be higher than the DoL's registered unemployment level, as those who have been jobless for more than three years and have therefore exhausted their entitlement to benefits are excluded from DoL figures but should be included in the labour market survey if they are actively looking for work.
2. According to the labour market survey definition, workers who have been hired but have not yet started work are considered unemployed.

row to see a much larger increase in total hours worked than in the Bank's forecast, as previous projections had been revised downwards in view of weak output growth figures. The August forecast assumed that total hours worked would rise by about 2% this year, but they have increased by 3.5% year-to-date.

The increase in Q3 is attributable to both a 4.3% rise in the number of employed persons and a 1.2% year-on-year increase in average hours worked. This is the second consecutive quarter to see an increase in average hours worked, which had contracted for four quarters in a row, probably due in part to companies' response to the May 2011 wage settlements and perhaps to the fact that working hours are shorter among new recruits. Average hours worked are still below the long-term average, however, and are likely to continue lengthening as employment increases.

Chart VI-4
2011 wage settlement and labour demand[1]
Q1/2010 - Q3/2013



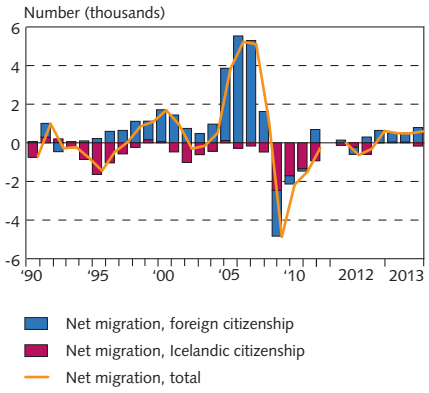
1. The vertical line shows the timing of the Q2/2011 wage settlement.
Sources: Statistics Iceland, Central Bank of Iceland.

Unemployment falls because the jobless find paid work

According to the labour market survey, unemployment has declined not because jobless people are exiting the labour market but because they have found paid work. The number of persons outside the labour market declined 6% year-on-year in Q3 and 1.7% year-to-date. In the same vein, employment rate rose by 1.8 percentage points year-on-year during the quarter, and the participation rate rose by 1.4 percentage points. So far this year, the participation rate has risen by 0.6 percentage points and the employment rate by 1.2 percentage points. The drop in unemployment is not due to emigration, however, as net migration has been positive by more than 2,000 in the past year.

According to figures from the labour market survey, the recovery of the labour market appears to have gained momentum over the course of the year. Furthermore, in terms of both the employment rate and the decline in unemployment, Iceland's labour market recovery appears to be stronger than the OECD average or the recovery in the euro area, and it seems broadly similar to that in the US, if not slightly stronger.

Chart VI-5
Migration

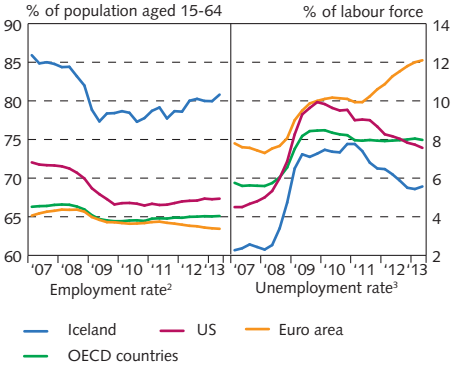


Source: Statistics Iceland.

Exporters interested in recruiting, while firms in the non-tradable sector are contemplating downsizing

According to Capacent Gallup's September survey among executives from Iceland's 400 largest firms, the number of respondents interested in laying off staff in the next six months roughly equalled the number interested in recruiting. This is somewhat of a departure from surveys conducted earlier this year, which indicated that firms interested in recruiting outnumbered those interested in downsizing by about 10 percentage points. The change is due both to an increase in the number of firms considering redundancies and to a decline in the number interested in adding on staff. As could be expected, export firms tend to be relatively upbeat, and exporters interested in recruiting outnumber those considering redundancies by 8 percentage points. Firms in the non-tradable sector are more pessimistic, however, with companies considering downsizing outnumbering those interested in recruiting by 5 percentage points.

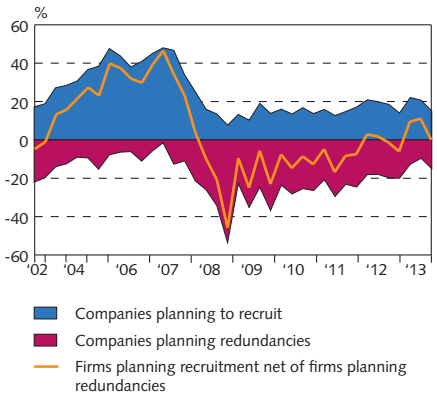
Chart VI-6
Employment rate and unemployment[1]
Q1/2007 - Q2/2013



1. Seasonally adjusted figures. 2. Number of employed persons as a share of the population aged 15-64. 3. Number of unemployed persons as a share of the labour force (harmonised OECD measure).
Source: OECD.

Chart VI-7

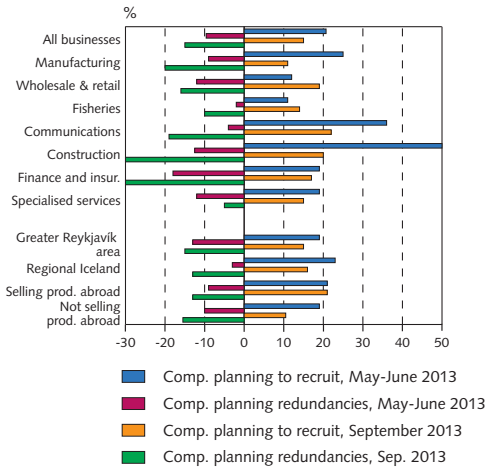
Companies planning to change staffing levels within 6 months



Source: Capacent Gallup.

Chart VI-8

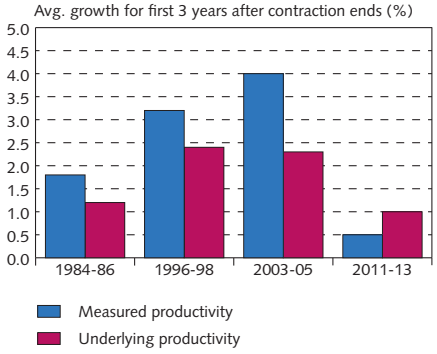
Companies planning to change staffing levels within 6 months



Source: Capacent Gallup.

Chart VI-9

Labour productivity during economic recovery[1]



1. Measured productivity is the ratio of GDP to total hours worked, and underlying productivity is the ratio of the estimated trend of these variables. Contraction periods in Iceland are based on Thórarinn G. Pétursson (2000), in addition to the contractions in 2002-03 and 2008-10. GDP growth for 2013 is based on the forecast in MB 2013/4.
Sources: Thórarinn G. Pétursson (2000). "Business cycle forecasting and regime switching", Central Bank of Iceland *Working Paper* nr. 7, Statistics Iceland, Central Bank of Iceland.

Two previous 2013 surveys indicated a marked change in staffing plans among construction firms. In the June survey, firms planning to recruit outnumbered those considering downsizing by 19 percentage points, and 57% of firms considered themselves understaffed. In the September survey, however, 20% of construction firms were planning to recruit and 30% were considering laying off staff. About a third considered them understaffed, however.

The downturn in corporate sentiment since the June survey is broadly in line with changes in household sentiment, which improved strongly in May and June and deteriorated somewhat thereafter. Uncertainty about Government measures and the upcoming wage settlements could affect firms' staffing plans. It could also be that, owing to the nearly 3% increase in staffing levels year-to-date, the need to recruit is not as strong as it was at the beginning of the year.

Stronger increase in total hours worked than in the August forecast ...

Even though firms' staffing plans do not indicate that a strong increase in recruitment is likely in the next six months, there are no indications of significant redundancies, either. As a result, it is unlikely that the August forecast of a 2% increase in total hours worked will materialise this year, as it would require a year-on-year downturn in Q4 to offset the 3.5% rise total hours worked so far in 2013. The current forecast therefore assumes a 3% increase this year, about a percentage point more than in the August forecast, and a slightly more rapid increase throughout the forecast horizon, or just under 1% per year, on average.

... and broadly unchanged underlying productivity growth

Since the economic recovery began in 2010, underlying labour productivity has grown by just under 3%, as firms have streamlined and, in some instances, cut staffing levels in response to reduced demand. The outlook for underlying productivity growth in the next few years is broadly unchanged since August. It rose by 1.2% in 2012 and is expected to increase in line with long-term trend growth (approximately 1½%) this year and over the next two years. This is a weaker improvement than in earlier recoveries, as can be seen in Chart VI-9.

Improved outlook for unemployment

As is stated above, unemployment was slightly lower in Q3 than was forecast in August. Other indicators suggest similar but slightly more favourable developments in coming quarters. The unemployment outlook for the next three years has therefore improved from the August forecast. Registered unemployment is expected to measure about 4.5% this year and around 4% in 2015-2016.

Assumptions about wage developments unchanged ...

Wage increases in Q3/2013 were largely in line with the August forecast, albeit somewhat larger. The wage index rose 0.5% between quarters and 5.7% between years, which is about the same year-on-year pace as in Q3/2012. Real wages rose by an average of just over

1½% year-on-year in Q3 but remained virtually unchanged from the previous quarter.

Contractual wage negotiations have just begun, and it is not yet clear whether the social partners will be successful in negotiating a settlement providing for nominal wage increases consistent with the Bank's inflation target, as they have declared their willingness to do. This forecast therefore assumes, based on past experience, that the upcoming wage settlements will provide for larger pay increases than is consistent with price stability. As in August, it is assumed that wages will rise by 5.9% this year and by an average of 5% per year over the next three years.

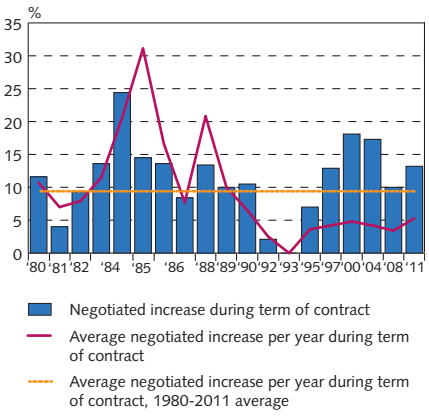
It is not always clear how long a period it is appropriate to consider when basing assumptions on past experience. Negotiated pay increases have averaged just under 10% per year since 1980, but as Chart VI-10 shows, there was an abrupt change following the social pact on wage and price stability made between the social partners and the Government in 1990, in that negotiated pay increases averaged less than 5% during that period, excluding the social pact itself and the settlement reached in 2011.[3] For the entire period since the social pact, negotiated increases have averaged 3.8%, and since the turn of the century they have averaged 4.5%. The difference between the average rise in the 2000s and that in the 1990s is attributable primarily to the fact that no general wage increase was included in the contract negotiated in May 1993, and the 1992 settlement provided for a 2% increase in a 10-month contract. Unemployment was high at the time – about 5% during the quarter before the 1993 settlement was signed – and was rising rapidly at the time the 1992 settlement was negotiated. Unemployment was also high at the time the current settlement was reached – between 7% and 8% – but the negotiated pay increases do not appear to have taken account of this.

The increases resulting from contractual wage settlements only tell part of the story, however, as wage drift generally comes on top of negotiated pay rises. Although wages have risen by an average of 3.8% per year since 1990, average wages according to the Statistics Iceland wage index have risen by 6.3% per year. The best measure, however, is wage costs per man-year according to the national accounts, which have risen by an average of 6.9% per year since both 1990 and 2000. Developments in the wage index and wage costs per man-year may differ according to economic activity. As Charts VI-11 and VI-12 show, wage costs generally rise more than the wage index during a period of strong economic activity, while the reverse tends to happen when unemployment is on the rise, as employers are more likely to try – and succeed – in cutting wage costs during times of waning demand.

The best measure of actual wage costs, however, is unit labour costs, which include other wage-related expenses and take account of labour force productivity as well. As Chart VI-13 shows, since the social pact was made in 1990, unit labour costs have risen by an average of 5.7% per year, far exceeding the inflation target. Unit

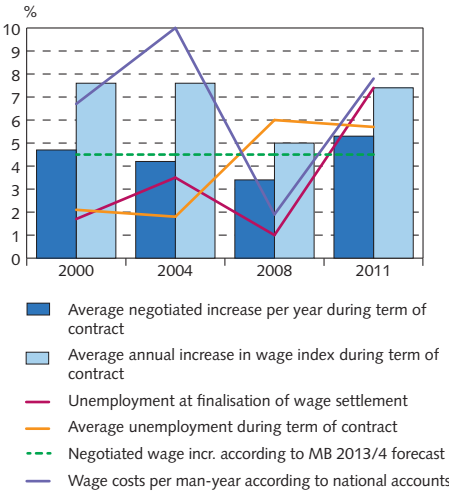
3. Increases in wage costs due to increased wage-earners' rights are not included here.

Chart VI-10
Negotiated wage increases in private sector wage settlements 1980-2011



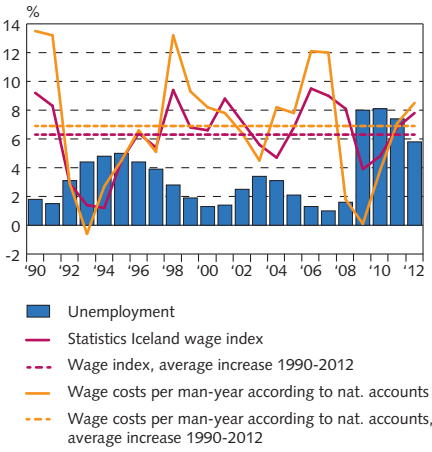
Source: Central Bank of Iceland.

Chart VI-11
Wages and unemployment during the term of the contract and assumptions concerning neogotiated pay increases



Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

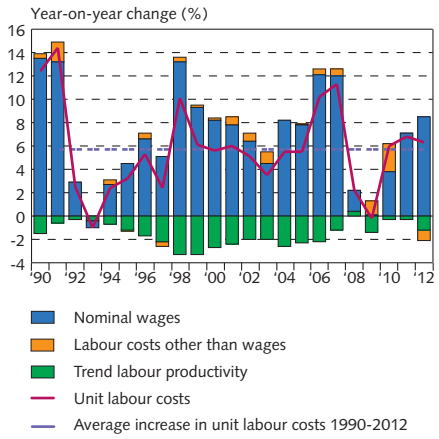
Chart VI-12
Wage developments 1990-2012



Sources: Directorate of Labour, Statistics Iceland.

Chart VI-13

Unit labour costs and contributions of underlying components 1990-2012[1]



1. Labour productivity growth is shown as a negative contribution to an increase in unit labour costs.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VI-14

Unit labour costs and contributions of underlying components 2008-2016[1]

1. Labour productivity growth is shown as a negative contribution to an increase in unit labour costs. Central Bank baseline forecast 2013-2016.
Sources: Statistics Iceland, Central Bank of Iceland.

labour costs fluctuate with the business cycle, as do wage costs per man-year. They rise sharply during an upswing and taper off when unemployment is high. They contracted in 1993, however, and remained virtually unchanged year-on-year in 2009. The reasons for this vary. 1993 was the year the "zero contract" was negotiated. That year, wage costs per man-year fell by 0.6%, but the increase in productivity was negligible, as firms appear to have maintained higher staffing levels than they needed in spite of waning demand. There was discernible productivity growth in 2009, however, as the contraction in total hours worked was greater than the contraction in output. Increased productivity managed to offset the extra cost due to the payroll tax increase that year, and wages per man-year remained virtually unchanged.

… but unit labour costs are expected to be broadly as forecast in August

As is stated above, the forecast of near-term wage developments is based on past experience, as has been done in previous Central Bank forecasts. In accordance with the premises of the national budget proposal, the forecast assumes that wage-related costs will decline by a total of 0.34 percentage points in the next three years, owing to the payroll tax reduction. Underlying productivity growth is projected to be broadly in line with the August forecast but will not contain the cost effects of wage increases during the forecast horizon. Unit labour costs will rise by about 4½% this year and an average of 3.7% per year for the next three years, which is similar to the August forecast and more than is consistent with the Bank's inflation target. If the forecast materialises, the labour market will therefore be an important source of domestic inflationary pressure. As is discussed in Section I, inflation could taper off more quickly and the economic recovery could prove more robust than is assumed in the baseline forecast if wage increases are better aligned with the inflation target.

Box VI-1

Equilibrium unemployment in Iceland

The margin of spare capacity in the economy is an important determinant of inflation at any given time. When a portion of the factors of production are unutilised, firms can step up production, for instance, without needing to increase overtime or add extra shifts that inevitably raise production costs – and ultimately, output prices. In this case, there is spare capacity, or a slack, in the economy (sometimes called a negative output gap); i.e., actual output falls short of potential output. Spare capacity is generally accompanied by a slack in the labour market. Unemployment is unusually high, and employers can hire more workers without having to raise wages, labour unions have more difficulty forcing wage increases because of their relatively weak bargaining position. There is always some unemployment, however, independent of the business cycle; for instance, because workers move, decide to change jobs, or take time to find a new job. For this reason, it is important to estimate how much unemployment exceeds the level that can be explained by changes in workers' personal situation and by structural changes in

the economy, where some sectors grow and others shrink. This level is sometimes referred to as "frictional" unemployment, "natural" unemployment, or equilibrium unemployment.

Other things being equal, when measured unemployment is below its equilibrium value, the resulting tension in the labour market will lead to increased wage pressures, which surface as increased inflation. If unemployment is above the equilibrium level, there is a slack in the labour market, which contains wage pressures and reduces inflation, other things being equal. As a result, estimating equilibrium unemployment plays an important role in the assessment of the inflation outlook and the formulation of monetary policy.

A new estimate of equilibrium unemployment in Iceland

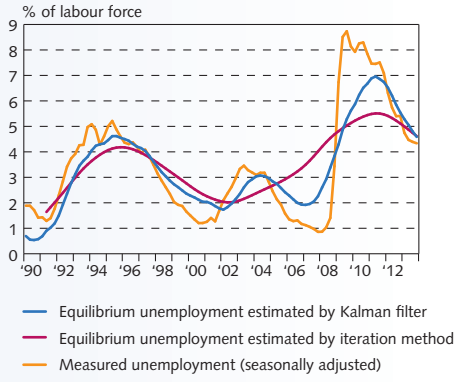
The fact that this equilibrium unemployment level can change over time complicates the matter. There are several methods used to estimate it.[1] In a recent study, Bjarni G. Einarsson and Jósef Sigurdsson (2013a) attempt to estimate equilibrium unemployment and identify its principal determinants (see also Einarsson and Sigurdsson, 2013b). Two methods are used in the assessment, both of them based on the relationship between unemployment and inflation: the so-called Phillips curve. The first method assesses this relationship using a regression analysis and an iteration method, where the equilibrium level of unemployment is derived from the relationship between inflation and unemployment. The latter is based on the Kalman filter, where equilibrium unemployment is estimated directly and particular account is taken of the possible effects of supply shocks on the relationship between inflation and unemployment (and their impact on the equilibrium level of unemployment). The estimates are shown in Chart 1. As can be seen, the estimated equilibrium level of unemployment correlates broadly with measured unemployment, although the former fluctuates less than the latter. Equilibrium unemployment appears to have spiked in the wake of the economic contraction in the early 1990s, rising to about 4-4½%. It seems to have tapered off again and then risen once more after the 2008 crisis, peaking at 5½-7% in mid-2011, depending on which method is used. It seems to have fallen back again, to just under 5% by mid-2013. According to the current baseline forecast, it will decline slightly in the next few years and then hover in the 3½-4½% range throughout the forecast horizon.

As Chart 2 indicates, severe labour market tension developed during the pre-crisis upswing, with unemployment far below equilibrium and both wage and inflationary pressures extremely strong. This situation reversed abruptly after the crisis struck, and by mid-2009 a considerable slack had developed in the labour market. However, according to the assessment of equilibrium unemployment, this slack had largely disappeared by late 2011 – and perhaps even earlier, according to the results generated using the Kalman filter (see also Section I).

It should be noted that estimates of equilibrium unemployment are always subject to considerable uncertainty, and even though the difference in results between the two methods reflects this to some extent, the uncertainty is actually greater. It is possible that the models used for estimation are incorrectly defined or that a structural change has taken place in the relationship between their variables.

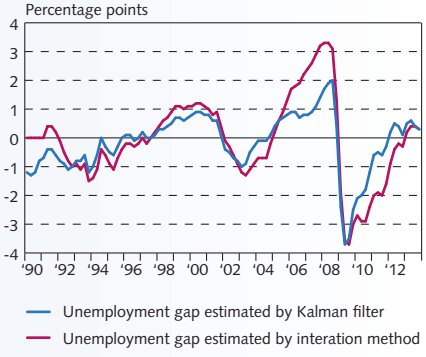
1. Similarly, it is necessary to estimate the economy's potential output when assessing the magnitude of the output gap. As a result, it is sometimes argued that assessing the equilibrium unemployment level is more reliable, as it involves fewer uncertainties than an assessment of potential output. In part based on these grounds, both the US Federal Reserve Bank and the Bank of England have cited numerical unemployment levels as a reference in the formulation of near-term monetary policy.

Chart 1
Unemployment and equilibrium unemployment in Iceland



Sources: Einarsson and Sigurdsson (2013a), Directorate of Labour.

Chart 2
Unemployment gap



Sources: Einarsson and Sigurdsson (2013a), Directorate of Labour.

It is also possible that institutional changes in the labour market affect equilibrium unemployment. Furthermore, the relevance of the term *equilibrium unemployment* could differ between countries, depending on how interlinked their labour markets are. However, the estimates accord with findings from previous studies of equilibrium unemployment over comparable estimation periods (see the references in Einarsson and Sigurdsson, 2013a).

The main causes of the post-crisis increase in equilibrium unemployment

There are a number of possible explanations for the post-crisis rise in equilibrium unemployment. Although labour union structure and the institutional framework of the labour market had changed very little during this period (see Central Bank of Iceland, 2012, Section 14), the period of entitlement to unemployment benefits was extended from three years to four in 2010. This could have reduced the incentive to work and contributed to an elevated equilibrium unemployment level. In addition, the increase in equilibrium unemployment can probably be attributed to the pronounced shift of capital and labour from the non-tradable to the tradable sector in the wake of the financial crisis, making it difficult for some proportion of workers to find work suited to their education and experience (see also Box IV-1 in *Monetary Bulletin* 2011/4).

Einarsson and Sigurdsson point out, however, that changes in equilibrium unemployment are caused primarily by unemployment hysteresis, and their findings explain why equilibrium unemployment tends to follow measured unemployment throughout the business cycle. Those who have been unemployed the longest often lose their connection to the labour market, as they spend less time and energy looking for work. Their skills and ability to carry out the work available could therefore diminish gradually. It could also be that firms consider prolonged unemployment a sign of poorer-quality human capital and are therefore reluctant to hire the long-term unemployed. As a result, the long-term unemployed are more at risk of becoming stuck in the jobless state, which leads to an increased equilibrium unemployment level. This is in line with Einarsson and Sigurdsson's findings, which show that long-term unemployment is accompanied by weaker wage pressures than short-term unemployment. The prolonged contraction in aggregate demand that causes elevated long-term unemployment leads to a rise in the equilibrium unemployment level.

In light of these results, it is important that the Government support efficient labour market initiatives. Initiatives that aim to preserve or increase human capital, decrease labour market mismatches, and improve the efficiency of pairing unemployed persons with available jobs can reduce long-term unemployment and thus lower equilibrium unemployment.[2]

References

Central Bank of Iceland (2012). Iceland's currency and exchange rate policy options. *Special Publication* no. 7.

Einarsson, Bjarni G., and Jósef Sigurdsson (2013a). "How 'natural' is the Natural Rate? Unemployment hysteresis in Iceland". Central Bank of Iceland *Working Paper* no. 64.

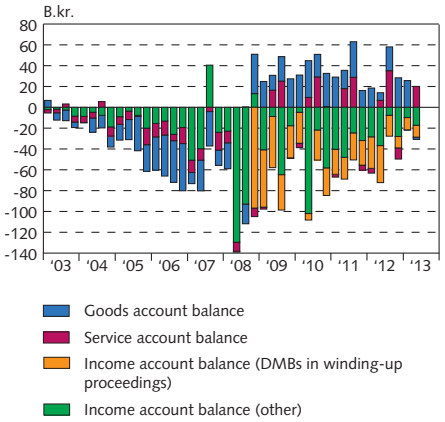
Einarsson, Bjarni G., and Jósef Sigurdsson (2013b). "Roadblocks to declining unemployment. The importance of prudence in fiscal management, foresight in wage negotiations, and caution in monetary policy." Central Bank of Iceland *Economic Affairs* no. 5.

2. See Section 5.4 in Einarsson and Sigurdsson (2013a) for a discussion of the efficiency of different labour market initiatives.

VII External balance

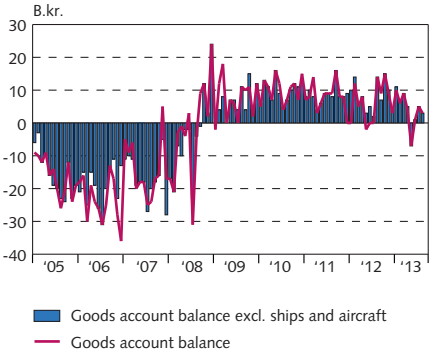
The underlying current account balance was positive by just over 16 b.kr., or almost 2% of GDP, in the first half of 2013, a strong turnaround from the 9 b.kr. deficit in H1/2012. The surplus on goods and services trade totalled 43 b.kr., or 5% of GDP, while the underlying balance on income was negative by 27 b.kr., or 3.2% of GDP. At the same time, the underlying capital and financial balance was negative by 12.2% of GDP. The outlook for the forecast horizon is for a somewhat larger trade surplus than was assumed in the August forecast. The underlying current account balance is expected to be positive by over 3% this year and remain slightly positive in 2014, but to be negative by just over 2% of GDP in 2015-2016, which is a marginal improvement over the August forecast.

Charts VII-1
Current account balance components[1]
Q1/2003 - Q2/2013



1. Net current transfers are included in the balance on income.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VII-2
Goods account balance
At fixed exchange rates, January 2005 - September 2013



Sources: Statistics Iceland, Central Bank of Iceland.

Trade surplus broadly in line with August forecast

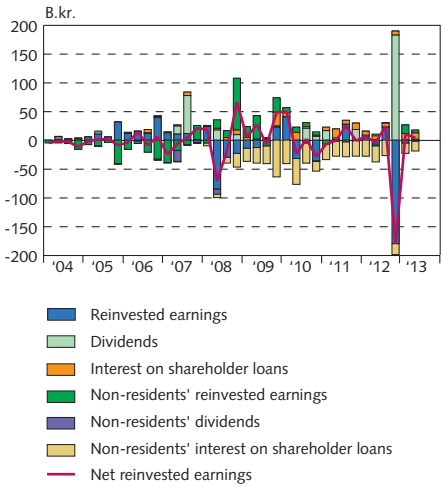
The goods account surplus has contracted somewhat year-to-date. In the first nine months of 2013, exports contracted by about 2.3% year-on-year at constant exchange rates, and imports contracted by roughly 1.7%. The goods account surplus measured around 45 b.kr. at constant exchange rates during the nine-month period, almost 4 b.kr. less than over the same period in 2012. However, the goods trade balance excluding ships and aircraft was about 23 b.kr. more negative during the first nine months of 2013 than over the same period in 2012, when imports of ships and aircraft totalled 29 b.kr. at constant exchange rates.

The surplus on the services account grew markedly year-on-year and was positive by some 20 b.kr. in Q2, after being in balance in Q1 (at constant exchange rates). In the first half of the year, the surplus on the services account measured roughly 20 b.kr., over 18 b.kr. more than in H1/2012. The surplus in H1 is due to nearly 38 b.kr. in net revenues from transport and a 4 b.kr. surplus on tourism, but is offset by increased expenditures due to "other services imports" (e.g., asset leasing and legal and accounting services), which totalled almost 22 b.kr. at constant exchange rates, somewhat diminishing the effects of the strong surplus on transport and tourism. In spite of a negative contribution from other services imports, services imports contracted by almost 9% year-on-year in H1/2013. At the same time, tourism exports grew 21% year-on-year, while tourism imports grew by around 5%.

The outlook is for this year's surplus on goods and services trade to measure 6.1% of GDP, virtually the same as in the August forecast. Goods exports are projected to grow by 1.3% this year. The strongest increase will be in marine product exports, which are expected to grow by 3.6%, followed by a 1.8% increase in aluminium exports. Exports of other goods not subject to short-term capacity constraints are projected to rise by just over ½% (see also Section II).

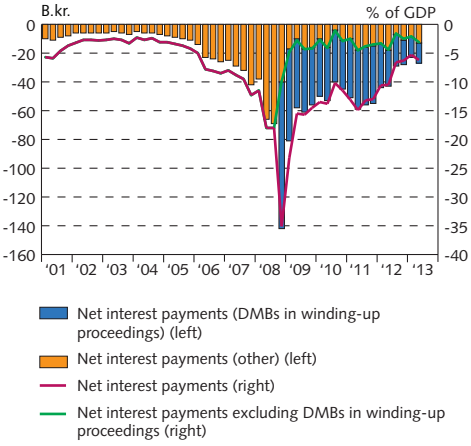
Non-residents' payment card turnover in Iceland rose sharply year-on-year, by over 17% in Q3 and about 22% in the first nine months of the year. Information from the Icelandic Tourist Board shows that the number of foreign visitors to Iceland was up year-on-

Chart VII-3
Returns on foreign direct investment
Q1/2004 - Q2/2013



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VII-4
Net foreign interest payments
Q1/2001 - Q2/2013



Sources: Statistics Iceland, Central Bank of Iceland.

year as well, by 12% in Q3 and by 19% during the first nine months of the year. There are signs of relatively strong growth in tourism exports in the third quarter. At constant prices, services exports are estimated to have increased by 6.8% and combined goods and services exports by 3.4% year-on-year, about a percentage point less than in the August forecast. This is due primarily to weaker-than-projected growth in services exports.

The outlook for 2014 is for the surplus on goods and services trade to decline somewhat from this year's level. It is projected to measure 5.4% of GDP in 2014 and then fall to about 3% in 2015-2016, which is nonetheless a larger surplus than was forecast in August. The difference for 2014 is due primarily to less pronounced erosion of terms of trade than was projected in August, but also to stronger exports and weaker imports. The increased surplus during the following years is due largely to base effects.

Income account deficit contracts sharply year-on-year in H1

The underlying deficit in the balance on income (plus transfers) was just over 27 b.kr. in the first half of the year, or 3.2% of GDP, which is smaller than last year's H1 deficit by about 10 b.kr. The deficit, which is due mainly to a 23 b.kr. deficit in the interest balance, is smaller this year mainly because the interest deficit is smaller by 9 b.kr. Both interest expense and expenses due to dividends and reinvested earnings began declining in mid-2011, bottoming out in Q1/2013. The share of the pharmaceuticals company Actavis in Iceland's balance on income has declined sharply this year, following the sale of the company to Watson Pharmaceuticals in the US in late 2012. From 2013 onwards, estimates of the underlying balance on income will no longer exclude Actavis. Only the calculated income and expense deriving from banks in winding-up proceedings will be excluded.

Underlying current account balance positive in 2013

The trade balance was positive by about 43 b.kr. in H1/2013, while the underlying balance on income plus transfers was negative by 27 b.kr.[1] The underlying current account balance was therefore positive by just over 16 b.kr., or 1.9% of GDP, in the first half of the year.

The outlook is for the trade balance to be positive by 108 b.kr., or 6.1% of GDP, in 2013. The underlying income account deficit will be much smaller this year than in 2012, due to a year-on-year reduction in interest expense. The underlying income account deficit will therefore be 53 b.kr., or 3% of GDP; therefore, the underlying current account balance will be positive by 3.1% of GDP, somewhat more than in 2012 and more than was forecast in August.

Marked year-on-year reduction in net outflows due to the financial balance

The underlying capital and financial balance was negative by just under 105 b.kr., or 12% of GDP, in H1/2013, which is much less than over the same period in 2012, when substantial repayments were

1. Transfers amounted to 5.6 b.kr. in the first half of the year and have increased steadily since the financial crisis struck in 2008.

made on Treasury foreign debt. This year's outflows are also due in large part to foreign loan repayments by the Treasury and other borrowers, but also to the purchase of foreign securities. Inflows related to foreign direct investment offset them to a degree, however.

Iceland's net debt position has declined over this period. The official net external position was negative by 458% of GDP at the end of Q2. Excluding the assets and liabilities of the failed banks, it was far better, however, at -27% of GDP. As has been discussed in previous Central Bank publications, this represents an underestimation of Iceland's debt position.[2] In order to obtain a more accurate estimate of the underlying debt position, it is necessary to consider what will happen to the book value of assets and the underlying classification of creditors according to creditor registers when the failed banks' estates are wound up. In addition, an assessment is made of the debt position of other companies currently being wound up. According to the Central Bank's most recent estimates, Iceland's net external position was negative by about 67% of GDP in Q2/2013 (see *Financial Stability* 2013/2). The position has deteriorated slightly since September, when previous figures were published, owing to a decline in the book value of the failed banks' foreign assets, which in turn is due to the appreciation of the króna and the simultaneous rise in the value of their domestic assets.

Underlying current account balance to remain positive in 2014 but turn negative in the latter half of the forecast horizon

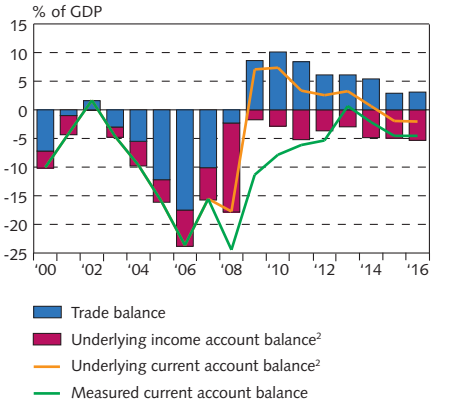
The deficit in the underlying balance on income is projected to be somewhat larger next year than this year (4.9% of GDP), owing to rising interest expense on foreign obligations. The estimate includes the effects of the settlement of the failed banks' estates on the balance on income. When the failed banks' estates are wound up, their assets and liabilities will no longer be set aside in assessments of the underlying balance on income, and they will have a negative effect on it. Interest and dividend payments due to assets reverting to foreign creditors will rise and will have a negative effect on the underlying balance on income. The net external position will deteriorate, with a negative impact on the balance on income.

Table VII-1 The current account balance and its subcomponents

	% of GDP[1]			
	2013	*2014*	*2015*	*2016*
Trade balance	6.1 (6.2)	5.4 (4.8)	2.9 (2.3)	3.1
Measured balance on income[2]	-5.6 (-5.9)	-7.7 (-7.8)	-7.6 (-7.6)	-7.8
Underlying balance on income[3]	-3.0 (-3.7)	-4.9 (-5.1)	-5.0 (-5.1)	-5.3
Measured current account balance[2]	0.5 (0.3)	-2.3 (-3.0)	-4.7 (-5.3)	-4.7
Underlying current account balance[3]	3.1 (2.6)	0.5 (-0.3)	-2.1 (-2.8)	-2.2

1. Figures in parentheses from forecast in *Monetary Bulletin* 2013/3. 2. Calculated according to IMF standards. Balance on income plus transfers. 3. Adjusted for the calculated income and expenses of banks in winding-up proceedings and the effects of the settlement of their estates.
Source: Central Bank of Iceland.

Chart VII-5
Current account balance 2000-2016[1]



1. Net current transfers are included in the balance on income. Central Bank baseline forecast 2013-2016. 2. Adjusted for calculated revenues and expenses of deposit money banks (DMBs) in winding-up proceedings and the effects of the settlement of their estates, and adjusted for the effects of the pharmaceuticals company Actavis until 2012.
Sources: Statistics Iceland, Central Bank of Iceland.

2. See Central Bank of Iceland (2013), "Iceland's underlying external position and balance of payments", *Special Publication* no. 9, March 2013.

It is assumed that the underlying current account surplus will decline to 0.5% of GDP in 2014, whereas the last forecast provided for a deficit in the amount of 0.3% of GDP. The change is due primarily to the fact that the trade surplus is expected to be larger than in the last forecast. In 2015 and 2016, a deficit is expected in the amount of just over 2% of GDP, slightly less than was forecast in August. This is attributable in part to the anticipated increase in investment goods imports in connection with investments in the energy-intensive sector. Imports will increase by 1½ percentage points of GDP, approximately the same as the increase in energy-intensive investment.

VIII Price developments and inflation outlook

Twelve-month inflation has subsided since the last *Monetary Bulletin*, measuring 3.6% in October. Underlying inflation has also fallen but, like long-term inflation expectations, remains above the Bank's inflation target. The inflation outlook for the next year is marginally improved since August, if temporary effects of indirect tax increases on inflation at the beginning of 2014 are excluded. The outlook for 2015 is broadly unchanged, however. As in previous Central Bank forecasts, inflation is projected to taper off, but only gradually, owing primarily to continued pressure from the labour market, which reflects in the persistence of inflation expectations, among other things. According to the baseline forecast, inflation will average 3.9% this year and 3.2% in 2014. As before, the inflation outlook is uncertain, as it depends to a large degree on exchange rate developments and the outcome of the upcoming wage negotiations. The analysis of uncertainties in the forecast indicates that there is about a 50% probability that inflation will be in the 2½-4% range in one year's time and in the 1½-3¾% range by the end of the forecast horizon.

Inflation tapering off after late-summer spike

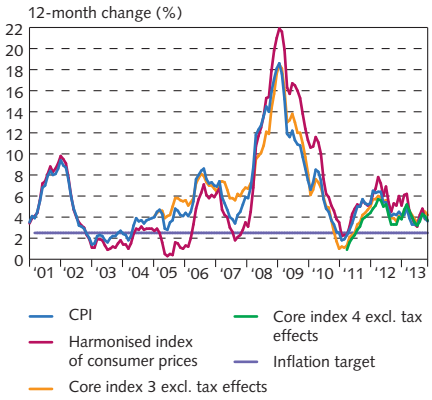
Inflation measured 4% in Q3, in line with the forecast in the last *Monetary Bulletin*, after rising from 3.3% in the previous quarter. The increase in Q3 is due for the most part to adverse base effects. The CPI fell by almost 0.3% month-on-month in July, a much smaller decline than in July 2012. Twelve-month inflation therefore rose from 3.3% to 3.8% between months. Imported goods prices fell in July due to sales effects, but in August and September prices rebounded back above pre-sale levels. Inflation rose still further in August, to 4.3%, and then fell back to 3.9% in September.[1] The CPI remained unchanged in October, but twelve-month inflation fell to 3.6%, with the increase in paid rent offsetting lower prices for petrol, private services, and miscellaneous imported goods. As before, inflation appears to stem primarily from domestic rather than imported factors. For instance, the twelve-month rise in domestic services measured 5.7% in October, due mostly to increases in items such as telephone and internet services, hotel accommodation, and insurance and financial services. At the same time, the price of imported goods excluding alcoholic beverages and tobacco rose by only 0.1%. The drop in petrol prices is an important factor, as the price of imported goods other than petrol, alcoholic beverages, and tobacco rose by 1.6% year-on-year in October.

Underlying inflation also declining but remains well above target

Inflation has also fallen by other measures, after rising in July and August. According to the Harmonised Index of Consumer Prices (HICP) compiled by Eurostat, inflation measured 3.8% in September,

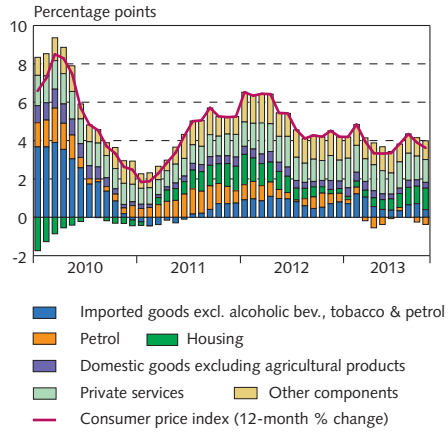
1. The breach of the 4% tolerance limit of the inflation target triggered the submission of a report from the Central Bank to the Government explaining the reasons for the deviation and how the Bank intended to respond. The report was published on 12 September and can be found in Appendix 3 of this *Monetary Bulletin*.

Chart VIII-1
Various inflation measurements[1]
January 2001 - October 2013



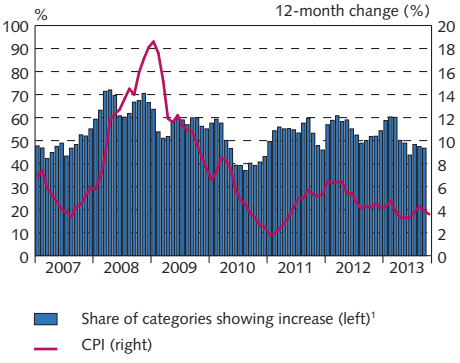
1. Core index 3 is the CPI excluding prices of agricultural products, petrol, public services and the cost of real mortgage interest. Core index 4 excludes the market price of housing as well.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-2
Components of CPI inflation
Contribution to inflation January 2010 - October 2013



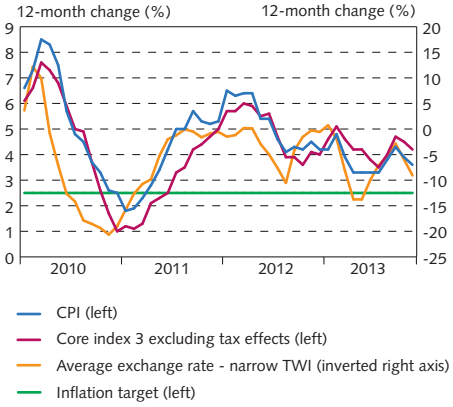
Source: Statistics Iceland.

Chart VIII-3
Distribution of price increases in the CPI
January 2007 - October 2013



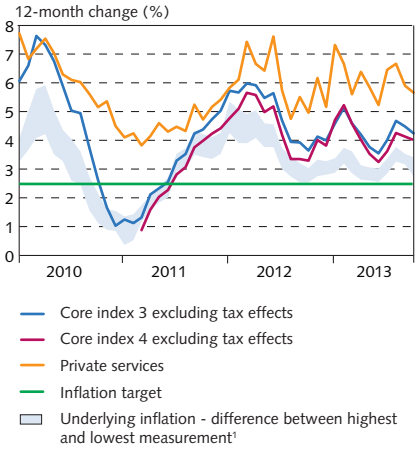
1. The percentage of goods categories that rise in price is a 3-month centred average.
Source: Statistics Iceland.

Chart VIII-4
Inflation, core inflation and the exchange rate of the króna
January 2010 - October 2013



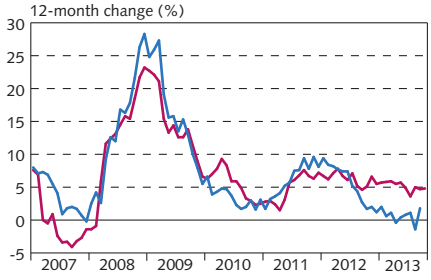
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-5
Various measures of underlying inflation and inflationary pressure[1]
January 2010 - October 2013



1. The trimmed mean is measured as underlying inflation where 5%, 10%, 15% and 20% of components with the largest price changes are excluded.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-6
Production and retail prices of domestic goods
January 2007 - October 2013



Sources: Statistics Iceland, Central Bank of Iceland.

down from 4.8% in August. Measures of underlying inflation tell a similar tale. According to core index 3 (which excludes the effects of indirect taxes, volatile food items, petrol, public services, and real mortgage interest expense), inflation measured 4.2% in October, down from 4.7% in September. Inflation according to core index 4, which also excludes changes in the market price of housing, declined from 4.3% to 3.7% over the same period. Statistical measures of underlying inflation give similar results: for instance, measuring underlying inflation using the trimmed mean gives a range between 2.7% and 3.4% in October, which is about 0.4 percentage points lower than in August.

Exchange rate volatility diminishes

The exchange rate of the króna has held relatively stable since the Central Bank increased its foreign exchange intervention in May. The króna has slid in the recent term, however and, in trade-weighted terms, was just under 2% weaker as this *Monetary Bulletin* went to press than it was just before the August issue; however, it is still 3% stronger than in November 2012 (see Section III). Developments in Q3 were well in line with the August forecast, however. Past experience has shown that appreciation of the króna passes through to the price level more slowly than depreciation does, but the longer the exchange rate remains stable, the greater the likelihood that the appreciation in the first half of the year will be fully passed through.[2] As yet, however, there are no signs that this increased exchange rate stability has affected inflation expectations (see below), and it is likely that this will take some time.

Lower producer prices do not result in reduced retail prices

Developments in domestic producer prices are a possible indicator of underlying cost pressures facing domestic firms, and thereby a potential signpost for general inflation trends. Producer prices for goods sold domestically rose 1.8% year-on-year in September, whereas the domestic goods component of the CPI increased by 4.7%. At the same time in 2012, domestic producer prices and domestic goods in the CPI rose by about the same amount year-on-year, or 4½-5%. These two measures of domestic inflation have therefore diverged, and it appears as though lower producer prices are not being passed through to reduced retail prices, possibly reflecting the effects of the persistent inflation in recent years on corporate inflation expectations and firms' pricing decisions.

According to the Capacent Gallup survey conducted in September 2013, executives were as optimistic about developments in EBITDA margins over the next six months as they were in the February survey, which reflected the highest level of optimism since December 2007. This could be an indication that firms have some scope to absorb cost increases without passing them through to prices or slowing down staff recruitment. According to the survey, the outlook is considerably

2. See the paper by Thorvardur Tjörvi Ólafsson, Ásgerdur Ó. Pétursdóttir, and Karen Á. Vignisdóttir (2011), "Price setting in turbulent times: Survey evidence from Icelandic firms", Central Bank of Iceland *Working Paper*, no. 54.

better for firms in retail, transport, transportation, and tourism, and poorer for construction and utility companies. Whether firms use this increased scope to absorb cost increases will ultimately depend on market conditions, however.

Inflation expectations down year-on-year but still persistent

Inflation expectations can be of vital importance in inflation developments, not least in the prelude to collective bargaining agreements, where they can affect wage-earners' demands and companies' willingness to agree to sizeable pay increases. They also affect firms' pricing decisions. In essence, low, stable inflation expectations provide an anchor for inflation and are an important precondition for the maintenance of low inflation.

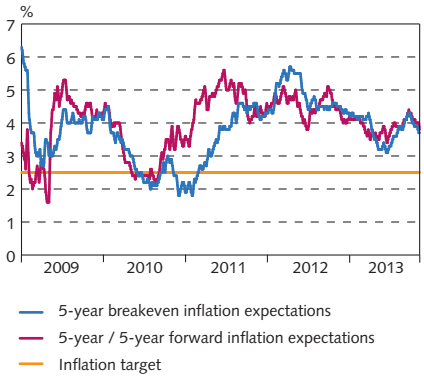
The breakeven inflation rate in the bond market, measured in terms of the spread between indexed and nominal bond yields, is virtually unchanged since the last *Monetary Bulletin*. The five-year breakeven rate is 3.7% and the five-year rate five years ahead is 3.9%. Both spreads are lower than they were a year ago, however: the five-year breakeven rate has declined by 0.9 percentage points, and the five-year rate five years ahead is down by about ½ percentage point. It is important to emphasise, however, that in addition to inflation expectations, the breakeven rate includes a liquidity premium and a risk premium that reflects uncertainty about inflation. That inflation expectations have fallen in the past year is supported by the findings of a recent survey among market participants, however. According to the survey, carried out in early November, market agents expect twelve-month inflation to measure 4% one year ahead and to average 4% over the next ten years, a reduction of 0.8 percentage points in the past year. Market inflation expectations are broadly unchanged since August, however, and have hovered around 4% for some time, as has the breakeven inflation rate.

Households' and businesses' inflation expectations have also changed very little in the recent term. According to the quarterly survey carried out by Capacent Gallup in September, household inflation expectations measured about 5% one and two years ahead and had remained unchanged for some time. According to a comparable survey among businesses, also carried out in September, corporate executives expect inflation to measure 4% in one year (the same as in the May survey) and two years (a decline of ½ percentage point from the last survey). Nearly 70% of respondents expected input prices to rise in the next six months, and about 43% expected their product prices to rise, which is a smaller percentage than in the last survey and the one conducted a year ago. The number of firms that expect their input and product prices to rise in the next six months is nonetheless greater than it was in the early 2000s, when inflation was closer to target.

Inflation outlook broadly unchanged from the last forecast …

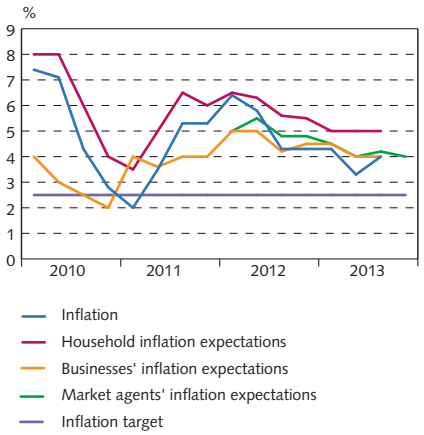
Inflation measured 4% in Q3, in line with the August forecast. According to the current baseline forecast, inflation will begin to subside again in Q4/2013, to 3.8%, somewhat below the August fore-

Chart VIII-7
Breakeven inflation expectations[1]
Daily data, 2 January 2009 - 1 November 2013



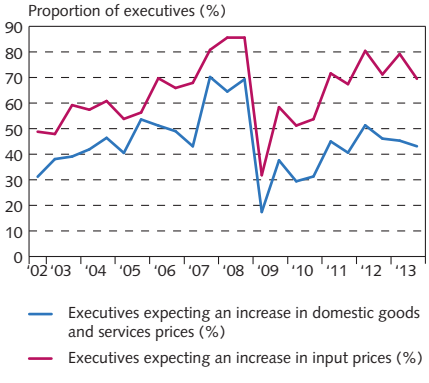
1. Breakeven inflation expectations are calculated from yield spreads between nominal and index-linked Government and Government-backed bonds (5-day moving averages).
Source: Central Bank of Iceland.

Chart VIII-8
Inflation and inflation expectations
Q1/2003 - Q4/2013



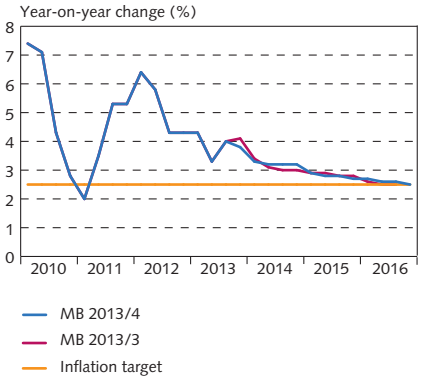
Sources: Capacent Gallup, Statistics Iceland, Central Bank of Iceland.

Chart VIII-9
Corporate expectations of input and product prices 6 months ahead
Fall 2002 - fall 2013



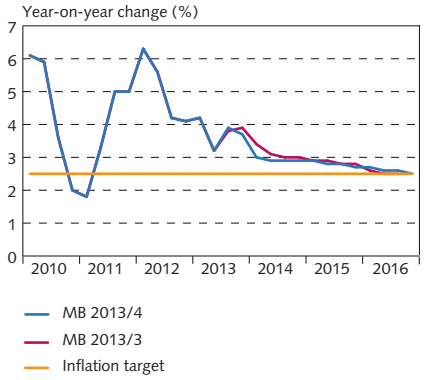
Source: Capacent Gallup.

Chart VIII-10
Inflation - comparison with MB 2013/3



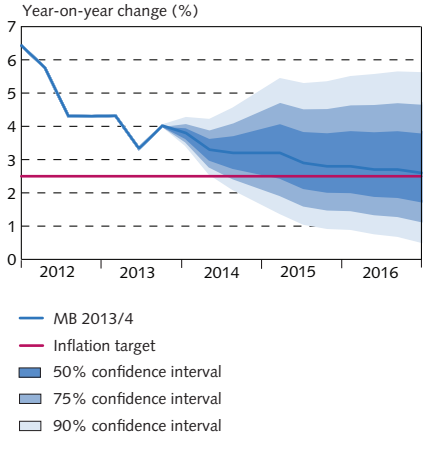
Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-11
Inflation excluding tax effects - comparison with MB 2013/3



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-12
Inflation forecast and confidence intervals



Sources: Statistics Iceland, Central Bank of Iceland.

cast, primarily because of lower-than-expected inflation in October. It is expected to average 3.2% in 2014, which is similar to the August forecast. The outlook for 2014 is marginally better than in August if the effects of indirect tax increases taking effect at the beginning of the year are excluded, because the slack in the economy is considered somewhat more pronounced at present. As before, the pace of disinflation will be relatively slow during the forecast horizon, due primarily to pressures from the labour market and the persistence of inflation expectations above target. The slack in the economy and the relative stability of the króna over the forecast horizon ensure, however, that inflation will begin to taper off early next year and align with the target late in 2015.

… but developments will depend largely on the exchange rate and the upcoming wage settlements

The inflation outlook is cloudy at present because of uncertainty about future exchange rate developments, which makes it difficult to anchor inflation expectations sufficiently. This, together with persistent inflation, exacerbates the risk that the baseline forecast underestimates the inflationary pressures ahead; therefore, in the near term, inflation could develop more in line with the path indicated by simple statistical models. This could be manifested, for instance, in an underestimation of wage increases in the forthcoming wage settlements, although the baseline forecast assumes that wages will rise somewhat in excess of productivity growth and that both the real exchange rate and the wage share will rise during the forecast horizon. This forecast takes account of past experience of wage settlements rather than the level that is considered desirable in terms of the Bank's 2½% inflation target. If wages increase more than is assumed in the baseline forecast, inflationary pressures will be even stronger. The pressure on the exchange rate will also be greater, interest rates will be higher, and the economic recovery will lose pace. However, other things being equal, more modest wage increases would contribute to more rapid disinflation, lower interest rates, and a stronger economic recovery (see also Sections I and VI). Inflation could also prove more tenacious if the level of fiscal restraint or the margin of spare capacity in the economy is overestimated. On the other hand, a weaker economic recovery in Iceland or internationally could quicken the pace of disinflation beyond that provided for in the baseline forecast.

Chart VIII-12 shows the estimate of the probability distribution for developments in inflation during the forecast horizon. The width of the probability distribution sheds light on the extent of the uncertainty, and its shape reflects an assessment of which uncertainties are considered most important and how they affect the inflation outlook. The shaded areas show the confidence intervals in the baseline forecast. According to the probability distribution, there is considered to be a 50%, 75%, and 90% probability that inflation will lie within the relevant intervals during the forecast horizon (see Appendix 3 in *Monetary Bulletin* 2005/1). According to this assessment, there is a 50% probability that inflation will be in the 2½-4% range in one year and in the 1½-3¾% range by the end of the forecast horizon. The

uncertainty is considered similar to that in the August forecast. As in August, the risk profile is tilted to the upside. Further discussion of the uncertainties in the baseline forecast can be found in Section I.

Appendix 1

Baseline macroeconomic and inflation forecast 2013/4

Table 1 Macroeconomic forecast[1]

		Volume change on previous year (%) unless otherwise stated				
	B.kr.		*Forecast*			
GDP and its main components	*2012*	*2012*	*2013*	*2014*	*2015*	*2016*
Private consumption	912.9	2.4 (2.7)	1.9 (2.0)	2.3 (2.6)	2.5 (2.8)	2.5
Public consumption	430.4	-1.4 (-0.2)	1.2 (1.2)	0.7 (0.6)	0.4 (0.5)	0.6
Gross fixed capital formation	246.9	5.0 (4.4)	-4.1 (-9.4)	8.9 (13.0)	22.8 (21.6)	-1.3
Business investment	168.6	7.8 (8.6)	-13.0 (-21.6)	4.8 (9.8)	31.2 (30.9)	-5.8
Residential investment	44.9	6.9 (6.9)	20.1 (29.2)	24.5 (26.3)	14.1 (10.0)	14.5
Public investment	33.5	-9.1 (-17.0)	12.1 (8.5)	3.9 (5.4)	0.1 (1.4)	-4.3
National expenditure	1,594.6	1.6 (1.9)	0.7 (0.0)	2.8 (3.5)	5.1 (5.0)	1.3
Exports of goods and services	1,009.5	3.8 (3.9)	3.4 (4.4)	2.2 (1.8)	1.6 (1.4)	2.5
Imports of goods and services	905.5	4.7 (4.8)	0.8 (1.2)	2.6 (3.0)	5.8 (5.1)	1.3
Contribution of net trade to growth	-	-0.1 (-0.1)	1.6 (2.0)	0.0 (-0.5)	-2.0 (-1.8)	0.7
Gross domestic product	1,698.5	1.4 (1.6)	2.3 (1.9)	2.6 (2.8)	2.8 (2.9)	2.0
Other key aggregates						
GDP at current prices (in b.kr.)		1,698 (1,708)	1,771 (1,763)	1,865 (1,855)	1,963 (1,952)	2,052
Trade account balance (% of GDP)		6.1 (6.3)	6.1 (6.2)	5.4 (4.8)	2.9 (2.3)	3.1
Current account balance (% of GDP)		-5.5 (-4.9)	0.5 (0.3)	-2.3 (-3.0)	-4.7 (-5.3)	-4.7
Underlying current account balance (% of GDP)[2]		2.4 (3.0)	3.1 (2.6)	0.5 (-0.3)	-2.1 (-2.8)	-2.2
Terms of trade (change in average year-on-year)		-3.5 (-3.3)	-2.0 (-3.0)	-0.7 (-1.4)	-0.8 (-1.1)	-0.7
Total gross fixed capital formation (% of GDP)		14.5 (14.4)	13.8 (12.9)	14.8 (14.2)	17.5 (16.9)	17.0
Business investment (% of GDP)		9.9 (9.9)	8.5 (7.5)	8.7 (7.9)	11.1 (10.3)	10.2
Output gap (% of potential output)		-1.9 (-1.5)	-1.2 (-0.9)	-0.5 (-0.2)	0.2 (0.6)	0.2
Unit labour costs (change in average year-on-year)[3]		6.3 (6.3)	4.4 (4.6)	4.0 (4.0)	3.5 (3.9)	3.5
Real disposable income (change in average year-on-year)		-0.6 (3.0)	3.5 (2.4)	1.8 (2.8)	3.5 (3.2)	3.2
Unemployment (% of labour force)		5.8 (5.8)	4.5 (4.8)	4.1 (4.4)	4.1 (4.3)	3.8
ISK exchange rate against narrow trade-weighted index (31/12 1991 = 100)		222.0 (222.0)	218.4 (218.1)	215.4 (215.0)	215.6 (215.3)	215.6
Inflation (annual average, %)		5.2 (5.2)	3.9 (3.9)	3.2 (3.1)	2.8 (2.9)	2.6
Inflation excluding tax effects (annual average, %)		5.0 (5.0)	3.7 (3.8)	2.9 (3.1)	2.8 (2.9)	2.6

1. Figures in parentheses are from the forecast in *Monetary Bulletin* 2013/3. 2. Adjusted for calculated income and expenses of DMBs in winding-up proceedings and the effects of the settlement of their estates. In 2012 an adjustment is also made for the pharmaceuticals company Actavis. 3. Based on underlying productivity.

Table 2 Quarterly inflation forecast (%)[1]

Quarter	*Inflation (change year-on-year)*	*Inflation excluding tax effects (change year-on-year)*	*Inflation (annualised quarter-on-quarter change)*
		Measured value	
2012:3	4.3 (4.3)	4.2 (4.2)	-1.0 (-1.0)
2012:4	4.3 (4.3)	4.1 (4.1)	3.9 (3.9)
2013:1	4.3 (4.3)	4.2 (4.2)	6.5 (6.5)
2013:2	3.3 (3.3)	3.2 (3.2)	4.1 (4.1)
2013:3	4.0 (4.0)	3.9 (3.8)	1.7 (1.5)
		Forecasted value	
2013:4	3.8 (4.1)	3.7 (3.9)	3.0 (4.2)
2014:1	3.3 (3.4)	3.0 (3.4)	4.5 (3.7)
2014:2	3.2 (3.1)	2.9 (3.1)	3.6 (3.2)
2014:3	3.2 (3.0)	2.9 (3.0)	1.7 (1.0)
2014:4	3.2 (3.0)	2.9 (3.0)	3.1 (4.0)
2015:1	2.9 (2.9)	2.9 (2.9)	3.1 (3.6)
2015:2	2.8 (2.9)	2.8 (2.9)	3.3 (3.0)
2015:3	2.8 (2.8)	2.8 (2.8)	1.7 (0.7)
2015:4	2.7 (2.8)	2.7 (2.8)	2.7 (3.7)
2016:1	2.7 (2.6)	2.7 (2.6)	3.2 (3.1)
2016:2	2.6 (2.5)	2.6 (2.5)	2.6 (2.4)
2016:3	2.6 (2.5)	2.6 (2.5)	1.9 (0.7)
2016:4	2.5	2.5	2.3

1. Figures in parentheses are from the forecast in *Monetary Bulletin* 2013/3.

Appendix 2

The Central Bank of Iceland forecasting record

Economic developments often diverge from forecasts. Some forecasting errors can stem from errors in the models used for forecasting, others are due to inaccurate or insufficiently detailed information on the economic variables on which the models are based – measurement errors, for instance – and still others can be caused by unforeseen factors such as developments in the global economy. Moreover, forecasts are always based to a degree on forecasters' assessments, which can also give rise to errors. Studying forecasting errors helps to identify the uncertainties in the forecasts and provides important information on possible errors in forecast preparation or possible structural changes in the economy. Both can be used for further development of macroeconomic models, forecast preparation, and the procedures used during the forecasting process.

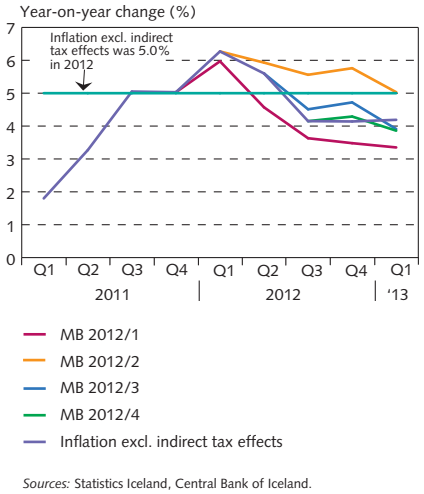
Forecasts of the real economy and inflation

Four times a year, the Central Bank prepares forecasts for the real economy and inflation covering a forecast horizon of three years. Each forecast is based on a detailed analysis of the current state of the economy. The assumptions concerning global economic developments are based, among other things, on international forecasts and the information implied by key commodity futures. The national accounts are the primary source of data on the domestic economy, although the analysis of developments since the publication of the last national accounts also takes into consideration other variables such as turnover, lending, money supply, and interest rates. In addition to conventional empirical models, forecasts are based on information that can be extracted from a number of opinion polls, which the Bank supplements with its own surveys among executives from firms and institutions, as well as labour market participants. The Central Bank's quarterly macroeconomic model (QMM) is the tool used to manage this information. Some of the equations in the model are accounting relations, while others are behavioural equations that are estimated using econometric methods. However, the Bank's final forecast – particularly for the recent past and immediate future – is determined not least by staff assessments, various simple statistical models, and a variety of information not included in the QMM.

Monetary policy performance during the forecast horizon is a key factor in the preparation of each forecast.[1] In the QMM, monetary policy is set with a forward-looking monetary policy rule wherein Central Bank interest rates are determined by the expected deviation of inflation from the inflation target and the current output gap. This rule ensures that the Bank's interest rates bring inflation back to target

Chart 1

Monetary Bulletin inflation forecasts in 2012 and inflation excluding tax effects



Sources: Statistics Iceland, Central Bank of Iceland.

1. Further discussion of central banks' various options concerning their underlying policy rate path can be found in Thorvardur Tjörvi Ólafsson (2007), "Publication of its own policy rate path boosts the effectiveness of central bank monetary policy", *Monetary Bulletin* 2007/1, pp. 71-86.

no later than the end of the forecast horizon. The monetary policy rule in the model was selected from a group of such rules because it was considered the one that minimises the sacrifice cost in ensuring that inflation is at target.[2]

Central Bank inflation forecasts for 2012

In January 2012, twelve-month inflation measured 6.5% after having risen somewhat from its December measurement of 5.3%. These measurements mark the beginning position of the period under scrutiny here. The spike in inflation at the beginning of 2012 was due primarily to price increases for public services and rising food and petrol prices. In Q1/2012, twelve-month inflation measured 6.4%, its highest level since Q1/2010. Table 1 gives measured inflation for 2012 as a whole (5.2%) and compares it with the forecasts in that year's issues of *Monetary Bulletin*. The first forecast for the year assumed some disinflation over the course of the year, as did its predecessor, but the first 2012 forecast had been revised upwards. Inflation declined more slowly than projected, primarily because of increased pressures from larger-than-expected wage increases and a weaker króna than had been previously assumed. Even though the previous forecast was revised, it turned out that inflation was underforecast by 0.6 percentage points for the year as a whole.

By the second quarter, inflation expectations had worsened markedly. The króna had depreciated, oil prices had risen, and the slack in the economy had proven smaller than forecasts had indicated. The inflation outlook therefore appeared to have worsened, and this was reflected in the spring issue of *Monetary Bulletin*. The forecast in the second *Monetary Bulletin* of the year proved too pessimistic about the inflation outlook, however, and inflation for the year as a whole was overforecast by about 0.8 percentage points.

The errors in the inflation forecast between 2011 and 2012 were smaller in the latter half of the year, as can be expected when the inflation rate for the first part of the year is a known quantity and the forecast for the remainder of the year extends over a shorter period of time. The previous changes in oil prices and the exchange rate reversed somewhat, and inflation began to subside once again. Market agents' inflation expectations fell as well, in line with an improved outlook. The error in the *Monetary Bulletin* 2012/3 forecast was only 0.2 percentage points from the actual outcome, and the forecast in *Monetary Bulletin* 2012/4 proved to be in line with the final outcome. As the simple average of the inflation forecasts for the year is 5.3%, the forecasts fluctuated more or less around the correct figure.

Table 1 Inflation forecasts in 2012

% change from prior year	*MB 2012/1*	*MB 2012/2*	*MB 2012/3*	*MB 2012/4*	*Final result*
Inflation	4.6	6.0	5.4	5.2	5.2
Inflation excl. indirect tax effects	4.4	5.9	5.3	5.1	5.0

2. See Ásgeir Daníelsson, Magnús F. Gudmundsson, Svava J. Haraldsdóttir, Thorvardur Tjörvi Ólafsson, Ásgerdur Ó. Pétursdóttir, Thórarinn G. Pétursson and Rósa Sveinsdóttir (2009), "QMM: A quarterly macroeconomic model of the Icelandic economy", Central Bank of Iceland, *Working Paper*, no. 41.

Errors in long-term inflation forecasts

In assessing inflation forecasts, it is helpful to consider the mean deviation and the root mean square error (RMSE) of the forecasts concerned. The mean forecast error shows the average deviation of the forecast from observed inflation. It therefore gives an indication of whether inflation is being systematically over- or underforecast. The RMSE is a measure of the variability of the forecast error and therefore of the uncertainty in the forecast itself. The error or deviation can generally be expected to increase as forecasts extend further ahead in time.

Table 2 Central Bank of Iceland inflation forecast errors since Q1/1994

%	*One quarter*	*Two quarters*	*Three quarters*	*Four quarters*
Mean forecast error	0.0	-0.3	-0.7	-1.2
RMSE	0.6	1.6	2.3	2.7

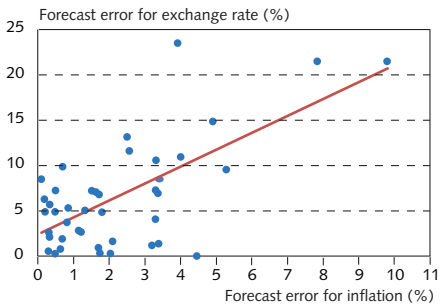
Table 2 shows the mean forecast error and RMSE in the Bank's inflation forecasts up to four quarters ahead, from 1994 through August 2013 (70 forecasts). By this criterion, inflation has been underforecast two to four quarters ahead, to an increasing degree along the horizon. The mean deviation of the forecasts three and four quarters ahead proved to be statistically significant from zero based on a 5% critical level, which means that the forecasts were skewed to the downside and inflation consistently underforecast. The forecast errors one and two quarters ahead were not significant from zero, however.

Table 3 Central Bank of Iceland inflation forecast errors since Q2/2001

	No. of measurements	*Mean forecast error (%)*	*RMSE (%)*
Four quarters ahead	44	-1.5	2.9
Eight quarters ahead	40	-2.7	4.3
Twelve quarters ahead	14	-2.1	2.5

After adopting an inflation target in March 2001, the Central Bank published inflation forecasts two years ahead, and since March 2007 it has published forecasts over a horizon of three years. Table 3 shows the mean forecast error and the RMSE for the period since the Bank introduced inflation targeting. A comparison of the RMSE for the one-year forecasts (see Tables 2 and 3) shows that the RMSE has been greater since the Bank floated the króna and adopted the inflation target than it was for the entire period.[3] It should also be borne in mind that the QMM was not used until the beginning of 2006. The forecasts used previously, from the National Economic Institute, were based on models that were obsolete and, in any case, were not designed for macroeconomic forecasting in support of monetary policy formation. Furthermore, the Bank did not forecast the exchange rate or the policy interest rate until 2007; therefore, the forecasts did not make full use of Bank staff's assessments of the likely developments in these variables. This is still true to an extent because,

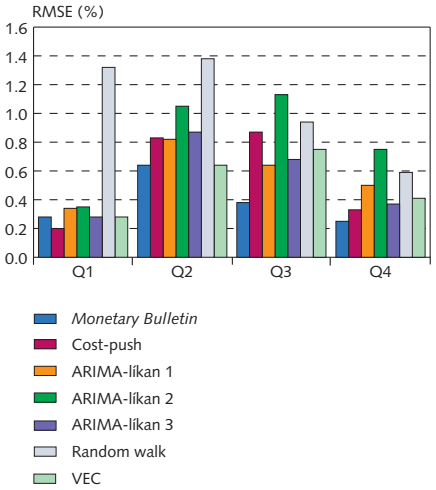
Chart 2
Forecast error for inflation in *Monetary Bulletin* and deviation of average exchange rate from forecast 2001 to 2012
Forecast one year ahead



Source: Central Bank of Iceland.

3. See also the discussion in the Central Bank reports "Monetary policy in Iceland after capital controls", *Special Publication* no. 4, and "Iceland's currency and exchange rate policy options", *Special Publication* no. 7 (Chapters 3, 4, and 12).

Chart 3
Forecasting errors for inflation in *Monetary Bulletin* and from simple models in 2012[1]



1. Q1 is the quarter in which the report is published or the first quarter forecasted; Q2 is the quarter after the report has been published; Q3 is the following quarter.
Source: Central Bank of Iceland.

in recent years, the Bank's forecasts have been based on the technical assumption that the exchange rate will remain broadly stable at the level prevailing when the forecast was prepared (see Sections I and III). Experience shows that large errors in inflation forecasts in Iceland are usually related to unforeseen exchange rate movements, as Chart 2 indicates. Another factor, however, is that the QMM has not taken adequate account of how poorly anchored inflation expectations are, which could make attaining the inflation target seem too easy.

Central Bank inflation forecasts in comparison with forecasts from simple time series models

Simple time series models that forecast inflation are also used as cross-checks in preparing the forecast. It is interesting to compare the Bank's forecasts to the results generated by such models.[4] Three ARIMA models, a simple cost-push model, a random walk forecast, and a VEC model are used for the comparison.[5] A review of the year 2012 shows that the Bank's forecasts generally performed best. They vary in accuracy, however, depending on the length of the forecast. In general, the errors resulting from the simple models are larger and the deviations from the baseline forecast greater further out the horizon.

Examining the forecasts one quarter ahead reveals that the simple cost-push model performed best (see Chart 3). Next in line was the baseline forecast in *Monetary Bulletin*, along with the ARIMA 3 model and the VEC model. It is noteworthy that the errors are greater in the baseline forecast two quarters ahead than in the forecasts three and four quarters ahead, while the usual pattern is for forecasts to become less accurate as uncertainty increases further along the horizon. For projections two to four quarters ahead, the baseline forecast in *Monetary Bulletin* performed best, with the difference greatest in the three-quarter forecast. In that forecast, the error in the baseline forecast is 0.38%, followed by the ARIMA 1 model, with an error of 0.64%. As these figures show, the baseline forecast was far more accurate.

It can also be instructive to compare the forecasts with a random walk forecast, which assumes that changes in inflation are unpredictable. If inflation follows a random walk pattern, the best forecast is to assume that inflation will be the same in the future as in the most recent measurement. Chart 3 shows that the information from the other models is more useful for shorter forecasts (one to two quarters ahead), as the errors are much smaller than those generated by a

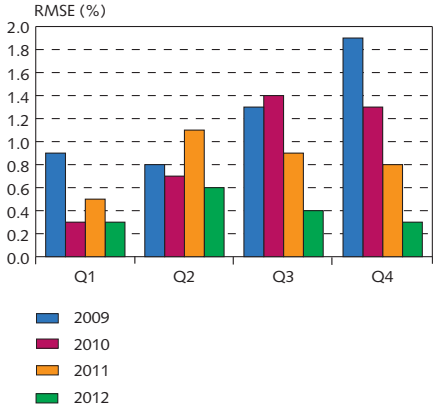
4. In all models, care is taken to ensure that they have the same information on inflation when the forecast is carried out.

5. According to the simple cost-push model, inflation is determined by historical developments in unit labour costs and the import price level in domestic currency. The ARIMA 1 model draws on forecasts for the principal subcomponents of the consumer price index and weights them together to create a single overall index. The twelve subcomponents of the consumer price index are as follows: agricultural products less vegetables, vegetables, other domestic food and beverages, other domestic goods, imported food and beverages, new cars and spare parts, petrol, other imported goods, alcohol and tobacco, housing, public services, and other services. ARIMA 2 forecasts the CPI directly, and ARIMA 3 forecasts the overall index excluding indirect taxes and then factors in the estimated tax effects. A discussion of the use of ARIMA models for inflation forecasting can be found in A. Meyler, G. Kenny and T. Quinn (1998), "Forecasting Irish inflation using ARIMA models", Central Bank of Ireland, *Technical Paper*, no. 3/RT/98.

random walk forecast. The difference then narrows sharply, reflecting increased uncertainty further out the horizon.

It is also interesting to examine developments in the errors in the baseline forecast from year to year. As Chart 4 shows, forecasting errors have diminished considerably since 2009. It can also be seen that 2012 came out well in comparison with previous years, with inflation forecasting errors less than or equal to previous errors in all cases. The improvement is greatest for forecasts three and four quarters ahead, where the errors diminished markedly over the 2009-2012 period. The decline is probably due in large part to increasing economic stability as more time passes after the onset of the crisis, as twelve-month inflation measured 12% or over in 2008 and 2009 and the pace of quarterly inflation extremely volatile in comparison with 2011 and 2012. Most often, volatility increases as inflation rises higher.[6]

Chart 4
Forecasting errors for inflation in *Monetary Bulletin* from 2009 to 2012[1]



1. Q1 is the quarter in which the report is published or the first quarter forecasted; Q2 is the quarter after the report has been published; Q3 is the following quarter.
Source: Central Bank of Iceland.

Central Bank GDP growth forecasts for 2012

In order to obtain a clearer view of the Central Bank's success in inflation forecasting, it is necessary to examine its success in forecasting developments in the real economy. For example, the Bank is likely to underforecast inflation during periods when it underforecasts growth in demand or overforecasts the slack in the economy.

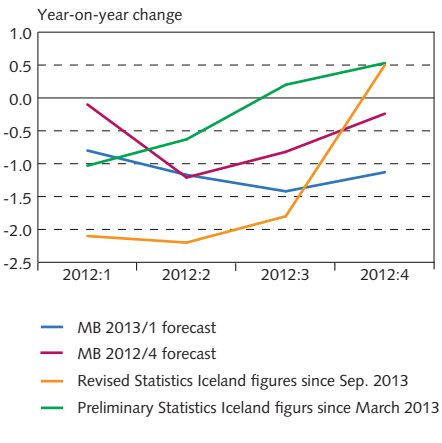
Statistics Iceland publishes national accounts estimates for each quarter about two months after each quarter-end. The first estimates for Q4/2012 and the full year 2012 were published in March 2013, and revised figures were published last September. The Bank's forecasts and Statistics Iceland's estimates of changes in key macroeconomic variables from the previous year can be seen in Table 4. At the top of the columns showing the forecasts is the first quarter for which a forecast is prepared. Statistics Iceland's national accounts estimates for Q3/2011 were available in February 2012, when *Monetary Bulletin* 2012/1 was published. As a result, the Bank had to base its forecast for 2012 on the forecast for Q4/2011.

Table 4 Monetary Bulletin – Macroeconomic forecasts for 2012

Forecast horizon from:	*2011/4*	*2012/1*	*2012/2*	*2012/3*	*2012/4*	*Preliminary figures (Mar 2013)*	*Revised figures (Sep 2013)*
% change from prior year	*MB 2012/1*	*MB 2012/2*	*MB 2012/3*	*MB 2012/4*	*MB 2013/1*		
Private consumption	2.2	3.2	3.0	3.0	2.6	2.7	2.4
Public consumption	-1.2	-0.6	-0.1	-0.6	-1.1	-0.2	-1.4
Gross capital formation	17.5	12.4	9.0	9.2	4.9	4.4	5.0
National expenditure	3.4	3.7	3.2	2.8	2.0	1.9	1.6
Exports	1.8	3.8	5.4	4.6	3.9	3.9	3.8
Imports	3.4	5.9	6.4	5.6	3.7	4.8	4.7
GDP growth	2.5	2.6	3.1	2.5	2.2	1.6	1.4

Statistics Iceland's figures then underwent a major revision between the preliminary figures from March 2013 and the revised figures from September. All items except investment were adjusted

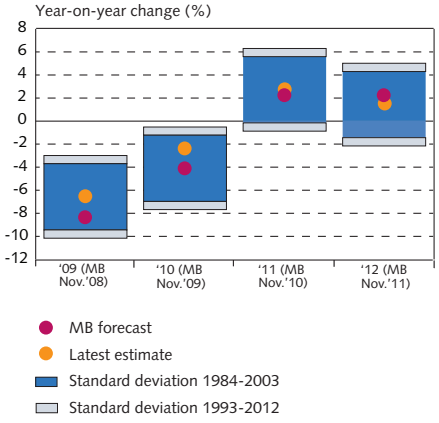
Chart 5
Government spending: Statistics Iceland and Central Bank forecasts



Sources: Statistics Iceland, Central Bank of Iceland.

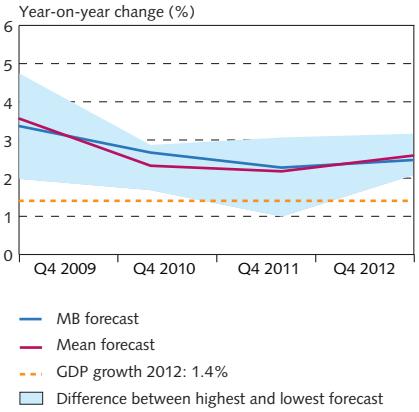
6. The financial crisis has tested many central banks' forecasting ability, as is discussed, for instance, in David Stockton (2012), *Review of the Monetary Policy Committee's Forecasting Capability*, October 2012.

Chart 6
November *Monetary Bulletin* forecast for GDP growth in the following year



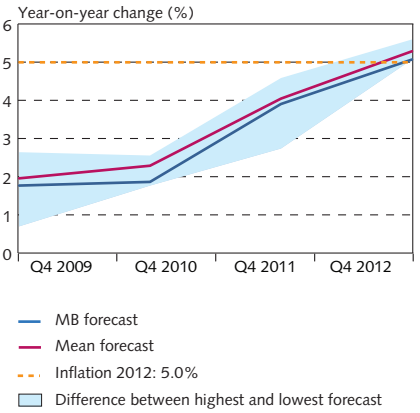
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 7
GDP growth forecast for 2012



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 8
Inflation forecasts for 2012



Sources: Statistics Iceland, Central Bank of Iceland.

downwards. The most pronounced change was in public consumption, owing primarily to a downward adjustment of municipal consumption by 1.2 percentage points from the preliminary figures. Chart 5 shows how quarterly growth in public consumption developed in *Monetary Bulletin* forecasts over the year, in comparison with the preliminary and most recent figures from Statistics Iceland. It also shows how much the September revision affected errors in the public consumption forecast. Public consumption is underforecast at first but is overforecast after the revision for the majority of the period.

The investment forecast for the period also changed significantly, due primarily to energy-intensive investment projects, which were postponed repeatedly in the Bank's forecasts and therefore caused a reduction in investment estimates between forecasts. As the year progressed, the uncertainty about investment projects understandably diminished, and in the last forecast for the period, the forecasted value according to *Monetary Bulletin* was virtually identical to the most recent figures from Statistics Iceland. Indicators of private consumption for the year also gave cause for greater optimism than is justified by the most recent measurements. Stronger private consumption growth was expected because of rising net household wealth, lower real interest rates, and the recovery of the labour market. Although the errors in the private consumption forecasts were not large in terms of percentage points, they weigh heavily in the GDP growth forecast error because of the importance of private consumption in GDP.

In addition to domestic factors, the global economic outlook deteriorated over the course of the year. As Chart I-19 in Section I shows, the International Monetary Fund's (IMF) GDP growth forecasts have been continually revised downwards, primarily due to uncertainty in the euro area. Weaker demand growth among trading partner countries eroded Iceland's terms of trade (see also Box II-1) and impeded export growth to a degree.

These factors explain in large part why year-2012 output growth was overforecast. The strength of domestic and foreign demand proved to be overestimated. Output growth forecasts were most optimistic around the middle of the period, and the error turned out greatest in *Monetary Bulletin* 2012/3, when it measured 1.7 percentage points. As can be seen in Chart 6, however, the forecasting error is well within the range defined by the historical standard deviation of output growth. The same can be said for the preceding years.[7]

Central Bank forecasts in comparison with other forecasters' projections

Chart 7 gives a comparison of the Central Bank's output growth forecasts for 2012 and the average of other forecasters' projections. The forecasts were all prepared in the fourth quarter of the year during the period 2009-2012, and the average is calculated from eight forecasts from the IMF, the Icelandic Federation of Labour (ASÍ), the Ministry of Finance and Economic Affairs, Iceland's three large commercial banks,

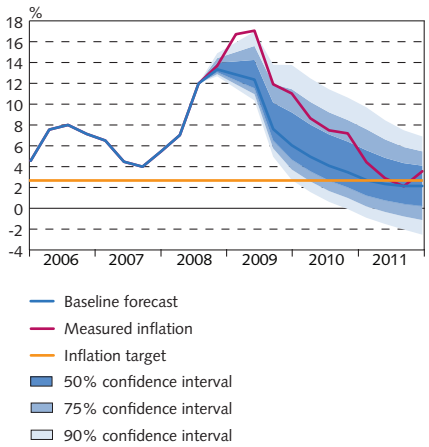
7. As is discussed in Box I-1 in *Monetary Bulletin* 2012/4, the November 2008 forecast of developments in GDP through 2011 materialised almost exactly. That forecast was prepared immediately after the banks collapsed.

Statistics Iceland, and the European Commission. The range between the highest and lowest forecast values are indicated in the shaded area. In general, it widens during periods of marked uncertainty and further out the forecast horizon.

The Bank's output growth forecasts accord well with those of other forecasters. As the chart shows, the *Monetary Bulletin* forecasts published between mid-2010 and end-2011 are somewhat more upbeat – and among the most optimistic of those published in Q4/2010. Of the forecasts published at the end of 2011, two were very close to the most recent Statistics Iceland figures: ASÍ, with a forecast of 1% growth, and Landsbankinn, with 1.7%. In general, forecasters appear to have been too optimistic about the output growth outlook. Of the nine forecasts in question, eight of them, the Central Bank forecast included, were above Statistics Iceland's September measurements. As is stated above, the most likely reasons are the revision of municipal consumption, foreign demand, and the delays in energy-intensive investment, which affected forecasters more or less equally rather than distinguishing among them.

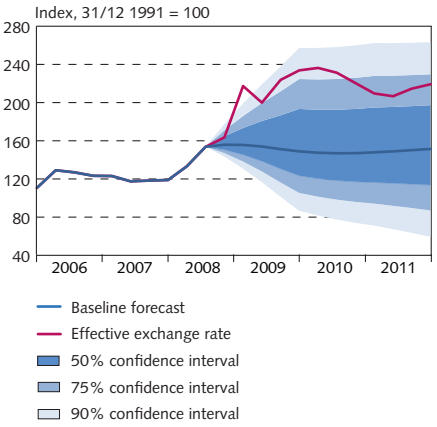
The Central Bank's inflation forecasts for 2012 were also well in line with those of other forecasters. Chart 8 shows that forecasted year-2012 inflation according to the projections published early in the period under consideration was far below observed twelve-month inflation but was then revised upwards as time passed and new information was released, in particular following new wage contracts. Because the paths are similar, it appears that changes in external factors affected the forecasting and not differences in forecasting models or forecasters' assessments. The salient difference in the inflation forecast, however, was that in all cases the baseline forecast was below the other forecasters' average. The inflation forecasts in *Monetary Bulletin* therefore appear to have been more optimistic during the period. As the range between the highest and lowest forecasts shows, however, the Bank's projection was not the lowest except for the forecast published in Q4/2012.

Chart 9
Monetary Bulletin inflation forecast in July 2008 and measured inflation
Forecasting period Q3/2008 - Q2/2011



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 10
Monetary Bulletin exchange rate forecast in July 2008 and actual values
Forecasting period Q3/2008 - Q2/2011



Source: Central Bank of Iceland.

Improvements in forecasting

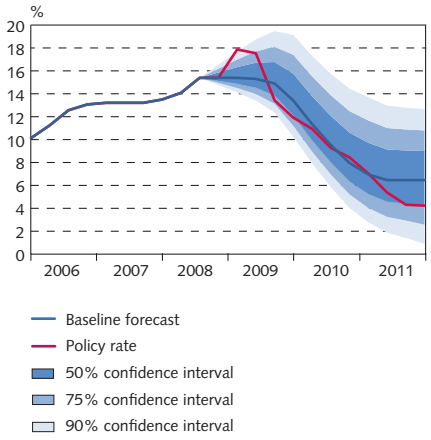
As is stated above, it is important to draw lessons from forecasting errors and consider possible improvements to forecasting models, analytical procedures, and forecast presentation in order to reduce the magnitude of such errors – not least in the case of systematic errors – and communicate the uncertainties surrounding the forecasts more effectively. The Bank is constantly working towards improvements in these areas and has put a number of the improvements in place in recent years. Among the current points of focus are the insufficient anchoring of the inflation target and the built-in persistence of domestic inflation, and the effects of these two factors on monetary policy transmission and inflation developments in the QMM.[8] Other

8. See, for example, Thorvardur Tjörvi Ólafsson, Ásgerdur Ó. Pétursdóttir and Karen Á Vignisdóttir (2011). "Price setting in turbulent times: Survey evidence from Icelandic firms". Central Bank of Iceland, *Working Paper*, no. 54; and the Central Bank reports "Monetary policy in Iceland after capital controls", *Special Publication* no. 4, and "Iceland's currency and exchange rate policy options", *Special Publication* no. 7 (Chapter 3).

Chart 11

Monetary Bulletin Policy rate forecast
July 2008 and actual values

Forecasting period Q3/2008 - Q2/2011



Source: Central Bank of Iceland.

projects currently underway include a new updated version of the QMM and the development of other macroeconomic models that attempt, for instance, to capture more effectively the adjustment of the economy towards sustainable equilibrium. When the domestic economy is far from such an equilibrium path, such an adjustment can extend over a longer horizon than the three years covered by the *Monetary Bulletin* forecasts. Finally, since this May, the uncertainty surrounding the Bank's inflation forecasts has been shown more effectively through fan charts depicting the confidence intervals of the forecast. Before May, the Bank had last published such charts in July 2008, a few months before the banks failed. The fan charts for those forecasts covered a larger number of variables. As Charts 9-11 indicate, the forecasts were reasonably accurate in spite of the massive shocks sustained by the Icelandic economy shortly thereafter.

Appendix 3

Report to the Government on inflation in excess of tolerance limits

According to the Act on the Central Bank of Iceland, no. 36/2001, the principal objective of monetary policy is to promote price stability. In the joint declaration issued by the Government of Iceland and the Central Bank of Iceland on 27 March 2001, an inflation target was set for the Bank; that is, the Bank shall aim at a rate of inflation, measured as the twelve-month increase in the consumer price index (CPI), of as close to 2½% as possible. According to the declaration, if inflation deviates more than 1½ percentage points from the target, the Central Bank is obliged to send the Government a report stating what it considers the main reasons for the deviation, how it intends to respond, and how long the Bank anticipates that it will take to bring inflation back to target. This report is to be made public. It is appropriate to reiterate that the above-mentioned tolerance limits do not represent a formal requirement that the Bank take any other action. The Bank's objective is to keep inflation as close to 2½% as possible, on average, and not merely within the tolerance limits.

According to measurements published by Statistics Iceland on 28 August 2013, twelve-month inflation according to the CPI measured 4.3% in August. This is more than 1½ percentage points above the inflation target. The tolerance limits for the inflation target have thus been breached again after inflation fell below the upper limit in March 2013, therefore triggering this report.

Recent developments in inflation

Inflation fell to its post-crisis trough early in 2011. It then began to rise slightly as the year progressed, first due to rising oil prices and the depreciation of the króna, and later, due primarily due to sizeable pay increases in the wake of the spring 2011 wage settlements. After it peaked at 6.4% in April 2012, it began to taper off again, falling to 3.3% by June 2013. It then began to rise once more, reaching 4.3% by August as as is stated above. The rise in August was attributable in some measure to adverse base effects; that is, the decline in the CPI a year earlier, which was due to the strong appreciation of the króna during the summer.

Two factors have weighed heavily in recent inflation developments. First of all, domestic services have increased markedly in price in the past year; private services rose by 6.7% year-on-year in August, and public services rose by 5%. These two items combined account for almost a third of the CPI. Another important contributor to inflation is the rise in the housing component of the CPI, due partly to increases in various cost items related to operation and maintenance and partly to rising market prices.

Recent inflation appears to be rooted primarily in domestic rather than imported costs. For instance, the twelve-month rise in the price of imported goods excluding alcoholic beverages and tobacco

measured only 2% in August. In addition, price increases appear to be rather broad-based. This is also reflected in measures of underlying inflation, which have also risen somewhat since June. Inflation according to core index 3 excluding tax effects measured 4.7%, as opposed to 3.5% in June. Underlying inflation according to core index 4 excluding tax effects has risen as well, from 3.2% in June to 4.2% in August.[1]

Inflation expectations are also around 4% and above. They have developed broadly in line with observed inflation and have risen by most measures since the spring.

Do these developments change the Bank's assessment of the inflation outlook?

The Central Bank published its last inflation forecast in *Monetary Bulletin* 2013/3 on 21 August. That forecast assumed that inflation would rise from 3.3% in Q2/2013 to 4% in Q3 and 4.1% in Q4. It also assumed that inflation would then begin to subside, falling to approximately 3% in Q4/2014, approaching the 2½% inflation target in the latter half of 2015, and reaching it early in 2016.

The spurt of inflation in late summer was thus foreseen to a large degree and in line with the Bank's forecast, although the increase is somewhat larger than anticipated. At this juncture, there is no reason to change the inflation outlook as presented in the Bank's forecast in *Monetary Bulletin* 2013/3.

The Bank will release a new inflation forecast in *Monetary Bulletin* 2013/4, which will be published on 6 November.

Monetary policy responses

Because the breach of the tolerance limits was foreseen, for the most part, it is reflected in the Monetary Policy Committee's (MPC) last interest rate decision and, in and of itself, does not require special monetary policy responses.

According to the Bank's August forecast, inflation will start to taper off at the beginning of 2014 but will subside gradually and will not reach the inflation target until early in 2016. This very slow pace of disinflation is hardly acceptable; therefore, it is essential to take steps to speed the process up.

To a large extent, this slow pace stems from the fact that the forecast takes account of past experience and assumes that the pay increases following the upcoming wage settlements will be relatively large. Unit labour costs will therefore rise by about 4½% this year and by 4% per year in 2014 and 2015. Other things being equal, this is considerably above the level that is consistent with the 2½% inflation target. According to the forecast, these sizeable wage increases will counterbalance the relatively stable exchange rate and the continued slack in the economy. This development could call for further increases in the Bank's interest rates in the near term, and in any case, interest rates will be higher than they would be if wage increases should prove

1. Core index 3 excluding tax effects excludes the effects of indirect taxes, volatile food items, petrol, public services, and real mortgage interest expense. Core index 4 excluding tax effects also excludes the effects of changes in the market value of housing.

consistent with the inflation target. It is therefore inevitable that, if wage increases are larger than is assumed in the forecast, the MPC will need to respond by raising interest rates.

On the other hand, if pay increases in the upcoming wage settlements are more modest than is assumed in the forecast, inflation will fall more rapidly, other things being equal. Interest rates would then be lower and domestic demand, labour use, and output growth would be stronger than is provided for in the Bank's forecast. To illustrate the advantages of such a development for the Bank's inflation target, if wage increases are in line with both the inflation target and estimated productivity growth in 2014 and 2015, inflation will, other things being equal, return to target in late 2014 or early 2015, a year earlier than is assumed in the baseline forecast. It is vital to take steps to ensure this outcome.

The Bank's principal tool for controlling inflation is its interest rates for transactions with deposit money banks (DMBs). In general, the outlook for inflation persistently above target calls for higher interest rates, with the aim of dampening economic activity and reducing inflationary pressures. In assessing the current situation, it should be borne in mind that the Central Bank has already raised its interest rates significantly since they bottomed out, and the effects of those rate hikes have hardly surfaced in full yet.

Another important channel for monetary policy transmission is its influence on the exchange rate of the króna, which also affects wage and price developments. Other things being equal, higher interest rates tend to appreciate the króna, at least temporarily, but because of the capital controls, using the interest rate channel to affect the exchange rate is less effective than it would otherwise be. Both of these channels for monetary policy transmission are highly uncertain. As a result, interest rate decisions and possible foreign exchange market intervention are always a matter of opinion, despite decisions being based on all the relevant information and the best models available for assessing the economic outlook.

It has been the MPC's opinion that there has been some slack in the economy since the financial collapse of autumn 2008; that is, capacity has not been utilised to a degree that would stimulate inflation. Therefore, there has been some scope to keep the Bank's real rate temporarily lower than is necessary when capacity is more or less fully utilised. In this way, monetary policy has supported the economic recovery. On the other hand, the MPC has repeatedly emphasised that, as spare capacity disappears from the economy, it is necessary that the slack in monetary policy should disappear as well. The Bank has therefore raised its nominal interest rates by 1.75 percentage points from their historical low in 2011, in order to respond to the inflation outlook and move the real rate closer to its neutral level; i.e., the level that is consistent with low, stable inflation when capacity is close to full utilisation.

Under certain circumstances, interbank foreign exchange market transactions undertaken by a central bank with the aim of mitigating exchange rate volatility can prove to be an important monetary policy instrument, particularly in a small, open economy where exchange

rate movements have a strong, rapid effect on the domestic price level. For some time, the Central Bank has announced in its publications that it would step up its foreign exchange market activity with the aim of smoothing out fluctuations in the exchange rate. Under the present circumstances, where inflation expectations have been volatile and insufficiently anchored to the inflation target, it can be expected that wide exchange rate fluctuations could cause inflation expectations to be more volatile than they would otherwise be. In that instance, the inflation target would be harder to attain.

Last May, the Central Bank increased its foreign exchange rate activity, with the aim of smoothing out exchange rate fluctuations and thereby contributing to more rapid disinflation than would occur otherwise. The premise for this decision was that foreign exchange imbalances in financial institutions' balance sheets had been reduced considerably and the exchange rate of the króna had for some time been close to the level that, other things being equal, could be considered sufficient to bring inflation back to target in the near future.

During the period since the Central Bank increased its market activity, the daily fluctuation in the exchange rate has been reduced by about half in comparison with a period of equal length prior to the Bank's decision, and fluctuations over a longer period have diminished as well. The MPC hopes that, over time, a more stable exchange rate will provide a better anchor for inflation expectations, thereby contributing to more modest wage settlements and lower inflation. While it is too early to make statements about its success, the intervention policy will remain in place in coming months.

In this context, it is appropriate to emphasise that increased foreign exchange market activity by the Central Bank does not entail a declaration of an exchange rate peg, as Iceland's fundamental exchange rate policy may not be changed in this way without ministerial approval. As was stated when the Bank's intervention policy was announced in May, the policy may be reviewed as decisive steps are taken towards removing the capital controls, as it would be imprudent to use borrowed foreign reserves to reduce the risk of those wishing to convert króna-denominated assets to foreign currency at that time. The exchange rate uncertainty attached to this and the uncertainty about the debt service burden of foreign loans inevitably work against the reduction of inflation expectations to a degree. Successful moves towards reducing this uncertainty could therefore contribute to lower inflation expectations.

In addition to the uncertainty about the effects of foreign debt service and capital account liberalisation on the exchange rate are two other uncertainty factors that will be important in determining how high the Bank's interest rates must be in order to bring inflation back to target. First of all, the results of the upcoming wage negotiations will determine to a large extent how rapidly inflation falls back to target, because of direct effects on firms' wage costs and indirect effects on the exchange rate. Second, fiscal policy will have a significant impact in the long run, as sufficiently tight fiscal policy can lighten the burden on interest rate policy.

The Monetary Policy Committee's next interest rate decision will be announced on 2 October.

Monetary policy and instruments

The objective and implementation of monetary policy

The objective of monetary policy is to ensure price stability. On 27 March 2001, a formal inflation target was adopted, as follows:[1]

- The Central Bank aims for an annual rate of inflation, measured as the twelve-month increase in the CPI, which in general will be as close as possible to 2½%.
- If inflation deviates by more than 1½ percentage points from the target, the Central Bank shall be obliged to submit a report to the Government explaining the reason for the deviation, how it intends to respond, and when it expects the inflation target to be reached again. This report shall be made public.
- The Central Bank shall publish macroeconomic and inflation forecasts, projecting three years into the future. Forecasts shall be published in the Bank's quarterly *Monetary Bulletin*, which shall also contain the Bank's assessment of the key uncertainties pertaining to the inflation forecast. The Bank shall also publish its assessment of the current economic situation and outlook.

Because monetary policy aims at maintaining price stability, it will not be applied in order to achieve other economic objectives, such as a balance on the current account or a high level of employment, except insofar as these are consistent with the Bank's inflation target.

Main monetary policy instruments

The Central Bank implements its monetary policy mainly by applying interest rates with the objective of affecting short-term money market rates, which in turn affect other market interest rates. Yields in the money market also have a strong impact on currency flows and thereby on the exchange rate, and in the long run on domestic demand. Transactions between financial institutions and the Central Bank are subject to the Rules on Central Bank of Iceland Facilities for Financial Undertakings, no. 553 of 26 June 2009.

Standing facilities

- Current accounts: Current accounts are deposits of financial institutions' undisposed assets. They also function as settlement accounts for financial institutions' transactions and are used for reserve requirements. The current account rate forms the floor of the Central Bank interest rate corridor and the interest rate floor in the interbank market for krónur. Current accounts must always have a positive balance at the end of each business day.
- Overnight loans: Overnight loans are loans granted by the Central Bank to financial institutions, upon the request of the latter, until the following business day. Their primary purpose is to provide financial institutions with access to liquidity so as to ensure that they fulfil reserve requirements and have a positive current account

1. Joint declaration of the Government of Iceland and the Central Bank of Iceland. Published on the Central Bank of Iceland website.

balance at the end of the day. Overnight loans are granted against collateral. Overnight interest rates form the ceiling for overnight rates in the interbank market for krónur.

Regular facilities

Regular facilities can be granted for up to seven days. Their purpose is to increase or decrease the supply of liquidity in the financial system. The Central Bank decides in each instance how much liquidity it lends to financial institutions or drains from the market. In general, Central Bank facilities are transacted on Wednesdays; however, the Bank may engage in transactions on other days if necessary. The main types of regular facilities are:

- Collateralised loans: Loans with a maturity of up to seven days. Financial institutions must provide collateral that the Bank deems eligible for Central Bank facilities.
- Certificates of deposit issued with a maturity of up to seven days sold by the Central Bank to financial institutions.

In its auctions, the Central Bank may decide to keep interest rates and prices fixed or give financial institutions the option of bidding on either or both. The Bank may reject all bids or a portion of them.

Other financial instruments that the Central Bank may use to increase or decrease market liquidity are repurchase agreements, currency swap agreements, and term deposits.

Other facilities

The Central Bank may decide to carry out transactions with financial institutions for periods longer than a week, but with the same financial instruments as are used in regular facilities.

Since autumn 2009, the Central Bank has sold 28-day certificates of deposit to financial institutions on a weekly basis, with the aim of reducing market liquidity and supporting interest rate formation in the interbank market for krónur.

Reserve requirements

Required reserves apply to financial institutions that are not dependent on Treasury budget allocations for their operations. The required reserve base comprises deposits, issued securities, and money market instruments. The required reserve ratio is 2% for the part of the required reserve base that is tied for two years or less. The maintenance period is from the 21st day of each month until the 20th of the following month, and the two-month average reserve must reach the stipulated ratio during the period. Reserve requirements do not apply to foreign branches of Icelandic financial institutions.

Intervention in the foreign exchange market

In keeping with the declaration on the inflation target from 2001, foreign exchange market intervention is employed only if the Central Bank deems it necessary in order to promote the attainment of the inflation target or considers exchange rate fluctuations a potential threat to financial stability.

Overview of Central Bank interest rates 6 November 2013

Traditional instruments	*Current rate (%)*	*Change (percentage points)*	*Last interest rate decision*	*Rate one year ago (%)*
Current accounts	5.00	0.00	2 October 2013	4.75
Overnight loans	7.00	0.00	2 October 2013	6.75
Required reserves	5.00	0.00	2 October 2013	4.75
Collateralised loans	6.00	0.00	2 October 2013	5.75
Certificates of deposit, 28 days	5.75	0.00	2 October 2013	5.50

Central Bank of Iceland interest rate decisions

	Key Central Bank interest rates, %[1]		
Interest rate decision date	*Collateralised lending rate*	*Financial institutions' current account rates*	*Maximum rate on 28-day CDs*
6 November 2013	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
2 October 2013	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
21 August 2013	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
12 June 2013	6.00 (0.00)	5.00 (0,00)	5.75 (0.00)
15 May 2013	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
20 March 2013	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
6 February 2013	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
12 Desember 2012	6.00 (0.00)	5.00 (0.00)	5.75 (0.00)
14 November 2012	6.00 (0.25)	5.00 (0.25)	5.75 (0.25)
3 October 2012	5.75 (0.00)	4.75 (0.00)	5.50 (0.00)
22 August 2012	5.75 (0.00)	4.75 (0.00)	5.50 (0.00)
13 June 2012	5.75 (0.25)	4.75 (0.25)	5.50 (0.25)
16 May 2012	5.50 (0.50)	4.50 (0.50)	5.25 (0.50)
21 March 2012	5.00 (0.25)	4.00 (0.25)	4.75 (0.25)
8 February 2012	4.75 (0.00)	3.75 (0.00)	4.50 (0.00)
7 December 2011	4.75 (0.00)	3.75 (0.00)	4.50 (0.00)
2 November 2011	4.75 (0.25)	3.75 (0.25)	4.50 (0.25)
21 September 2011	4.50 (0.00)	3.50 (0.00)	4.25 (0.00)
17 August 2011	4.50 (0.25)	3.50 (0.25)	4.25 (0.25)
15 June 2011	4.25 (0.00)	3.25 (0.00)	4.00 (0.00)
20 April 2011	4.25 (0.00)	3.25 (0.00)	4.00 (0.00)
16 March 2011	4.25 (0.00)	3.25 (0.00)	4.00 (0.00)
2 February 2011	4.25 (-0.25)	3.25 (-0.25)	4.00 (-0.25)
8 December 2010	4.50 (-1.00)	3.50 (-0.50)	4.25 (-1.00)
3 November 2010	5.50 (-0.75)	4.00 (-0.75)	5.25 (-0.75)
22 September 2010	6.25 (-0.75)	4.75 (-0.75)	6.00 (-0.75)
18 August 2010	7.00 (-1.00)	5.50 (-1.00)	6.75 (-1.00)
23 June 2010	8.00 (-0.50)	6.50 (-0.50)	7.75 (-0.50)
5 May 2010	8.50 (-0.50)	7.00 (-0.50)	8.25 (-0.50)
17 March 2010	9.00 (-0.50)	7.50 (-0.50)	8.75 (-0.50)
27 January 2010	9.50 (-0.50)	8.00 (-0.50)	9.25 (-0.50)
10 December 2009	10.00 (-1.00)	8.50 (-0.50)	9.75 (-0.25)
5 November 2009	11.00 (-1.00)	9.00 (-0.50)	10.00
24 September 2009	12.00 (0.00)	9.50 (0.00)	
13 August 2009	12.00 (0.00)	9.50 (0.00)	
2 July 2009	12.00 (0.00)	9.50 (0.00)	
4 June 2009	12.00 (-1.00)	9.50 (0.00)	
7 May 2009	13.00 (-2.50)	9.50 (-3.00)	
8 April 2009	15.50 (-1.50)	12.50 (-1.50)	
19 March 2009	17.00 (-1.00)	14.00 (-1.00)	
29 January 2009	18.00 (0.00)	15.00 (0.00)	

1. Change from last decision in parentheses.

Tables and charts

Tables and charts are generally based on statistical information available on 1 November 2013. A list of symbols is on p. 2.

A Tables

B Charts

Table 1 Main monthly indicators

	Consumer prices		Exchange rate		Yield (end of period, %)					Money and credit (end of period)[6]			
	% change in CPI[1] over the previous		% ch. in effective exchange rate [1,2]		Money market		Bond market[5]			12-month % change			
	1 month	12 months	1 month	12 months	Central Bank collateral loans[3]	3-month REIBOR[4]	RIKB 13 0517	RIKB 19 0226	HFF 150644	Base money	M3	DMB lending	DMB foreign liabilities[7]
2011													
July	0.1	5.0	-0.4	-3.9	4.3	4.0	3.0	7.6	3.3	4.9	-2.0	-4.4	-36.8
August	0.3	5.0	0.8	-5.1	4.5	4.5	3.6	7.8	3.2	-14.8	0.0	-4.5	-38.5
September	0.6	5.7	1.5	-4.7	4.5	4.6	3.7	7.0	3.2	-1.0	5.5	-4.0	-19.3
October	0.3	5.3	1.2	-3.5	4.5	4.6	3.9	6.6	2.9	11.7	5.1	-4.8	-17.5
November	0.0	5.2	-0.3	-4.3	4.8	4.8	3.7	6.1	2.8	-15.8	5.8	-5.9	-22.9
December	0.4	5.3	-1.1	-4.6	4.8	4.8	3.8	6.2	2.7	-20.7	8.7	-0.2	-25.7
2012													
January	0.3	6.5	-1.2	-3.7	4.8	4.8	3.7	6.4	2.6	-5.6	12.7	0.2	-27.4
February	1.0	6.3	-1.9	-4.0	4.8	4.8	4.1	6.8	2.5	18.7	12.1	1.0	-23.2
March	1.0	6.4	-2.0	-5.3	5.0	5.1	4.4	6.9	2.7	10.0	7.8	4.2	-16.4
April	0.8	6.4	-0.2	-5.3	5.0	5.1	4.1	7.0	2.6	-7.6	9.2	5.9	-14.1
May	0.0	5.4	2.1	-2.2	5.5	5.6	3.8	6.6	2.8	17.5	10.7	7.7	-22.5
June	0.5	5.4	1.5	-0.2	5.8	5.7	2.7	6.6	2.8	5.4	8.3	6.0	-24.9
July	-0.7	4.6	2.2	2.4	5.8	5.8	3.1	6.3	2.8	-22.9	4.3	5.6	-27.3
August	-0.2	4.1	3.7	5.4	5.8	5.8	2.8	6.2	2.5	20.6	3.1	5.9	-14.3
September	0.8	4.3	-4.6	-1.0	5.8	5.8	3.1	6.3	2.5	-0.7	-1.5	6.7	-17.4
October	0.3	4.2	-1.5	-3.6	5.8	6.1	3.0	6.0	2.5	8.6	-0.4	6.3	-17.2
November	0.3	4.5	-1.6	-4.9	6.0	6.1	3.5	6.0	2.8	0.0	-1.6	5.4	-15.2
December	0.0	4.2	-0.8	-4.6	6.0	6.2	3.8	6.1	2.7	32.0	-2.7	1.8	-20.5
2013													
January	0.3	4.2	-2.5	-5.9	6.0	6.2	5.3	5.3	2.5	15.8	-8.0	0.9	-14.3
February	1.6	4.8	0.8	-3.3	6.0	6.2	5.6	5.4	2.6	-33.0	-5.7	-0.6	-16.5
March	0.2	3.9	4.3	3.0	6.0	6.2	…	5.4	2.7	1.7	-2.4	-0.2	-20.4
April	0.2	3.3	5.2	8.6	6.0	6.2	…	5.5	2.8	-7.9	-2.5	-2.0	-19.6
May	0.0	3.3	-1.5	4.8	6.0	6.2	…	5.4	2.7	0.9	-1.1	-1.8	5.4
June	0.5	3.3	-1.3	1.9	6.0	6.2	…	5.5	2.9	9.8	1.1	-1.3	-1.6
July	-0.3	3.8	0.4	0.1	6.0	6.2	…	5.6	2.7	12.4	1.0	-0.5	1.7
August	0.3	4.3	1.1	-2.3	6.0	6.2	…	5.8	2.6	-14.3	2.0	-0.5	-8.4
September	0.3	3.9	-1.6	0.8	6.0	6.2	…	5.8	2.7	4.2	3.8	0.8	-2.0

1. Percentage changes between period averages. 2. Based on the narrow trade-weighted effective exchange rate basket. A positive sign indicates appreciation of the Icelandic króna. 3. From June 2007, the presentation of the policy rate has been changed. It is now presented as a nominal rate instead of a yield. 4. Average yield on the interbank market in Icelandic krónur. 5. For Treasury bonds and HFF bonds, the quoted yield is in excess of changes in the CPI. Trading with HFF bonds began in July 2004; prior figures are for housing bonds. 6. Annual figures are changes over one year. Domestic borrowers only as of January 2002. Latest figures are preliminary. 7. DMBs = deposit money banks = commercial and savings banks and other institutions permitted to accept deposits from the public. Since July 2007, derivatives have been considered foreign liabilities and the presentation of Central Banks' short-term position has been changed.

Table 1 (continued) Main monthly indicators

	Foreign exchange market and reserves				Foreign trade and external conditions					Labour market		Public finance	Asset prices 12-mo. % changes	
	Gross foreign currency reserves:			CB net purchases (b.kr.)	Trade balance (b.kr.)	Goods exports, fob (b.kr.)	Goods imports, fob (b.kr.)	Marine product prices 12-mo.% ch.[10]	Real exchange rate of króna[11]	Unemployment	Wages, 12-mo. % change	Reg. Treasury financial balance, % of reg. revenues, from Jan.[12]	Equity prices[13]	Housing prices[14]
	Position (B.kr.)	as ratio of: Goods imports[8]	as ratio of: For. short-term liabil.[9]											
2011														
July	858.2	21.1	4.7	1.0	9.4	51.5	42.0	-0.2	73.7	6.6	7.8	-26.8	5.2	5.9
August	915.3	22.4	5.5	1.2	9.3	54.9	45.6	1.2	74.4	6.7	8.0	-19.9	-0.8	6.3
September	911.7	21.8	5.6	1.0	15.6	62.5	46.9	1.6	75.5	6.6	8.4	-20.9	-3.1	7.3
October	982.8	23.7	6.3	1.0	8.0	52.7	44.6	3.0	76.6	6.8	8.9	-16.3	-3.9	7.5
November	1,110.3	25.8	7.5	1.2	7.9	53.4	45.5	0.2	76.4	7.1	9.0	-18.1	-4.2	7.6
December	1,047.3	23.4	6.9	1.0	0.2	53.7	53.4	0.8	75.6	7.3	9.2	-12.3	-2.6	9.9
2012														
January	1,081.3	23.4	7.6	1.2	0.5	47.3	46.8	0.7	75.3	7.2	9.1	-38.0	-5.0	9.2
February	1,095.0	23.1	7.6	1.0	12.6	54.2	41.6	-2.5	74.2	7.3	11.3	6.1	-2.5	7.8
March	976.8	20.3	6.3	-1.0	5.0	55.4	50.3	0.0	72.9	7.1	12.1	-3.5	4.1	8.7
April	942.2	19.7	6.0	1.0	8.8	49.5	40.7	0.8	73.0	6.5	11.9	-2.7	8.6	7.7
May	1,062.8	21.8	7.9	1.2	-2.0	55.4	57.4	0.1	74.7	5.6	11.0	-5.6	8.1	5.3
June	851.6	17.9	6.4	1.0	0.2	52.4	52.2	0.7	76.3	4.8	6.9	-6.6	11.1	6.3
July	829.6	18.0	6.3	2.9	0.5	47.3	46.9	0.7	77.6	4.7	6.0	-9.3	1.9	7.3
August	786.2	17.0	5.6	1.8	13.0	51.9	38.9	0.4	80.1	4.8	5.9	-8.9	7.0	6.7
September	532.5	11.2	4.0	1.9	8.8	55.3	46.5	-1.7	76.6	4.9	5.7	-10.6	12.1	6.0
October	547.8	11.2	4.3	3.2	15.1	63.1	48.0	-0.9	75.4	5.2	5.1	-8.5	6.6	5.9
November	527.1	11.0	4.2	2.0	9.3	54.6	45.3	-0.8	74.6	5.4	5.0	-10.9	12.6	6.3
December	539.7	11.3	4.5	1.0	3.5	45.0	41.5	-0.9	73.8	5.7	4.7	-8.0	16.5	5.8
2013														
January	532.3	11.3	4.4	-2.1	10.5	55.7	45.3	-1.7	72.7	5.5	5.0	-40.3	22.6	5.3
February	514.6	11.2	4.3	-3.1	5.9	49.6	43.8	-2.1	74.0	5.5	5.2	4.3	22.5	5.8
March	505.3	11.4	4.6	-1.0	9.3	50.9	41.7	0.7	77.2	5.3	5.5	-6.0	15.5	4.6
April	479.9	11.2	4.2	0.0	3.6	51.5	47.9	0.6	81.0	4.9	5.8	-1.7	10.8	5.5
May	490.3	11.1	3.7	-1.0	-6.6	43.5	50.1	0.2	79.7	4.3	5.5	-7.4	12.5	6.5
June	486.3	11.0	4.1	0.0	1.1	44.5	43.5	-0.4	79.1	3.9	5.7	-6.4	13.7	6.9
July	474.6	11.0	3.9	1.4	4.5	53.8	49.3	0.3	79.3	3.9	5.5	-7.2	19.6	6.7
August	471.8	10.8	4.0	0.5	2.9	44.1	41.2	0.3	80.4	4.0	5.7	-6.0	20.8	6.8
September	478.2	10.7	4.0	-0.5	8.8	55.5	46.7	-0.1	79.2	3.8	5.9	...	20.3	7.0

8. Gross foreign exchange reserves at end of period as a ratio of the 12-month average of goods imports. Calculated at fixed exchange rates. 9. The denominator is foreign short-term liabilities of credit institutions and investment banks and includes derivatives as of July 2007. 10. Foreign currency prices of marine products are calculated by dividing marine products prices in Icelandic krónur by the export-weighted trade basket. Annual figures are % changes between annual averages. 11. Real effective exchange rate of the Icelandic króna based on relative consumer prices (a trade-weighted average of 17 trading partner countries' consumer prices is used), 2000 = 100. Average over periods. 12. Cash basis. Without privatisation revenues. 13. OMXI6 index. 14. Residential housing in greater Reykjavík area. Annual figures are % changes over year.

Sources: Statistics Iceland, Directorate of Labour, State Accounting Office, Nasdaq OMX Iceland, Registers Iceland, Central Bank of Iceland.

Table 2 Historical economic indicators

	Consumer prices [1]		Króna effective exchange rate			Interest rates (%)			Money and credit			Ratio of		
				Real exchange rate[3]					% change over year					
	Consumer price index	CPI inflation (%)	Nominal exchange rate[2]	Relative CPI	Relative ULC	Indexed gov. bonds, yield[4]	Banks' secured lending (real yield) Non-indexed	Indexed	M3	DMB lending	Credit system lending	FX reserves to goods imports[5]	Net ext. debt[6] GDP (%)	Growth of real GDP (%)
1984	43.7	29.2	116.3	96.3	92.1	7.0	3.4	5.5	33.4	43.0	40.2	2.1	60.2	4.1
1985	57.9	32.4	148.7	94.8	92.9	6.9	-2.3	5.0	47.6	29.7	35.2	2.8	63.6	3.3
1986	70.2	21.3	171.0	97.1	93.8	8.5	4.3	5.2	35.0	19.1	20.1	3.6	56.5	6.3
1987	83.4	18.8	177.3	106.0	120.4	8.7	4.7	7.7	35.2	42.1	31.4	2.4	49.4	8.5
1988	104.6	25.4	202.6	111.4	126.1	8.7	11.8	9.2	24.0	37.2	34.0	2.4	51.3	-0.1
1989	126.7	21.1	254.7	102.4	110.5	7.4	6.5	7.8	27.2	25.2	33.8	3.0	56.8	0.3
1990	145.5	14.8	283.7	99.1	99.6	7.0	9.3	8.0	14.9	11.0	12.5	3.3	43.8	1.2
1991	155.4	6.8	283.6	101.7	101.9	8.1	10.0	9.2	14.4	11.6	15.4	3.2	44.9	-0.2
1992	161.2	3.7	285.0	101.7	103.2	7.4	11.8	9.3	3.8	5.3	11.8	4.0	53.0	-3.4
1993	167.8	4.1	308.8	96.2	94.7	6.7	11.5	9.1	6.5	5.0	11.1	4.3	58.9	1.3
1994	170.3	1.5	324.8	91.0	83.2	5.0	9.5	7.9	2.3	-1.3	4.5	2.6	53.3	3.6
1995	173.2	1.7	322.3	91.1	88.6	5.6	10.1	8.7	2.2	-8.5	5.9	2.4	52.0	0.1
1996	177.1	2.3	322.9	91.3	88.5	5.5	10.5	8.9	6.8	11.5	9.3	3.0	49.8	4.8
1997	180.3	1.8	318.7	92.2	89.7	5.3	11.1	9.0	8.7	12.4	11.8	2.6	51.3	4.9
1998	183.3	1.7	313.6	93.8	93.7	4.7	11.8	8.8	15.1	30.0	15.1	2.2	57.4	6.3
1999	189.6	3.4	313.1	96.3	97.6	4.4	8.0	8.6	17.1	23.1	17.3	2.5	66.9	4.1
2000	199.1	5.0	313.3	100.0	100.0	5.1	12.7	9.5	11.2	50.1	17.2	2.1	93.8	4.3
2001	212.4	6.7	376.3	87.3	87.1	5.1	9.4	10.2	14.9	12.6	19.2	2.1	101.8	3.9
2002	222.5	4.8	365.2	91.7	90.2	5.2	13.7	10.1	15.3	2.7	3.2	2.5	89.3	0.1
2003	227.3	2.2	343.3	96.0	95.8	4.4	9.4	9.1	17.5	18.3	11.4	3.5	93.9	2.4
2004	234.6	3.2	336.3	98.1	92.3	3.9	8.3	8.0	15.0	39.0	19.9	3.6	112.3	7.8
2005	244.1	4.0	301.8	111.4	105.2	3.7	10.7	7.2	23.2	50.6	31.1	2.9	152.1	7.2
2006	260.6	6.8	337.2	104.2	103.0	4.6	10.9	7.1	19.6	41.5	31.0	4.8	193.1	4.7
2007	273.7	5.0	329.1	108.6	111.4	6.0	14.2	8.9	56.6	30.8	22.7	4.9	222.8	6.0
2008	307.7	12.4	462.1	85.5	84.7	4.6	7.9	10.1	32.1	-27.8	...	7.7	746.9	1.2
2009	344.6	12.0	622.3	70.0	61.6	4.4	4.2	8.0	-1.1	-15.5	...	13.8	769.0	-6.6
2010	363.2	5.4	604.0	74.4	69.9	3.4	4.9	6.4	-9.9	-0.2	...	18.9	669.7	-4.1
2011	377.7	4.0	598.1	75.2	72.3	2.2	3.7	6.1	8.7	-0.8	...	23.4	468.0	2.7
2012	397.3	5.2	600.1	75.8	73.3	2.2	3.0	5.8	-2.8	1.4	...	11.3	555.0	1.4

1. Annual averages (May 1988=100) and changes between years. 2. Annual averages. Exchange rate of the króna against a trade-weighted average of foreign currencies. 1983=100. 3. 2000=100. ULC=unit labour costs. 4. Annual average yield of indexed Treasury bonds of all maturities. Yields on Iceland Stock Exchange (Nasdaq OMX Iceland) from 1987. Before that, primary market yields. 5. Gross foreign exchange reserves at end of period as a ratio of the average monthly value of goods imports in the last 12 months. Calculated at fixed exchange rates. 6. External debt ratio is calculated as a percentage of GDP at current exchange rate.

Table 2 (continued) Historical economic indicators

	Components of GDP (% change from previous year)			External trade (% change from previous year)							Labour market (% of labour force)		Wages (% change from previous year)	
				Goods & services (volume changes)				General government (% of GDP)[7]						
	Private consump-tion	Gross fixed cap. formation	National expendi-ture	Exports	Imports	Terms of trade	Curr. acc. balance (% of GDP)	Financial balance	Revenues	Expend-itures	Unem-ployment	Labour particip.[8]	Real wages[9]	Real disp. income
1984	3.7	9.4	6.4	2.4	9.1	0.7	-4.5	2.2	36.9	34.7	1.3	77.6	-3.1	-2.5
1985	4.2	1.0	2.7	11.1	9.4	-0.9	-3.8	-1.6	35.4	37.0	0.9	79.3	1.2	10.8
1986	6.9	-1.6	4.5	5.9	0.9	5.4	0.7	-4.0	35.4	39.4	0.7	80.9	5.7	9.5
1987	16.2	18.8	15.7	3.3	23.3	4.3	-3.3	-0.8	35.6	36.5	0.4	84.1	9.0	25.8
1988	-3.8	-0.2	-0.6	-3.6	-4.6	-0.8	-3.4	-2.0	39.5	41.5	0.6	80.1	2.2	-1.9
1989	-4.2	-7.9	-4.4	2.9	-10.3	-3.9	-1.3	-4.4	38.5	43.0	1.7	78.7	-9.1	-8.9
1990	0.5	3.0	1.5	0.0	1.0	0.3	-2.1	-3.3	38.1	41.4	1.8	77.5	-4.9	-3.9
1991	3.0	2.6	3.5	-5.9	5.3	3.5	-4.0	-2.9	39.8	42.7	1.5	81.0	1.4	3.1
1992	-3.2	-10.4	-4.6	-2.0	-6.0	-0.6	-2.4	-2.8	40.8	43.6	3.1	81.8	-0.8	-2.8
1993	-4.6	-9.8	-2.9	6.5	-7.5	-3.6	0.7	-4.5	39.0	43.4	4.4	81.1	-2.6	-2.0
1994	2.9	-0.2	1.8	9.3	3.8	0.3	1.9	-4.7	38.6	43.2	4.8	81.3	-0.3	2.5
1995	2.2	-1.7	2.2	-2.3	3.6	1.0	0.7	-3.0	39.6	42.5	5.0	82.9	2.8	2.7
1996	5.7	25.0	6.8	9.9	16.5	-3.1	-1.8	-1.6	40.5	42.0	4.4	81.6	4.0	4.2
1997	6.3	9.3	5.8	5.6	8.0	1.9	-1.8	0.0	40.5	40.5	3.9	81.0	3.6	7.3
1998	10.2	34.4	13.8	2.5	23.4	5.3	-6.8	-0.4	40.8	41.2	2.8	82.3	7.6	8.8
1999	7.9	-4.1	4.2	4.0	4.4	-0.7	-6.8	1.1	43.1	41.9	1.9	83.2	3.3	6.3
2000	4.2	11.8	5.9	4.2	8.6	-2.4	-10.2	1.7	43.5	41.8	1.3	83.5	1.6	8.2
2001	-2.8	-4.3	-2.1	7.4	-9.1	0.4	-4.3	-0.7	41.8	42.5	1.4	83.6	2.0	-3.0
2002	-1.5	-14.0	-2.3	3.8	-2.6	0.5	1.5	-2.6	41.6	44.1	2.5	82.8	2.3	5.0
2003	6.2	11.1	5.8	1.6	10.7	-4.0	-4.8	-2.8	42.7	45.5	3.4	82.1	3.4	3.8
2004	7.0	28.7	10.1	8.4	14.5	-1.2	-9.8	0.0	44.0	44.0	3.1	80.7	1.4	7.5
2005	12.7	34.4	15.4	7.5	29.3	1.0	-16.0	4.9	47.1	42.2	2.1	81.9	2.6	11.2
2006	3.6	24.4	9.9	-4.6	11.3	3.3	-24.3	6.3	48.0	41.6	1.2	83.1	2.6	8.4
2007	5.7	-12.2	-0.4	17.7	-1.5	0.1	-15.9	5.4	47.7	42.3	1.0	83.3	3.8	10.6
2008	-7.8	-20.4	-8.6	7.0	-18.4	-6.1	-24.6	-13.5	44.1	57.7	1.6	82.6	-3.8	0.3
2009	-14.9	-51.4	-20.4	7.0	-24.0	-9.8	-11.5	-9.9	41.0	51.0	8.0	80.9	-7.2	-17.5
2010	0.0	-9.4	-2.7	0.5	4.5	6.0	-8.0	-10.1	41.5	51.6	8.1	81.1	-0.6	-11.7
2011	2.6	14.3	4.1	3.8	6.7	-1.7	-6.2	-5.6	41.8	47.4	7.4	80.4	2.7	5.3
2012	2.7	5.0	1.9	3.8	4.7	-3.5	-4.9	-3.8	43.6	47.4	5.8	80.5	2.5	-0.6

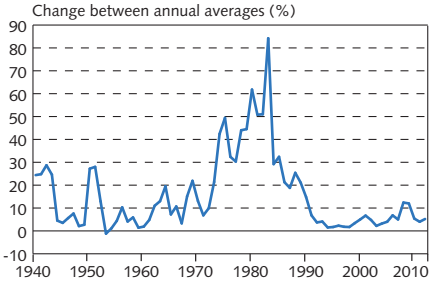
7. Central and local governments and the social security system. 8. Participation rate as per National Economic Institute definition until 1990, but based on Statistics Iceland labour market survey from 1991. 9. Statistics Iceland wage index. Deflated by consumer prices.

Sources: Directorate of Labour, Ministry of Finance and Economic Affairs, Statistics Iceland, Nasdaq OMX Iceland, Central Bank of Iceland.

Chart 1

Consumer price inflation 1940-2012

Yearly averages of CPI

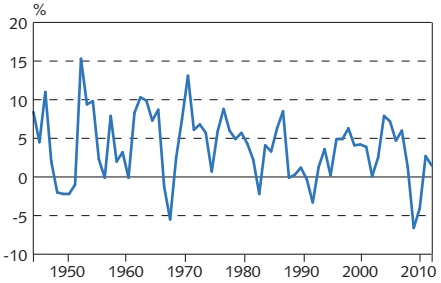


Source: Statistics Iceland.

Chart 2

Output growth 1945-2012[1]

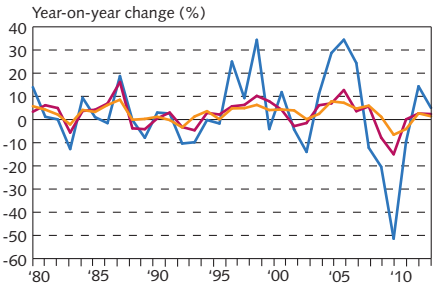
Change in real GDP between years



1. Preliminary 2012.
Source: Statistics Iceland.

Chart 3

Growth of GDP, private consumption, and gross fixed capital formation 1980-2012[1]

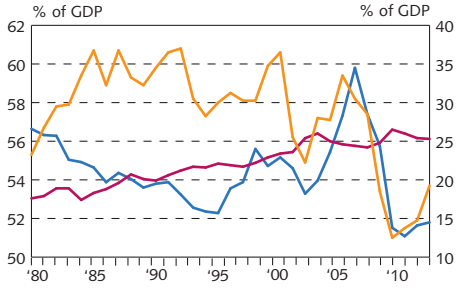


Gross fixed capital formation
Private consumption
GDP

1. Preliminary 2012.
Source: Statistics Iceland.

Chart 4

Private consumption, public consumption, and gross fixed capital formation 1980-2012[1]



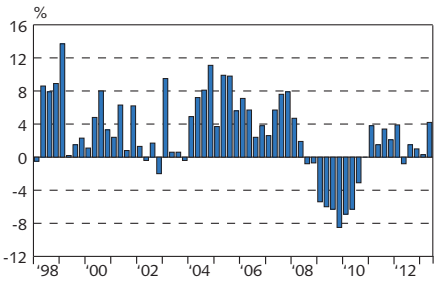
Gross fixed capital formation (right)
Public consumption (right)
Private consumption (left)

1. Preliminary 2012.
Source: Statistics Iceland.

Chart 5

Economic growth Q1/1998 - Q2/2013[1]

Change from same quarter a year earlier

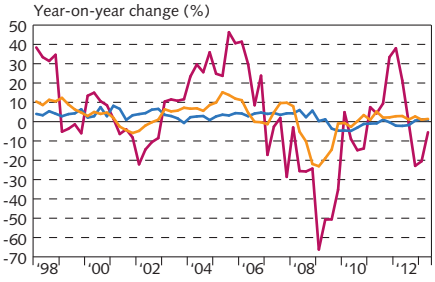


1. Latest data are preliminary.
Source: Statistics Iceland.

Chart 6

Components of economic growth Q1/1998 - Q2/2013[1]

Change from same quarter a year earlier

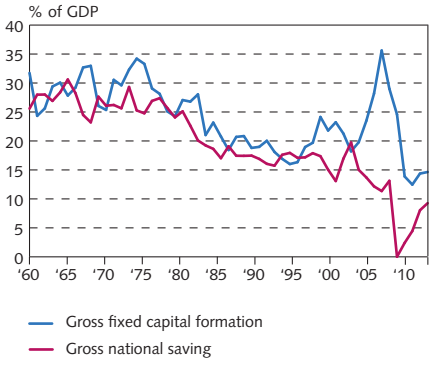


Public consumption
Gross fixed capital formation
Private consumption

1. Latest data are preliminary.
Source: Statistics Iceland.

Chart 7

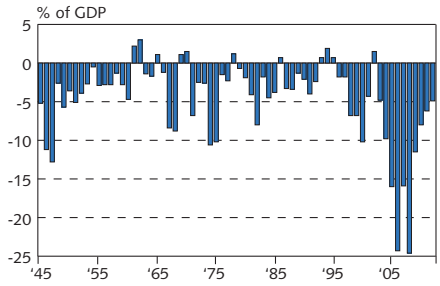
Gross national saving and fixed capital formation 1960-2012[1]



1. Preliminary 2012.
Source: Statistics Iceland.

Chart 8

Current account balance 1945-2012[1]

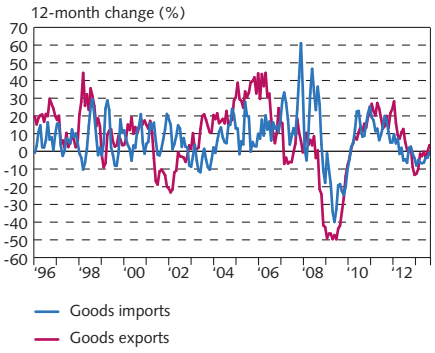


1. Preliminary 2012.
Source: Statistics Iceland.

Chart 9

Goods trade January 1996 - September 2013

3-month moving averages at fixed exchange rates

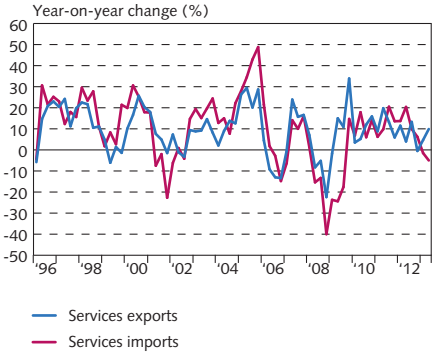


Sources: Statistics Iceland, Central Bank of Iceland.

Chart 10

Exports and imports of services Q1/1996- Q2/2013[1]

At constant exchange rates

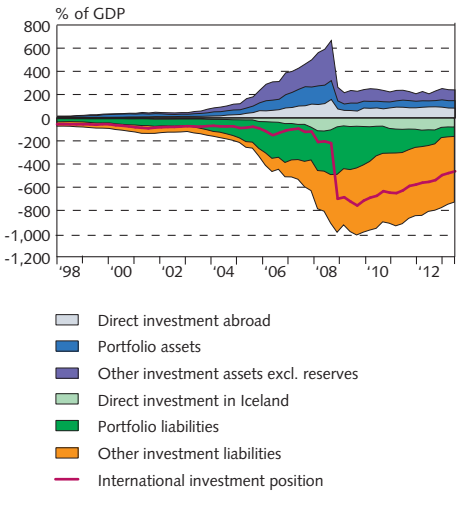


1. Latest data are preliminary.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 11

External debt and assets Q1/1998 - Q2/2013[1]

At current prices

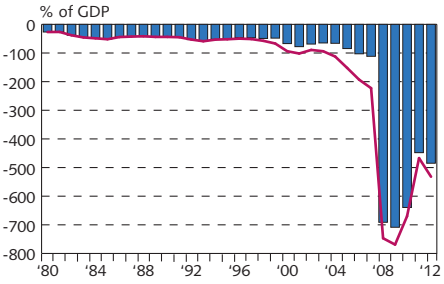


1. Latest data are preliminary.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 12

Net external debt position 1980-2012[1]

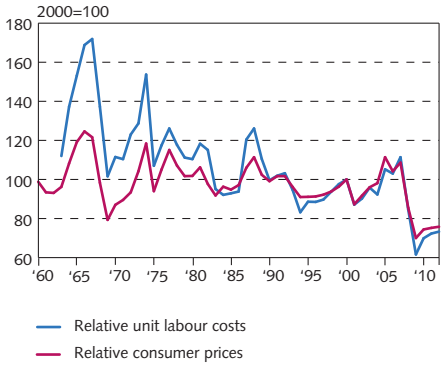
At year-end



1. Latest data are preliminary.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 13

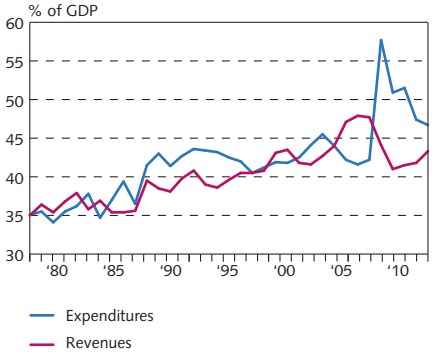
Real effective exchange rate of the Icelandic króna 1960-2012[1]



1. Preliminary 2012.
Source: Central Bank of Iceland.

Chart 14

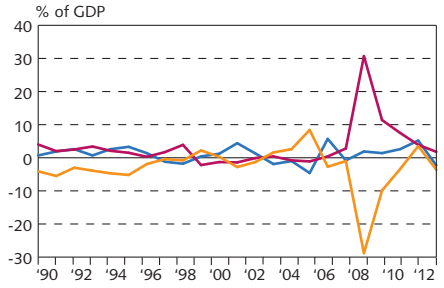
General government revenues and expenditures 1978-2012



Source: Statistics Iceland.

Chart 15

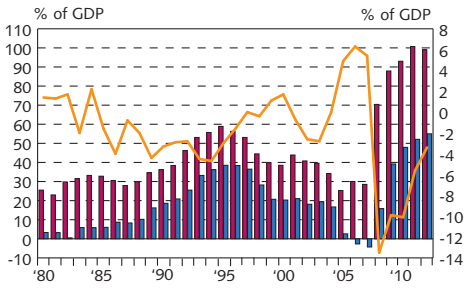
Treasury borrowing and credit budget balance 1990-2012



1. Including increase in pension fund commitments and outstanding long-term interest. State Accounting Office's preliminary calculations for 2012.
Sources: State Accounting Office, Statistics Ieland, Treasury accounts.

Chart 16

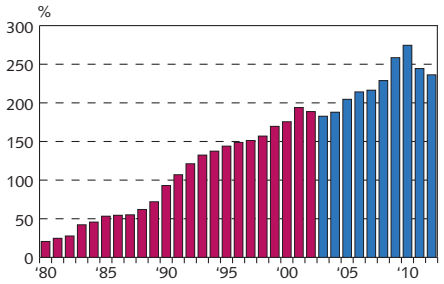
General government balance and debt 1980-2012



1. Debt excludes civil service pension liabilities. Assets include cash position but exclude equity holdings.
Sources: Statistics Iceland, Treasury accounts.

Chart 17

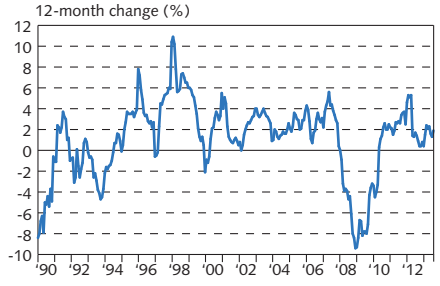
Household debt as percentage of disposable income 1980-2012[1]



1. New classification from 2003 (blue columns). Estimate for 2012.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 18

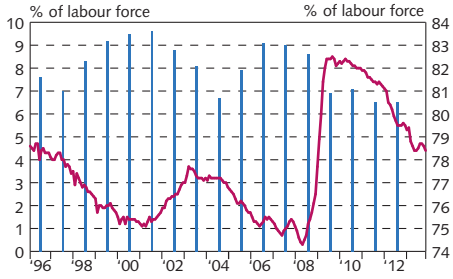
Real wages January 1990 - September 2013



Source: Statistics Iceland.

Chart 19

Unemployment and labour participation
January 1996 - September 2013



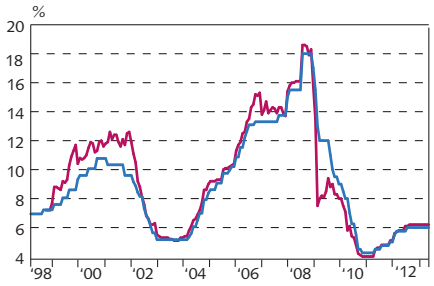
Participation (right)[1]
Unemployment, seasonally adjusted (left)

1. Statistics Iceland labour market survey 1996-2013.
Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

Chart 20

Short-term interest rates
March 1998 - September 2013

At end of month



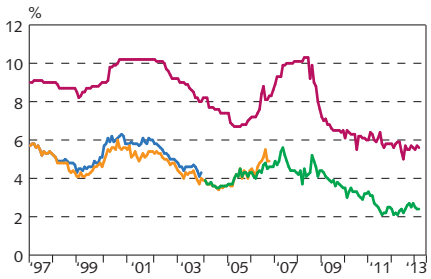
Central Bank 7-day lending rate
3-month REIBOR on the interbank market

Source: Central Bank of Iceland.

Chart 21

Long-term interest rates
January 1997 - September 2013

At end of month



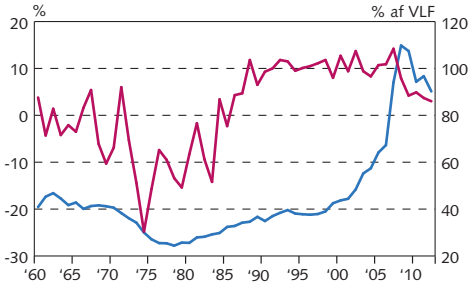
25-year housing bonds
Indexed bank loans
15-year Treasury bonds
30-year HFF bonds (HFF150434)

Source: Central Bank of Iceland.

Chart 22

Real yield and broad money 1960-2012[1]

Real yield on non-indexed bank loans and M3 as percent of GDP

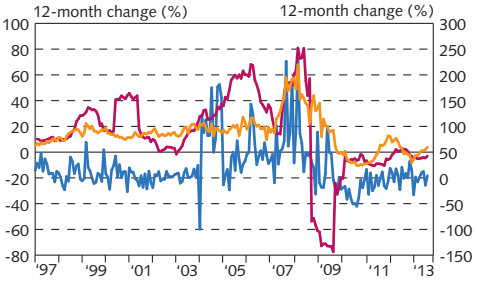


M3 (right)
Real yield (left)

1. Latest data are preliminary.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 23

M3, DMB lending, and base money
January 1997 - September 2013[1]

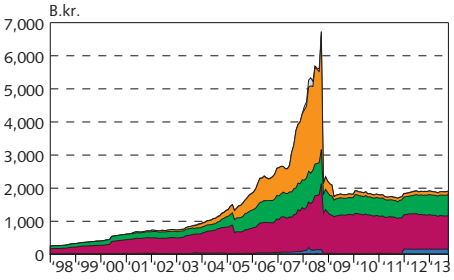


Base money (right)
DMB lending (left)
M3 (left)

1. Latest data are preliminary.
Source: Central Bank of Iceland.

Chart 24

Deposit money bank lending by sector
January 1998 - September 2013[1]



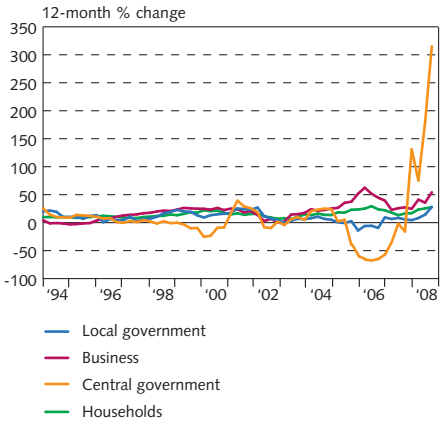
Treasury and government institutions
Industries
Foreign sector
Credit institutions
Households
Other

1. Reclassification of lending in September 2003 based on the ÍSAT-95 standard led to a reduction in household debt figures and an increase in business and municipalities' debt figures. Latest figures are preliminary.
Source: Central Bank of Iceland..

Chart 25

Growth of credit system lending Q1/1994-Q3/2008

Lending by sectors[1]

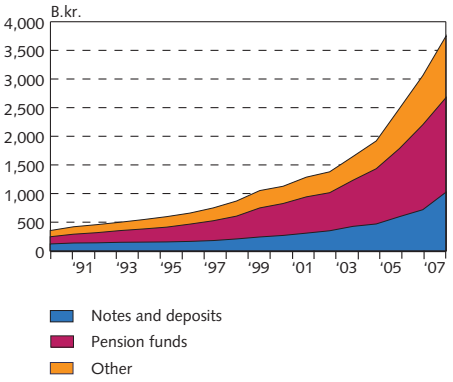


1. Reclassification of lending in September 2003 based on the ÍSAT-95 standard led to a reduction in household debt figures and an increase in business and municipalities' debt figures. Latest figures are preliminary.
Heimild: Seðlabanki Íslands.

Chart 26

Credit system liabilities at year-end 1990-2007

Balance at year-end at current prices

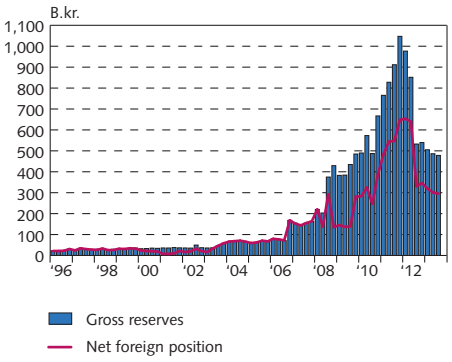


Source: Central Bank of Iceland.

Chart 27

Reserve assets and Central Bank net foreign positon, Q1/1996 - Q3/2013[1]

At current exchange rates



1. Latest data are preliminary.
Source: Central Bank of Iceland.

Boxes and appendices

Public sector finances

2012/4 National budget proposal for 2013
2011/4 National Budget 2012
2010/4 National Budget 2011

Labour market and wage developments

2012/4 Post-crisis economic developments in unemployment
2011/4 The flexibility of the Icelandic labour market and migration flows
2011/4 Is the increase of equlibrium unemployment reversing?
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2009/2 Unemployment and financial crisis

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2011/4 The Central Bank of Iceland forecasting record
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2009/2 Updated macroeconomic model
2009/2 Forecast errors in Central Bank of Iceland inflation forecasts

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2013/1 Baseline macroeconomic and inflation forecast 2013/1
2012/4 Baseline macroeconomic and inflation forecast 2012/4
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2012/2 Baseline macroeconomic and inflation forecast 2012/2
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2008/3 Baseline macroeconomic and inflation forecast 2008/3