

Domestic recovery in times of global uncertainty

The ominous global economic outlook has not as yet made a significant impact on the domestic economy. The exchange rate for the króna has appreciated slightly and terms of trade are considerably more favourable than forecast in the August issue of Monetary Bulletin. The domestic economic recovery has continued and financial conditions of households and firms have improved. GDP growth in the first half of 2011 was 2.5% and is forecast to be just over 3% for the year as a whole. This is slightly higher than in the August forecast, due primarily to a more favourable contribution by net trade. The outlook for next year has also improved, with GDP expected to grow by 2.3%. Growth averaging 2½% per year is forecast for the next three years. Inflation appears likely to be somewhat less in the latter half of this year than forecast in August. After peaking in Q1/2012 at 6%, inflation is expected to be below the August forecast for the remainder of next year. A stronger króna and lower imported inflation are offset by less spare capacity and slightly higher wage drift than anticipated in August. According to the forecast, inflation will decline to target by the end of 2013. The inflation outlook, the underlying strength of the domestic economy, and the durability of the recovery are all highly uncertain, especially in view of the deteriorating global outlook.

I Economic outlook and main uncertainties

Key aspects of the Central Bank's baseline forecast

Central Bank rates have increased since the publication of *Monetary Bulletin* in August

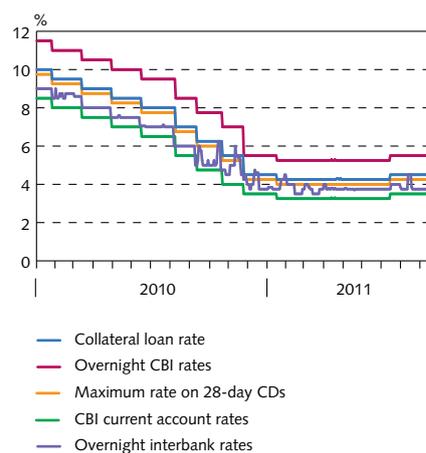
Since the publication of *Monetary Bulletin* in August this year, the Central Bank's Monetary Policy Committee has held two rate decision meetings. At the meeting on 17 August, the Committee decided to raise interest rates by 0.25 percentage points while at its latter meeting, on 21 September, the Committee decided to keep rates unchanged. The current account rate was therefore 3.5% prior to the publication of this *Monetary Bulletin*, the maximum rate on 28-day certificates of deposit (CDs) was 4.25%, the seven-day collateralised lending rate was 4.5% and the overnight lending rate 5.5%.

Given the ample liquidity in the financial system, the Bank's effective interest rate can be assumed to lie close to its average rate on deposits, which is currently around 3.9%. Overnight interbank rates are at a similar level. Since the publication of *Monetary Bulletin* in August they have for most of the time been around 0.5 percentage points below the centre of the Bank's interest rate corridor (i.e. the collateralised rate).

Negative short-term real interest rates support the economic recovery

Despite the Central Bank's rate hike in August, its real interest rate is broadly unchanged, since inflation and inflation expectations have also increased according to most measures. The real rate is now around -1½% based on the current inflation rate, and -½% based on the average of different measures, or almost 3 percentage points lower than one year ago (see further in Section III). Monetary easing

Chart I-1
Central Bank of Iceland interest rates
and short-term market interest rates
Daily data 1 January 2010 - 28 October 2011

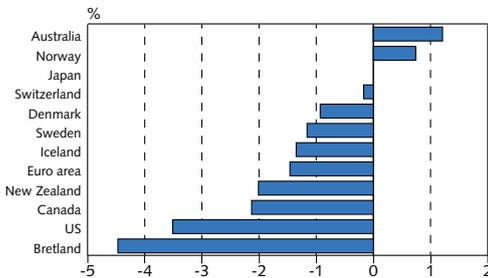


Source: Central Bank of Iceland.

1. The analysis in this *Monetary Bulletin* is based on data available at the end of October.

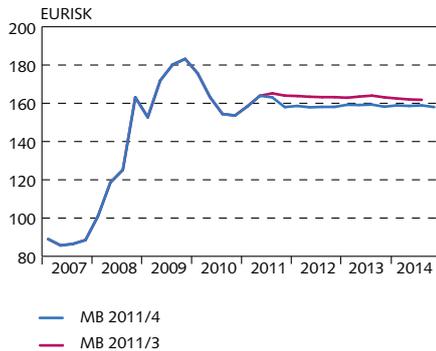
Chart I-2
Real interest rates in various
industrial countries

Effective central bank interest rates minus annual inflation¹



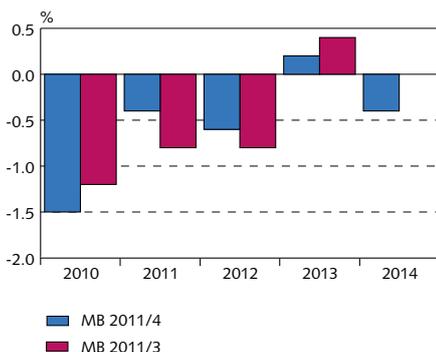
1. For Iceland the rate is based on average interest rates on deposits and maximum bid rate for 28-day CDs.
Sources: Macrobond, Central Bank of Iceland.

Chart I-3
The ISK exchange rate against the euro -
comparison with MB 2011/3



Source: Central Bank of Iceland.

Chart I-4
Net exports - contribution to GDP growth



Sources: Statistics Iceland, Central Bank of Iceland.

therefore continues to support the economic recovery. The Bank's real rate is similar to that in many developed countries. It is lower than in those countries where the recovery has progressed further but higher than in countries whose monetary policy enjoys more credibility. Greater credibility gives these central banks additional scope to utilise monetary policy to support the real economy without risking inflation rising unchecked, although inflation has increased somewhat in many countries (see the discussion in Section II).

Financial conditions of households and firms improve

Despite considerable monetary slack, financial conditions of households and firms remain difficult. Private sector debt is high and new lending limited. There are signs, however, that progress has been made in corporate financial restructuring recently and that credit is beginning to grow. This has coincided with a recent recovery of asset prices, e.g. prices for residential and commercial real estate, which will tend to increase the net worth of households and firms and boost their collateral position. Broad money has also started to increase again. Further details of interest rate developments and financial conditions are provided in Section III.

The króna stronger than predicted in August

Since the publication of *Monetary Bulletin* in August this year the króna has strengthened by 2.3% in trade-weighted terms and by 2.7% against the euro. Against the US dollar, however, it has depreciated by almost 1.1%. In trade-weighted terms, the króna is still more than 2.7% lower than it was at the beginning of this year.

Recent exchange rate developments have been somewhat more favourable than anticipated in the Bank's August forecast. In Q3/2011 the króna proved to be more than 1% stronger against the euro and the current forecast assumes that the króna will be almost 4% higher against the euro in Q4. As in recent Central Bank forecasts, the króna is expected to remain broadly unchanged for the remainder of the forecast period. According to the forecast the euro exchange rate will be in the 157-160 range during the forecast period, or almost 2% stronger at the end of the period than forecast in August. Further discussion of foreign exchange markets and exchange rate developments is provided in Sections II and III.

Contribution of net exports to GDP growth more favourable than expected

The international economic outlook has deteriorated since the summer and uncertainty increased, especially in a number of developed countries struggling with high debt levels. The outlook for international growth and trade are therefore somewhat poorer than anticipated in August. On the other hand, the outlook is for considerably more favourable development in Iceland's terms of trade. Annual growth in total exports are forecast to average around 2% during the forecast period, which is lower than forecast in August. While the outlook for this year is slightly better, the forecast for 2013 is lower due to

weaker service and aluminium exports. Despite the strong growth in service exports and considerable activity in goods exports apart from marine products and energy-intensive industry exports, overall export growth will remain relatively sluggish considering the low level of the real exchange rate.

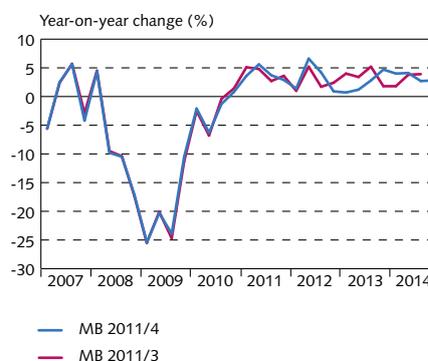
Slightly higher exports this year and somewhat lower growth in imports this year and next year than forecast in August will mean that even though the contribution of net exports to GDP growth is negative both this year and next year, it is more favourable than anticipated in August. The negative contribution despite a favourable competitive position is due partly to the capacity constraints in the fisheries sector, because of limitations of fish stock growth, and in the aluminium sector, because of long investment lags. Domestic capacity to respond to the recovery in domestic demand is also constrained, at least in the short run. The recovery of domestic demand is therefore mainly reflected in growing imports. Due to the more favourable contribution of net exports to GDP growth and more favourable developments in terms of trade, the current account surplus will be somewhat greater than forecast in August. Further discussion of the international economic situation, exports, external conditions and the external balance of trade can be found in Sections II and VII.

Outlook for similar growth in domestic demand this year as previously forecast

According to revised figures from Statistics Iceland for Q1/2011 and the first preliminary figures for Q2, domestic demand grew by 5% year-on-year during the first half of 2011. This is in line with the Central Bank's August forecast, which anticipated growth of 4.9% in the first half of this year. Growth in private consumption, however, proved to be 1 percentage point less than forecast, while growth in public consumption and investment was approximately 1 percentage point higher. Inventory accumulation also proved to be somewhat higher during the first half of this year than predicted in August.

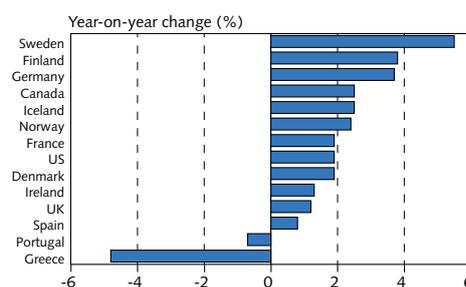
Overall national expenditure is expected to grow by approximately 4% this year which is practically unchanged from the August forecast. Despite indications of continuing growth in Q3, the increase in private consumption this year appears likely to be less than previously forecast, partly reflecting higher consumption level last year than anticipated in previous forecasts. Although general business investment, excluding investment in the energy industry, ships and aircraft, will likely be above the forecast in August, overall fixed-capital formation will be lower, mainly due to less energy-intensive industry investment. On the other hand, the budget proposal for 2012 indicates a substantially smaller contraction in public consumption this year than expected, in addition to which inventory accumulation is higher than forecast. Domestic demand is forecast to grow by around 3.2% next year, or somewhat more than forecast in August. Nonetheless, the outlook remains for robust growth in fixed capital formation during the forecast period. Private and public sector demand is discussed in more detail in Sections IV and V.

Chart I-5
Domestic demand - comparison with MB 2011/3



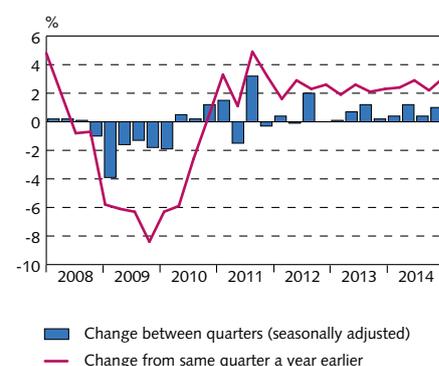
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-6
GDP growth in the first half of 2011 in various industrial countries



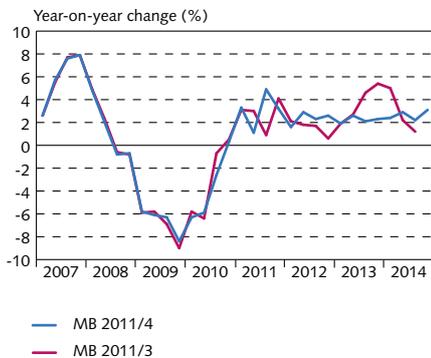
Sources: Eurostat, Macrobond, Statistics Iceland, Statistics Norway, Central Bank of Iceland.

Chart I-7
Gross domestic product
Q1/2008 - Q4/2014¹



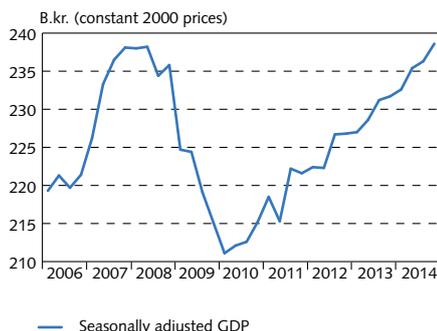
1. Central Bank baseline forecast Q3/2011 - Q4/2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-8
Output growth - comparison with MB 2011/3



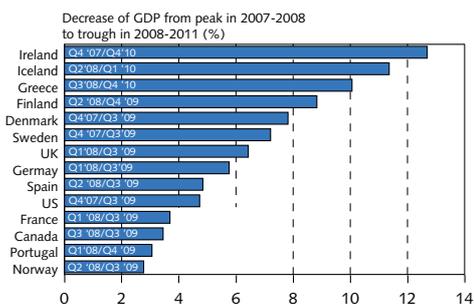
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-9
Gross domestic product
Q1/2006 - Q4/2014¹



1. Central Bank baseline forecast Q3/2011 - Q4/2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-10
GDP loss in the financial crisis in various
industrial countries



Figures in bars show dates of peak and trough of GDP in each country.
Sources: Eurostat, Macrobond, Statistics Iceland, Statistics Norway, Central Bank of Iceland.

Improved outlook for GDP growth this year and next year

GDP growth in the first half of this year measured 2.5% according to preliminary figures from Statistics Iceland. As shown in Chart I-6, this compares reasonably with other developed countries. Although GDP growth was 0.5 percentage points lower in the first half of this year than predicted in August, the baseline forecast now assumes that GDP growth in 2011 will be 3.1%, which is 0.3 percentage points higher than the August forecast. This is due mainly to expectations that the contribution of net trade will not be as negative as previously assumed, as discussed above. Following a contraction quarter-on-quarter in Q2/2011, resulting from the unusually negative contribution of inventory changes, the outlook is for robust growth in Q3, when most of these inventories are exported. As previously mentioned, the economic recovery can be expected to be uneven, resulting in fluctuations in quarterly GDP growth.

GDP growth of 2.3% is forecast for next year, reflecting an improvement in the outlook for next year since August, due to stronger domestic demand and more favourable net trade. The forecast for 2013 is also for GDP growth of 2.3%, which is 1½ percentage points lower than predicted in August. As explained above, this is due in particular to changed assumptions for investment in the energy-intensive sector. Strong growth in domestic demand in 2014 then will support GDP growth of 2.6% that year.

According to the baseline forecast, seasonally adjusted GDP in Q3/2011 was around 6½% less than at its pre-crisis peak. The peak-to-trough difference amounts to 11½%, however. As shown in Chart I-10, this is one of the largest output losses among developed countries. The contraction lasted for almost two years, which is similar to that of other developed countries. The baseline forecast assumes that by the end of the forecast period GDP will have regained its pre-crisis level. It will take quite some time, however, to reach the level it would have been at if it had continued to increase in line with its long-term trend prior to the crisis. However, it must be borne in mind that output was well above sustainable levels in the run-up to the crisis. Part of the fall in GDP therefore reflects an unavoidable adjustment following the overheating of the years preceding the crisis.² Section IV provides a further discussion of the development and outlook for GDP growth.

Stronger employment growth in Q3 than forecast in August

Seasonally adjusted unemployment measured 7.3% in Q3/2011, a slight decrease from the previous quarter. The Statistics Iceland Labour Force Survey also indicates very robust growth in employment in Q3, or 3.3% year-on-year. This is stronger than anticipated in August, when an increase of 1.6% on a year earlier was expected. The labour market outlook for next year, however, is broadly unchanged from

2. In this context it could be pointed out, for instance, that in the Central Bank's forecasts since the beginning of 2007, when the Bank first began to publish forecasts for 2009, a drop in GDP of 1-2% was predicted for 2009. From the beginning of 2008, an additional decrease in 2010 was anticipated, with the total contraction expected for 2009-2010 around 4%. As early as the end of 2008, when the financial recession hit, this forecast was revised to a total contraction of around 10%, which corresponds well with the actual developments. See Appendix 2 for further details.

what was expected in August: a continuing modest recovery in jobs and a decline in unemployment. Unemployment is forecast to be just over 6% for most of next year and to decrease to around 5% in the latter half of the forecast horizon, which is slightly more unemployment than forecast in August, reflecting somewhat higher labour costs later in the forecast period. Further discussion of the labour market can be found in Section VI.

Output slack less than previously forecast

Somewhat more of the economy's production capacity is now estimated to have been lost following the financial crisis than was assumed in August. The slack in 2010 and 2011 is therefore less than previously predicted, despite the lower output level indicated by the preliminary figures from Statistics Iceland. As in previous publications, however, spare capacity is assumed to have peaked around mid-2010. Until the latter half of 2013, the output slack will be somewhat less than estimated in August, but full utilisation of production factors will not be achieved until the first half of 2014, which is similar to the projection in August. Section IV and Box IV-1 discuss production capacity and output gap in more detail.

Inflation expected to peak at the beginning of next year

Inflation was 5.3% in Q3/2011, or 0.3 percentage points below the forecast of the August *Monetary Bulletin*. More favourable inflation development this autumn can probably be attributed to greater decreases in oil and commodity prices than forecast and a slightly stronger króna. The effects of wage increases were also slightly less since the wage increases were realised later than expected. Inflation is expected to continue to rise, however, and peak in Q1/2012 at 6%. According to the forecast inflation will then subside fairly rapidly as the impact of temporary cost shocks dissipates, and will reach around 3% during the latter half of 2012, and the target by the end of 2013.

The inflation outlook throughout next year has therefore improved somewhat since August. The more favourable inflation outlook for the remainder of this year is due to lower inflation at the beginning of the forecast period, a stronger króna and slightly lower wage increases than expected in August. Next year the impact of a stronger króna and lower imported inflation than expected in August should become more visible, outweighing the impact of a smaller margin of spare capacity and higher wage increases. The inflation outlook for coming quarters has therefore improved marginally, although inflation will remain high for some time and somewhat above target. Like inflation itself, inflation expectations also rose as the year progressed and remain above the inflation target. Section II discusses global inflation trends and Section VIII the development of domestic inflation and inflation expectations.

Key uncertainties and alternative scenarios

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 environ-

Chart I-11
Unemployment - comparison with MB 2011/3



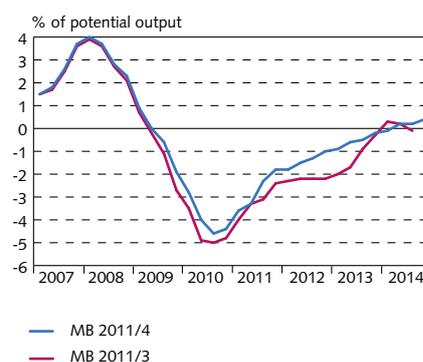
Sources: Directorate of Labour, Central Bank of Iceland.

Chart I-12
Employment - comparison with MB 2011/3



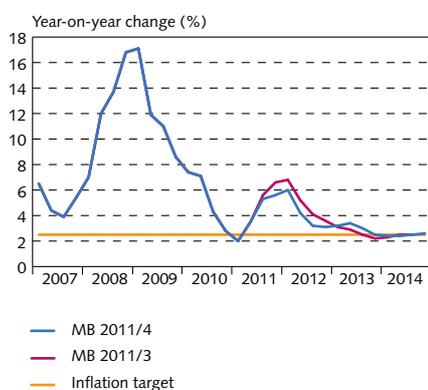
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-13
Output gap - comparison with MB 2011/3



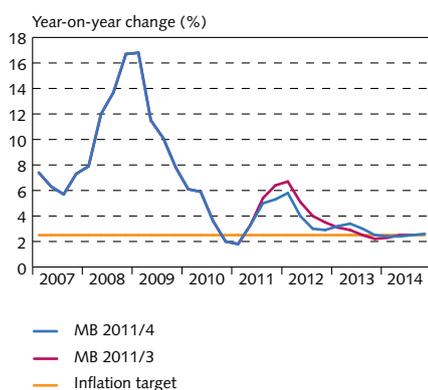
Source: Central Bank of Iceland.

Chart I-14
Inflation - comparison with MB 2011/3



Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-15
Inflation excluding tax effects - comparison with MB 2011/3



Sources: Statistics Iceland, Central Bank of Iceland.

ment of the Icelandic economy and the effects of these developments on it. The forecast is also based on an assessment of how individual markets function and how monetary policy is transmitted to the economy. All of these factors are highly uncertain, in part because of the virtually unprecedented scope of the current financial crisis. Both the domestic and global economic outlook could therefore easily diverge from that predicted in the baseline forecast. The following discussion highlights several key uncertainties in the baseline forecast. Two key uncertainties are examined further in alternative scenarios. They provide a more detailed picture of the impact of important assumptions concerning the economic outlook in the baseline forecast and how these deviations interact with monetary policy.

Global risks have risen markedly

The baseline forecast assumes that global GDP and international trade growth will gradually slow down this year and next year, even if output in the main industrial economies does not actually contract outright. Furthermore, global oil and commodity prices are assumed to have roughly bottomed out and to gradually increase as the global economy picks up. Based on these assumptions, the impact on Icelandic exports will be relatively limited, although the impact on how terms of trade develop will be greater. Overall, global economic developments are more likely to mean an improvement to terms of trade, as the decrease in oil and commodity prices has more effect than the drop in aluminium prices, and with prices for marine products continuing to rise.

All of these assumptions are highly uncertain. The possibility cannot be excluded that the debt crisis will spread to other countries and that the world economy will be dragged into a new and protracted recession. This could lead to further turbulence on global financial markets. Under such circumstances the impact on the Icelandic economy is likely to be greater than assumed in the baseline forecast. The export outlook could weaken further. Domestic investment plans which rely upon international financing could also be in doubt, delaying the domestic recovery and reducing the economy's export capacity in the longer term. Terms of trade could deteriorate, especially if prices for marine products were to fall markedly. The first alternative scenario below shows the possible impact of such a chain of events on the Bank's baseline forecast.

How effective is the transmission of monetary policy?

In the wake of the financial crisis, the transmission of monetary policy to the financial system and the real economy became severely impeded. Credit risk premia for households and firms increased substantially and access to credit tightened. The monetary easing which is reflected in rapidly falling, and now negative, short-term real interest rates was therefore not fully passed on to borrowers, although some signs of the slack filtering through to the real economy is visible in the declining deposit interest rates, which have encouraged households and businesses to move forward expenditure decisions. Transmission

of monetary policy through the exchange rate was also disrupted following the foreign exchange crisis and the introduction of capital controls. The baseline forecast assumes that the transmission mechanism will gradually normalise, although risk premia will remain somewhat above pre-crisis levels for most of the forecast period.

Delays in relaxing the capital controls and in restructuring debt, as well as weaker lending growth, could slow down this normalisation, however. The growing use of non-indexed lending at floating interest rates following Supreme Court verdicts on the illegality of exchange rate-linked loans, and an increased supply of non-indexed housing mortgages could on the other hand strengthen the transmission mechanism more than assumed in the baseline forecast.

Uncertainty concerning fiscal consolidation

Considerable progress has been made towards fiscal consolidation in the past two years. Based on the 2012 budget proposal, the objective is to achieve a balanced budget over a longer period than in the previous plan, upon which the Central Bank based its August forecast. The assumptions on public finances and their contribution to economic activity and economic policy have therefore been adjusted in accordance with the proposal in the Bank's current baseline forecast.

In view of changes in nominal expenditure growth targets, the final National Budget could provide for higher expenditures than the budget proposal, or it could assume that the austerity targets in the proposal will not be met in full. What the final outcome will be and what impact this will have on public debt profile is therefore subject to considerable uncertainty. If the fiscal easing is greater than assumed in the baseline forecast, domestic demand could be somewhat stronger in the short term than in the present forecast. On the other hand, an increased deficit could push domestic interest rates up and thereby squeeze out private sector investment. Public sector funding costs would furthermore increase, especially if risk premia on Treasury obligations began to rise once more. Other things remaining equal, this could put increasing downward pressure on the króna and thereby raise the risk of higher inflation, calling for greater monetary restraint. Economic recovery could therefore be slower, which would undermine the assumption of sustainability of public debt.

How rapid will the recovery in investment be?

The most recent indicators suggest that investment has begun to pick up after a substantial contraction following the financial crisis. The investment-output ratio, however, is still very low. According to the baseline forecast, fixed investment will continue to grow throughout the forecast period, especially general business investment and investment in the energy-intensive sector. The investment-output ratio will remain low, however, as high investment intensity prior to the recession has meant considerable spare production capacity exists in many sectors which could be put to work to meet growing demand without the need for further investment expenditure.

Damaged balance sheets, uncertainty concerning the situation and ownership of a large number of firms, uncertainty concerning

international economic developments and limited access to credit, however, could result in a weaker investment profile than expected in the baseline forecast. On the other hand, the scope of investment projects linked to current plans to relax the capital controls could prove greater than anticipated in the baseline forecast, resulting in even higher investment. The second alternative scenario below gives an example of the possible impact of such a deviation from the Bank's baseline forecast.

How strongly will private sector indebtedness hold back the recovery?

The indebtedness of domestic households and businesses has grown steadily for many years, making the domestic private sector currently among the most indebted in any developed country. Icelandic households and businesses are therefore likely to focus on repairing their damaged balance sheets and deleveraging in coming years. Gross national savings will therefore increase in coming years, after having declined considerably until last year.

Although the baseline forecast assumes that GDP growth next year will be fuelled primarily by domestic demand, the relatively moderate GDP growth in an historical context reflects the above emphasis of the private sector on repairing their balance sheets. Just how strong this effect will be is highly uncertain. Positive global economic news and increased optimism could discourage households and businesses from deleveraging, which would add to the strength of the domestic economy during the forecast period. High indebtedness could also prove to be even more stifling for GDP growth than expected in the baseline forecast.

Exchange rate outlook is highly uncertain

According to the baseline forecast, the króna should remain close to its current level for most of the forecast period. Forecasts of exchange rate developments, however, are always subject to high uncertainty. As a small currency of an indebted country paying a relatively high risk premium, the króna is generally sensitive to increased international financial market unrest, even when sheltered by capital controls as is presently the case. The current plan is to liberalise capital movements within the forecast period, which could result in some exchange rate volatility. As the timing and conditions related to liberalisation are uncertain, it is extremely difficult to take account of it in the baseline forecast. Domestic firms have also been paying off foreign debts recently, which could create more short-term pressures on the exchange rate than anticipated in the baseline forecast, at least as long as access by domestic banks to foreign credit remains limited.

According to the baseline forecast the real exchange rate will appreciate gradually in coming years, as it is currently very low in an historical context and probably below its long-term equilibrium level. It is extremely difficult, however, to assess just what the real equilibrium exchange rate is and how rapid the adjustment to this level will be. The possibility cannot be excluded that the adjustment could be

more rapid, e.g. if major investment projects materialised, resulting in an inflow of currency exceeding the assumptions in the baseline forecast. Nor can it be excluded that the real equilibrium exchange rate is in fact actually lower than assumed in the baseline forecast, given the high external debt level of the economy. The króna could therefore remain at a lower level for a longer period than assumed in the baseline forecast.

How much slack is there in the economy?

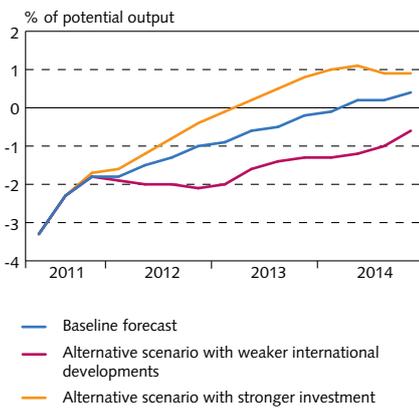
The baseline forecast assumes that the spare capacity in the economy and productivity growth will help restrain inflation and ensure that it returns to target as the effects of temporary cost shocks gradually subside.

The exact timing and extent of that decline remain highly uncertain, however. As discussed in Box IV-1, some of the production capacity in the economy has been lost following the financial crisis. The extent of this loss could be underestimated, and the output slack accordingly overestimated. This could mean, for example, that the current level of unemployment is not sufficient to check excessive wage pressures, as equilibrium unemployment has increased more than assumed in the baseline forecast. Underlying inflation pressures could therefore be underestimated. But they could also be overestimated. According to the baseline forecast, potential output only began to grow again around mid-2011. This is an unusually protracted adjustment period by international comparison. It cannot be excluded that the contraction was less and that recovery in potential output began earlier. Spare capacity could therefore be greater than in the baseline forecast and output could therefore grow at a faster rate without generating inflationary pressures.

Inflation could prove more entrenched than forecast

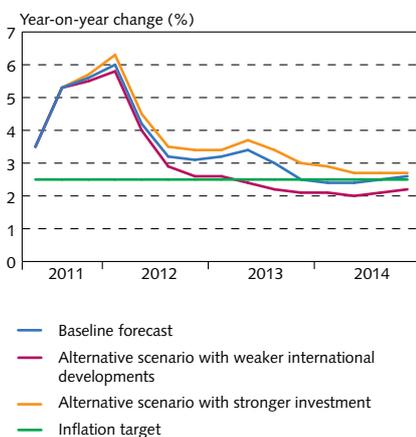
According to the baseline forecast, inflation will peak in Q1/2012 then decline gradually to reach target in the latter half of 2013. This forecast is based on a number of assumptions, each of which is subject to considerable uncertainty. As pointed out above, the margin of spare capacity remains highly uncertain. The same applies to the exchange rate outlook and the outlook for imported inflation. According to the forecast, decreases in oil and commodity prices are already manifest for the most part. Developments in coming quarters, however, will be determined to a large extent by the strength of global output growth, for which downside risks have increased recently, as previously discussed. It is also difficult to assess how large and persistent the impact of recently concluded collective wage bargaining agreements will be on inflation. There is a risk that these large wage increases could set off a spiral of further wage and price increases, resulting in inflation in excess of what can be attributed to the direct costs of the agreements. Inflation persistence also appears to be greater in Iceland than in most other countries. The risk of more entrenched inflation is higher because inflation expectations do not seem sufficiently anchored by the Central Bank's inflation target. Inflation expectations seem to

Chart I-16
Output gap - alternative scenarios



Source: Central Bank of Iceland.

Chart I-17
Inflation - alternative scenarios



Sources: Statistics Iceland, Central Bank of Iceland.

have risen in recent months, although they seem to have peaked, at least according to some measures, and long-term inflation expectations remain above the inflation target. There is a risk therefore that returning inflation to target will prove more difficult. This could also cause more entrenched inflation than anticipated in the baseline forecast. On the other hand, inflation expectations in Iceland seem even more influenced by the current inflation rate than in countries with more credible monetary policy. They could therefore drop quite rapidly if short-term inflation developments prove more favourable than anticipated in the baseline forecast, for example due to the effects of international developments.

Alternative scenario 1: Outlook for GDP growth deteriorates if the international crisis proves deeper and more protracted

As explained above, the baseline forecast assumes that global GDP growth will slow markedly while growth in Iceland's main trading partners will not actually contract. This alternative scenario anticipates that GDP in Iceland's main trading partner countries and global trade will contract, but that the contraction will be less than in 2009. It also assumes that terms of trade will be considerably less favourable than in the baseline forecast, with a substantial weakening of prices for aluminium and marine products. This will be partly offset, however, by a further drop in oil and commodity prices. Finally, unrest on international financial markets is expected to cause a further increase in risk premia, and no further construction of the Helgúvík aluminium smelter is assumed, at least not during the forecast period.

The outlook for GDP growth will be considerably poorer than in the baseline forecast, with growth as much as 1 percentage point lower during the latter half of the forecast period. Weaker global demand results in lower exports, especially of services and general industrial goods. Domestic demand will furthermore be weaker, as the employment outlook is poorer and foreign direct investment less. This is offset by lower domestic interest rates and a weaker exchange rate. The output slack will be greater than in the baseline forecast for most of the forecast period and inflation lower.

Alternative scenario 2: Stronger recovery of investment expedites economic recovery

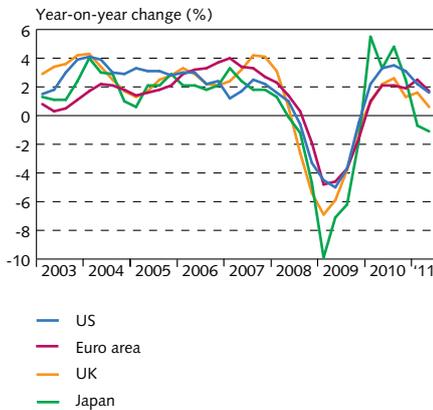
The share of investment in GDP is low in an historical context and will remain so even if it increases in coming years as predicted in the baseline forecast. This alternative scenario assumes that investment will increase more rapidly than in the baseline forecast, e.g. if additional investment projects linked to the relaxation of capital controls are realised or if development of energy-intensive industry is more rapid. Foreign direct investment will therefore be greater than in the baseline scenario and the investment-output ratio will return to its historical average in the forecast period.

Economic recovery will therefore be more rapid in this scenario than in the baseline forecast. GDP growth will average around ½ percentage point more per year for the next three years and unemployment as much as one percentage point lower. Less spare capacity will

result in higher interest rates which, together with more foreign direct investment, would suggest a stronger króna than in the baseline forecast. This will offset the greater inflationary pressures resulting from less slack in the economy.

Chart II-1
GDP growth in the USA, UK, Japan
and euro area

Real GDP growth Q1/2003 - Q2/2011



Source: Macrobond.

Chart II-2
Economic surprise index¹

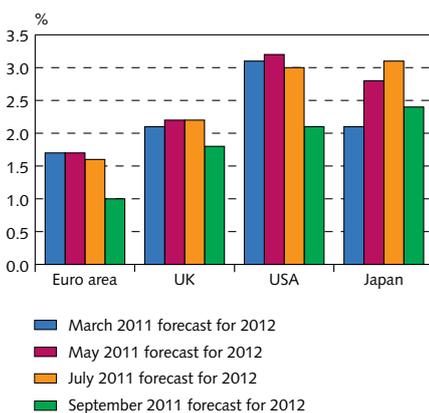
Daily data 1 January 2010 - 28 October 2011



1. When the index is lower than 0 the indicators are more negative than expected and 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-3
GDP forecast for the year 2012



Source: Consensus Forecasts.

II External conditions and exports

The global economic outlook has deteriorated and uncertainty has escalated. International financial markets are beset by turmoil, mainly due to the debt crisis facing many euro area countries and the troubles facing European banks. Risk aversion has therefore risen sharply. Inflation continues to creep upwards in Iceland's main trading partner countries but appears to be levelling off. Oil and commodity prices peaked earlier in the year and have retreated markedly since. Marine product prices have continued to rise, however, and terms of trade have been improving in the latter half of the year as a result. Global trade has continued to grow, albeit more slowly than before, and the real exchange rate remains low. Exports are projected to keep growing during the forecast horizon, although slightly less than was forecast in August.

Global economic outlook deteriorates ...

The economic outlook in Iceland's main trading partner countries deteriorated markedly during the autumn. In the US, GDP growth proved much weaker at the beginning of the year than preliminary figures indicated, and in the euro area it slowed down considerably in Q2. Growth also slowed down in most of the Nordic countries and the UK in the second quarter. The financial market unrest stemming from the fiscal debt and banking crisis facing several euro area countries, coupled with negative economic indicators, suggest that growth will be even weaker in the second half of 2011. Key economic indicators that have been published since August, when *Monetary Bulletin* was last released, have been weaker than major analysts' projections, particularly in the euro area (see Chart II-2).

Given that analysts' GDP growth forecasts for 2011 and 2012 have been adjusted sharply downwards this autumn, it is quite uncertain whether the current situation reflects merely a slowdown in the recovery or whether a new contraction will ensue. Revised 2011 GDP growth figures from Consensus Forecasts and the International Monetary Fund (IMF) for Iceland's main trading partners suggest somewhat weaker growth than was assumed in the last *Monetary Bulletin*. The forecast for 2012 is also considerably weaker. Consensus Forecasts projects that GDP growth will only reach about 1% in 2012 in the euro area and about 2% in the US. In the last *Monetary Bulletin*, it was assumed that GDP growth would be about 1½% in the euro area and about 3% in the US in 2012. According to the forecast, output growth in Iceland's main trading partners will be about 1½% in 2012, which is well in line with the newest forecast from the IMF, as opposed to 2.3% in the August forecast.

... and global financial market unrest escalates

Global financial markets have been quite turbulent since the summer, with unrest mounting since the publication of the August *Monetary Bulletin*. Sovereign debt problems in many countries, the state of the banking system and worsening growth prospects among major industrialised countries have strongly affected global financial mar-

kets and eroded public confidence in the strength and sustainability of the economic recovery. While a number of factors suggested that world financial markets were gradually recovering from the financial crisis, the current setback could undermine the recovery, and adverse financial market conditions are likely to slow down global growth for a while to come. Increased risk aversion has caused CDS spreads on many European countries' sovereign debt to rise steeply in recent months, while share prices have fallen.

Share prices around the world rose sharply in the first quarter of the year but have retreated since, especially after end-July. Among Iceland's trading partners, the drop in share prices was most pronounced in the euro area, although it was notable in the Nordic countries and the US as well. Near-term developments in stock markets are quite uncertain at present, particularly due to the European debt and bank crisis.

Global inflation outlook broadly unchanged

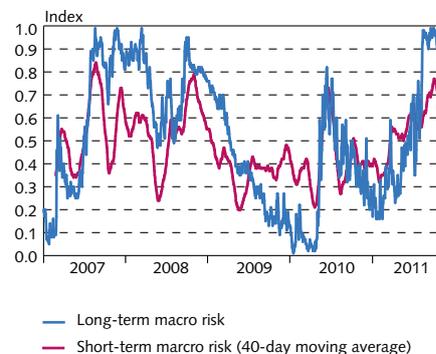
Inflation has continued to move upwards in Iceland's trading partner countries in recent months, and in many markets core inflation has increased despite a slack in the good and labour markets. It seems to have peaked in the Nordic countries, however, while in the euro area it kept rising in September after having appeared to peak in the summer. The assumptions concerning inflation in 2011 in Iceland's main trading partners are broadly unchanged from those presented in the August *Monetary Bulletin*. It is assumed that inflation peaked in the autumn and will taper off slightly towards the end of the year. A poorer GDP growth outlook, elevated unemployment levels, and declining commodity prices should contain price increases in the near term. The inflation outlook for the coming two years is also relatively unchanged.

The policy rate hikes implemented around the world this past summer seem to have come to a halt for the moment, especially among industrialised countries. Some central banks in Asia have continued to raise interest rates, however, while others have begun to reverse previous increases. Growing uncertainty about economic developments and the European debt and bank crisis have prompted central banks in industrialised countries to keep their rates unchanged since the last *Monetary Bulletin*.

Oil and commodity prices lower than forecast in August

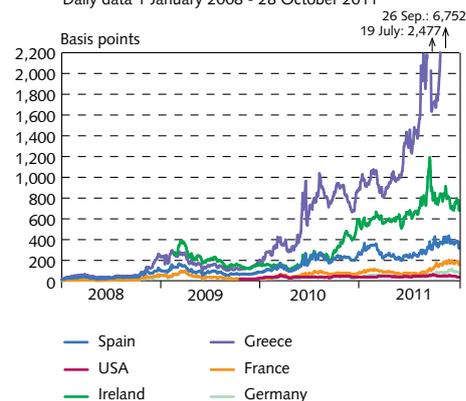
Oil prices continued to rise this summer, hitting new highs in July before tapering off again, in line with other commodity prices. The price drop has been rather larger than was anticipated in the last *Monetary Bulletin*, and the forecast for the year has been adjusted slightly downwards as a result. The Bank's forecast, which is based on forward prices and major analysts' projections, assumes an average rise of 35% for the year, as opposed to 38% in the August forecast. The forecast assumes that oil prices will be 6% lower in 2012 than in 2011, which is somewhat less than in the last forecast. The downward adjustment is due to a poorer global economic outlook and a stronger US dollar than was assumed in August. World commodity

Chart II-4
Macro risk index¹
Daily data 2 January 2007 - 27 October 2011



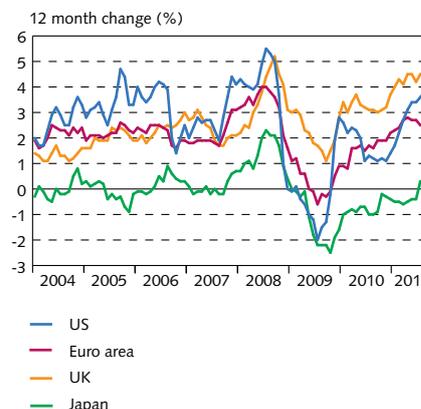
1. Zero means low risk aversion and one high risk aversion.
Source: Macrobond.

Chart II-5
Credit default swaps
Daily data 1 January 2008 - 28 October 2011



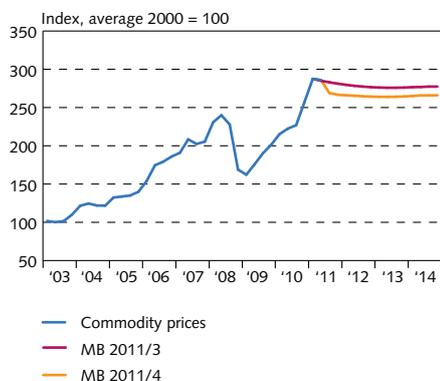
Source: Bloomberg.

Chart II-6
Inflation in the USA, UK, Japan and euro area
January 2004 - September 2011



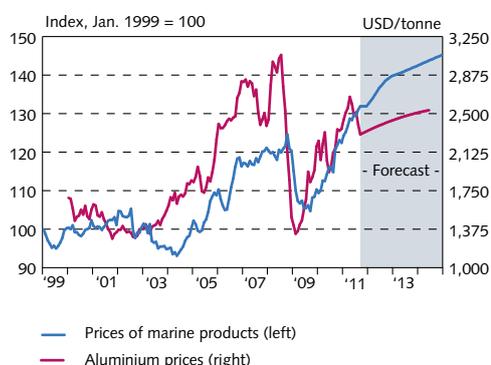
Source: Macrobond.

Chart II-7
Commodity prices¹
Q1/2003 - Q4/2014



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

Chart II-8
Prices of marine exports and aluminium
In foreign currency



Sources: London Metal Exchange, Statistics Iceland, Central Bank of Iceland.

prices also rose sharply early in the year but have been retreating since the spring. Unrest in financial markets and the prospect of weaker growth have prompted the slide in commodity prices, although food prices have fallen less markedly than other commodities because of the likelihood of weaker harvests than were anticipated in the beginning of the year. The assumptions concerning 2011 commodity prices are slightly lower than in the last forecast. The price increase for the year is estimated to average just over 20%, as opposed to 23% in the August forecast. While large price rises are not expected in 2012, it is assumed that commodity prices will hold up due to continuing growth in demand from emerging economies, particularly in Asia. The average projected price for 2012 is lower than that for 2011, however, as a result of the sharp increase early this year.

Marine product prices are still rising, while aluminium drops

Marine product prices have continued to rise so far in 2011, with the average price for the first eight months up 13% year-on-year. The increase extends to all product types, although fish meal prices have risen more slowly in the recent term and are expected to fall sharply in coming months. It is assumed that marine product prices will rise by almost 10% this year, somewhat more than was assumed in the August *Monetary Bulletin*. At the same time, they are expected to increase by just over 6% in 2012 instead of the previously forecasted 4%, as it is expected to be driven by continued strong demand.

Aluminium prices rose early in 2011 but began to taper off just after mid-year, in tandem with a general decline in commodity prices. Prices then plummeted in September, when they were about 15% below the average for the first eight months of the year. Nevertheless, aluminium prices are expected to be just over 16% higher in 2011 than in 2010, which is similar to the assumption in the last *Monetary Bulletin*. In spite of this collapse in aluminium prices, the forecast for the year as a whole remains relatively unchanged, as the national accounts for Q2 indicate that aluminium companies in Iceland sold their products at somewhat above world market prices during the quarter, whereas the August forecast was based on developments in global aluminium prices in Q2. The outlook for aluminium prices for the next years is broadly in line with the August forecast.

Terms of trade improve

Global price trends have changed radically in 2011. In the first half of the year, export prices rose sharply, as did the price of oil and general commodities. As a result, terms of trade deteriorated sharply in the first half of the year, and by more than was previously assumed. The above-mentioned decline in aluminium, oil, and commodity prices and the rise in marine product prices in the second half of the year have had an overall positive impact on terms of trade. The forecast in this *Monetary Bulletin* therefore assumes that terms of trade will improve by 0.9%, as opposed to a decline of 2.2% in the August forecast. The outlook for next year is also significantly better, particularly due to lower oil prices, with terms of trade improving by nearly 4% in 2012 and then remaining broadly unchanged throughout the forecast.

horizon. This turnaround will not suffice to reverse the past decade's deterioration, however.

Real exchange rate still very low in historical context

In the past four years, the domestic cost level has declined sharply in foreign currency terms, improving the tradable sector's competitive position and thereby supporting exports in spite of the marked post-crisis contraction in global trade. Iceland has greater flexibility to respond to the repercussions of the crisis than, for example, countries in Southern Europe, where the high domestic cost level makes it more difficult to use increased GDP growth to enhance the sustainability of public debt.

The real exchange rate of the króna declined steadily in the first half of the year but appears to have bottomed out this summer, at least for the time being, and has risen slightly since the last *Monetary Bulletin* was published. Nonetheless, the real exchange rate based on relative consumer prices remains about 21% below the average over the past 30 years, and over 22% below the thirty year average based on relative unit labour costs. The real exchange rate based on relative consumer prices is expected to rise marginally this year and in 2012. The hefty wage rises in recent contractual negotiations will probably cause the real exchange rate based on relative unit labour costs to rise more. Nonetheless, the real exchange rate based on either relative consumer prices or unit labour cost is expected to remain low in historical terms throughout the forecast horizon and continue to support exports.

World trade still increasing despite slowdown in global growth

World trade was up sharply in the beginning of the year and continued to be one of the main drivers of global GDP growth. It seems it will slow down somewhat, however, in view of the deterioration in the GDP growth outlook among major industrial countries. The IMF's most recent global trade forecast, however, is broadly unchanged since June. It assumes continued growth, albeit at a slower pace than in the past year. The forecast in this *Monetary Bulletin* assumes that Iceland's main trading partners will see imports rise by just under 5%, which is slightly lower than the August forecast. In spite of the poorer economic outlook worldwide, it is assumed that major trading partners' imports will continue to increase and will rise by about 3-4% per year over the next two years, somewhat less than was projected in August.

Even though both global trade and trading partners' import growth slowdown, this need not strongly affect Iceland's exports in the near term. Aluminium and marine products constitute the lion's share of Iceland's exports, and export volume of aluminium is determined largely by production capacity but marine products of fish quotas. When global trade contracted sharply in the wake of the 2008 financial crisis, exports from Iceland were affected only marginally. Because these products account for about 80% of Iceland's goods exports, the relationship between exports from Iceland and the global business cycle is much weaker than otherwise. However, if Iceland's

Chart II-9
Terms of trade and its main component
2000-2014¹

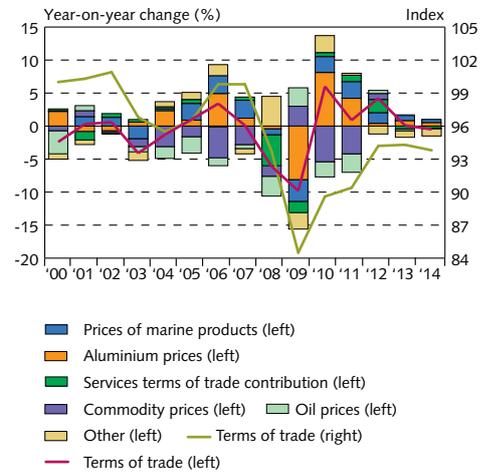


Chart II-10
Real exchange rate
Q1/2000 - Q3/2011

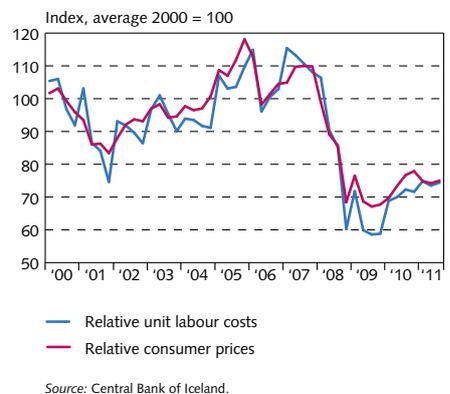


Chart II-11
International trade and Icelandic exports
2000-2014¹

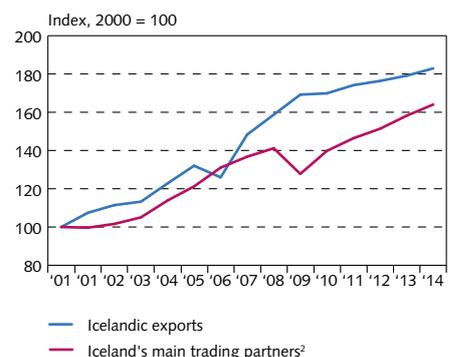
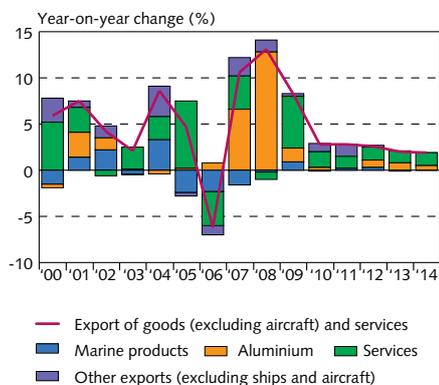


Chart II-12
Export development (excl. ships and aircraft)
and its main components 2000-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Statistic Iceland, Central Bank of Iceland.

main trading partners experience a deep and prolonged contraction, it is inevitable that the export growth will be weaker than previously forecast over the medium term, especially that for services exports.

Export outlook broadly unchanged

Marine product exports are assumed to increase by 1% in volume terms in 2011, while aluminium exports are expected to remain relatively unchanged from 2010 onwards. These assumptions are in line with those underlying the last Central Bank forecast. While these two sectors account for about 80% of Iceland's goods exports, the remainder is largely exports of other industrial goods. It is assumed that all other exports combined, including exports of industrial goods other than aluminium, will increase by about 10% this year, slightly less than according to the August forecast.

The current forecast assumes that goods exports will increase by around 2% next year, which is slightly stronger growth than was projected in August, despite the deterioration in the outlook for activity among Iceland's trading partners. The outlook is for goods exports to grow by just under 2% in 2013, however, somewhat less than was forecast in August, which mainly reflects weaker aluminium product exports, owing to the abandonment of the proposed expansion of the Reyðarfjörður aluminium smelter.

Services exports have grown considerably in recent years, partly due to the low real exchange rate. A record number of tourists have visited Iceland this year, generating increased services revenues. Services exports are forecast to rise by 3½% in 2011 and by around 2½-4% per year from 2012 through 2014.

Exports as a whole are forecast to increase by 2.5% in 2011 and only by 1.3% in 2012. The 2011 exportation of ships and aircraft affects this measurement somewhat. If ship and aircraft exports are excluded, export growth measures 2.8% in 2011 and then around 2% per year in 2012-2014.

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

	Change from prior year (%) unless otherwise specified ¹			
	2011	2012	2013	2014
Exports of goods	2.0 (1.5)	2.1 (0.6)	1.9 (2.8)	1.6
Exports of services	3.5 (1.8)	2.9 (3.0)	2.6 (5.0)	4.1
Exports of goods and services	2.5 (1.9)	1.3 (1.5)	1.6 (3.5)	2.1
Exports of goods and services, excl. aircraft and ships	2.8 (2.3)	2.2 (2.3)	1.6 (3.5)	2.1
Marine production for export	1.0 (1.0)	1.0 (1.0)	0.0 (0.0)	0.0
Aluminium production for export	0.0 (0.1)	3.0 (2.4)	3.0 (5.4)	2.0
Foreign currency prices of marine products	9.7 (8.1)	6.3 (4.1)	3.0 (2.0)	2.0
Aluminium prices in USD ²	16.4 (16.3)	1.5 (2.9)	3.3 (1.5)	2.1
Fuel prices in USD ³	34.6 (37.8)	-6.3 (1.2)	3.1 (0.0)	0.1
Terms of trade for goods and services	0.9 (-2.2)	4.1 (0.3)	0.1 (-0.3)	-0.5
Inflation in main trading partners ⁴	2.7 (2.7)	1.9 (2.0)	1.9 (2.0)	1.9
GDP growth in main trading partners ⁴	1.8 (2.2)	1.6 (2.3)	2.1 (2.3)	2.5
Short-term interest rates in main trading partners (%) ⁵	1.3 (1.3)	1.6 (2.1)	2.3 (2.8)	3.0

1. Figures in parentheses are from forecast in Monetary Bulletin 2011/3. 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: IMF, Bloomberg, Consensus Forecasts, Global Insight, Statistics Iceland, New York Mercantile Exchange, Central Bank of Iceland.

III Financial conditions

The level of monetary restraint has remained broadly unchanged since the last issue of *Monetary Bulletin* in August, while the króna has strengthened. The financial conditions of households and firms have improved slightly and access to credit has eased. Deposit money banks (DMBs) have increased their supply of non-indexed mortgages, offering more favourable interest terms than before. The share of non-indexed and indexed household and corporate credit has increased somewhat and the share of exchange rate-linked loans decreased accordingly.

Central Bank interest rates raised

In mid-August, when *Monetary Bulletin* was last published, the Central Bank's Monetary Policy Committee (MPC) raised the bank's interest rates by 0.25 percentage points. The current account rate rose to 3.5%, the maximum rate on 28-day certificates of deposits (CDs) to 4.25%, the seven-day collateralised lending rate to 4.5% and the overnight rate to 5.5%. On its last interest rate setting meeting the MPC decided to leave the bank's rates unchanged. Overnight market rates continue to fluctuate around the lower end of the Central Bank's interest rate corridor. These have ranged from 3.75% to 4.0% since August, with one exception, when they moved into the middle of the interest rate corridor to 4.5% and remained there for almost a week. Trading on the domestic interbank market is extremely low thus indicating limited market efficiency.

Increased CD issuance and less interest in Treasury bills

Issuance of 28-day CDs has grown considerably in recent months, reflecting actions by the Central Bank to ensure that conditions on the money market are consistent with the bank's interest rate policy. This is also probably due in part to the less favourable interest rates on Treasury bills as compared to CDs, as demand for Treasury bills has fallen recently. DMBs therefore appear to prefer to deposit funds with the Central Bank rather than to participate in Treasury bill auctions.

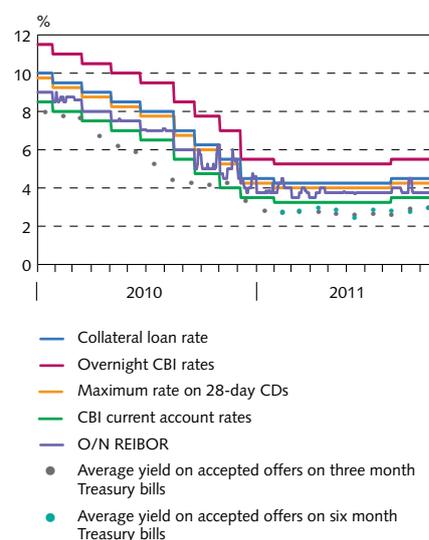
Monetary slack broadly unchanged despite the Central Bank's rate rise

Because of ample liquidity in the financial system, the Central Bank's effective nominal interest rate can be assumed to lie close to the bank's average deposit interest rate, i.e. between the current account rate and the CDs rate. This rate is currently around 3.9%. That would make the Central Bank's real interest rate around -1.4%, based on the twelve-month CPI increase, and from close to -2% to just above 0% using other measures for comparison. If assessed using various measurements of inflation and inflation expectations, the real interest rate has remained practically unchanged on average since August and is currently around -1% (see Table III-1).

Yield curve indicates no change to rates in November

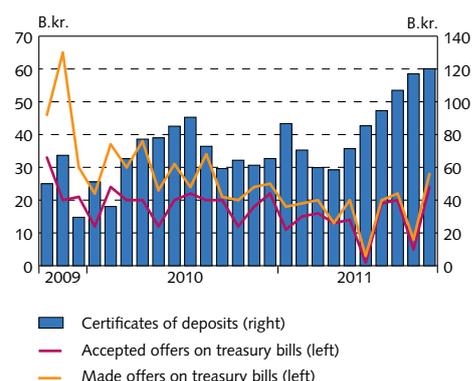
According to forward interest rates, market participants seem to expect no change in the Central Bank's interest rates on its next rate

Chart III-1
Central Bank of Iceland interest rates
and short-term market interest rates
Daily data 1 January 2010 - 28 October 2011



Source: Central Bank of Iceland.

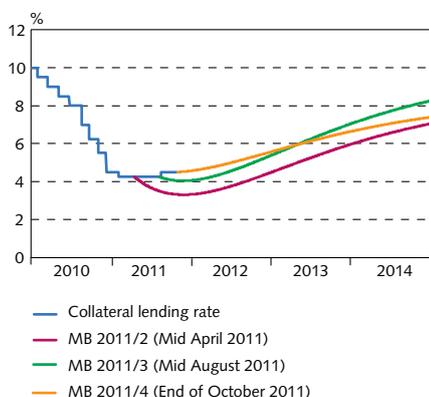
Chart III-2
Certificates of deposits and auctions
on Treasury bills
Monthly data October 2009 - October 2011



Source: Central Bank of Iceland.

Chart III-3
Collateral lending rate and forward
market interest rates¹

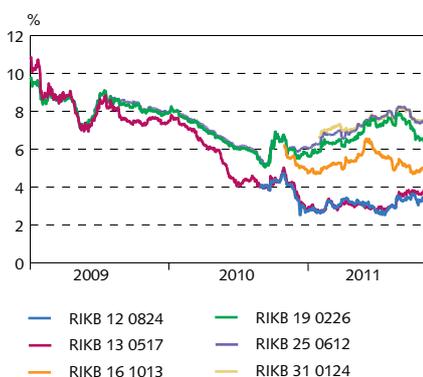
Daily data 1 January 2010 - 31 December 2014



1. Interbank interest rates on Treasury notes were used to estimate the yield curve. Treasury notes maturing in 2012 and 2013 are excluded since their pricing is assumed to be affected by the capital controls. Source: Central Bank of Iceland.

Chart III-4
Long-term nominal Treasury bond yields

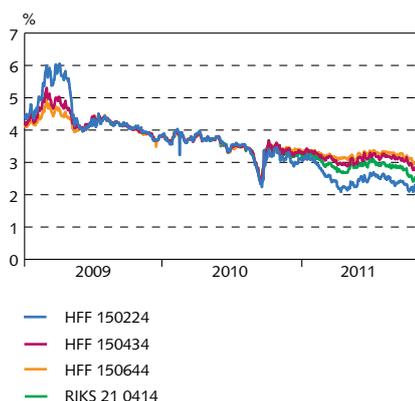
Daily data 2 January 2009 - 28 October 2011



Source: Central Bank of Iceland.

Chart III-5
Yields on indexed HFF bonds

Daily data 2 January 2009 - 28 October 2011



Source: Central Bank of Iceland.

decision date in tandem with this issue of *Monetary Bulletin*.¹ The yield curve also suggests that the Bank's interest rates are expected to remain unchanged into early next year and then begin to rise gradually. Thus the collateral rate will reach 5.5% by the end of next year, or 1 percentage point above its current level.

Table III-1 Monetary stance (%)

	Current stance (28 Oct. 2011)	Change from MB 2011/3 (16 August)	Change from MB 2010/4 (2 November)
Real interest rate based on: ¹			
Twelve-month inflation rate	-1.4	0.0	-3.4
Three-month seasonally adjusted inflation	0.2	3.6	-2.2
Business inflation expectations (one-year)	0.3	0.2	-2.5
Household inflation expectations (one-year)	-2.5	-1.2	-1.9
Breakeven inflation rate (one-year) ²	-0.7	-0.8	-4.0
Central Bank's inflation forecast (one-year) ³	0.7	2.2	-2.8
Average	-0.6	0.7	-2.8
Average excl. 3-month seasonally adj. inflation	-0.7	0.1	-2.9

1. The effective Central Bank nominal policy rate is the average of the current account and the maximum rate on 28-day CDs. 2. The one-year breakeven inflation rate is based on the difference between the nominal and indexed yield curves (five-day rolling average). 3. The Central Bank forecast of year-on-year inflation four quarters ahead.

Interest rates on longer Treasury notes maturities are currently lower than prior to the August rate hike

Yields on shorter Treasury notes rose in the wake of the Central Bank's rate hike in August and are currently 0.6-0.9 percentage points higher than prior to the rate hike. Yields on the longest Treasury notes also rose following the August rate rise but have declined again and are currently around 0.2-0.9 percentage points lower than before the rate hike. This decrease may in part reflect a more optimistic assessment of the inflation outlook following the MPC's September decision which would, other things remaining equal, result in expectations of lower Bank rate path (see Chart III-3). The decrease in yields on Treasury notes maturing in 2016 since the beginning of June, however, may also reflect increased interest from foreign investors because of their need for reinvestment of Treasury notes maturing in July this year. The National Debt Management Agency has announced plans to issue Treasury notes for 10-30 b.kr. in Q4/2011, which is similar to issuance so far this year.

Indexed interest rates continue to fall in line with the decrease in the Central Bank's real interest rate

Yields on inflation-indexed HFF bonds have continued to drop and are now 0.4-0.6 percentage points lower than in August when the last *Monetary Bulletin* was published. The decrease can be attributed to some extent to a substantial drop in short-term real interest rates, as discussed above. It may also reflect expectations of a limited supply

1. Interbank interest rates and interest rates on Treasury notes were used to estimate the yield curve. Treasury notes maturing in 2012 and 2013 are excluded, however, since their pricing is assumed to be affected by the capital controls. Interest rates on these notes are therefore not considered to truly reflect market expectations for the Central Bank's interest rate developments. This assessment, however, is subject to uncertainty and makes an interpretation of the yield curve especially problematical at this moment.

of indexed bonds in coming quarters. Issuance of HFF bonds by the Housing Financing Fund (HFF) has been considerably less this year than in recent years and increased demand for non-indexed loans will no doubt reinforce this development.

Long-term spreads over foreign bonds have declined

Since the publication of the *August Monetary Bulletin*, CDS spreads on Treasury debt have ranged from 2.3 to 3.3 percentage points, increasing by almost 1 percentage point since mid-August. The risk premium on Treasury bonds, as reflected in the spread between the interest rate on its recent 5-year US dollar bond and similar US Treasury bonds, has also increased, although somewhat less. Just prior to the publication of this *Monetary Bulletin* this spread was 4.3 percentage points. Rising risk premia are in line with international developments in the wake of growing turbulence on international financial markets (see further discussion in Section II).

Since the publication of the *August Monetary Bulletin*, the short-term interest rate differential with German government bonds has risen by 1.6 percentage points while at the same time the long-term interest rate differential has decreased by 0.8 percentage points. Allowing for the rising risk premium, the short-term interest rate differential has therefore risen by over 0.5 percentage points while at the same time the long-term interest rate differential has fallen by around 1½ percentage points.

Table III-2 Interest rate differential (%)

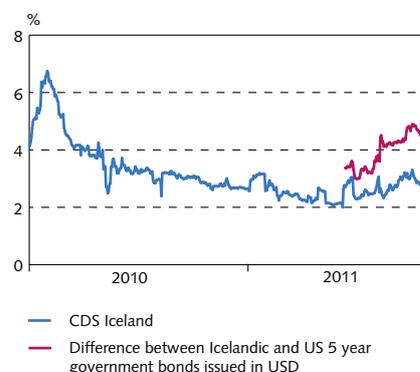
	Current interest rate differential (28 Oct. 2011)	Change from MB 2011/3 (16 August)	Change from MB 2010/4 (2 November)
Difference between 3-month Iceland-euro area interbank rates divided by the 3-month historical EURISK exchange rate volatility ¹	0.8	0.0	-0.2
Difference between 3-month Treasury interest rates adjusted for the difference in CDSs on Treasury debt ²	1.9	1.0	0.2
Difference in yields on 5-year Icelandic and US Treasury notes issued in US dollars	4.3	0.0	-

1. Ratio of 3-month interbank rate spreads to 3-month standard deviation in the ISK/EUR exchange rate. 2. Interest spread between 3-month Icelandic and trade-weighted Treasury bills, adjusted for the difference in CDS spreads (5-day moving average).

Increased turbulence on foreign financial markets

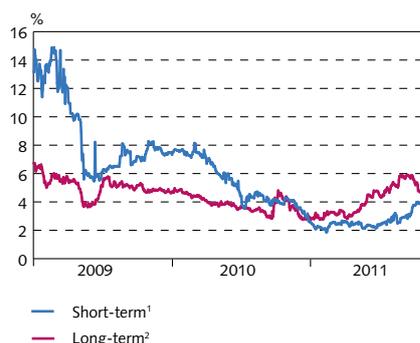
As major unrest continues on foreign financial markets, stock prices have fallen on both sides of the Atlantic, as discussed in Section II. Uncertainty has clearly increased on global financial markets since August. At the same time, the sovereign ratings of Greece, Italy and Spain, and ratings of numerous European banks, have been downgraded. Central banks in Europe, the US and the UK have already announced wide-reaching additional measures to assist financial institutions and to stimulate their economies. They have once more stepped up purchases of illiquid assets of commercial banks and boosted credit lines in order to prevent illiquidity problems in the banking system.

Chart III-6
Risk premia on the Icelandic treasury
Daily data 1 January 2010 - 28 October 2011



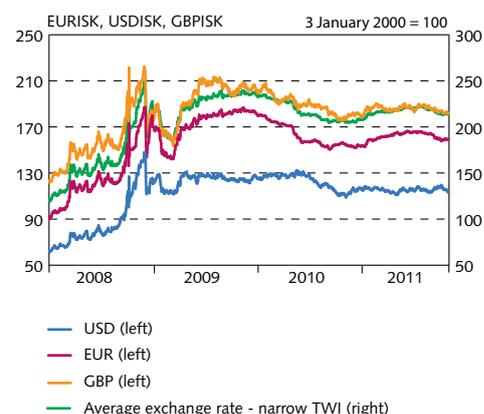
Sources: Bloomberg, Central Bank of Iceland.

Chart III-7
Interest rate differential
Daily data 2 January 2009 - 28 October 2011



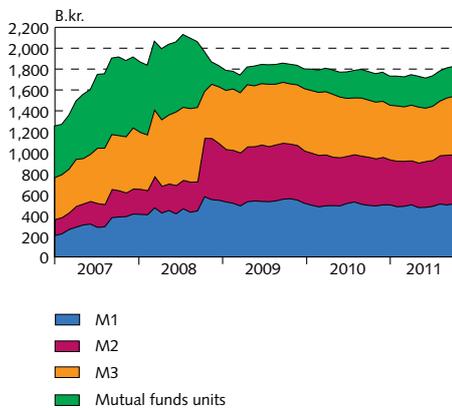
1. Differential between yields on 3-month Treasury bills in Iceland and Germany. 2. Differential between yield on RIKB 19 and 8-year Treasury bonds in Germany.
Sources: Macrobond, Central Bank of Iceland.

Chart III-8
Exchange rate of the króna
Daily data 3 January 2008 - 28 October 2011



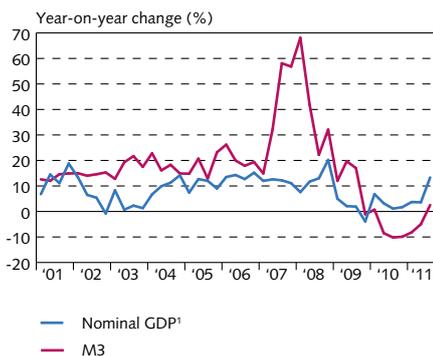
Source: Central Bank of Iceland.

Chart III-9
Money holdings
January 2007 - September 2011



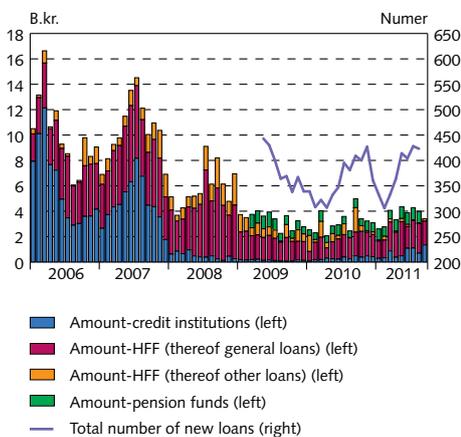
Source: Central Bank of Iceland.

Chart III-10
Nominal GDP and M3
Q1/2001 - Q3/2011



1. Central Bank baseline forecast Q3/2011.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart III-11
Number and amount of new residential housing loans
Monthly data January 2006 - September 2011



Information on new pension fund loans is based on a sample covering the nation's 20 largest pension funds. During the survey period, the number of pension funds in the sample rose from 18 to 20. The sample now extends to almost 97% of Icelandic pension funds' net assets. Monthly data. The latest month excludes the pension funds. Number of new loans is shown as a 3-month rolling average.
Sources: Housing Financing Fund, Central Bank of Iceland.

Króna strengthens

Immediately prior to the publication of this *Monetary Bulletin* the exchange rate, as measured by the trade-weighted index, was around 2.3% higher than prior to the August issue. More precisely the exchange rate was around 2.7% higher against the euro, 2.9% against the Pound Sterling and 1.1% lower against the US dollar. The króna's strengthening is probably due to several interrelated factors. A favourable summer for the tourism industry has resulted in a higher than anticipated inflow of foreign currency revenues. There was also a major increase in goods exports in September. Terms of trade have also been considerably more favourable than forecast in August. The increased turbulence resulting from the European debt crisis has up until now not had any visible impact on the exchange rate of the króna, although it is generally among those currencies which are most sensitive to unrest on international financial markets. This is likely due to the temporary shelter provided by capital controls. The foreign liquidity position of the economy is also relatively good, the sovereign debt position proven to be better than expected at the outset of the financial crisis, and domestic DMBs rely on access to foreign wholesale markets only to a very limited extent.

The offshore exchange rate was 243 kr. against the euro just before the publication of this *Monetary Bulletin* and is broadly unchanged from the August publication. The onshore euro exchange rate was 160 kr., which is 3.7% lower than at the beginning of this year. According to the Central Bank's forecast, the króna will strengthen in the final quarter of this year and remain broadly stable in 2012. At the end of the forecast period the króna will be around 2% stronger than anticipated in the August forecast.

Broad money increases once more

Broad money supply (M3) grew rapidly month-over-month until October 2009, when it began to decrease. In the past four months, however, broad money has begun to rise once more and the year-on-year growth in September was 2.5%. This turnaround in broad money supply partly reflects the effects of the slack in monetary policy. At the end of the summer liquidity in the financial system was also high due to maturities of Treasury notes and tax refunds; these funds have now partly been manifest in broad money growth. Despite this turnaround, the year-on-year growth in broad money is still below the growth of nominal GDP. As a result the ratio of broad money to GDP is still decreasing.

New housing mortgages rise and the share of non-indexed loans grows

New housing mortgages granted by the Housing Financing Fund, pension funds and DMBs totalled 3.7 b.kr. on average per month during the first eight months of this year, which is equivalent to a minor year-over-year increase for the period. Other new lending, however, still appears to be very limited.

The share of exchange rate-linked lending of total debt has decreased as the share of non-indexed and indexed lending has risen. Indexed lending is still the most common way of lending to house-

holds. There has been considerable household and corporate debt restructuring, for example due to Supreme Court judgements on the illegality of multi-currency loans. In addition the supply of new non-indexed credit has greatly increased recently. A higher proportion of non-indexed credit is conducive to strengthening the transmission mechanism of monetary policy.

Housing prices rise as housing market activity picks up

Since housing prices bottomed out at the end of 2009, they have risen by almost 8% in nominal terms, but are practically unchanged in real terms. The number of purchase contracts based on the date of purchase has grown considerably in the capital area in 2011. During the first nine months of this year, turnover by this measure rose by close to 67% year-over-year, although it should be borne in mind that turnover in 2010 was very low compared to previous years. In Reykjavík, turnover has increased most in the suburbs and in nearby municipalities the increase in turnover has been greatest in Kópavogur.² The increase has been less for the country as a whole, or 52%. Following the financial crisis the HFF, banks and holding companies owned by the banks acquired a fairly large number of residential properties relative to turnover on the housing market. The impact of those properties on housing prices is further discussed in Box III-1. House prices have followed the development of disposable income quite closely after the financial crisis. According to the baseline forecast, house prices will follow general price level developments fairly closely in coming years.

2. The number of purchase contracts is conspicuously high in Kópavogur, Hafnarfjörður and Garðabær.

Chart III-12

House prices and disposable income of households
Q1/2001 - Q3/2011



1. Central Bank baseline forecast Q1/2011 - Q3/2011.
Sources: Statistics Iceland, Central Bank of Iceland.

The Housing Financing Fund (HFF), banks and holding companies owned by the banks have acquired a large number of residential properties following the financial crisis. At the end of September 2011 these parties owned almost 2,500 properties, or around 1.9% of the total housing stock in Iceland. By comparison, the number of purchase contracts registered last year was just over 4,600 and during the first eight months of this year around 3,700 contracts were registered.¹ As Table 1 shows, these parties own just over 1,000 properties in the capital area, or around 1.3% of the total stock in this region. By comparison, almost 3,000 properties were sold in the capital region last year and just over 3,200 in the first eight months of this year.

Almost one-quarter of the residential properties owned by these parties is still under construction (around 550 in all). While it is difficult to obtain exact figures for the total number of houses under construction in Iceland, Statistics Iceland estimated that at the end of 2010 there were around 5,000 residential properties under construction.

1. When HFF, banks or banks' holding companies appropriate residential properties, no actual purchase contract is concluded indicating the market value of the property and such agreements are therefore neither included in data on turnover or on real estate market prices. When these parties eventually sell the properties on the market, on the other hand, they are reflected in this data.

Box III-1

Housing owned by the Housing Financing Fund and the banks

Table 1 Residential properties owned by HFF, banks and holding companies

	No. of residential properties	% of total stock in the region	No. of purchase contracts in 2010	Residential properties rented out	Residential properties under constr.	Completed residential properties not rented out
Capital region	1,026	1.3	2,956	444	337	245
Suðurnes area	462	4.7	236	115	62	285
West Iceland	278	4.2	209	124	70	84
West Fjords	48	1.4	123	10	19	19
North Iceland	131	0.8	502	66	4	61
East Iceland	214	4.0	194	72	13	129
South Iceland	323	3.4	417	152	46	125
Total	2,482	1.9	4,637	983	551	948

Around 40% of residential properties owned by HFF, banks and holding companies is rented out and in most instances probably rented to former owners of the property or parties who previously rented directly from the former owners. If completed houses which are not rented out are assumed to be for sale, this includes almost 1,000 properties. The average number of properties for sale on the Internet website of the daily *Morgunblaðið* in 2011 is 4,760. Some of the residential properties owned by the above parties is advertised on this website, as real estate agents handle their sale in by far the most cases.

The number of residential properties owned by HFF, banks and holding companies owned by the banks varies greatly depending upon the region. In the Suðurnes area, for instance, they own 460 residential properties or 4.7% of all properties. In addition, a rental company owned to a large extent by these parties manages almost 1,300 properties on the former military base; around half of them are rented out. In the Suðurnes area 236 residential properties were sold in 2010, making it clear that the problem is considerably greater there than, for instance, in the capital region or in Iceland as a whole. During the past decade the number of properties in the Suðurnes area has increased by almost 2,400, in addition to the almost 1,900 on the former military base, making a total of over 4,000, while at the same time the number of residents in the area has increased by just over 5,000. The excess supply of residential properties in this region is therefore considerable and is likely to remain so for some time, as unemployment there is the highest in Iceland (10.7% in September).

In West Iceland as well, a considerably high proportion of properties is owned by HFF, banks or holding companies. They own almost 280 properties or over 4% of the total number of residential properties in the region. In West Iceland, however, these houses are a much smaller proportion of turnover on the residential market than in the Suðurnes area, as some 290 properties were sold in West Iceland last year. Unemployment is also lower there, 3.2% in September. In East Iceland around 4% of residential properties is owned by these parties but their share in turnover in 2010 was considerably lower and unemployment in the region was 3.1% in September.

Possible impact on housing prices

It is expected that the objective of both HFF and the banks is to sell the properties they currently own. It is difficult to assess what the impact would be on residential housing price developments if HFF and the banks decided to sell off their housing portfolios. This would

depend on how rapidly the properties were sold and the general economic situation if and when this occurred. The above figures show that the number of residential properties owned by HFF and the banks is fairly large relative to turnover on the housing market. Compared to the total number of properties, however, their share of the total stock is not great. If these parties disposed of their residential properties in a short period of time it can naturally be assumed to have some impact on the market. But they are not likely to do so as that would not be in their interest. They will probably hold these assets as long as they expect to be able to sell them at a higher price than they can currently obtain for them. It is also only natural, under the current circumstances, for banks to proceed with caution in the residential housing market, since housing price developments not only affect the price they obtain for these properties but also their most important collateral for household loans.

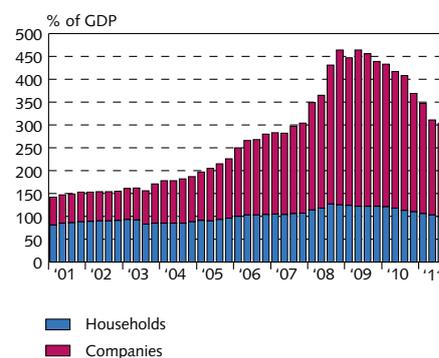
Financial conditions of households and firms have improved

The financial conditions of households have improved somewhat in 2011. Both household and corporate indebtedness has decreased following write-offs and restructuring of debt, although the Icelandic private sector remains among the most indebted among industrial countries.³ There are also signs that the supply of credit is starting to increase again. Equity requirements for borrowers, however, are still considerably higher than prior to the banking system collapse and is likely to remain so. Collateral is also somewhat more limited in the tighter conditions of the past three years, although this has increased once more with recovering asset prices in recent months.

Lending terms are also improving. Non-indexed housing mortgages are now offered at rates variable interest rates of 5.25-5.4% and fixed rates of 6.2-6.45%.⁴ Based on the current inflation level, the real interest rate on these loans is considerably lower than has previously been available for indexed housing mortgages. The interest rate premium on funding costs also appears to be relatively low. These interest rates are close to 2 percentage points higher than the Central Bank's collateralised lending rate while by comparison interest rates on non-indexed two-year housing mortgages in the UK (with a maximum LTV of 75%) now average 2.75%, or 2.25 percentage points higher than the Bank of England's policy rate. A similar premium on the central bank base rate is also found in Sweden, where interest on non-indexed five-year loans is around 4.5%, or 2.5 percentage points above the policy rate of the Swedish Riksbanken.

In September, allowances for withdrawals of third-pillar pension savings were extended and the maximum amount which could

Chart III-13
Companies and household debt¹
Q1/2001 - Q3/2011



1. Central Bank baseline forecast for nominal GDP Q3/2011.
Source: Central Bank of Iceland.

3. Household and corporate debt is measured at claim value. The country that comes closest to Iceland's indebtedness is Ireland with private debt at almost 370% of last year's GDP. See S. Cecchetti, M. S. Mohanty og F. Zampolli (2011), "The real effects of debt", *BIS Working Papers*, nr. 352 and International Monetary Fund (2011), *Global Financial Stability Report*, Ch. 1, October 2011.

4. The loans have maximum loan-to-value (LTV) ratios of 60-70% and fixed interest terms for three to five years at a time.

be withdrawn increased from 5 m.kr. to 6.25 m.kr. To date 56,000 rightholders have withdrawn around 60.2 b.kr. in third-pillar pension savings. In addition, the budget for 2012 proposes a change in the tax treatment of these savings, which will, other things remaining equal, reduce payments to these funds, to which over 82,000 individuals have made contributions this year (see also Section IV).

Despite most households are not facing debt problems and improving financial conditions a number of households are still in financial difficulties. In August, for example, unsuccessful attempts were made to enforce claims against 290 households, seven of which were declared bankrupt. During the first eight months of this year, the number of bankruptcies and unsuccessful debt enforcements was more than twice that of the same period the previous year.

Financial conditions of the corporate sector have also improved in 2011. Limited lending for new projects however suggests that financial conditions remain tight. Corporate restructuring, however, appears to finally be progressing and the number of companies placed in a sales process has increased. A total of 140 companies were declared insolvent or underwent unsuccessful enforcement actions in August this year, the lowest since July 2010. Just over 18% of those companies which are neither financial institutions nor holding companies were in arrears at the beginning of September this year. This figure is up from 12% in April 2009 but has remained fairly steady in recent months. The proportion of companies in default is highest in the construction sector and lowest in agriculture and fisheries.⁵

5. Companies on the default list have been declared default for more than 90 days on average. In some case parties are possibly not added to the list until their cases have been placed in collection.

IV Domestic demand and production

According to the current preliminary figures, seasonally adjusted GDP in Q2/2011 contracted after continuous quarterly growth since Q3/2010. Despite this, year-on-year GDP growth measured 2.5% in the first half of the year and overall growth for the year is expected to be over 3%. Growth is expected to be around 2½% on average per year in the next three years. The outlook for growth this year and next year has improved somewhat from the August forecast. Although the contribution of net trade to growth is somewhat more favourable than previously forecast, GDP growth in coming quarters will be primarily driven by growth in domestic demand.

GDP dipped in Q2 ...

Statistics Iceland published its preliminary national accounts for Q2/2011 in September this year, together with a revision of figures previously published. GDP is now considered to have contracted by 4% in 2010, or by half a percentage point more than previously estimated. Despite the year-on-year decrease, seasonally adjusted GDP began to grow quarter-on-quarter during the latter half of 2010. It continued to grow by almost 2% in Q1/2011 over the previous quarter, but dipped in Q2, when GDP dropped by 2.8% over the previous quarter according to the Statistics Iceland figures. Despite the quarter-on-quarter contraction in Q2/2011, all sub-components rose over the previous quarter except for changes in inventories, which contributed -5½ percentage points to quarterly GDP growth. Inventories may, however, be overestimated (see the Statistics Iceland publication from 8 September). A shift from inventories to exports will not affect the nominal value of GDP. It cannot be excluded, however, that this overestimation of inventories have led to an underestimation of real GDP as the relative weight of inventories in the chain linked calculation of GDP growth is considerably smaller than the weight on exports.¹

... although it continued to increase year-on-year

Despite the quarter-on-quarter decline, the Statistics Iceland figures suggest that GDP rose by 1.4% on a year-on-year basis in Q2/2011, the second consecutive quarter with an increase over the previous year. The Central Bank's forecast published in the August *Monetary Bulletin* predicted year-on-year GDP growth of 3% in Q2/2011, which is considerably above the Statistics Iceland figures. A major portion of this deviation is due to lower year-on-year growth in private consumption and lower export growth. However, this is partly offset by the higher than forecast growth in public consumption and in business investment.

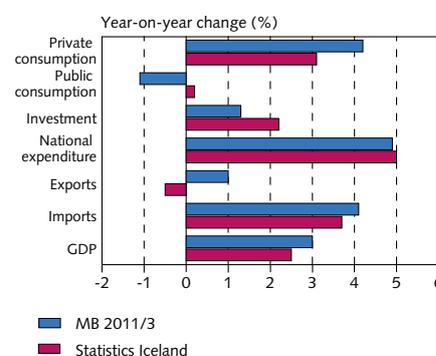
GDP in the first half of 2011 slightly below the August forecast

The August issue of *Monetary Bulletin* forecast 3% year-on-year GDP growth in the first half of this year, which proved to be 2.5% accord-

1. Based on average prices in 2010, the relative weight on inventories is 0.7, whereas the weight on exports is 2.1.

Chart IV-1

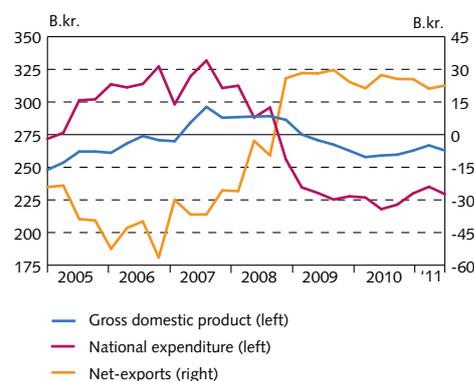
National accounts for the first half of 2011 and Central Bank estimate



Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-2

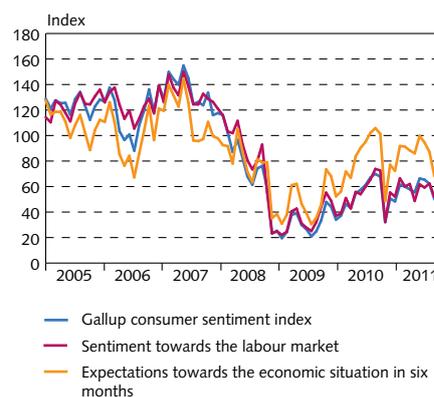
GDP, national expenditure and net exports
Q1/2005 - Q2/2011
Seasonally adjusted at the year 2005 prices¹



1. Figures for GDP and national expenditure are seasonally adjusted by the Central Bank. Because of the chain linkage, the sum does not necessarily add up to GDP.
Sources: Statistics Iceland, Central Bank of Iceland.

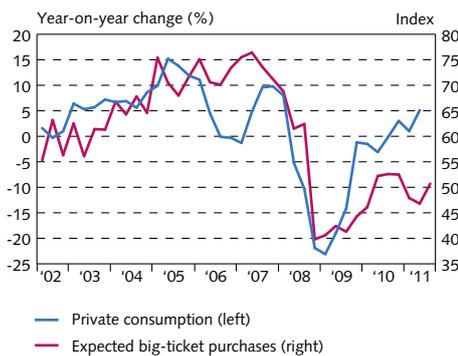
Chart IV-3

Consumer confidence indices
January 2005 - October 2011



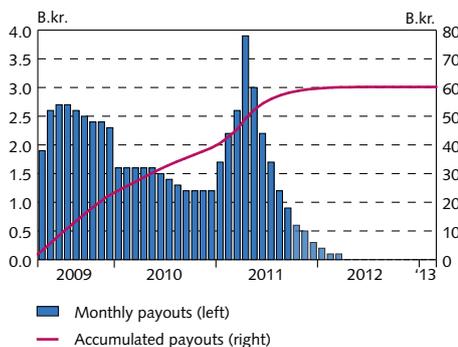
Source: Capacent Gallup.

Chart IV-4
Private consumption and expected
big-ticket purchase index
Q2/2002 - Q3/2011¹



1. Figures for private consumption are only available until Q2/2011.
Sources: Capacent Gallup, Statistics Iceland.

Chart IV-5
Third-pillar pension fund payouts¹
April 2009 - February 2013



1. The chart shows monthly payouts and accumulated payouts from third-pillar pension funds according to applications filed by end-September 2011.
Sources: Directorate of Internal Revenue, Central Bank of Iceland.

ing to Statistics Iceland figures.² The August forecast anticipated aircraft exports in Q2, while the revised national accounts put them in Q1. For this reason, a better picture is obtained by comparing the first two quarters of this year with the August forecast. Growth of domestic final expenditure was 5% compared to the August forecast of 4.9% growth. Private consumption was somewhat weaker, according to Statistics Iceland's figures, than was forecast, while public consumption and investment were stronger. Inventory accumulation also proved to be somewhat higher during the first half of this year than had been predicted in August. A less favourable net trade contribution to GDP growth is therefore the main explanation for somewhat lower growth in the first half of the year.

Household demand has picked up

In Q2/2011 seasonally adjusted private consumption increased by 1.8% over the preceding quarter and amounted to 5.1% year-on-year. This is somewhat lower growth than the 6.8% year-on-year predicted in the Bank's August forecast. In this respect it makes a difference that revised figures show a higher level of private consumption in 2010 than before. Although it was below the Bank's forecast, this growth is nonetheless considerable and it is clear that private consumption has picked up in recent months and quarters. It can be assumed that a decrease in uncertainty for household balance sheets following court rulings on exchange rate-linked loans was a factor here. Growth in Q2 was probably to some extent the result of payment of special interest benefits in May. Other factors have also stimulated higher private consumption, such as increased employment, higher real wages, debt reduction and an increase in real housing prices. As discussed in Section III, there are visible signs that lending has picked up again, partly reflecting increased household net worth.

Outlook for continuing improvement in private consumption

The main indicators for the development of private consumption suggest that seasonally adjusted private consumption has grown slightly quarter-on-quarter in Q3/2011. Seasonally adjusted payment card turnover rose by 0.3% over the previous quarter and seasonally adjusted groceries turnover increased by 0.1%. The extension of the allowance for third-pillar pension savings withdrawals will probably encourage private consumption in coming quarters. Changes to the taxation of third-pillar pension savings proposed in the new budget proposal could also boost private consumption temporarily. Consumer confidence has also picked up slightly this year in spite of a decrease in the Capacent Gallup confidence index in October. In addition to this, the recent increase in employment will boost household income.

2. It's worth noting, that the Central Bank's forecast for 2011 builds on the bank's estimate of investment in 2010 which is stronger than the Statistics Iceland preliminary figures suggest. Growth rates for GDP and domestic demand in the Bank's forecast and Statistics Iceland figures therefore do not have that same base level. If the Statistics Iceland investment figures are used instead of the Central Bank estimate, the forecasted GDP growth would have been 3.4% and domestic demand growth 5.4% for the first half of 2011, other things being equal. For further information, see Section IV in *Monetary Bulletin* 2011/2 and Appendix 2 in this issue.

The housing component of private consumption causes some uncertainty when high-frequency indicators are applied to total private consumption, since this component is to a considerable extent calculated on the basis of the total residential housing stock. Due to the low investment level of recent years, new investment was less than depreciation, with the result that the housing stock has fallen. As a result, this component will hold back the growth of private consumption this year.

Based on leading indicators, seasonally adjusted private consumption is expected to grow by 0.6% quarter-on-quarter, which corresponds to a year-on-year growth of 3.2%. Moderate growth is expected in Q4/2011, with private consumption growing by 2.9% for the whole year. This is somewhat lower growth than the 3.8% year-on-year increase predicted in August. This change mostly reflects an upward revision of private consumption in the latest Statistics Iceland figures by roughly 5 b.kr. in 2010;³ at constant prices the forecast consumption level is currently nearly the same for this year as assumed in August.

Rising private consumption a main source of GDP growth in coming years

Contraction in private consumption and investment were the main factors contributing to GDP contraction following the financial crisis, with private consumption largely supported by easy access to credit and large increases in asset prices in the run up to the financial crisis. Although the consumption level of the years preceding the crisis are unlikely to return any time soon, increased private consumption following a recession is generally one of the first sources of a turnaround in the economy: released pent-up demand for consumption goods results in increased need for investment spending, as companies eventually need to boost their production capacity to meet the increased demand.

The forecast assumes that higher private consumption will account for more than half of the GDP growth during the forecast period; private consumption is forecast to grow on average by around 3% per year in the next three years. At the end of the forecast period, the share of private consumption in GDP will be around 51%, which is considerably lower than the 58% average of the last thirty years.

Large contraction in capital income reduced household real disposable income last year...

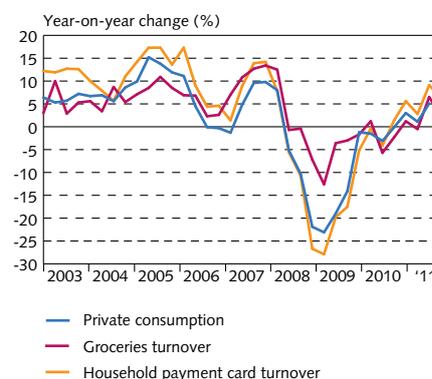
Statistics Iceland recently published figures on household disposable income in 2010. Household real disposable income shrank by 11½% from that of the previous year, which is a considerably greater decline than estimated by the Central Bank in the August forecasts.⁴ A breakdown of disposable income shows, however, that only a small portion of this contraction can be attributed to a decrease in overall labour

3. At nominal value. In real terms the revised figure for total private consumption in 2010 is 0.8% higher than the previous figure.

4. Statistics Iceland uses the consumer price index to deflate disposable income, while the Central Bank uses a private consumption price deflator, which leads to slightly different figures for the development of real disposable income.

Chart IV-6

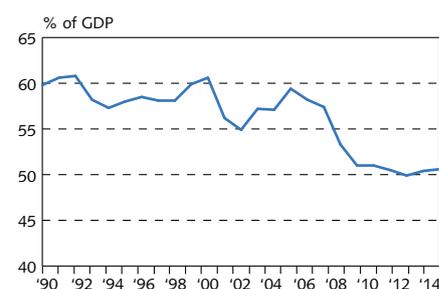
Private consumption, groceries and payment card turnover
Q1/2003 - Q3/2011¹



1. Figures for private consumption are only available until Q2/2011. Sources: Centre for Retail Studies, Statistics Iceland, Central Bank of Iceland.

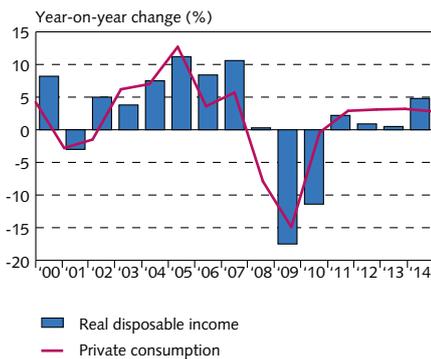
Chart IV-7

Private consumption 1990-2014¹



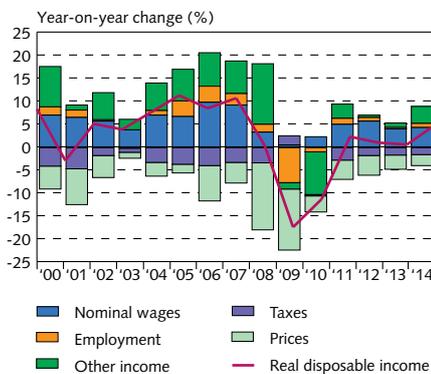
1. Central Bank baseline forecast 2011-2014. Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-8
Private consumption and
real disposable income 2000-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-9
Developments in real disposable
and its main components 2000-2014¹



1. Central Bank baseline forecast 2011-2014. 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.
Sources: Statistics Iceland, Central Bank of Iceland.

income and operating surpluses of sole proprietorships. By far the largest factor in the contraction was a drop in capital income, which fell by almost 70 b.kr. from the previous year. Smaller dividend payments from limited liability companies and lower interest income on bank deposits explain the largest portion of the drop in capital income.

... but the impact on private consumption less than it might appear at first glance

Data for the Internal Revenue show that the items that contracted the most in disposable income mainly belonged to the highest income groups. The decline in disposable income for the great majority of Icelandic households therefore was considerably less last year than the overall decrease in household disposable income. The real contraction in disposable income, if capital income and capital income taxes are excluded, amounted to 3.4%. The real contraction in labour income explains the decrease to a large extent, in addition to which consolidation measures by the government appear in higher taxes paid and a real contraction in transfer revenues.

A major decrease in interest revenues is also noteworthy in view of the fact that there is a much smaller decrease in interest expenditure. A decrease in deposit interest rates can explain the drop in interest revenues to a considerable extent, since interest rates declined substantially in 2010, but there are other factors involved. The decrease is partly explained by the treatment of the indexation portion on deposit accounts as an interest payment, i.e. it is only considered as income when payment is made. On the other hand, the indexation portion of inflation-indexed loans on the expenditure side is only partly paid as it accrues, as it is spread over the remaining term. With large fluctuations in inflation, as during the sharp disinflation in 2010, these differing methods of accounting the indexation portion can create a considerable mismatch in the measurement of interest expenses and interest revenues of households. It is therefore likely that the large disinflation of 2010 resulted in a greater drop in measured interest revenues than in interest expenses, than if this were based on real interest revenues and expenses, which would probably give a better picture of the true development of households' disposable income. Just as the decrease in disposable income in 2010 is probably overestimated, this methodology can be assumed to have resulted in overestimating disposable income in 2008 when inflation rose sharply.

In addition, the decrease in interest revenues is to some extent explained by the fact that household deposits with deposit money banks (DMBs) were on average 77 b.kr. lower in 2010 than in 2009, equivalent to a decrease of 10%. At the same time, mutual fund assets increased by over 67 b.kr., especially due to increased Treasury notes holdings. This probably reflects savers seeking higher returns, as returns on Treasury notes were considerable while deposit interest rates declined greatly. The impact of this on disposable income as measured by Statistics Iceland is negative, since returns on assets in such funds are not recognised until redeemed and can therefore accumulate for some time before they are visible in measured disposable income. Regular payment of interest revenues on deposit accounts

with DMBs, however, is included directly in disposable income. A large transfer between these two savings vehicles can therefore be measured as a decrease in disposable income without the situation of households actually having changed. Such a transfer should therefore not affect households' consumption decisions. In view of the above, it is therefore understandable that the impact of this contraction in total household real disposable income on private consumption in 2010 wasn't greater than the Statistics Iceland figures suggest and the baseline forecast assumes a limited impact over the forecast horizon.

Real disposable income is expected to increase by 2.2% this year, mainly due to rising labour income. Labour income will increase further during the forecast period, but a contraction in special payment of third pillar pension funds will have a negative impact on disposable income in 2012 and 2013 as these payments come to a halt according to current plans. Rising employment throughout the forecast horizon will bring increased tax payments of households and reduce their transfer incomes, which will weigh against rising labour income.

Turnaround in public consumption earlier than anticipated

Seasonally adjusted public consumption grew in Q2 by 0.4% over the previous quarter. This is the third consecutive quarter with an increase in seasonally adjusted public consumption over the previous quarter, and the first quarter with a year-on-year increase. Therefore public consumption is now expected to decrease by 0.2% this year and by 1.2% next year, then increase slightly in 2013-2014. This is considerably higher public consumption path than previously forecast, especially in the years 2011 and 2012.

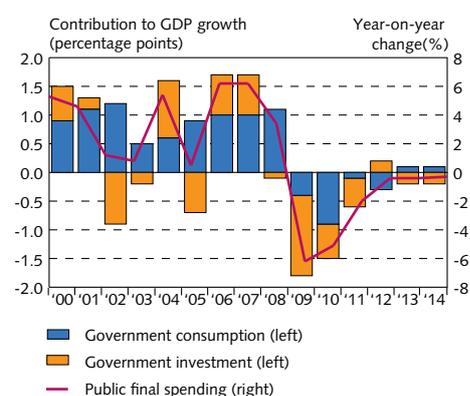
Recent wage settlements affect public investment

Public investment dropped by almost 40% year-on-year in Q2/2011, which is considerably greater than the contraction of 26% forecast by the Bank in August. It should be borne in mind that, following major cutbacks in investment by both the state and municipalities, relatively small amounts can result in major deviations from forecasts if percentage changes are compared. Public investment is expected to decrease by almost 20% this year and then grow by close to 10% next year as a result of projects announced by the central government in connection with the spring wage settlement. A decrease of 8-9% is then expected in 2013 and 2014. If this forecast materialises, the public sector contribution to GDP growth will continue to be negative for the entire forecast period, but the negative contribution will be considerably smaller than in 2009 and 2010. The combined contribution of public consumption and public investment will amount to -0.6 percentage points this year and -0.1 percentage points in the three subsequent years. A more detailed discussion of public finances is provided in Section V.

Increase in energy-intensive industry investment expected

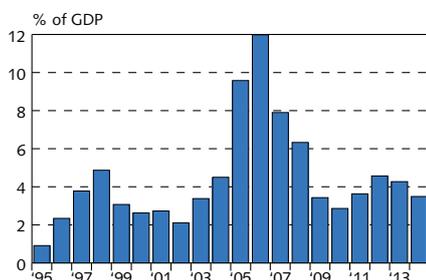
Investment in energy-intensive industry investment, energy production and utilities will amount to a total of 15 b.kr. more in nominal terms during the forecast period than anticipated in August. It is, how-

Chart IV-10
Public consumption and investment
2000-2014



Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-11
Large scale investment 1995-2014¹



1. Share of GDP. Central Bank baseline forecast 2011-2014.
Source: Central Bank of Iceland.

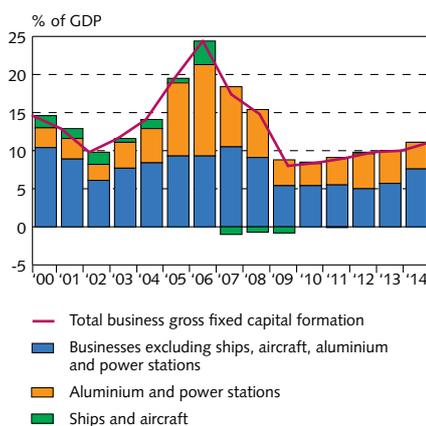
ever, lower this year. Real growth of investment in energy-intensive industry will be somewhat stronger next year, while on the other hand a contraction is forecast for 2013. In 2014, investment in energy-intensive industry will decrease somewhat year-on-year.

Increased investment in energy-intensive industry, energy production and utilities during the forecast period will be mostly driven by basic investment expenditure, i.e. investment which is not directly linked to new projects or an increase in production. There is unavoidably some uncertainty concerning many planned investment projects in energy-intensive industry; the future of many of them is likely to become clearer in coming quarters.

Firms plan more investments this year than previously expected, while the outlook is for lower investment in 2012 than previously forecast

Three surveys have been made on behalf of the Bank of the investment plans of larger companies this year. The first was made in Q1/2011, when questionnaires were sent to the 45 largest companies (according to turnover) asking about investments in 2009 and 2010 and planned investments for this year. In Q2 the same sort of survey was made of investments of 80 medium-to-large enterprises. In August and September the third survey was made of investments of 50 of the largest enterprises (almost the same companies as were in the first survey) asking about investments in 2011 and planned investments for next year. Planned investments by these enterprises this year amounts to around third of forecast regular business investment in the present forecast. The Bank's third survey revealed that estimated investment this year by enterprises which took part in the survey carried out in Q1 proved to be somewhat higher than previously assumed. As Table IV-1 shows, the study suggests that investment by these enterprises will be 22% higher this year in nominal terms than investment in 2010 or around 17% more in volume terms. These enterprises also expected that investment would increase by 9% in 2012, at that year's prices, or by almost 5% in volume terms. It should be pointed out that many of these enterprises had not completed their final investment plans for next year, so that these figures will no doubt change once final plans are received. The investment growth indicated by the survey will be balanced against a substantial decrease in work on the Concert Hall and Convention Centre Harpa.

Chart IV-12
Business gross fixed capital formation as a share of GDP 2000-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Table IV-1 Survey of enterprises' investment plans

	2010	2011	2012	Year-on-year change 2010-2011 (%)	Year-on-year change 2011-2012 (%)
<i>50 largest enterprises (no.)</i>					
<i>Amounts in m.kr.</i>					
Fisheries (9)	4,808	1,908	2,370	-60	24
Manufacturing (7)	2,643	3,179	4,660	20	47
Commerce (12)	2,229	2,910	2,665	31	-8
Transport and travel services (3)	6,334	11,708	12,012	85	3
Finance (9)	1,917	2,439	2,783	27	14
IT (6)	4,476	3,776	4,039	-16	7
Services and other sectors (4)	387	1,842	1,620	376	-12
Total (50)	22,793	27,762	30,149	22	9

Business investment to grow considerably in coming years

Regular business investment (i.e. excluding investment in energy-intensive industry, ships and aircraft) grew by over 4.3% year-on-year in Q2 and by almost 5% in the first half of 2011. Based on the above-mentioned plans and other indications, general business investment is now expected to increase by approximately 8% this year rather than 6% as forecast in August. Total business investment at constant prices, however, is expected to increase by just over 13% over the same period, which is a slightly smaller increase than forecast in August, due to changes in plans for investment in energy-intensive industry, as discussed above. This also explains the somewhat lower business investment forecast in the next two years. This does not alter the fact, however, that a sizeable increase is forecast and that business investment will, together with private consumption, be one of the main drivers of GDP growth during the forecast period. The share of business fixed capital formation in GDP will therefore approach the long-term average during the forecast period, at just over 11% at the end of the period, compared to an average of 12.5% over the past thirty years.

Residential investment begins to increase

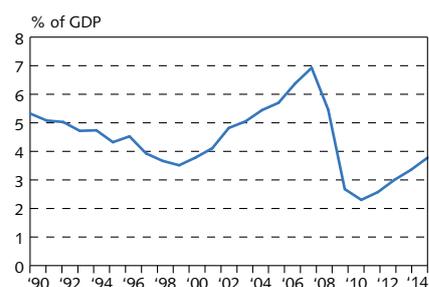
According to preliminary figures from Statistics Iceland, residential housing investment began to increase once more in Q4/2010. It has continued to increase in 2011 as according to Statistics Iceland's figures residential investment rose by just over 11% year-on-year during the first half of this year. The Bank's baseline forecast in the last *Monetary Bulletin* anticipated an increase of almost 9%, but in view of how low the investment level is currently, the difference is small in level terms.

Although some new housing still exists to meet growth in demand, increasing needs can be expected to become gradually more evident and call for additional new housing investment. In addition, several large investment projects are scheduled, such as the building of new student residences in Reykjavík. Construction is expected to begin early next year, with the flats ready for occupation in two stages during the latter half of 2013. Recently the Reykjavik City council also approved plans for the construction of additional student residences, but these plans have not progressed as far. According to the forecast, residential investment will grow by 14-22% this year and the next three years. The contribution of residential investment to GDP will therefore have reached close to 4% by the end of the forecast period, compared to its long-term share of 5%.

Total investment increases considerably during the forecast period

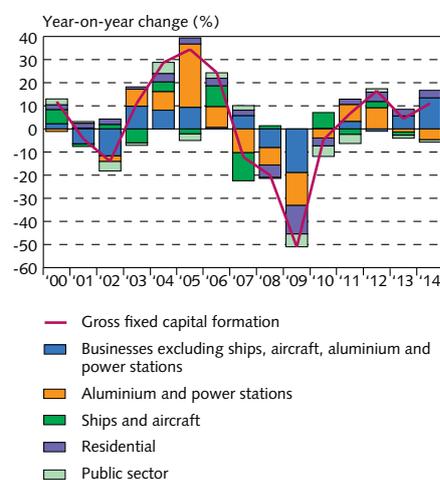
When everything is included, total investment is forecast to increase by 6.7% this year. An even greater increase of over 16½% is predicted for next year, when all the sub-components of investment move in the same direction. In 2013 this growth will slow somewhat as investment in energy-intensive industry decreases from that of the previous year. This contraction will be offset by a considerable increase in business investment other than in energy-intensive industry, ships and aircraft.

Chart IV-13
Investment in residential housing 1990-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-14
Gross fixed capital formation and contributions of its main components 2000-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-15
Investment as a share of GDP 2000-2014¹

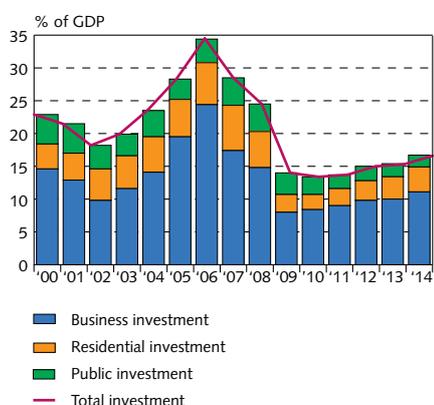


Chart IV-16
National expenditure and imports 1990-2014¹

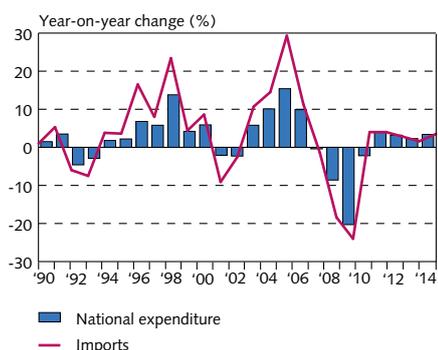
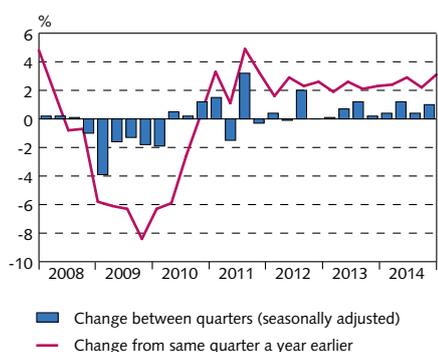


Chart IV-17
Gross domestic product
Q1/2008 - Q4/2014¹



The total investment level in the economy was at an historical low in the first half of this year, at just under 12% of GDP. The contraction in investment played a very significant role in the downturn of 2009 and 2010, and investment can therefore be expected to play an important role in the economic recovery. However, the capital-output ratio is relatively high and therefore likely that considerable poorly utilised capital and production capacity exists, and that the productivity of capital is therefore lower than it could have been. Under such circumstances, there is limited incentive for new investment, making it likely that the increase in the investment share of GDP in the coming years will be slow. It will therefore continue to be on the low end in an historical context, at just under 17% at the end of the forecast period, almost 5 percentage points below the long-term average.

Negative contribution of net trade to GDP growth in coming years

A large part of the adjustment to the financial crisis occurred through foreign trade. The contraction in domestic demand affected expenditure on imported consumer and investment goods especially hard. As domestic demand has recovered, the contribution of net trade to GDP growth has declined, and turned negative last year. It is expected to continue to be so for most of the forecast period.

According to the forecast, imports will grow by 2-4% annually during the forecast period in line with continuing recovery in domestic demand. As discussed in Section II, however, the outlook is for somewhat weaker export growth. The contribution of net trade to GDP growth will therefore be negative 2011 and 2012 by ½ percentage points, but will be slightly less negative than predicted in August, when a negative contribution of as much as 0.8 percentage points was expected this year and next year.

GDP growth fuelled by increase in domestic demand

In Q3 fairly strong seasonally adjusted GDP growth of 3.2% over the previous quarter is expected. This is equivalent to almost 5% year-on-year growth. This growth will be for the most part fuelled by a strong increase in exports and investment. GDP growth of 3.1% is forecast for 2011 as a whole, which is 0.3 percentage points more than predicted in August. The improved GDP growth outlook for this year is due primarily to more favourable contribution of net trade, as discussed above.

The main driving force behind GDP growth this year, as previously mentioned, is domestic demand fuelled by private consumption and business investment. The same applies for the latter half of the forecast period: GDP growth mainly reflects increases in these two components, although other investment will also increase. GDP growth of 2.3% is forecast for 2012, which is 0.7 percentage points more than predicted in August. This will be due to the combined impact of higher growth in domestic demand and more favourable net trade. Similar GDP growth is forecast for 2013-2014, averaging around 2½% per year. The outlook for 2013 has thus deteriorated since August, when GDP growth of 3.7% was forecast. The main

explanation for this revision is lower investment in energy-intensive industry, in addition to which the contribution of net trade to GDP will be slightly less favourable.

Equilibrium unemployment considered to have increased more than previously assumed

Potential output refers to the production level when the production factors are fully utilised, i.e. the level of utilisation where no pressures on prices or wages emerge. As discussed in previous issues of *Monetary Bulletin*, the estimate becomes more uncertain following a financial crisis than in general, both because of the impact which high and protracted unemployment can have on the labour market and also because policy measures under such circumstances can affect labour market equilibrium. Part of the capital stock may also be lost, the participation rate may drop and part of the labour force may emigrate. As discussed in Box IV-1, the potential output of the economy is considered to have shrunk by as much as 4% in 2008-2010. This estimate is, however, subject to considerable uncertainty.

As in the Bank's previous forecasts, equilibrium unemployment is assumed to have increased following the financial crisis (for more details, see Section VI). This means, other things remaining equal, that wage and inflation pressures will develop at a higher level of unemployment than before the crisis. The current forecast assumes that the increase in equilibrium unemployment is somewhat greater than forecast in August, since the impact of the above-mentioned factors is thought more significant, and because stronger wage and inflation pressures have been observed than were anticipated at this stage in the business cycle. The labour market slack is therefore considered to be less than previously estimated, with the result that inflation pressure can develop at a higher level of unemployment than predicted in the Bank's earlier forecasts.

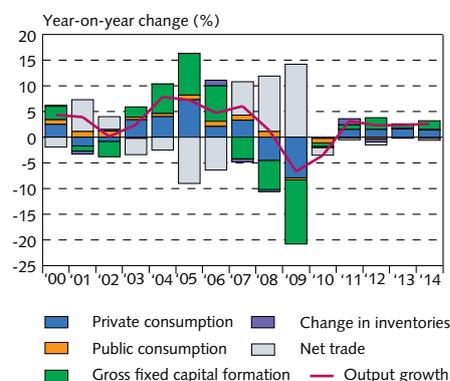
Continuing output slack until 2014

Although spare capacity in the economy is considered to be slightly less than in the August forecast, some slack still remains. The output slack was just over 2% in Q3/2011, or just under one percentage point less than estimated in the August forecast. The slack has furthermore decreased fairly rapidly, as it was around 4½% a year ago.

According to the forecast, some spare capacity will remain despite GDP growth in recent quarters and a contraction in potential output. Output slack is forecast to be still over 1% in a year's time and will not disappear completely until the latter half of 2014. According to the forecast, therefore, it will take more than two further years before the production factors of the economy are once more fully utilised.⁵

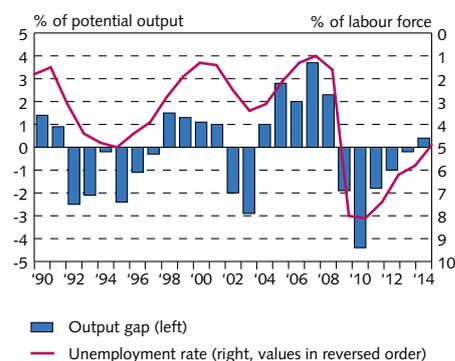
5. It should be borne in mind that the estimated output gap is always subject to considerable uncertainty. However, the estimate improves over time as more data become available. This uncertainty is even greater following large changes in the economy as those that occurred due to the financial crisis.

Chart IV-18
Output growth and contribution of underlying components 2000-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-19
Output gap and unemployment 1990-2014¹



1. Central Bank baseline forecast 2011-2014.
Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

Box IV-1

Why did Iceland's
potential output
contract in the wake
of the financial crisis?

Iceland's GDP contracted by about 10% between 2008 and 2010.¹ Over that same period, a 2.3% output gap developed into a 4.4% output slack, according to the Central Bank of Iceland's baseline forecast – a turnaround equivalent to 6.7 percentage points.² This implies that potential output is considered to have contracted by about 3.7% during the period. This Box discusses the causes of that contraction.

Determinants of potential output

In the Central Bank's macroeconomic model, potential output is estimated using a standard Cobb-Douglas production function³

$$(1) Y^* = A^* E^{\beta} K^{1-\beta}$$

where Y^* represents potential output, which is the level of production that can be achieved through efficient utilisation of the factors of production without generating wage and price pressures. On the right side of equation (1) are the determinants of potential output: the factor inputs (labour, E^* , and capital, K) and a measure of how well the inputs are utilised (total factor productivity, A^*). β represents the share of labour in total value added, and $1-\beta$ is the share of capital.

It is standard to assume that the capital stock is always fully utilised and that potential output is determined by the underlying trend paths of labour utilisation and total factor productivity rather than by observed labour utilisation or total factor productivity. The trend path of labour utilisation is expressed as

$$(2) E^* = p^* N(1-u^*)$$

where p^* is the trend labour participation rate, N is the total working age population (based on the 16-64 age group),⁴ and u^* is equilibrium unemployment rate (the unemployment rate consistent with constant wage and price levels, also referred to as the non-accelerating inflation rate of unemployment, or NAIRU).

Changes in potential output between two periods can therefore be written as

$$(3) \Delta \ln(Y^*) = \Delta \ln(A^*) + \beta[\Delta \ln(p^*) + \Delta \ln(N) + \Delta \ln(1-u^*)] + (1-\beta)\Delta \ln(K)$$

where $\Delta \ln$ denotes the change in the natural logarithm of the variable concerned. Potential output can therefore fall if total factor productivity contracts, if labour participation declines, if the population of working age drops, if equilibrium unemployment rises, or if the capital stock shrinks.

1. This refers to changes between annual figures for 2008 and 2010. Within the period, the contraction was somewhat larger: from its peak in Q2/2008 until the trough in Q1/2010, GDP contracted by almost 11½%.
2. The output slack (or gap) is defined as the difference between actual GDP and its measured potential.
3. The final estimate is based on the average of various methods of assessing the underlying trends of the factors of production and total factor productivity although all of the methods are based on the production function in equation (1). See Ásgeir Danielsson, Magnús F. Gudmundsson, Svava J. Haraldsdóttir, Thorvarður Tjörvi Ólafsson, Ásgerdur Ó. Pétursdóttir, Thórarinn G. Pétursson og Rósa Sveinsdóttir (2009), „QMM: A quarterly macroeconomic model of the Icelandic economy“, Central Bank of Iceland, *Working Paper*, no. 41.
4. p^*N is therefore the size of the labour force; that is, the number of persons in the labour market, whether employed or unemployed.

Possible effects of the financial crisis on utilisation of the factors of production

Research suggests that potential output often contracts in the wake of financial crises, and that the loss can even be permanent. There could be numerous reasons for this.⁵ For example, labour participation could fall because the employment outlook deteriorates so much that a portion of the labour force chooses to exit the labour market entirely.⁶ The population of working age could also decline if a portion of the labour force emigrates in the aftermath of a crisis. Furthermore, labour utilisation could contract if equilibrium unemployment rises – for instance, because of a need to shift resources between sectors (e.g., from the non-tradable sector to the tradable sector). The retraining and restructuring that must take place can take time, and the labour market's ability to match employers' needs with workers' abilities and knowledge could be eroded. Equilibrium unemployment can also rise if a portion of the labour force's skills or expertise is lost or becomes obsolete because of high unemployment. The same can happen if labour market regulations make it harder to find a new job or if benefits programmes are structured so as to reduce the incentive to seek new jobs (see also Sections IV and VI).

In addition, the capital stock can contract in the wake of a financial crisis if, for example, tighter access to credit forces firms to reduce investment substantially. Declining asset prices in the wake of a financial crisis can also weaken corporate balance sheets and erode the collateral value of the assets affected, which can further impede investment. Heavy corporate indebtedness and general uncertainty about the economic outlook can intensify these effects. Moreover, fixed capital can be lost if firms become insolvent or a portion of fixed capital is scrapped; e.g., through selling it outside the country.

Finally, potential output can contract if total factor productivity shrinks; that is, if access to credit for profitable investments becomes tighter, or if the crisis results in reduced investment in research and development. On the other hand, a financial crisis can encourage streamlining or result in the discontinuation of unprofitable commercial activities.

Contribution of the factors of production to the contraction in potential output

Table 1 shows the contribution of individual factors to the above-mentioned 3.7% contraction in potential output in 2008-2010. The contribution from changes in the working-age population has also been divided into the effects of changes due to net migration during the period and those stemming from natural population growth. In all calculations, it is assumed that $\beta = 0,7$ in accordance with the Central Bank's macroeconomic model.

As the table shows, 0.3 percentage points of the contraction in potential output can be attributed to the contraction of the capital stock. Most of it, however, is due to the weakening of the labour market. The decline in the labour force led to a 0.6% reduction in potential output. This reflects the offsetting effects of net emigra-

5. See, for example, International Monetary Fund (2009), „What's the damage? Medium-term output dynamics after financial crises“. *World Economic Outlook*, Chapter 4. October 2009.

6. Some might choose, for instance, to go to school, while others have the option of retiring early. The labour force could therefore contract because more people move leave the labour market and collect disability benefits. On the other hand, declining family income could force more household members to enter the labour market.

tion of labour, which reduced potential output by 2%, and the natural population growth, which added 1.4% to potential output. In addition, labour participation declined considerably, eroding potential output by a further 2.5%.⁷ Finally, equilibrium unemployment is considered to have risen by nearly 1 percentage point during the period, reducing potential output by 0.6%. In all, the slack in the labour market in 2008-2010 reduced potential output by approximately 3.7%, in addition to the above-mentioned 0.3% due to the contraction of the capital stock. It was somewhat offset, however, by an increase in total factor productivity.

Table 1 Changes in potential output 2008-10 and contribution of factors of production

Factor of production	%
Change in total factor productivity	0.3
Change in capital stock	-0.3
Change in labour participation	-2.5
Net emigration	-2.0
Natural population change	1.4
Change in equilibrium unemployment	-0.6
Change in potential output	-3.7

The table shows the contribution of individual factors of production to changes in potential output from 2008 through 2010, based on equation (3).

Factor utilisation and the output slack

The output slack (or gap) measures whether the factors of production in an economy are overutilised (if there is an output gap) or underutilised (if there is an output slack). An output gap is usually accompanied by wage and price pressures – and thus by rising inflation – whereas a slack reduces inflationary pressures. If the output slack is pronounced enough, it can even result in deflation. Estimating the output slack or gap is therefore of great importance in evaluating inflation pressures at any given time.

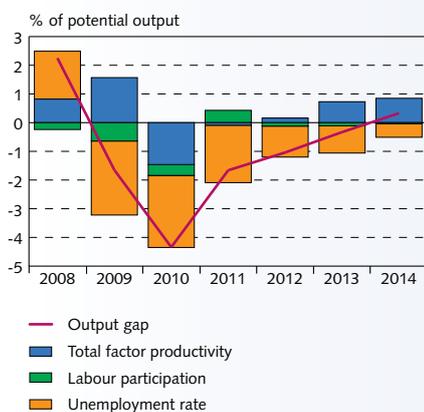
As has been stated previously, the output gap during the run-up to the financial crisis gave way to an output slack that reached a maximum 5% in mid-2010. According to the Central Bank's baseline forecast, it is assumed that the slack will gradually diminish and will disappear by the first half of 2014 (see Sections I and IV). By applying analysis comparable to the above, it is possible to identify the main drivers of this trend. In order to do this, it is necessary to assume that observed GDP is determined by a production function comparable to equation (1). The output slack, *g*, má þá rita sem

$$(4) \quad g \approx \ln(Y/Y^*) = \ln(A/A^*) + \beta \ln(p/p^*) + \beta \ln[(1-u)/(1-u^*)]$$

An output slack develops if total factor productivity is below its trend level, if labour participation is below its trend level, and if measured unemployment exceeds equilibrium unemployment. Chart 1 shows the corresponding breakdown of the output slack during the period 2008-2014.

As can be seen, there was a discernible output gap in 2008, driven by unemployment below its equilibrium level and the fact that the strain on the factors of production exceeded the level consistent with price stability. In 2009, the situation reversed dra-

Chart 1
Output gap components 2008-2014¹

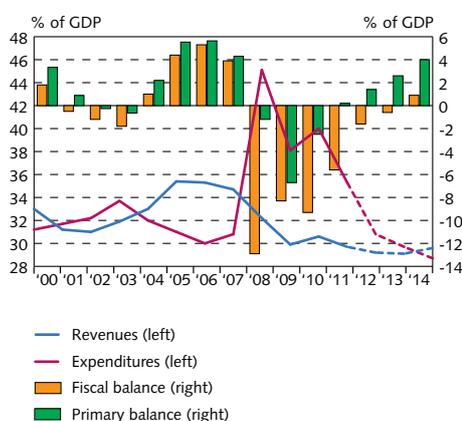


1. Central Bank of Iceland baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

7. The effect of labour participation may be overestimated, as trend labour participation is somewhat coloured by the unusually high participation rate during the pre-crisis years. It is therefore likely that a portion of the labour participation that is considered permanent in this discussion was actually temporary.

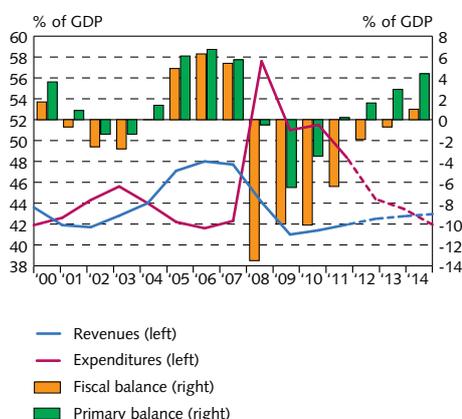
matically and a sizeable slack developed, owing to unemployment in excess of its equilibrium level and labour participation below trend. However, the strain on the factors of production remained greater than could be sustained for the long term. In 2010, when the slack reached a maximum, all of these variables exerted pressure in the same direction. The forecast then assumes that the output slack will gradually diminish as utilisation of the factors of production returns to normal levels.

Chart V-1
Treasury finance 2000-2014¹



1. Central Bank baseline forecast 2011 - 2014. On accrual basis.
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-2
Public sector finance 2000-2014¹



1. Central Bank baseline forecast 2011 - 2014. On accrual basis.
Sources: Statistics Iceland, Central Bank of Iceland.

V Public sector finances

The aim of this year's government budget was to achieve fiscal consolidation, checking further debt accumulation and ensuring longer-term fiscal sustainability. Its intended objective of achieving a primary surplus on a cash basis will not be reached until next year. The proposal for the 2012 budget proposes a milder adjustment process to achieve fiscal balance than did this year's budget. Austerity measures in connection with the Government-IMF economic programme have been reviewed. The proposal's medium-term forecast does not expect the latter stage of the programme, providing for a positive overall balance, to be reached until 2014, or a year later, and then with a smaller surplus than originally planned.

Improvement to the primary balance equivalent to 10% of GDP

Plans for fiscal consolidation were first presented in the summer of 2009. As it was gradually revealed that the Treasury's debt position was less bleak than initially estimated, the original plan to improve the primary balance by some 16% of GDP from 2009 to 2013 was cut back to 12% of GDP. The improvement to the primary balance provided for in the current budget proposal will be 10% over this same period. The arguments for a less severe adjustment are, firstly, that the debt position has improved. Despite the milder adjustment process, the outlook for debt development is still considered to be acceptable. Secondly, it is maintained that fiscal policy is more properly aimed at supporting economic recovery wherever possible rather than over-emphasising austerity. The budget proposal is discussed in more detail in Box V-1.

Public consumption at a turning point

In 2005-2008 public consumption grew in volume terms by an average of 4% annually and even more in nominal terms. The financial crisis in 2008 halted that trend in public consumption. Public consumption of local and central governments remained practically unchanged at around 100 b.kr. in nominal value for ten consecutive quarters. In volume terms consumption fell by 1.7% in 2009 and by 3.4% in 2010, when austerity measures by the government peaked at the equivalent of 3.5% of GDP.

Public consumption started to grow once more in Q2 of 2011, when it increased by nearly 4 b.kr. in nominal value compared with the same quarter a year ago, primarily as a result of high growth in wage costs and in purchased goods and services. This growth was equivalent to an increase in public consumption of 1% in volume terms, and marked the end of a continuous downward trend in real public consumption in the seven previous quarters. This growth in nominal public consumption is set to continue for the remainder of the forecast period, both due to the impact of collective bargaining agreements and other price level increases and to the less extensive government austerity measures. As mentioned previously, government cutbacks were equivalent to 3.5% of GDP in 2010 and are estimated to be 1.4% this year, 0.5% next year and less until 2015. Next year's

cutbacks are expected to result in a corresponding decrease in public consumption of 1.2% in volume terms that year. In the following two years, public consumption is forecast to grow slightly in volume terms despite the austerity measures.

Public sector investment continues low in an historical context

According to the budgets of several of the country's largest municipalities, local authorities' investments appear likely to drop year-on-year by as much as 30% in nominal terms this year. The medium-term budget plans of these same municipalities suggest they will continue to cut back their investment. As an example, the City of Reykjavík intends to reduce its investment considerably at the same time as the scope of other large municipalities such as Hafnarfjörður and Reykjanesbær for investment is very limited.

According to this year's central government budget, Treasury investment will decrease by 24% in nominal value. On the other hand, government announcements made in connection with private sector collective bargaining agreements promised extensive new investment chiefly in 2011 and 2012. The works projects listed in this connection are equivalent to increased investment of over 13 b.kr. to the end of 2012. By comparison, allocations in the 2011 budget for initial investment, maintenance and works totalled 21 b.kr. However, commencement of works projects has been delayed and the major portion of these projects will therefore be moved forward in time with the peak occurring in 2012.

The tunnel construction project under Vaðlaheiði has been included in the Central Bank's last forecast, despite uncertainties regarding whether the project would be realised. In the Bank's August forecast the project was included as public sector investment whereas now it is expected to be classified as general investment, as was the case with the Hvalfjörður tunnel. As a result of this public investment will be lower than expected in August. The tunnel under Vaðlaheiði is an investment of approximately 10 b.kr., and total public sector investment this year is estimated at 35 b.kr. This is a decrease from 42 b.kr. last year. At its peak in 2008, public investment was 77 b.kr. at 2011 prices.

Less favourable Treasury result

As previously mentioned, the government has put to Parliament to proceed more slowly in regaining fiscal balance than planned in its previous fiscal programme. The primary surplus next year is forecast to be around 1.4% of GDP and the overall balance to achieve a surplus equivalent to 0.9% of GDP in 2014. It had previously aimed at a surplus of 2.2% on the overall balance in 2013 whereas now a deficit of 0.6% is forecast for that year. The easing of restraint from the previous plans therefore amounts to around 2.8% of GDP. A surplus on the primary balance of 4% of GDP is planned for 2014, whereas previous programmes assumed that this would be close to 6% as early as 2013. It is therefore clear that the current fiscal consolidation plan is considerably milder than the previous one. The latter was regarded as rather ambitious and also partly reflected a poorer Treasury debt position than now seems to be the case.

Chart V-3
Nominal and real public consumption growth
Q1/1995 - Q4/2014¹

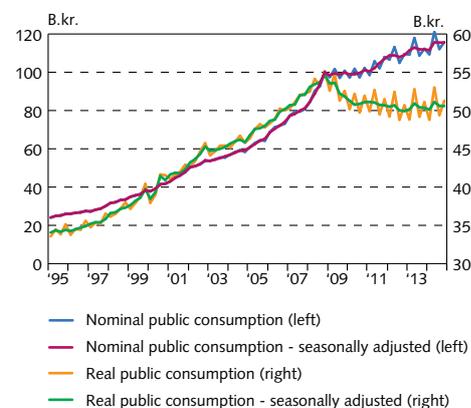
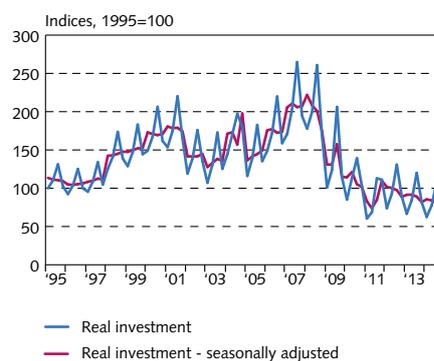


Chart V-4
Real public investment
Q1/1995 - Q4/2014¹



Box V-1

National Budget Proposal 2012

Limited increases to indirect taxes

The 2012 budget proposal provides for similar increases to indirect taxes as were assumed in earlier Central Bank forecasts, based on previous government statements. The proposal would increase indirect taxes, such as the carbon tax and excise taxes on alcohol and tobacco, in line with general price increases. The impact of these increases in commodity taxes on the consumer price index has been estimated at 0.15 percentage points, or slightly more than anticipated in the Central Bank's earlier forecasts.

The Government's fiscal consolidation plan, one of the cornerstones of its economic programme with the IMF, features two main goals: the achievement of a primary surplus in 2011 and an overall surplus in 2013. This is reflected in the National Budget for 2011, in which the main objective was to deliver a surplus on the primary balance. The Ministry of Finance's most recent estimate for this year is a 6.7 b.kr. deficit on a cash basis. The goals of the programme are stated on a cash basis, which implies that the goal of achieving a primary surplus in 2011 will not be met. On an accrual basis, however, there is a forecasted surplus of 3.7 b.kr. According to the national budget proposal for 2012, the latter objective – an overall surplus in 2013 – has been deferred for one year.

Balanced budget in 2014

The new medium-term plan published with the 2012 budget proposal provides for less strict consolidation measures than the long-term plan from last autumn's budget proposal. It assumes that a surplus on the overall balance will not be achieved until 2014, a year later than previously planned, and that the surplus will be smaller than originally planned. The consolidation process has therefore become more gradual in the revised Government-IMF economic programme, and performance figures are lower. The consolidation entailed in the budget proposal for 2012 can be seen in Table 1. The budget proposal for 2011 assumed that the primary surplus on a cash basis would be 5.4% of GDP at the conclusion of the plan in 2013, whereas the current proposal aims for a 4.6% surplus in 2015, two years later. The adjustment of public sector finances towards a sustainable debt path has therefore been changed as the Government-IMF programme has progressed. The original plan presented to Parliament in summer 2009 assumed that the primary balance would improve by just over 16% of GDP during the period 2009-2013. The current plan, on the other hand, aims at an improvement of up to 10% of GDP during the period; that is, the 2009 primary deficit of 6.7% will have become a 3.1% surplus by 2013. The level of austerity is therefore considerably lower than originally set forth.

Arguments for a revised plan

The Government and the IMF have two main reasons for easing the consolidation plan. First, the Government's debt position is much more favourable now than when the original plan was drafted. The primary surplus that was considered necessary for the debt position estimated in 2009 to be sustainable is higher than that considered necessary given the current estimate. The obligations undertaken in 2009 and 2010 as a result of the financial crisis have proven to be smaller than originally estimated, and the Government's expense for the recapitalisation of the banking system proved much lower.

Second, the authorities consider it appropriate to support GDP growth with less fiscal restraint. However, the effects of this revised plan will be determined primarily by the reaction of the financial markets and the monetary authorities to less restrictive fiscal policy.

Austerity measures milder in 2012 than in previous years

According to the budget proposal, the overall balance is expected to improve by about 24.4 b.kr. between 2011 and 2012. It will be negative by some 17.7 b.kr., which corresponds to a reduction of the deficit from 2.5% of GDP to 1%. In order to achieve this, it is assumed that a mixed approach will be adopted, with increased revenues and expenditure cuts. The measures in this phase of the plan amount to ½% of GDP. The budget proposal provides for measures to improve Treasury performance by 30 b.kr., including measures to increase revenues by 20.7 b.kr. and expenditure cuts amounting to 8.6 b.kr.

Table 1 Medium-term plan 2012-2015

B.kr.	Projection			
	2012	2013	2014	2015
Total revenue	521.5	545.3	579.1	610.8
Tax revenue	466.8	491.9	522.7	551.3
Total expenditure	539.2	546.6	561.8	578.9
Operating expense	210.0	215.1	221.0	225.5
Interest payments	78.4	81.9	86.2	92.4
Transfers	230.7	229.2	233.5	239.7
Maintenance	8.0	8.2	8.3	8.5
Investment	12.1	12.3	12.7	12.9
Treasury overall balance	-17.7	-1.3	17.4	31.9
as a share of GDP	-1.0	-0.1	0.9	1.6
change from last year	1.5	0.9	1.0	0.7
Treasury primary balance	39.6	57.5	77.7	95.2
as a share of GDP	2.2	3.1	4.0	4.6
change from last year	2.0	0.9	0.9	0.7

Revenues 2012

After hefty tax hikes in 2010, it is now planned, for the second year in a row, that the tax rates on major tax bases will not rise. Consequently, taxes such as personal income tax and the value-added tax will not rise. The plan provides for a reduction in the payroll tax rate, however. According to the budget proposal, direct tax code changes will yield an estimated 9.7 b.kr., and the extension of the authorisation for withdrawal of third-pillar pension savings will generate an additional 2 b.kr. Other measures intended to increase Treasury revenues include asset sales and a more stringent requirement concerning payment of dividends on Treasury assets, which should yield about 9 b.kr. All of these measures combined will generate an estimated 20.7 b.kr. in additional revenues during the year. The following tax changes are planned:

- Reduction of the permissible tax deduction for third-pillar pension savings. Estimated revenue effect 1.4 b.kr.
- Imposition of a new 10.5% tax on total salary payments of financial institutions, pension funds, and insurance companies. Estimated revenue effect 4.5 b.kr.
- Adoption of a new tax bracket for wealth tax. Estimated revenue effect 1.5 b.kr.

- The carbon tax will be calculated based on the full reference price as opposed to the current 75%. Estimated revenue effect 800 m.kr.
- The fishing fee for fishing quotas will be nearly doubled. The estimated revenue effect is 1.5 b.kr., but the full-year effect, which will first be generated in 2013, totals 4.5 b.kr.

Table 2 contains a summary of the estimated revenue effect of the revenue generation measures planned for 2012-2015. According to the table, the revenue-generating measures planned for 2012 are to remain in effect unchanged until 2015, except for the provisions related to third-pillar pension savings. Revenues from asset sales and dividends are also assumed to remain unchanged throughout the period.

Table 2 Special revenue measures 2012-2015

<i>Cash basis, b.kr.</i>	2012	2013	2014	2015
Personal income tax	1.4	1.4	1.4	1.4
Payroll tax on financial institutions	4.5	4.5	4.5	4.5
Wealth tax	1.5	1.5	1.5	1.5
Carbon tax	0.8	2.1	2.8	3.5
Fishing fee	1.5	4.5	4.5	4.5
Dividends	2.0	2.0	2.0	2.0
Property sales	7.0	8.0	8.0	8.0
Other			3.0	3.0
Third-pillar pension savings tax	2.0			
Total	20.7	24.0	27.7	28.4

The carbon tax will change, however, due to planned expansion of the tax base. In addition, duties levied on alcoholic beverages, tobacco, and fuel will rise in line with the general price level, by about 5.1%.

Expenditures 2012

A more relaxed consolidation plan allows for considerably more moderate restrictions on Treasury expenditures than have been imposed over the past three years. Treasury expenditures will be reduced by an estimated 8.6 b.kr. in 2012. In 2013-2015, the adjustment will be even milder, with the ministries expected to cut expenditures by about 5 b.kr. per year through austerity measures. The majority of the 8.6 b.kr. contraction in expenditures in 2012, or 6.6 b.kr., is achieved through a direct cutback in allocations to Government ministries. The cutback is based on a 3% reduction in general administration and service and a 1.5% cut in social security functions (healthcare, benefits, and health insurance). In addition, the Treasury's share in the funding of the Icelandic Student Loan Fund will be reduced temporarily by 1 b.kr., the Ministry of Welfare will cut costs by 600 m.kr. due to a one-year deferral by health-care institutions of austerity measures provided for in the budget

Table 3 Restraint measures, economic breakdown

<i>In millions of kr.</i>	Decrease	Total turnover	Reduction %
Operations	-4,409	189,568	-2.3
Transfers	-3,992	208,007	-1.9
Maintenance and capital expenditure	-182	20,836	-0.9
Total	-8,584	418,411	-2.1

proposal for 2011, and the special supplementary contribution to the Municipal Equalization Fund will be reduced by 350 m.kr. An economic breakdown of the austerity measures is shown in Table 3. Together they amount to just under 8.6 b.kr., or 0.5% of GDP.

If this plan materialises, these will be the smallest in scope of the post-crisis austerity measures, which totalled 2.6% of GDP in 2009, 3.5% in 2010, and 1.4% in 2011. Over the period 2009-2012, the measures will total 8% of GDP, or 124,9 b.kr., with measures affecting operations totalling 43.1 b.kr., measures related to transfers totalling 34 b.kr., and cuts in maintenance and initial expenses amounting to 31.3 b.kr. The temporary freeze on wages and benefits in 2009 and 2010 generated the remaining 16.5 b.kr.

The inflationary effects of the budget proposal are considerable or 26.7 b.kr. in all. First, the wage base in the proposal rises in line with new wage settlements. The pay increases in question are estimated at just over 6.6 b.kr. in 2011, with the average public sector employee's salary rising by 5%. Second, social security and unemployment benefits have increased to reflect this year's new wage settlements. The reference point for the increase was the contractual increase in the lowest wages, 12,000 kr. (an 8.1% rise). The increases in these benefits total approximately 6.8 b.kr. on an annualised basis. Budgetary allocations in the proposal therefore increase by 13.4 b.kr. as a result of the wage settlements. This is in addition to the 13.3 b.kr. in wages, exchange rate, and price level calculations in the budget proposal for 2012.

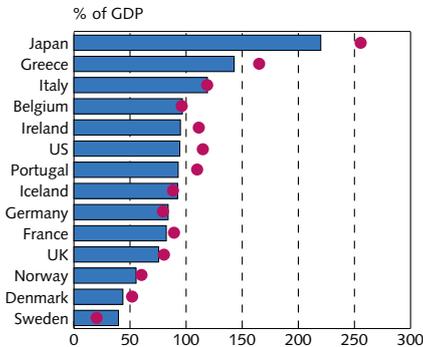
Short-lived fiscal rule

In the budget proposal for 2011, the authorities adopted a fiscal rule providing for a ceiling on nominal expenditures in an attempt to bolster the credibility of public sector finances and strengthen their countercyclical role. That change made it even more important for the authorities that inflation remain low.

The budget proposal for 2011 set forth a binding nominal expenditure framework for the following two years, under which the Government pledged to Parliament that it would not seek allocations exceeding the budget framework. The expenditure framework for each year included estimated changes in wages, exchange rate, and price levels. The plan was based on the strategy that for the first two years – 2011 and 2012 – the framework would be binding in nominal terms if prices should deviate from assumptions by less than 1.5%; otherwise, the expenditure categories concerned could be revised. The plan allowed for a 5 b.kr. contingency fund to meet unexpected price deviations and obligations. In other respects, all decisions and deviations were to be accommodated within the overall framework, which was not to be amended later on; therefore, all increases made to individual expenditure categories were to be offset with comparable reductions in other expenditures. According to this rule, the expenditure framework was set at 381.4 b.kr. for 2011 and 395 b.kr. for 2012. In 2011, however, expenditures are expected to total 399.7 b.kr., which is 18.3 b.kr., or 4.8%, over the budgeted amount. In 2012, they are expected to total 407.2 b.kr., some 12.2 b.kr. (3.1%) over the amount provided for in the framework. The increased expenditures are attributable in large part to the increases in wages and social security benefits provided for in this year's wage settlements, as the 2011 National Budget did not allow for any rises in wages or benefits.

The long-term plan in the budget proposal for 2012 omits the binding two-year nominal expenditure framework and provides only a guideline framework for 2013-2015. The fiscal rule included in the 2011 budget proposal therefore appears to have been abandoned only a year after its adoption.

Chart V-5
Government sector gross debt in various industrial countries in 2010 and 2016¹



1. IMF forecasts for 2016 are shown with red points.
Sources: IMF, Central Bank of Iceland.

Higher debt path than in the previous forecast

A milder adjustment process to achieve fiscal balance unavoidably means an increase in public debt. Both gross and net public debt is still expected to peak this year: gross debt at the equivalent of 100% of GDP and net debt at the equivalent of 67% of GDP. In assessing net debt here, only public monetary assets in cash funds are considered. This is a narrower definition than usual, as it is customary to include also as assets other monetary assets but exclude shares, equity holdings and initial capital. If these are included, the net public debt position is better than indicated here.

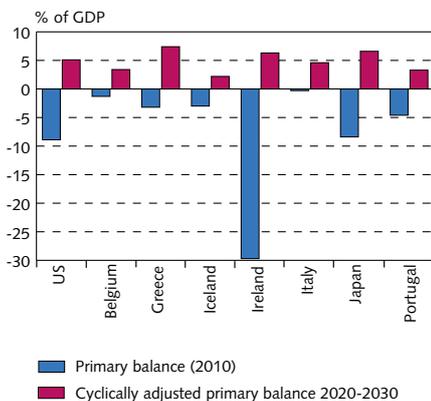
According to the Central Bank's baseline scenario, public sector debt will begin to decline next year and gross debt is now forecast to amount to 90% of GDP in 2014. This is less than one percentage point deviation from the debt ratio predicted by the government and IMF in the sixth review. The Central Bank's poorer fiscal balance forecast is balanced against the small króna appreciation since the last IMF forecast was published. Nevertheless, the conclusion remains that the cumulative impact of a poorer public debt situation is equivalent to over 7% of GDP.

The cost level in Iceland, measured in foreign currency, has declined substantially. This decrease results in improved competitiveness and gives important support for export-led growth (see Section II). This provides increased scope for increasing the nominal value of GDP and concurrently reducing the ratio of public debt to GDP. Unit labour costs have not decreased to a similar extent in those euro area countries which are struggling with the greatest debt problems, i.e. Portugal, Ireland, Italy, Spain and Greece. This will make it more difficult for them to reduce their debt ratios.

Iceland's debt position by international comparison

As previously mentioned, public debt in Iceland amounts to close to 100% of GDP. This is similar to the debt of other developed nations such as the US, Belgium, Ireland and Portugal, and somewhat lower than that of Greece, Italy and Japan. As Chart V-5 shows, the debt position is also expected to improve by international comparison in coming years if the austerity measures are followed through, although the debt ratio will remain high.

Chart V-6
The cyclically adjusted primary balance needed to get debt ratio below 60% before 2030



Source: International Monetary Fund.

Primary balance necessary to achieve a 60% debt ratio

A recent study by the IMF assessed the turnaround required in the primary balance of thirty countries (including Iceland) for their debt ratios to be reduced to 60% of GDP by 2030, given that the turnaround had occurred before 2020 (see Chart V-6).¹ The outcome for Iceland was that a surplus of 2.2% was required on the cyclically adjusted primary balance, which would remain constant for the period 2020 to 2030. According to the Central Bank's forecast, the cyclically adjusted primary surplus in 2014 will be almost 4% of GDP. The objective of the government and IMF, on the other hand, is to achieve a cyclically adjusted primary surplus of close to 5% in 2015. If such a primary

1. See IMF (2011), *Fiscal Monitor*, April 2011.

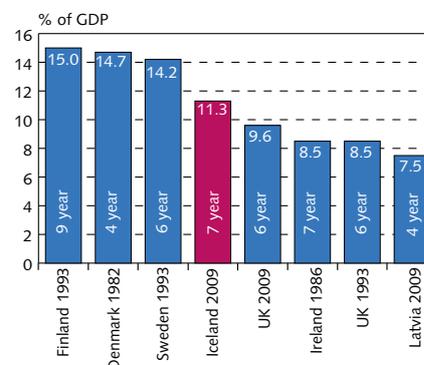
surplus is maintained, Iceland will reduce its debt ratio to 60% of GDP well before 2030, especially if it is taken into consideration that part of the new public debt assumed has been used to build up reserves to meet, for instance, upcoming maturities of older debt. Despite the slight relaxation the current adjustment programme therefore allows for quite a considerable reduction in public debt.

Scope of fiscal consolidation 2009-2015 by international comparison

Among those countries which have applied the most wide-reaching austerity measures following financial crises, measured in terms of improvement to the primary balance, Finland, Denmark and Sweden in the early nineties stand out. The original Government-IMF programme was aimed at achieving a primary balance improvement in Iceland in five years similar to that which had been accomplished in Finland over an eight-year period. Revision of the plan to achieve fiscal consolidation slowed the pace, however, and tempered plans to achieve primary balance improvement. Instead of an improvement of some 16% of GDP in five years, the aim is now to achieve an improvement of 11.3% in seven years. By comparison, the greatest improvement in the primary balance was 15% in Finland in 1993-2000 and in Denmark in 1983-1986. In Sweden in 1993 to 1998 the improvement was slightly less, or just over 14% following the financial crisis.

Based on current plans, the extent of the fiscal consolidation undertaken in Iceland is closer to that applied, for example, in Ireland in 1986 and in the UK in 1993, which resulted in an improvement of around 8½% of GDP during a period of just over six years. The fiscal consolidation is also similar in scope to that which the same countries are now applying. The UK government intends to achieve an improvement of almost 10% of GDP over a six-year period and the Irish an improvement of 9% during the period 2011-2014. A similar story can be told of Latvia, which was hit hard by the financial crisis and intends to improve its fiscal outcome by 7½% of GDP in four years' time.

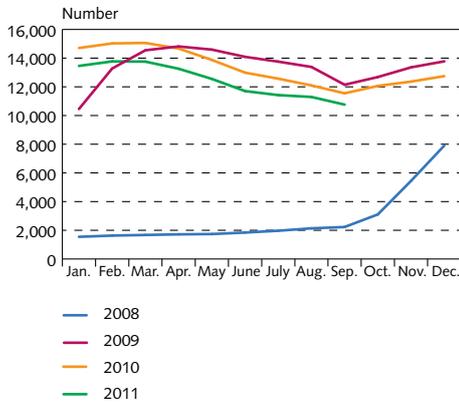
Chart V-7
Fiscal reversal in primary balances
in various countries



Sources: European Commission, International Monetary Fund, Ministry of Finance.

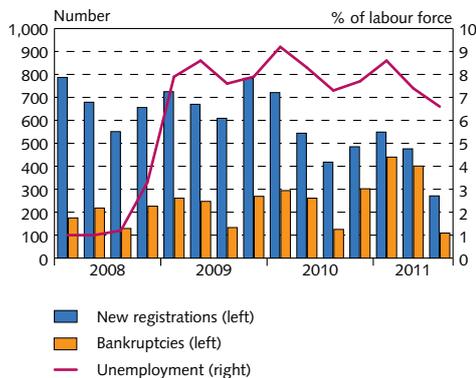
VI Labour market and wage developments

Chart VI-1
Average number of unemployed
January 2008 - September 2011



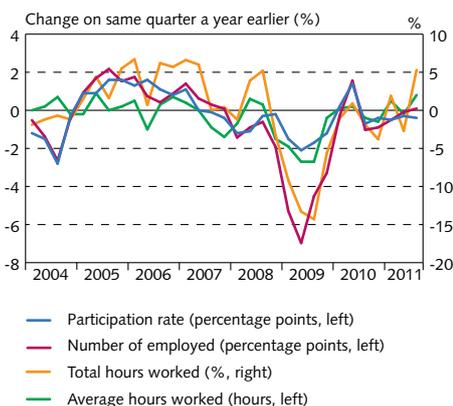
Source: Directorate of Labour.

Chart VI-2
Unemployment, bankruptcies and
new registrations of companies¹



1. Latest figures for 2011 are for July and August.
Sources: Directorate of Labour, Statistics Iceland.

Chart VI-3
Changes in labour market
Q1/2004 - Q3/2011



Source: Statistics Iceland.

Labour demand increased substantially more in Q3/2011 than forecast in the *Monetary Bulletin* in August. According to the forecast, seasonally adjusted unemployment has peaked and should continue to decline as the economy picks up, reaching 4½% by the end of the forecast horizon. Figures from the Directorate of Labour suggest that the decrease in unemployment is primarily due to persons registered as unemployed finding new jobs. There are indications that the temporary increase in equilibrium unemployment which followed the financial crisis has also begun to recede. Although the outlook is for slightly lower wage increases this year, wage rises in the coming years are likely to be greater than forecast in August, since the likelihood of second-round effects of collective bargaining agreements has increased despite the labour market slack remaining.

Restructuring of corporate debt has not as yet led to increased unemployment

Unemployment in Q3, as recorded by the Directorate of Labour, was broadly in line with the August *Monetary Bulletin* forecast or 6.6%. Around 1,500 fewer have been unemployed so far this year than during the same period last year and unemployment has measured 0.7% less.

Corporate insolvencies have increased substantially so far this year. In August, 950 companies had become insolvent compared with 980 for 2010 as a whole. Restructuring of the debts of small and medium-sized firms (SMEs) so far this year, however, does not appear to have resulted in increased unemployment, as had been expected, probably due to the fact that more new companies have been established than have become insolvent (see Chart VI-2).

Strong employment growth in Q3

The Statistics Iceland labour market survey for Q2/2011 indicated that a weak recovery had already begun in the labour market, and according to the most recent survey, employment increased even more strongly in Q3. Total number of hours worked, which is a measure of employment in man-years, rose by 3.3% year-on-year, while the forecast published in *Monetary Bulletin* in August assumed a 1.6% increase. The increase in employment is due to both a rise in the number of employed persons and longer working hours. If only those who were at work during the reference week are considered, the total hours worked increased by even more, or 5.3%. Another indication of growing demand for labour is that the rise in the number of full-time workers was almost double the fall in the number of part-time workers. As has previously been discussed in *Monetary Bulletin*, this development suggests that companies are meeting increased demand by utilising spare production capacity.

The outcome of a survey conducted by the Confederation of Icelandic Employers among its members in early October is, however, difficult to reconcile with the more positive developments from the

Labour Force Survey. The survey suggests that the total number of private sector jobs will remain unchanged between 2010 and 2011. During the coming six months, however, companies with 21% of the employed expect to lay off workers while companies with 17% of the employed expect to hire additional employees. There is no indication, however, as to the size of these increases or decreases. Companies in the travel industry, energy production, retail trade and services wish to increase the number of their employees, while companies in the fisheries and manufacturing sectors wish to reduce the number of their employees.

Most deregistered claimants move into employment

According to Directorate of Labour figures, most deregistered claimants get a salaried job. It should be pointed out, however, that the reasons for around one-third of deregistrations are unknown. This group probably includes persons who get jobs or emigrate without notifying the Directorate of Labour and those who are deregistered because they fail to respond to job offers or to turn up for interviews at the Directorate. If this group is excluded, around 70% of deregistrations are the result of unemployed persons becoming employed. Enrolling in school or emigration are other common causes for deregistration. Emigration explains around 8% of deregistrations in Q1 this year, which is a slightly lower figure than in the preceding two years.

Emigration an important part of the labour market adjustment to economic shocks

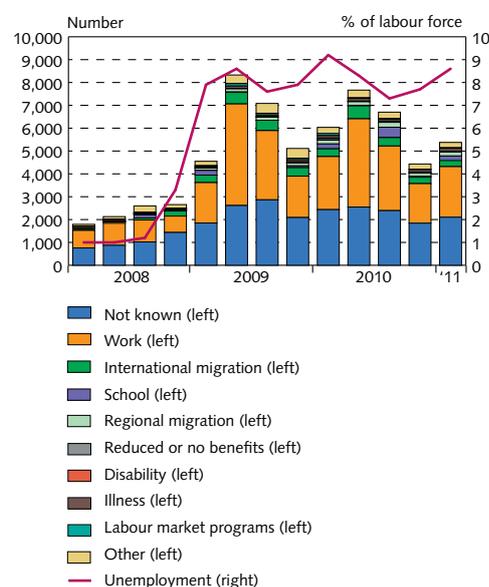
Emigration in the wake of the economic contraction has in all probability resulted in unemployment increasing less than would otherwise be the case in the contraction 2009-2010. As discussed in Box VI-1, emigration during this downturn has been proportionally greater than in previous periods of contraction. This is likely the result of the large increase in foreign labour in 2005-2007, which has added considerably to the flexibility of the Icelandic labour market. Almost 50% of net emigration in 2009 and 2010 was foreign nationals, which is more than four times the percentage of foreign nationals in the overall workforce when this was at its peak during the upswing. The majority of foreign nationals are, however, still in Iceland. As discussed in Box VI-1, other things remaining equal, unemployment would have been somewhat higher without emigration.¹

Indications that equilibrium unemployment has risen in the wake of the recession ...

As previously discussed in Monetary Bulletin, equilibrium unemployment (i.e. the unemployment rate which corresponds to a stable inflation rate), has probably increased following the financial crisis. There may be various reasons for this. Unemployment tends to be

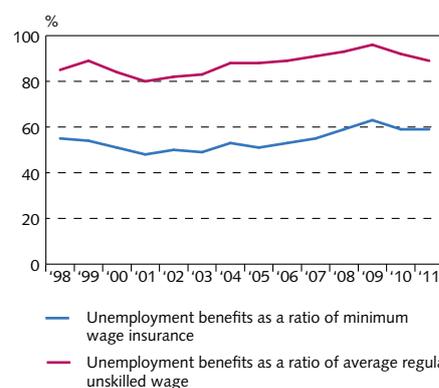
1. Estimations of the unemployment rate excluding the effects of net migration can only be interpreted as being indicative of an upper limit of the unemployment rate. For example, if people had not migrated but had rather been registered as being unemployed and received unemployment benefits, domestic demand and therefore employment would probably have been greater than otherwise.

Chart VI-4
Reasons for deregistrations of claimants¹



1. Reasons for deregistrations grouped under other include old age, sickness pension, parental leave, imprisonment and social benefits.
Source: Directorate of Labour.

Chart VI-5
Unemployment benefits as proportion of wages
1998-2011

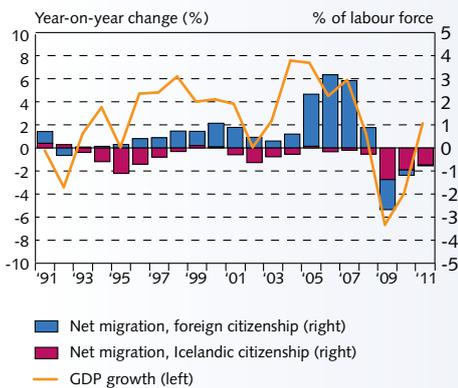


Sources: Directorate of Labour, Federation of Employers, Statistics Iceland.

Box VI-1

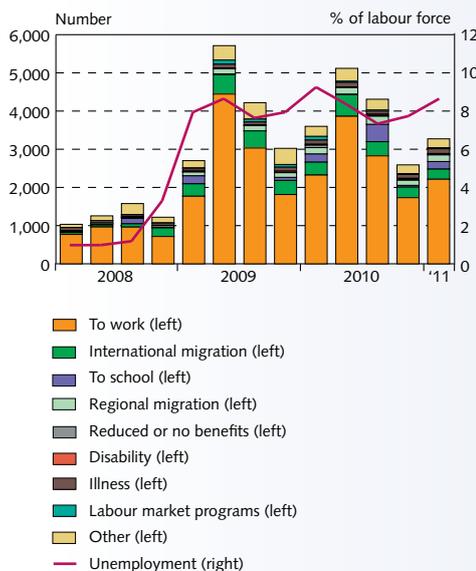
The flexibility of the Icelandic labour market and migration flows

Chart 1
Labour migration and economic growth¹



1. Figures on migration for 2011 are for the first three quarters but figures on growth are for the first two quarters.
Source: Statistics Iceland.

Chart 2
Reasons for deregistrations of claimants¹



1. Reasons for deregistrations grouped under other include death, pension, illness, prison, in need of childcare, vacation, parental leave and other compensation.
Source: Directorate of labour.

Considerable flexibility still present

The flexibility of the Icelandic labour market has enabled the domestic economy to adjust to the economic crisis.¹ Labour market participation has declined, working hours have fallen and people have emigrated. The labour force has decreased by 6.1% from Q3/2008 to Q3/2011 and the number of people in the working age group of 16-64 has decreased by 1.2%. Of the 6.1% decrease in the size of the labour force, 3.4 percentage points can be attributed to net migration of people in the age group of 16-64, 5 percentage points to the decline in labour market participation, while other changes in the labour force have contributed to an increase of 2.3 percentage points.

The increase in immigration of foreign workers has enhanced the role of migration flows to business cycle adjustments

As Chart 1 shows, there has generally been a strong relation between migration flows and the business cycle. Icelandic nationals have tended to move to and from the country depending on economic conditions and labour demand. Foreign nationals who come to Iceland for work have increased that flexibility even further, and their contribution to the upswing of 2004-2007 was considerable. Thus, net immigration of foreign nationals to Iceland, was around 17 thousand in 2004-2008 but since then, the net emigration of foreign nationals has been around 2,700.

In 2009 the unemployment rate was 8%, and that year the net emigration totalled 4,800. Measured as a ratio of the labour force, net emigration amounted to 2.5% in 2009. Around half of those were foreign nationals, even though they constituted only 7.6% of the total population. In comparison, total emigration was around 1.1% of the total labour force in the economic recession in the 1990s when the unemployment rate peaked at 5% in 1995. As shown in Chart 1, net emigration is considerably less now than in 2009 when it was at its highest.²

Thus, net emigration is now considerably greater than in previous recessions, even when allowing for the fact that the current contraction is deeper than in previous recessions. The reason for greater emigration flows now than in earlier recessions is probably that a large part of foreign nationals who came here to work in the economic upswing had not rooted before it ended.³ Almost 50% of those who migrated from the country in excess to those who migrated to the country in 2009 and 2010 were foreign nationals. That is more than four times their share in the labour force when it peaked in the upswing.

Unemployment could have risen higher without labour migration

These emigration flows are likely to have caused the unemployment rate to rise less than it would have without them.⁴ However, it is clear that not everyone who migrated from the country was active

1. See e.g. discussion in *Monetary Bulletin* 2010/2.
2. Most of foreign nationals had left earlier in the year but were not deregistrated until in the end of the year. These trends were reversed in the second half of last year and the first half of this year when more foreign nationals moved to the country than from it.
3. Most of those who came to work in Iceland during the economic upswing came from the E-8 countries (Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia, The Czech Republic and Hungary). Rules on free movement of labour became first effective for these countries on 1 May 2006.
4. Estimations of the unemployment rate excluding the effects of net migration can only be interpreted as being indicative of an upper limit of the unemployment rate. For example, if people had not migrated but had rather been registered as being unemployed and received unemployment benefits, domestic demand and therefore employment would probably have been greater than otherwise.

in the labour market. The Directorate of Labour's data on deregistration of claimants show how many unemployed workers have migrated from the country (see Chart 2). In the years 2009 and 2010, around 3,200 claimants of unemployment benefits deregistered due to emigration. Without the emigration of this group of workers the number of unemployed workers would have been around 11% higher in 2009 and just over 10% higher in 2010, which is equivalent to the unemployment rate, as registered by the Directorate of Labour, having been higher by around a percentage point each year.

quite persistent, e.g. because fixed and human capital deteriorates, and because trade unions tend to favour insiders more than outsiders. Also, the job searching intensity has a tendency to diminish the longer a person is unemployed. Long-term unemployment, therefore, can increase the difficulty inherent in matching the unemployed with vacancies and increase the equilibrium unemployment level. Increased long-term unemployment tends to reduce the skills of the workforce and by so doing make it more difficult for the labour market to match workers with specific knowledge and firms who need such skills.²

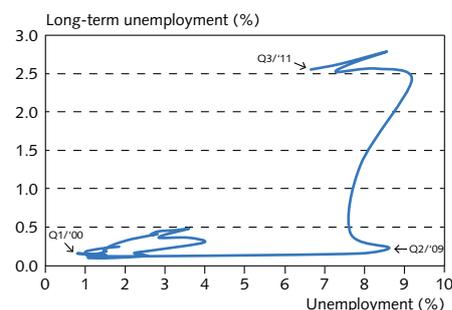
The structure of the unemployment benefit system can also reduce motivation to accept those jobs offered, thereby increasing equilibrium unemployment. The replacement ratio is important, as is the scope of entitlement, duration of rights to benefits and how the rules are enforced. Increases to employers' wage-related expenditure may also make a difference.

The right to benefits was cut back from five years to three in 2006 on the assumption that persons were not actively looking for work after being unemployed for three years. The right to benefits was then extended provisionally to four years, as of 1 January 2011, for persons who received unemployment benefits for the first time after 1 May 2008. The change was made because it was estimated that some two thousand individuals (just over 40% of this year's long-term unemployed) would exhaust their rights under the unemployment insurance system this year. The change is to expire at the end of this year unless extended.

Although unemployment is considerably higher and the supply of jobs is less than in previous downturns, it can be assumed that the same arguments apply today as did when the right to benefits was cut back to three years in 2006, i.e. that a person is not actively seeking employment after three years. Although the supervision of the Directorate of Labour and their programs are considerably more effective today than in previous unemployment periods, the situation of persons in the lowest-paid jobs improves little if at all if they accept

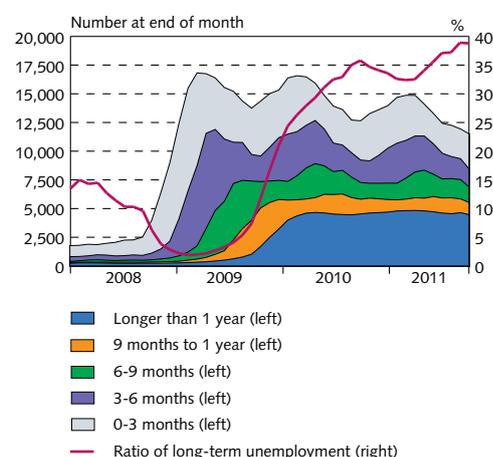
2. See e.g. O. J. Blanchard and J. Wolfers (2000). The role of shocks and institutions in the rise in European unemployment: The aggregate evidence. *Economic Journal*, 110, C1-C33, C. Gianella, I. Koske, E. Rusticelli og O. Chatal (2009). What drives the NAIRU? Evidence from a panel of OECD countries. OECD Economics Department Working Paper no.649 og Andreas Mueller og Alan B. Krueger (2010), „Job search and unemployment insurance: New evidence from time use data“, *Journal of Public Economics*, 94, 298-307.

Chart VI-6
Relation between long-term unemployment and total unemployment
Q1/2000 - Q3/2011



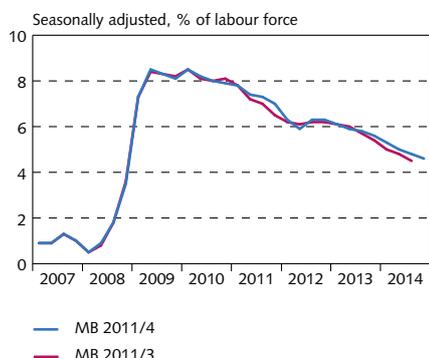
Source: Directorate of Labour.

Chart VI-7
Unemployment by duration
January 2008 - September 2011



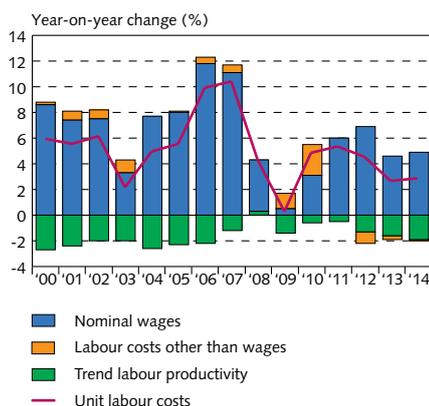
Source: Directorate of Labour.

Chart VI-8
Unemployment - comparison with MB 2011/3



Sources: Directorate of Labour, Central Bank of Iceland.

Chart VI-9
Unit labour costs and contributions of
underlying components 2000-2014¹



1. Positive labour productivity growth is shown as a negative contribution to an increase in unit labour costs. Central Bank baseline forecast 2011-2014.

Sources: Statistics Iceland, Central Bank of Iceland.

paid work, as the difference between unemployment benefits and the lowest wages has become insignificant (see Chart VI-5).³

A majority of OECD countries took crisis-related measures, such as boosting unemployment benefits and social security assistance, to reinforce the safety net for the unemployed. In Iceland, as in one-third of OECD countries, there was a modest increase in unemployment benefits. The net replacement ratio increased between 2007 and 2009, by 6 percentage points to 66%.⁴ Unemployment insurance now amounts to around 90% of minimum wages insurance and to 93-99% of the starting wages of retail clerks and unskilled workers in the private sector.

The motivation to stop receiving benefits and take a job is therefore probably limited, especially taking account of the additional expenses generally incurred in working, e.g. for people with pre-school-age children. Although the income tax rate has increased since the financial crisis, its impact is similar on unemployment insurance as on the lowest wages. On the other hand, the increase in the social security contribution may have reduced employers' willingness to hire additional workers. There is therefore a risk that the structure of the current benefit system may give rise to long-term unemployment and thereby to a permanently higher equilibrium unemployment.⁵

... but that it has begun to decline again

There are, however, signs that the increase in equilibrium unemployment has begun to recede to some extent. The Beveridge curve, which shows the relationship between demand for labour (vacancies) and supply of labour (unemployment), has started to shift back again, indicating that unemployment is decreasing despite the fact that the supply of jobs is broadly unchanged (see Box VI-2). At the same time, the relationship between unemployment and long-term unemployment does not appear to have changed (see Chart VI-6). At first, as unemployment increases in the wake of the financial crisis, the relationship between short-term and long-term unemployment shifts to the right but, as the time point one year after the beginning of the crisis nears long-time unemployment increases and reaches its former equilibrium in the winter months of 2010.

Taking seasonal fluctuation into consideration, the number of persons unemployed for more than one year has remained fairly stable at between 4,500 and 4,800 since March 2010. On the other hand, the number of persons who have been unemployed for less than one year has fallen more rapidly and the proportion of long-term unemployed among the unemployed has therefore risen. There are indications, however, that long-term unemployment is declin-

- Unemployment benefits were higher than minimum wages until 1997-1998 when minimum wages were increased significantly. In 2002-2008, however, unemployment benefits rose substantially more than both minimum wages and unskilled workers medium wages. Although unemployment benefits as share of both minimum wages and unskilled workers medium wages fell in 2010 and 2011 their share is considerably higher than it was during the downturn at the start of the century.
- OECD calculations are based on a prime-age worker (40) that has been unemployed for 24 months. See OECD *Employment Outlook*, September 2011.
- See OECD, *Employment Outlook*, September 2011, p. 30-31. Research shows for example that increased benefit generosity in the United States has had impact on job search behaviour, unemployment duration and thus the level of unemployment.

ing again, as the number of persons unemployed for over a year decreased year-on-year for the first time in September, and the number of those unemployed for more than six months has been falling since September 2010.⁶ Statistic Iceland's Labour Force survey also show that the number of long-term unemployed falls between quarters in Q3/2011, for the first time since the onset of the financial crisis.

6. The fall in the number of unemployed is probably not because people are no longer eligible for unemployment benefits as the right to benefits was extended provisionally by one year.

The Beveridge curve in Chart 1 shows the relation between demand (vacancies¹ – vertical axis) and supply (unemployment – horizontal axis). In equilibrium, unemployment and vacancies move in opposite directions over the business cycle along a negatively sloped line (NW-SE line). Changes in labour demand, reflected by the number of vacancies, generally result in changes in unemployment.

The Beveridge curve may shift due to changes in either or both, labour demand and supply. It is likely that a rightward shift of the curve stems from changes that make labour market institutions more rigid in responding to shocks. Although a rightward shift is generally interpreted as a sign of increased equilibrium unemployment other factors can also cause the curve to shift, as was the case in Iceland in 2003-2005 (see a more detailed discussion of the reasons of increases in equilibrium unemployment in Section VI).

Chart 1 shows how unemployment and vacancies in the period 1996-2002 tracked the cycle by a NW-SE line. In 2003, there was an increase in both, unemployment and vacancies, which caused the curve to shift to the right. Up until the last quarter of 2005 it seemed like a new equilibrium had been reached where more vacancies were needed than before to reduce unemployment. The reason for the curve's rightward shift is that employers wanted to import labour, but were required to post vacancies to show that they could not be filled domestically, before they could apply for work permits for imported labour.² In 2003, vacancies for the Kárahnjúkar power station project were first advertised.

The supply of vacancies falls after nationals of the new EU accession countries (EU-8)³ were allowed to work in Iceland without work permits, formally in May 2006, but with an agreement in autumn 2005, since it was no longer necessary to advertise vacancies to show that they could not be filled domestically. The relation between unemployment and vacancies then falls back on its previous position and stays there until the financial crisis hits, when unemployment increases rapidly and equilibrium unemployment rises.

However, Chart 1 also suggests that the temporary rise in equilibrium unemployment has started to reverse as the unemployment rate has fallen without a significant increase in vacancies. Since the unexplained temporary increase in vacancies in the summer of 2009, the Beveridge curve has been almost horizontal.

1. The data used here from the Directorate of Labour, compiled from employment agencies (from 1997). No reliable data are available for vacancies in Iceland before that time. Not all vacancies are advertised with agencies, but the relationship between agency vacancies and unemployment should none the less serve as a good gauge of labour market matching.

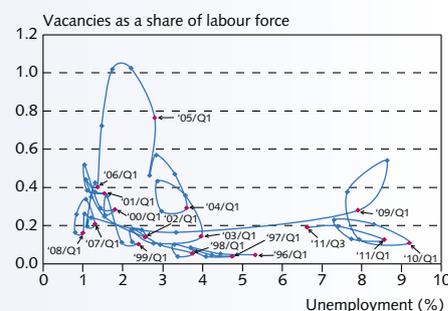
2. See Rannveig Sigurðardóttir (2005), „The enigma of the Icelandic labour market“, *Monetary Bulletin* 2005/1.

3. The E-8 countries are Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia, the Czech Republic and Hungary.

Box VI-2

Is the increase of equilibrium unemployment reversing?

Chart 1
Unemployment and vacancies
Q1/ 1996 - Q3/ 2011



Source: Directorate of Labour.

Outlook for unemployment and employment similar to that of August

The unemployment outlook for the next three years is similar to what it was in the previous forecast, although slightly poorer for the latter half of the forecast period. In the baseline scenario, unemployment is expected to rise again to around 7% early next year, although seasonally adjusted unemployment has already peaked. Unemployment is expected to continue to decrease as economic activity picks up and to be 4½% at the end of the forecast period. The outlook is for higher unemployment in 2014 than forecast in August, reflecting less GDP growth, larger wage increases and a slower decline in equilibrium unemployment during the latter half of the forecast period.

As mentioned before, employment began to rise between quarters in Q2 this year. Employment growth is expected to remain slower than GDP growth and productivity will therefore continue to increase during the forecast period. Employment is forecast to increase by just over 1% annually, and the employment rate, i.e. the ratio of employed in the population 16-64 years of age, is expected to reach 72% in 2014 and be 5½ percentage points below its average during the last upswing (from Q1/2004 to Q3/2008) and 3½ percentage points below the average of last two decades.

Outlook for higher wage increases than in August

Wage increases resulting from the recent collective bargaining agreements have taken somewhat longer to appear than anticipated in the August *Monetary Bulletin*. However, the strong position of the export sector due to the low króna exchange rate has meant that wage increases there have exceeded those negotiated generally in the most recent collective bargaining agreements. There are also indications of some adjustments to the wages of other groups. The probability of second-round effects from collective bargaining agreements has therefore increased despite the persistence of sizeable labour market slack.

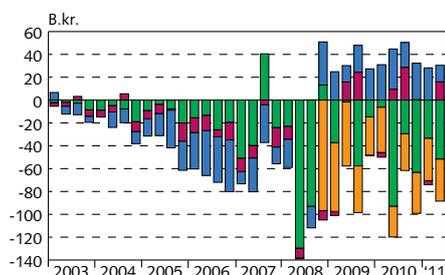
As a result, somewhat higher wage increases are now anticipated in coming years than were forecast in August. However, it is not considered likely that the wage component in current wage agreements will be revised in January. All indications are that the assumptions of the agreements regarding higher real wages during the first year of the contract will be fulfilled, although the contracting parties can interpret the assumptions concerning significant exchange rate strengthening and government actions both ways. Real wages will continue to rise to the end of the forecast period, with the largest increase next year and in 2014, around 2½%.

Although wages are now expected to rise more in coming years than in the previous forecast, this is offset to some extent by more favourable productivity developments and a decrease in the social security contribution.⁷ Unit labour costs are expected to increase by

7. The assumptions regarding the decrease in the social security contribution are similar as in the August forecast and the 2012 budget proposal, i.e. that they will decrease by 0.9 percentage points next year, 0.3 percentage points in 2013 and by 0.1 percentage point in 2014.

5.4% this year, or 0.3 percentage points less than in the previous forecast, due to lower wage increases. The increase in unit labour costs in the next two years, however, is higher than previously forecast (4.6% and 2.7%, respectively), as higher productivity growth is not sufficient to offset higher wage increases. Similar increases in unit labour costs are predicted for 2014 as in 2013, or 2.9%. The increase in unit labour costs this year and the next is therefore somewhat more than is compatible with the Central Bank's inflation target.

Chart VII-1
Current account balance components¹
Q1/2003 - Q2/2011

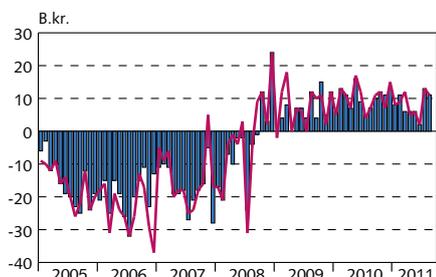


■ Merchandise account balance
■ Service account balance
■ Income account balance (DMBs in winding-up proceedings)
■ Income account balance (other)

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

Chart VII-2
Merchandise account balance

At fixed exchange rate, January 2005 - August 2011



■ Merchandise account balance excl. ships and aircraft
— Merchandise account balance

Sources: Statistics Iceland, Central Bank of Iceland.

VII External balance

For the first half of 2011, the current account balance was negative by over 13% of GDP, which is a slightly greater deficit than during the same period of 2010. The trade surplus was 55 b.kr., while there was a deficit of 155 b.kr. on the income account. If deposit money institutions (DMBs) being wound up are excluded, the income account deficit was considerably lower, at 85 b.kr., and the current account deficit just under 4% of GDP. Excluding the DMBs, the outlook for the year as a whole is for a current account balance which is slightly positive, by 0.5%, and a stronger current account surplus the following year, due in particular to a larger trade surplus. If the obligations of the pharmaceutical company Actavis are excluded, which have a negligible impact on the domestic foreign exchange market, the current account surplus is significantly higher.

Positive trade balance

The balance on goods remained positive during 2011, despite substantial growth in imports. Imports increased by 17% year-on-year during the first nine months of 2011, at constant exchange rates, while exports grew by close to 13% during the same period. At the same time, the goods surplus amounted to 81 b.kr., at constant exchange rates, or 9 b.kr. per month on average. While this is a somewhat lower surplus than during the same period of the previous year, it is nonetheless the second largest nine month surplus since 1995.

After the huge drop in imports following the financial crisis in the autumn of 2008 and lasting into 2010, the value of imports has gradually recovered. This year imports of various consumer goods, such as motor vehicles and household appliances, have increased substantially. The value of imported fuel and industrial supplies has also increased markedly this year following major price rises at the beginning of the year. The value of exports has increased as well this year, especially in Q3. Rising prices for marine products and a sharp increase in aluminium prices explain much of the increase during the first half of the year, while there was a major rise in exports of marine products and various industrial goods in Q3.

The trade balance in services was positive in Q2 by almost 16 b.kr., after a negative balance of 4 b.kr. in Q1. The surplus on trade in services for the first half of this year is more than double that of the same period of 2010. Increased income from transport services explain the increased surplus in the first half of the year, as increased expenditure by Icelanders travelling abroad more than offsets the higher export revenues in the travel industry. In addition, other imported services were much larger than other exported services.

The outlook is for a continuing surplus in external trade in goods and services in the latter half of this year. Prices of marine products have continued to rise. Credit and debit card figures, together with the large number of travellers passing through Keflavik airport, suggest a major increase in visitors to Iceland and revenues from them in Q3. The value of goods and services exports is therefore expected

to be somewhat higher for the latter half of this year than in the previous forecast. Higher exports and considerably more favourable developments in the terms of trade in the latter half of 2011 result in somewhat higher trade surplus for this year than anticipated in the last forecast, or 10% of GDP. Furthermore, a much larger trade surplus is now expected next year than was forecast in August, just under 11% of GDP rather than 7.6%. This is due in particular to more favourable developments in the terms of trade, which result in a greater rise in the value of exports than imports, despite the fact that in volume terms the increase in imports is greater. A continuing surplus of 10-11% is predicted for the entire forecast period, which is around 3½ percentage points higher than forecast in August.

Deficit on income account remains high

The sizeable trade surplus in the first half of this year was offset by a large income account deficit. The deficit on the balance on income amounted to 155 b.kr., due primarily to a sizeable deficit on the interest balance, but there was also a large deficit on dividends and reinvested earnings. The deficit on the balance on income for the first half of this year was nonetheless somewhat smaller than at the same time last year, amounting to close to 20% of GDP. The interest deficit was similar year-on-year, while the deficit on dividends and reinvested earnings was slightly less. Part of the return on equities is the item reinvested earnings, which has fluctuated strongly from one quarter to the next in recent years. Reinvested earnings is the owner's share in profit which is not paid out as dividend.¹ In 2008-2010 foreign companies owned by domestic parties reported large losses, resulting in a large negative figure for reinvested earnings on the receipts side. This was offset by large losses of domestic companies owned by foreign parties, with the result that reinvested earnings on the expense side were positive during this same period. During the first half of this year, the performance of domestic companies owned by foreign parties has improved. They are returning positive reinvested earnings to their foreign owners, while the performance of foreign companies owned by domestic parties is still slightly negative. As a result this item in the income balance has been very negative in recent quarters. As the scope of business operations of domestic parties abroad has dropped very considerably in recent years, the negative balance on reinvested earnings can be expected to continue, since the operations of foreign parties in Iceland have not declined to a similar extent and their profits can be expected to remain high as long as the króna exchange rate remains at an historical low.

If DMBs being wound up are excluded, however, the income account deficit is much lower, 81 b.kr., as a large portion of the interest expense is imputed accrued interest owed by those institutions being wound up, as has frequently been pointed out (see Chart VII-

Chart VII-3
Investment earnings
Q1/2004 - Q2/2011

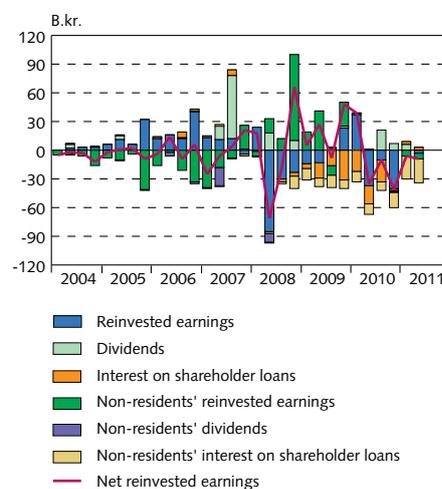
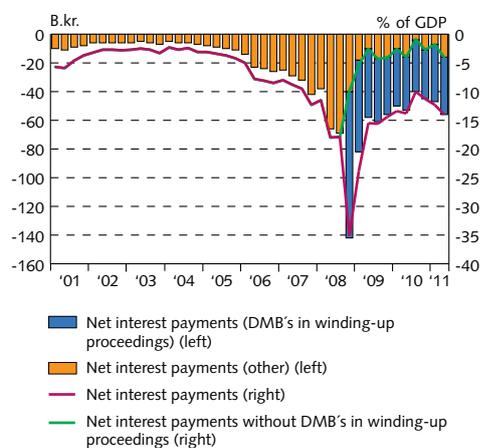
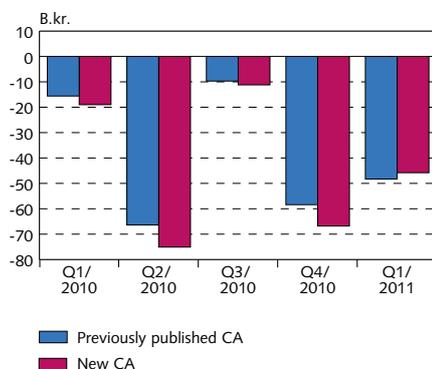


Chart VII-4
Net foreign interest payments
Q1/2001 - Q2/2011



1. Any profit of a foreign company owned by domestic parties, which is not paid out as a dividend, is considered investment income (reinvested earnings). However, any loss on the operations of such a company is referred to as negative reinvestment and is recognised with a minus sign on the receipts side of the income balance. The same applies to the operating profit and loss of domestic companies owned by foreign parties.

Chart VII-5
Current account Q1/2010 - Q1/2011



Sources: Statistics Iceland, Central Bank of Iceland.

4).² The income account deficit excluding such institutions decreased by 14 b.kr. year-on-year.

2010 current account figures revised again

Figures for the current account balance for 2010 were modified considerably prior to the publication of *Monetary Bulletin 2011/2*, after previously published figures for the income account balance in the first three quarters of 2010 were revised (see discussion on p. 38 in *Monetary Bulletin 2011/2*). A further revision was made to the figures for 2010 when figures on the current account balance for the first half of this year were published at the end of August this year. The revised figures for the 2010 current account balance show that the deficit was 22 b.kr. larger than indicated earlier, or just over 11% of GDP rather than 9.8%. The revision was not only the result of revised income account figures, as figures for imports and exports of services in 2010 were also revised. The income account deficit proved to be 12 b.kr. greater than indicated by previously published figures and the services trade surplus 10 b.kr. lower.

Minor changes were also made to figures for Q1 of this year, which resulted in the current account deficit now being estimated as 2 b.kr. lower than previously. This is due to a larger surplus in the balance of trade than in previous calculations. No change was made to figures on the income balance.

Current account deficit much lower if adjusted for accrued income and expenses of DMBs being wound up

The balance on external trade was positive by 55 b.kr. in the first half of this year, while the income account deficit together with transfers amounted to 159 b.kr., resulting in a negative current account balance of 104 b.kr., or over 13% of GDP. After adjusting for accrued income and expenses of DMBs being wound up, however, the deficit is considerably less, 30 b.kr., or equivalent to just under 4% of GDP.

As previously mentioned, the outlook is for a continuing trade surplus in the latter half of this year, although a considerable income account deficit will persist. The headline current account deficit for the year as a whole is expected to amount to 137 b.kr., or just over 8% of GDP, which is a similar deficit as predicted in the last forecast. After adjusting for accrued income and expenses of DMBs being wound up, however, there will be a current account surplus of just over 8 b.kr., equivalent to ½% of GDP, which also is similar to the last forecast. When income and expenses related to Actavis are also excluded from the income balance the surplus is significantly higher or 5.2% of GDP.³

2. A substantial percentage of accrued interest on the DMBs will probably never actually be paid and will disappear from official statistics on factor income when the bankruptcy proceedings for these banks are concluded. Therefore, in order to gain a clearer view of future payment obligations and of actual payment flows to and from Iceland during the period, it is useful to consider the balance on income excluding these DMBs.

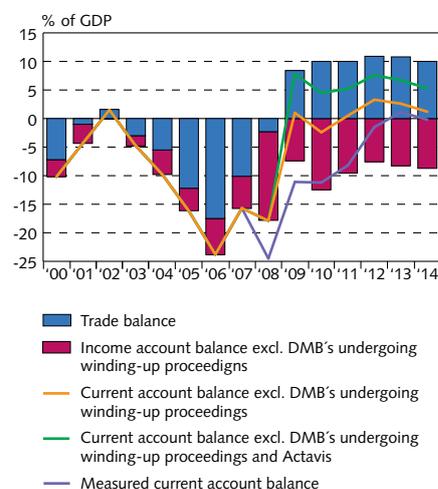
3. As mentioned in *Monetary Bulletin 2011/2* Actavis is an international company with significant foreign borrowing and its accrued interest has a strong effect on the income balance. Since the company's ability to service its debt will clearly be determined by its foreign sales revenues, it will therefore not affect the domestic foreign exchange market. For this reason it is considered appropriate to ignore its factor income and expense when assessing the external position of the Icelandic economy.

Current account balance excluding DMBs being wound up positive in coming years

The income account deficit is expected to decrease slightly next year then increase once more, in part due to rising international interest rates. Estimation of the income account balance is also based on the assumption that at least two of three DMBs in winding-up proceedings will reach composition with creditors next year. Once this occurs, the assets and liabilities of these former DMBs will no longer be excluded in the balance on income net of the DMBs being wound up. This will have a negative impact on the development of the income account balance excluding DMBs in winding-up proceedings, since reaching composition will add to the negative international investment position (IIP), on which interest and dividends must be paid, and therefore results in a worsening of the income account deficit from 2013 onwards.

The headline current account deficit is forecast to drop to 1½% of GDP next year and to be reversed to a surplus in 2013. In 2014 the current account balance is forecast to be negative once more, with a slight decrease in the surplus on trade in goods and services at the same time as the income account deficit grows. The current account balance excluding DMBs being wound up will, however, be positive next year by just over 3%. If the pharmaceutical company Actavis is also omitted it is forecast to measure almost 8%. The surplus will decrease slightly during the remaining forecast period in tandem with an increasing income account deficit.

Chart VII-6
Current account balance 2000-2014¹



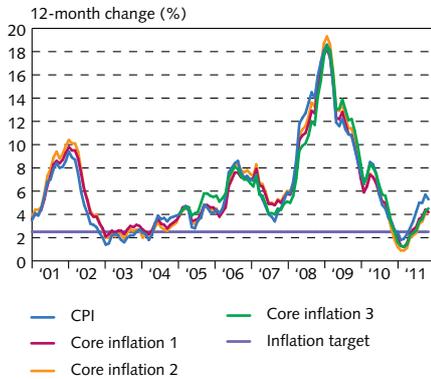
1. Net current transfer is included in the balance of income. Central Bank baseline forecast 2011-2014.
Sources: Statistics Iceland, Central Bank of Iceland.

VIII Price developments and inflation outlook

Chart VIII-1

Inflation

January 2001 - October 2011¹



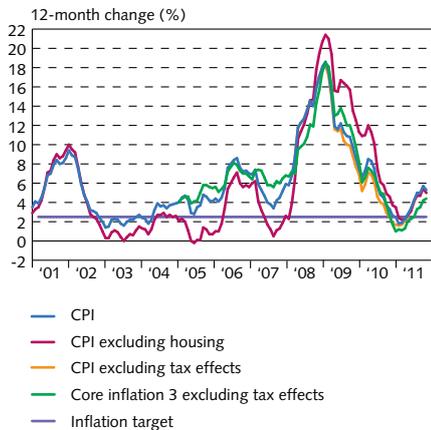
1. The core indices are compiled on the same basis as the CPI, with Core Index 1 excluding prices of agricultural products and petrol, and Core Index 2 excluding prices of public services as well. Core Index 3 also excludes the effect of changes in real interest rates on owner-equivalent rent.

Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-2

Various inflation measurements

January 2001 - October 2011

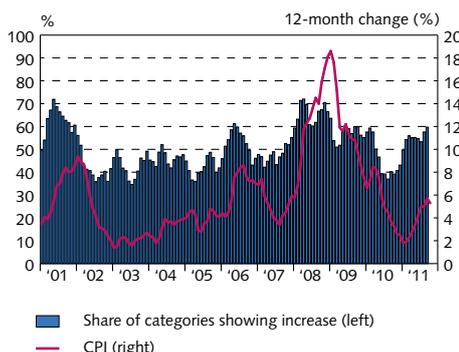


Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-3

Distribution of price increases in the CPI¹

January 2001 - October 2011



1. The percentage of goods categories that increase in price is a 3-month centered average.

Source: Statistics Iceland.

Inflation has risen rapidly since the beginning of this year. It measured 5.3% in Q3/2011, which is somewhat less than forecast in the last *Monetary Bulletin*. The outlook is for lower inflation in 2012 than forecast at that time, in particular due to lower global oil and commodity prices, and a stronger króna. An average inflation rate of just over 4% is forecast for this year and a similar rate next year. Measures of long-term inflation expectations still appear to be somewhat higher than the inflation target, although they have subsided slightly in recent weeks according to the breakeven inflation rate. Uncertainty about the inflation outlook concerns, for instance, how great the overall impact will be of large wage increases this year and how external inflation will develop in the near term.

Core inflation at its highest in over a year

Inflation has increased sharply over the course of 2011, although price increases have slowed somewhat since the publication of the last *Monetary Bulletin*. In Q3/2011 inflation measured 5.3%, up from 3.5% in Q2.¹ Excluding indirect tax effects, inflation was 5% in Q3. The sub-components whose prices rose the most in Q3 were domestic food and private services, as well as housing costs.

The consumer price index (CPI) rose by 0.34% in October, and twelve-month inflation measured 5.3%, compared to 1.8% last January. Underlying annual inflation – which excludes the effects of taxes, volatile items, public services and real interest rates – was 4.4%, compared to 1.2% at the beginning of the year, and to 4.2% in September. Underlying inflation therefore measures well above the Central Bank's inflation target and has not been higher since the end of summer of 2010.

Price increases more widespread

During the first half of this year inflation was, to a large extent, fuelled by rising global oil prices and housing costs, including rising real estate prices. In recent months, however, price increases have become more widespread and have been distributed over more CPI components as wage costs have risen following the collective bargaining agreements in May and inflation expectations have increased (see Chart VIII-3). Of the 3.4 percentage point increase in the annual inflation rate since it reached its trough in January 2011, about half can be attributed to increases in petrol prices and housing costs. Last June, however, these components accounted for around $\frac{3}{4}$ of the realised increase.

Inflationary pressures due to global price developments have subsided markedly recently, as global oil and commodity prices have fallen following the increased uncertainty in the world economy. Oil price increases in the first half of this year have been partially reversed (see discussion in Section II). Furthermore, the króna has strengthened

1. If the broadcasting fee had not been excluded from the CPI in January 2011, inflation would have been 5.7% in Q3/2011.

by 2.3% in trade-weighted terms since the last *Monetary Bulletin* was published, which has offset growing cost pressures.

The increase in housing prices has slowed somewhat in recent months, with the twelve-month increase measuring 6.3%.² While the increase in housing and imported commodity prices has been somewhat less in Q3, prices of domestic products have continued to rise fairly rapidly, with the annual increase measuring 6.7% in October.³ The increase in food prices and energy costs accounts for just over 2 percentage points of the 5.3% annual inflation rate, as shown in Chart VIII-5. Higher costs due to wage increases account in part for the inflation, and also explain price rises of private services, which have risen by 4.7% during the past twelve months.

Long-term inflation expectations exceed the inflation target

The degree to which inflation will decline towards the inflation target again, and how rapidly the disinflation will occur, will partly depend on how inflation expectations develop. If firms and households expect inflation to exceed the target for an extended period of time, their wage- and price-setting behaviour may change which can lead inflation to become more entrenched than otherwise.

Short-term inflation expectations, based on the spread between indexed and nominal bond yields, have risen since the last *Monetary Bulletin* was published in August, while longer-term expectations have decreased slightly. Based on the breakeven inflation rate, the expected average inflation rate in the next five years is 4½% and in the period 2016-2021 just over 4%, compared to 2% and 3½% at the beginning of 2011, respectively. As has been previously discussed in the *Monetary Bulletin*, caution must be exercised in interpreting inflation expectations based on the breakeven inflation rate. The two bond markets are to some extent separate, as there are different investors in the indexed and non-indexed market. In addition, expectations of a limited supply of indexed bonds in coming years may exert downward pressures on these bond yields. The breakeven inflation rate could therefore be overestimating inflation expectations in financial markets for various reasons. In this context it is interesting to note, for example, that the terms on the banks' new non-indexed housing mortgages appear to imply short-term inflation expectations somewhat lower than indicated by the breakeven rate.

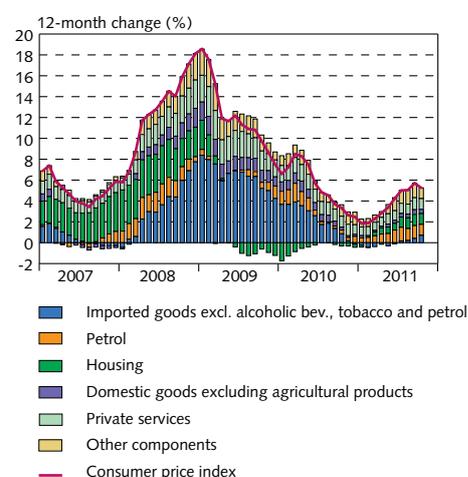
It should also be borne in mind that the breakeven inflation rate also reflects a risk premium due to uncertainty regarding inflation. It cannot therefore be excluded that an increase in the breakeven inflation rate can to some extent be attributed to an increase in the inflation risk premium rather than to rising inflation expectations. A reduction in the standard deviation of firms' and households' responses regarding inflation expectations since the end of 2010, however, does not suggest that an increase in the risk premium is a significant factor

2. Based on the index of market housing prices for the whole country, published by Statistics Iceland.

3. Large increases in meat prices this year, in part due to list price increases of sheep producers, explain part of the increases, as meat prices have increased by 11.3% during the past twelve months.

Chart VIII-4
Components of CPI inflation

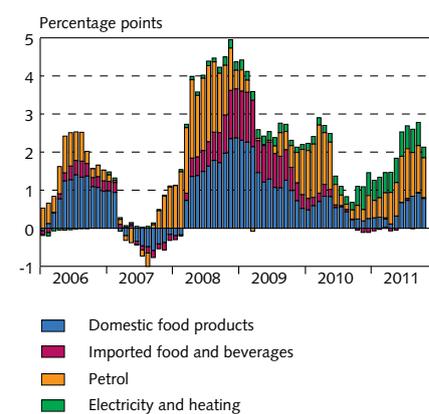
Contribution to inflation January 2007 - October 2011



Source: Statistics Iceland.

Chart VIII-5
Contribution of food, petrol and energy costs to annual inflation

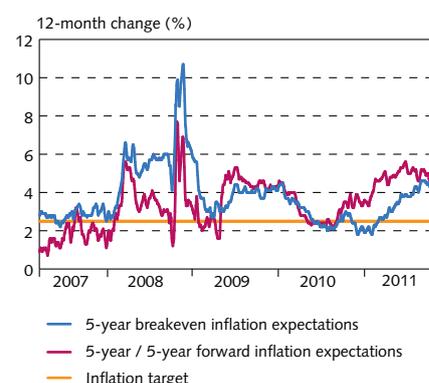
January 2006 - October 2011



Source: Statistics Iceland.

Chart VIII-6
Inflation expectations according to the difference between nominal and indexed interest rates¹

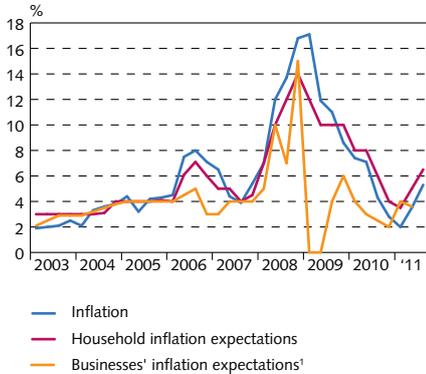
Daily data, 2 April 2007 - 28 October 2011



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-7

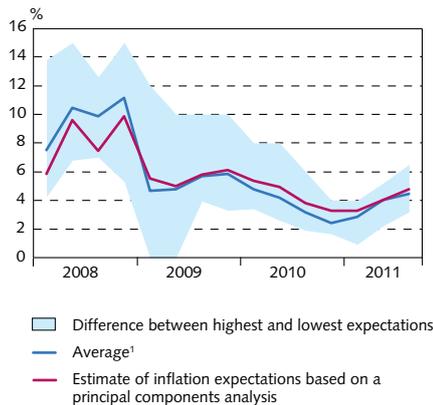
Inflation expectations of businesses and households one year ahead and past inflation Q1/2003 - Q3/2011



1. Businesses' inflation expectations were measured on an irregular basis before 2006/Q3 so until then measurements are interpolated.
Sources: Capacent Gallup, Statistics Iceland, Central Bank of Iceland.

Chart VIII-8

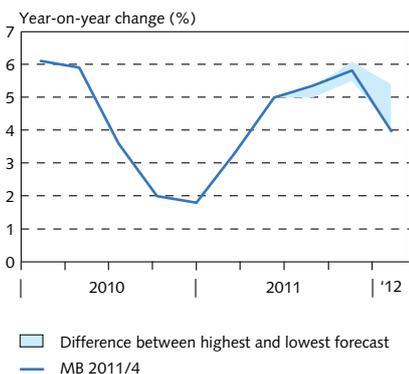
Inflation expectations according to various measurements Q1/2008 - Q3/2011



1. Based on corporate, household, and bond market inflation expectations one year ahead and the Central Bank inflation forecast one year ahead.
Sources: Capacent Gallup, Central Bank of Iceland.

Chart VIII-9

Inflation forecasts using different models¹
Inflation excluding tax effects Q1/2010 - Q2/2012



1. The Central Bank baseline forecast is based on QMM while other forecasts are based on simple time-series models.
Sources: Statistics Iceland, Central Bank of Iceland.

in the rising breakeven inflation rate, and therefore it can be assumed that the increase is mostly due to expectations of higher inflation.

According to the quarterly survey by Capacent Gallup of inflation expectations of households, carried out last September, their inflation expectations one year ahead rose by 1.5 percentage points from the previous survey in June to 6.5%, based on the median response. In parallel with increased inflationary pressures and a deteriorating inflation outlook, household inflation expectations have therefore increased rapidly from their low of 3.5% last March. Expectations for inflation in two years' time had also increased from the previous survey by 1 percentage point, to 6%.

Overall, inflation expectations therefore appear to have increased somewhat since *Monetary Bulletin* was published in August. A simple estimation of underlying inflation expectations, which measures the common trend of a number of measures of inflation expectations, suggests that they have increased by 1½ percentage points since the beginning of the year, currently measuring close to 5%.⁴ It should be kept in mind, however, that measures of inflation expectations in Iceland seem to correlate more strongly with current inflation than in other industrial countries where inflation expectations are more firmly anchored. Inflation expectations could therefore subside relatively fast if inflation developments over the next months prove more favourable than currently forecast.

Inflation outlook for next year has improved slightly

Inflation measured 5.3% in Q3/2011, 0.3 percentage points less than was forecast in the last *Monetary Bulletin*. Inflation excluding the effects of changes in indirect taxes was 5% in Q3, while the forecast assumed 5.4%. The deviation from the forecast is partly due to somewhat less inflationary pressures in this quarter following the collective bargaining agreement than was expected, in addition to a smaller increase in the cost of owner-occupied housing. Larger decreases in global oil and commodity prices and a stronger króna have also resulted in lower imported inflation than forecast in August.

The outlook is for inflation excluding tax effects to be 5.3% in Q4/2011 and to peak at 5.8% in Q1/2012, or almost 1 percentage point less than in the last forecast. Simple statistical models give similar results.⁵ The short-term inflation outlook has therefore improved slightly compared to the August forecast. In addition to an improved initial position, lower than expected inflation can be attributed to the outlook for considerably lower global oil and commodity prices than previously expected, in addition to which a slightly stronger króna is now expected than in the previous forecast.

Average inflation of just over 4% is forecast in 2011 and equally as much for 2012, reaching the inflation target in the latter half of 2013. Despite slightly lower inflation in 2012 than anticipated in

4. Based on a principal component analysis, which is a simple method of extracting a common underlying trend from a large number of indicators.
5. According to the 2012 budget proposal, the specific excise tax on alcohol, tobacco and petrol is to increase at the beginning of next year, which is expected to have an impact of around 0.15 percentage points on the CPI (for details, see Section V).

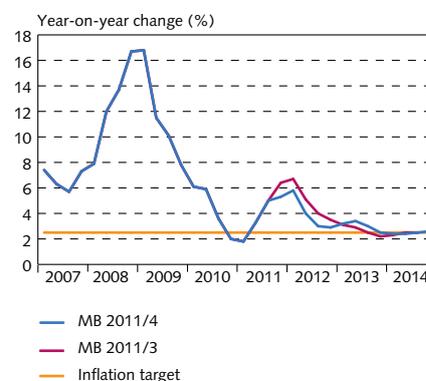
the last forecast, the long-term outlook is similar. Lower short-term inflationary pressures are offset by less spare capacity in the economy than previously assumed, in addition to which there is an increasing risk of second-round effects from large wage increases in 2011. It is therefore likely that in coming quarters cost pressures due to wage drift will weigh against lower commodity prices due to the difficult global economic situation.

Furthermore, research on Icelandic firms' price-setting behaviour show that inflation persistence has been very profound in Iceland and therefore it has been difficult to regain control of inflation following a large price increase, especially following cost increases or an exchange rate depreciation of the króna. Research also shows that it has been unusually common for prices of individual goods and services to be directly linked to general price level developments, in particular by firms which are not directly exposed to exchange rate fluctuations. Firms which are exposed to exchange rate volatility also appear reluctant to lower prices following a strengthening of the króna, which reflects among other things their doubts as to the sustainability of the appreciation.⁶ Given that these results also apply to the near future, the disinflation following this year's increase in inflation could be more sluggish than otherwise.

Both upside and downside risks

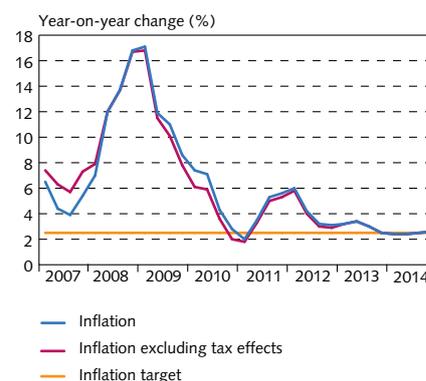
Following high inflation and wage increases in the first half of the year, there is a risk that inflation will tend to become entrenched if inflation expectations remain at their current level and wage- and price-setting decisions are taken based on that. In this respect, it is however uncertain how persistent inflation will be in the near term. Also there exists considerable uncertainty as to whether the effects of the above-mentioned wage increases are already visible and also whether they will be more persistent than is forecast. Given the scope of the wage rises, there is a risk that wage drift will follow, although the slack in the economy should offset this. On the other hand, there is considerable uncertainty as to how much spare capacity remains and how effective it is in containing underlying inflationary pressures. Inflation could also be less than forecast if the international outlook deteriorates still further and decreases in global oil and commodity prices are more than expected in the baseline scenario, as this would reduce imported inflationary pressures insofar as the króna does not weaken. In view of the large weight of the housing component in the CPI, there is high uncertainty as to whether housing prices will continue to rise, and of the impact of an increased supply of housing mortgages and improved household financial conditions on the market. Further discussion of major uncertainties can be found in Section I.

Chart VIII-10
Inflation excluding tax effects - comparison with MB 2011/3



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-11
Inflation including and excluding tax effects
Q1/2007 - Q4/2014¹



1. Central Bank baseline forecast Q4/2011 - Q4/2014.
Sources: Statistics Iceland, Central Bank of Iceland.

6. Þorvarður Tjörvi Ólafsson, Ásgerður Pétursdóttir and Karen Á. Vignisdóttir (2011), "Price setting in turbulent times: Survey evidence from Icelandic firms", Central Bank of Iceland, Working Paper no. 54.

Appendix 1

Baseline macroeconomic and inflation forecast 2011/4

Table 1 Macroeconomic forecast¹

	B.kr.	Volume change on previous year (%) unless otherwise stated				
		2010	Forecast			
		2011	2012	2013	2014	
<i>GDP and its main components</i>						
Private consumption	787.7	-0.4 (-0.2)	2.9 (3.8)	3.1 (2.3)	3.2 (2.6)	2.8
Public consumption	398.6	-3.4 (-3.2)	-0.2 (-2.2)	-1.2 (-1.4)	0.4 (0.1)	0.3
Gross capital formation	206.9	-4.7 (-4.9)	6.7 (10.3)	16.5 (16.2)	4.4 (11.2)	11.1
Business investment	129.4	5.5 (6.5)	13.2 (18.1)	16.5 (18.3)	4.4 (11.8)	13.5
Residential investment	35.5	-17.6 (-17.0)	13.8 (9.2)	21.6 (16.6)	14.6 (15.3)	15.1
Public investment	42.0	-19.3 (-22.4)	-19.8 (-14.3)	9.5 (5.7)	-8.8 (3.2)	-8.5
National expenditure	1,389.9	-2.2 (-2.1)	3.9 (4.0)	3.2 (2.6)	2.3 (3.6)	3.4
Exports of goods and services	861.3	0.4 (1.1)	2.5 (1.9)	1.3 (1.5)	1.6 (3.5)	2.1
Imports of goods and services	707.0	4.0 (3.9)	4.0 (4.2)	2.8 (3.4)	1.6 (3.2)	3.5
Contribution of net trade to growth	-	-1.5 (-1.2)	-0.4 (-0.8)	-0.5 (-0.8)	0.2 (0.4)	-0.4
Gross domestic product	1,544.1	-3.6 (-3.1)	3.1 (2.8)	2.3 (1.6)	2.3 (3.7)	2.6
<i>Other key aggregates</i>						
GDP at current prices (in b.kr.)	1,544 (1,547)	1,674 (1,649)	1,822 (1,764)	1,918 (1,877)	2,009	
Trade account balance (% of GDP)	10.0 (10.5)	10.0 (8.6)	10.9 (7.6)	10.8 (7.5)	10.0	
Current account balance (% of GDP)	-11.1 (-9.8)	-8.2 (-8.5)	-1.5 (-4.4)	1.1 (-1.7)	-0.2	
Current account balance excl. DMBs undergoing winding-up proceedings (% of GDP)	-2.4 (-1.0)	0.5 (0.8)	3.3 (0.5)	2.6 (-0.5)	1.2	
Total gross capital formation (% of GDP)	13.4 (13.3)	13.7 (14.5)	15.0 (16.6)	15.3 (17.8)	16.6	
Business investment (% of GDP)	8.4 (8.4)	9.0 (9.7)	9.8 (11.3)	10.0 (12.1)	11.1	
Output gap (% of potential output)	-4.4 (-4.8)	-1.8 (-2.4)	-1.0 (-2.2)	-0.2 (-0.3)	0.4	
Unit labour costs (change in average year-on-year)	4.9 (4.8)	5.4 (5.7)	4.6 (4.3)	2.7 (2.3)	2.9	
Real disposable income (change in average year-on-year)	-11.4 (-3.0)	2.2 (0.6)	0.9 (0.8)	0.5 (1.1)	4.8	
Unemployment (% of labour force)	8.1 (8.1)	7.4 (7.1)	6.2 (6.2)	5.8 (5.8)	4.9	
EURISK exchange rate	161.7 (161.7)	160.8 (162.9)	158.2 (163.4)	158.9 (163.4)	158.6	
Inflation (annual average, %)	5.4 (5.4)	4.1 (4.4)	4.1 (4.9)	3.0 (2.7)	2.5	
Inflation excluding tax effects (annual average, %)	4.4 (4.4)	3.9 (4.2)	3.9 (4.8)	3.0 (2.7)	2.5	

1. Figures in parentheses are from the forecast in *Monetary Bulletin* 2011/3.

Table 2 Inflation forecast (%)¹

Quarter	Inflation (change year-on-year)	Inflation excluding tax effects (change year-on-year)	Inflation (annualised quarter-on-quarter change)
2010:3	4.3 (4.3)	3.6 (3.6)	-2.3 (-2.3)
2010:4	2.8 (2.8)	2.0 (2.0)	4.0 (4.0)
2011:1	2.0 (2.0)	1.8 (1.8)	1.8 (1.8)
2011:2	3.5 (3.5)	3.3 (3.3)	10.9 (10.9)
2011:3	5.3 (5.6)	5.0 (5.4)	4.6 (6.0)
Forecasted value			
2011:4	5.6 (6.6)	5.3 (6.4)	5.2 (8.0)
2012:1	6.0 (6.8)	5.8 (6.7)	3.4 (2.4)
2012:2	4.2 (5.2)	4.0 (5.1)	3.4 (4.6)
2012:3	3.2 (4.1)	3.0 (4.0)	0.7 (1.5)
2012:4	3.1 (3.6)	2.9 (3.5)	4.9 (5.8)
2013:1	3.2 (3.1)	3.2 (3.1)	3.7 (0.4)
2013:2	3.4 (2.9)	3.4 (2.9)	4.5 (4.0)
2013:3	3.0 (2.5)	3.0 (2.5)	-0.9 (-0.1)
2013:4	2.5 (2.2)	2.5 (2.2)	2.8 (4.6)
2014:1	2.4 (2.3)	2.4 (2.3)	3.2 (0.9)
2014:2	2.4 (2.5)	2.4 (2.5)	4.6 (4.7)
2014:3	2.5 (2.5)	2.5 (2.5)	-0.7 (-0.2)
2014:4	2.6	2.6	3.3

1. Figures in parentheses are from the forecast in *Monetary Bulletin* 2011/3.

Appendix 2

The Central Bank of Iceland forecasting record

Forecasting errors are inevitable. They can stem from imperfect models, inadequate information on the economic variables on which the models are based, and on unforeseen shocks. It is important to examine forecast errors, as such analysis helps to identify the uncertainties in the forecasts and provides important information, both on possible errors in forecast preparation and on possible structural changes in the economy. Such information can be used for further development of the Bank's models and their utilisation in forecasting.

Macroeconomic and inflation forecasts

Four times a year, the Central Bank prepares macroeconomic and inflation forecasts covering a forecast horizon of three years. The forecasts are based on an in-depth analysis of the position of the economy at the time they are prepared. The assumptions concerning global economic developments are based on international forecasts and the information implied by commodity futures. The national accounts provide the main foundation for the assessment of the position of the economy. In addition, Bank staff prepare an independent assessment of the state of the economy through questionnaires, discussions with corporate executives, institutional directors, and labour market leaders; and statistical analysis of developments in key variables. The Bank's Quarterly Macroeconomic Model (QMM) is the chief tool used to process this information. It provides an assessment of the economic outlook in accordance with the economic principles on which the model is based, although the final forecast is determined equally by Bank staff's analysis and evaluation.

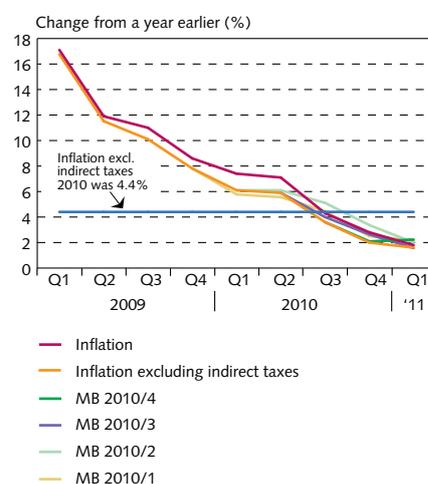
One of the key assumptions in each forecast is the projected developments in monetary policy over the forecast horizon. In forecast preparation, Bank staff use the QMM, which is based on a forward-looking monetary policy rule according to which the Central Bank's interest rates are determined by the output gap and the deviation of expected inflation from target. This policy rule ensures that the Bank's interest rates adjust so that, by the end of the forecast horizon, inflation will either be near target or approaching the target if it deviates from it. The monetary policy rule in the model is the rule that minimises the sacrifice cost in ensuring that inflation is at target.¹

Central Bank inflation forecasts for 2010

Twelve-month inflation excluding indirect tax effects reached its 2010 peak during the month of March, when it measured 7.1%. It retreated quickly as the year progressed, however, falling to 1.7% by

1. See Ásgeir Danielsson, Magnús F. Guðmundsson, Svava J. Haraldsdóttir, Thorvaldur 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.

Chart 1
Inflation forecasts MB in 2010
and inflation excluding tax effects



Source: Central Bank of Iceland.

December, the lowest measurement since July 2003. Twelve-month inflation excluding tax effects averaged 4.4% in 2010, which was well in line with Central Bank forecasts (see Table 1).

Chart 1 shows forecasts of developments in inflation excluding tax effects from the beginning of 2010 until Q1/2011. In *Monetary Bulletin* 2010/1, inflation is underforecast for the first half of the horizon and overforecast for the latter half. In subsequent issues of *Monetary Bulletin*, however, there is the tendency to overforecast inflation for the entire forecast horizon, particularly in *Monetary Bulletin* 2010/2.

Table 1 Inflation forecasts in 2010

Year-on-year change (%)	MB 2010/1	MB 2010/2	MB 2010/3	MB 2010/4
Inflation	5.6	6.2	5.7	5.4
Inflation excluding tax effects	4.5	5.1	4.6	4.4

Long-term inflation forecast errors

In assessing inflation forecasts, it is standard to consider the mean forecast error 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. This 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 farther 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	1.7	2.5	2.8

Table 2 shows the mean forecast error and RMSE in the Bank's inflation forecasts up to four quarters ahead, from 1994 through January 2011 (60 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 based on a 5% threshold, which means that the forecasts were skewed to the down-side. The forecasts one and two quarters ahead were not significantly skewed, however.

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

	No. of measurements	Mean forecast error (%)	RMSE (%)
Four quarters ahead	34	-1.6	3.2
Eight quarters ahead	30	-2.8	4.7

Since adopting the inflation target in March 2001, the Central Bank has also published inflation forecasts two years ahead. Table 3 shows the mean forecast error and the RMSE for the period since the Bank introduced inflation targeting. A comparison of Tables 2 and 3 shows that the RMSE for the one-year forecast has been greater since the Bank adopted the inflation target than it was for the entire period, as fluctuations in inflation have increased markedly since the króna was floated.² It should also be noted that, before 2007, the Bank's forecasts assumed constant interest and exchange rates. Consequently, earlier forecasts did not make full use of Bank staff's assessments of likely developments in these variables. This probably led to larger forecasting errors – in inflation, for example – as inflation forecasts are usually influenced by errors in exchange rate forecasts.

Central Bank inflation forecasts in comparison with forecasts based on simple time-series models

Inflation forecasts based on simple time-series models are also considered during the forecasting process; therefore, it is interesting to compare the Bank's forecasts to the results generated by such models. A review of 2010 shows that the Bank's QMM always yielded the smallest forecast errors with the exception of the forecast three quarters ahead, in which case a simple cost-push model based on historical developments in wage costs and import prices and the ARIMA 1 model performed slightly better.³ The other two ARIMA models performed less well.⁴ In general, these models overestimated 2010 inflation, which tapered off quickly over the course of the year.

For forecasts one quarter ahead, however, the other models performed quite well, except for the random walk model. Forecasting errors using the cost-push model and the ARIMA models ranged from 0.41% to 0.55%, whereas the error using the random walk model was much larger, at 1.6%. The error in the Bank's forecasts, however, was 0.28%.

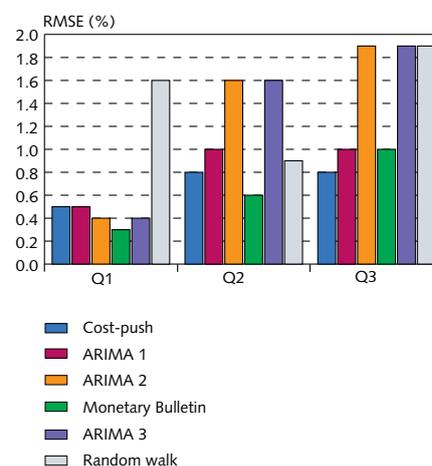
In recent years, these simple time-series models have been used in greater measure to improve the Bank's short-term inflation forecasts. This approach seems to have been beneficial, as short-term forecasting errors have diminished (Chart 3). Although there could be a variety of reasons for this improved performance, the possibility that the improvement is associated with the use of a greater number of models during forecast preparation cannot be excluded.

2. See "Monetary policy in Iceland after capital controls," Central Bank of Iceland, *Special Publication* no. 4, December 2010.

3. The opposite happened in 2009, when the Bank's inflation forecasts were slightly less accurate than those obtained with simple time-series models. See Appendix 2 in *Monetary Bulletin* 2010/2.

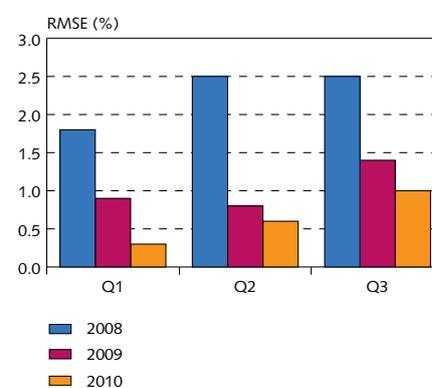
4. The ARIMA 1 model draws on forecasts for the main subcomponents of the consumer price index and weights them together to create a single overall index. The twelve subcomponents of the consumer price index are as follows: agricultural products less vegetables, vegetables, other domestic food and beverages, 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 tax effects. An interesting 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.

Chart 2
Forecast error for inflation in *Monetary Bulletin* and from simple models in 2010¹



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.

Chart 3
Forecast error for inflation in *Monetary Bulletin* from 2008 to 2010¹



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 2010

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

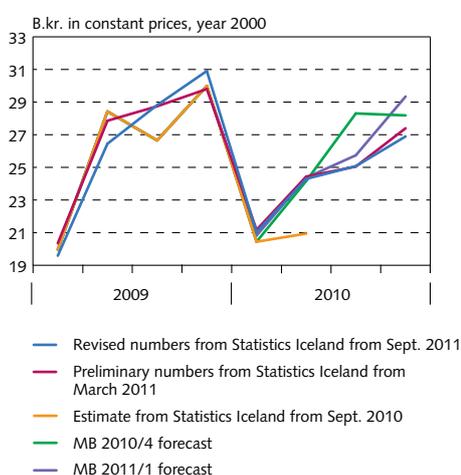
Statistics Iceland publishes national accounts figures for each quarter about two months after each quarter-end. The first estimates for Q4/2010 and the full year 2010 were published on 8 March 2011, and revised figures were published on 8 September. *Monetary Bulletin* forecasts and Statistics Iceland estimates of changes in key macroeconomic variables 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 Q3/2009 were available on 27 January 2010, when *Monetary Bulletin* 2010/1 was published. As a result, the Bank had to base its forecast for 2010 on the forecast for Q4/2009. It is noteworthy, however, that in spite of this, the forecast published in *Monetary Bulletin* 2010/1 was the most accurate forecast of developments in domestic demand and GDP growth for the year as a whole. This is an exception, as the general rule is that forecasts tend to improve as more information is accumulated.

Table 4 *Monetary Bulletin* – Macroeconomics forecasts for 2010

Forecast horizon from:	Q4/09	Q1/10	Q2/10	Q3/10	Q4/10	Pre- liminary figures March 2011	Revised figures Sep. 2011
Year-on-year change (%)	MB 2010/1	MB 2010/2	MB 2010/3	MB 2010/4	MB 2011/1		
Private consumption	-1.2	1.1	0.5	-0.3	-0.3	-0.2	-0.4
Public consumption	-3.2	-3.0	-3.2	-1.7	-3.5	-3.2	-3.4
Investment	-5.7	-10.2	-3.8	-3.7	-4.5	-8.1	-8.0
National expenditure	-2.8	-1.9	-0.7	-1.6	-2.4	-2.5	-2.7
Exports	1.5	0.4	-1.2	0.4	0.0	1.1	0.4
Imports	0.0	2.5	1.3	2.9	1.1	3.9	4.0
GDP growth	-3.4	-2.6	-1.9	-2.6	-2.7	-3.5	-4.0

Chart 4

Investment: Statistics Iceland's figures and Central Bank's forecasts



Sources: Statistics Iceland, Central Bank of Iceland.

A portion of the recent errors in the forecasts of investment growth – and therefore of GDP growth – can be attributed to assumptions concerning energy-intensive development projects that were subsequently postponed. The errors have also reflected the Bank's opinion that Statistics Iceland's preliminary figures on 2010 investment were underestimated. The Bank has based that opinion on a number of indicators, including imports of investment goods, the results of its own survey concerning planned corporate investment, and the Capacent Gallup corporate survey. Statistics Iceland's next review of 2010 figures is scheduled for March 2012. The accuracy of the Bank's forecasts of 2010 investment and GDP growth can be determined more reliably at that time.

Revision of statistics and forecasting errors

In Iceland as in other countries, historical statistics are usually revised at regular intervals, and often the final results are not available until

several years later. In Iceland, the tendency seems to be that these figures are revised upwards rather than downwards.⁵ For the period 2001-2010, for example, year-on-year investment growth in Q1 was revised upwards by an average of 1 percentage point from the first figures to the final ones. Corresponding revisions for other quarters range from 3 to 6 percentage points. Chart 5 shows how the Statistics Iceland estimates of year-on-year investment growth evolved from Q1/2001 to Q2/2011. It shows that the most recent figures usually lie at the upper end of the range given by the highest and lowest values of different data vintages. Chart 6 illustrates a similar tendency in Statistics Iceland's estimates of GDP growth.

The economic crisis and Central Bank forecasts

In the wake of the 2008 banking and currency crisis and the ensuing global economic crisis, economic activity contracted sharply in Iceland as it did elsewhere, although Iceland was hit harder than most other countries (see, for example, Section I). It is therefore interesting to determine how accurately the Bank forecasted the magnitude of the contraction in 2009-2010.

The Central Bank published its first forecast for the year 2010 in *Monetary Bulletin* 2007/3. That forecast assumed that a 2% contraction in GDP in 2009 would give way to positive growth in 2010.⁶ It reflected the unavoidable business cycle adjustment after years of overheating. The longer the adjustment predicted by the Bank was delayed, the deeper the forecasted contraction proved to be. At the beginning of 2008, the Bank's forecasts assumed a combined 4% contraction in GDP in 2009 and 2010. The financial crisis in the

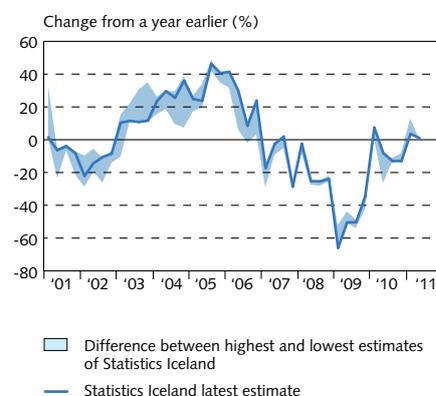
Table 5 GDP growth in 2009-2010 and Central Bank forecasts of the magnitude of the contraction (%)

<i>Monetary Bulletin</i>	GDP growth 2009	GDP growth 2010	Accumulated growth (contraction) '09-'10
MB 2007/3	-2.0	2.3	0.3
MB 2008/1	-2.5	-1.5	-4.0
MB 2008/2	-2.0	-1.9	-3.9
MB 2008/3	-8.3	-1.7	-9.9
MB 2009/1	-9.9	-0.8	-10.6
MB 2009/2	-11.0	-0.8	-11.7
MB 2009/3	-9.1	-2.2	-11.1
MB 2009/4	-8.5	-2.4	-10.7
MB 2010/1	-7.7	-3.4	-10.8
MB 2010/2	-6.5	-2.6	-8.9
MB 2010/3	-6.5	-1.9	-8.3
MB 2010/4	-6.8	-2.6	-9.2
MB 2011/1	-6.8	-2.7	-9.3
MB 2011/2	-6.9	-3.1	-9.8
MB 2011/3	-6.9	-3.1	-9.8
MB 2011/4	-6.7	-3.6	-10.1

5. See, for example, Ásgeir Danielsson (2008), "Accuracy in forecasting macroeconomic variables in Iceland", Central Bank of Iceland, *Working Paper*, no. 39.

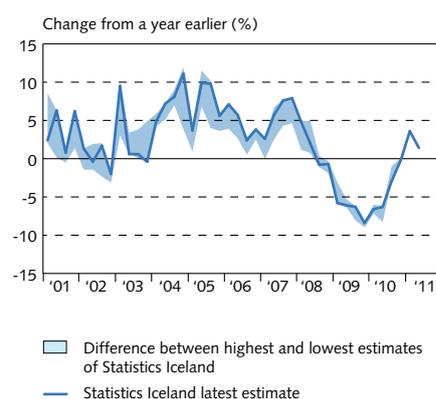
6. It should be borne in mind that, at this time, the Central Bank was the only domestic analyst to forecast that an economic contraction was in the offing. The Bank was criticised harshly for excessive pessimism (see, for example, a comparison of different forecasts in a survey of other analysts' forecasts, published regularly by the Bank in *Monetary Bulletin*).

Chart 5
Revision of gross investment growth



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 6
Revision of GDP growth



Sources: Statistics Iceland, Central Bank of Iceland.

autumn of 2008 led to a major revision of the Bank's forecasts. The revised forecasts provided for an approximately 10% contraction in GDP in 2009-10, which is turning out to be very close to reality, although the distribution of the contraction between the two years has changed. It has emerged that the 2009 contraction was originally overestimated and a larger share of the downturn took place in 2010 than was assumed at the outset. The total contraction, on the other hand, was in line with original forecasts, which must be considered acceptable performance in view of the magnitude and unprecedented nature of the shock to the Icelandic economy.