

## Exchange rate stability critical while private sector balance sheets recover

While current monetary policy is guided by the interim objective of stabilising the exchange rate, attaining the inflation target remains the long-term goal. To a degree, the attempt to stabilise the króna has been successful since the foreign exchange market resumed operation in early December 2008. It has been possible to prevent extreme exchange rate movements, although the króna has fluctuated somewhat since the market reopened. The surplus on external trade has not provided the króna with the expected support. This has made it more difficult for monetary policy to facilitate the reconstruction of private sector balance sheets and has necessitated relatively restrictive policy at the outset of the financial crisis. The monetary stance has begun to ease, but caution is still needed. Since the last issue of Monetary Bulletin, the policy rate has been cut by 2.5 percentage points. Temporary capital account restrictions promote exchange rate stability by preventing unchecked capital outflows. Because of the perceived risk attached to Icelandic financial assets, an extremely wide interest rate differential with abroad would be needed in order to support the króna in the absence of such capital controls, and probably after their eventual removal as well. As long as there is substantial uncertainty about the country's external debt, the status of public sector finances, and the restructuring of the financial system, capital controls will remain a prerequisite for significant easing of monetary policy. Furthermore, given the uncertainty related to the global financial crisis, there is little reason to lift them at this time. That uncertainty has escalated still further since Monetary Bulletin appeared in January. Moreover, the outlook for world output growth and global trade has been revised sharply downwards; hence, the prospects for export-driven growth in the medium term are more uncertain than before. This implies a stronger contraction in output in 2009, which suggests that recovery will be delayed longer than was forecast in January. This is exacerbated by the fiscal consolidation programme included in the forecast, which assumes expenditure cuts and an increased tax burden over the next few years, with the aim of ensuring a sustainable fiscal balance. Consequently, unemployment will remain high longer than was envisaged in January. The disinflation already underway will continue unabated. The forecast assumes that inflation will fall below 10% as early as this summer and approach the inflation target early in 2010. This is supported by most measures of inflation expectations, which indicate that rapid disinflation is widely expected. Nonetheless, inflation expectations have yet to be firmly anchored.

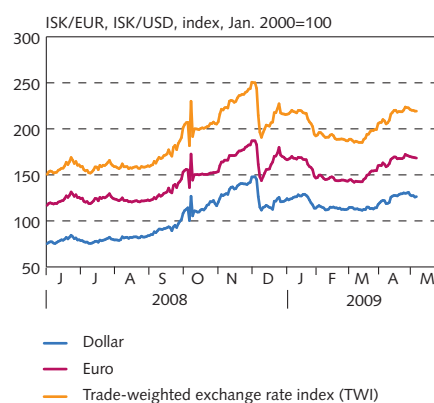
### I Inflation outlook and monetary policy

#### The currency crisis strikes hard at the domestic real economy

Like the currencies of many small countries, the Icelandic króna has depreciated substantially since last autumn, in the aftermath of global financial turmoil. The króna has suffered more than most of them, however, which is understandable in the context of the near-total collapse of the domestic banking system. The króna has depreciated by nearly 30% from the same time last year. The depreciation has substantially increased the debt burden borne by those households and firms that have borrowed in foreign currency. This has affected the credit quality of loans. Thus the balance sheets of the domestic banks have been hit hard as well, impairing the banks' ability and willingness to extend further credit.

In addition, the depreciation had substantial inflationary effects, with inflation peaking at 18.6% in January. This has eroded private demand further by increasing the nominal debt payment burden and reducing real disposable incomes.

Chart I-1  
ISK against EUR, USD and TWI

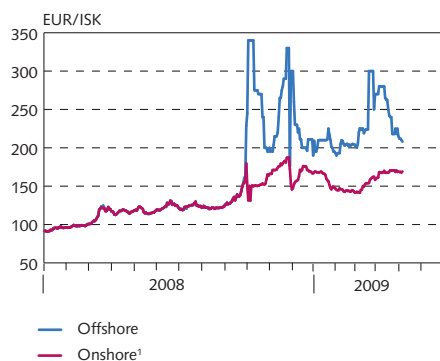


Source: Central Bank of Iceland.

1. This article uses data available on May 6, 2009, but the forecast is based on data until April 29.

Chart I-2  
The ISK exchange rate markets  
against the euro

Daily data January 1, 2008 - May 6, 2009



1. The onshore rate is the daily closing rate.  
Source: Reuters.

Chart I-3  
CDS spread for Iceland  
Daily data March 29, 2007 - May 5, 2009



The sudden stop of financial inflows last fall and the currency crisis that followed have resulted in an enormous adjustment of private demand. Consumption and investment fell by almost one-fourth year-on-year in Q4/2008. A contraction of close to 50% in imports of goods and services, however, implied a much smaller reduction in total output, or 1.5%. The current outlook is for demand and output to continue to contract until the economy gradually begins to recover in mid-2010.

### Balance sheets are vulnerable to large currency movements ...

Because depreciation of the króna affects the foreign currency-denominated debt of households, companies and the banks so strongly, it is imperative to prevent a more extreme drop. A rebound of the króna after its sharp initial depreciation last autumn was therefore critical in limiting the depth of the crisis. This still keeps the real value of the króna at a highly competitive level. Indeed, it could be argued that a significant appreciation would be consistent with or even conducive to a rapid recovery of the domestic economy. A higher real exchange rate would lower the debt burden of highly indebted firms and households, some of which are technically bankrupt at the current exchange rate level and therefore have difficulty obtaining trade credit and working capital.

### ... hence exchange rate stability is an important goal of monetary policy

To facilitate the reconstruction of private sector balance sheets, the Central Bank, the Government, and the International Monetary Fund (IMF) agree that a fundamental element of the programme for economic recovery in Iceland is to stabilise the króna. Exchange rate stability is also important in re-establishing price stability in Iceland. This has called for a tight monetary policy stance at the outset and for temporary restrictions on capital movements to avoid disorderly outflows of capital. Given the weak state of the Icelandic economy and the economic distortions accompanying capital controls, both measures are unfortunate but indispensable elements of a strategy aimed at supporting a sustainable recovery.

Monetary policy has been complicated by the dual market for the króna that has emerged as a consequence of the capital controls. Transactions related mainly to trade flows take place on the official onshore market, while some transactions between non-resident holders of Icelandic financial instruments take place on a separate market that has developed offshore. Both markets are very thin, and relatively small transactions can easily generate large exchange rate movements. This causes further vulnerabilities because financial instruments for smoothing out these fluctuations and hedging against them are largely absent in the current situation.

The spread between the onshore and offshore exchange rates has narrowed again after widening during the first months of the year, with the króna now trading at 208 against the euro on the offshore market, or roughly 23% lower than on the onshore market.

### Capital controls are always prone to leakage

Leakages in the capital controls have been observed in recent months. Trading partners have been able to purchase krónur at low prices on the offshore market and pay exporters in krónur instead of foreign currency. This implies that the recent improvement in external trade flows has not supported the króna to the extent expected. Instead, the limited inflow of foreign currency has not been sufficient to counterbalance the outflow stemming from interest payments to non-resident holders of Icelandic bonds, thus placing downward pressure on the króna.

With large pent-up pressure of capital outflows, the Central Bank, in co-operation with the Government and the IMF, has been preparing measures to allow investors that are willing to unwind their positions at virtually any rate to do so in an orderly manner. Once these measures have been put in place, they should somewhat ease the pressure on the currency.

The preconditions for removing the capital controls are not yet in place. Significant uncertainties remain concerning Iceland's external debt, Government financing, and financial sector restructuring. Unless clarity on these issues is established and the global financial turmoil subsides, the complete removal of capital account restrictions could result in massive capital outflows, with unforeseeable consequences for the exchange rate and inflation. Hence, restrictions will most likely have to remain for some time.

### Financial turmoil affects the interest rate differential needed to support the króna

One of the consequences of the ongoing financial crisis is a considerable increase in perceived risk in global markets. This has led to a significant rise in risk premia on all types of financial assets, as is indicated by increasing spreads of returns over riskless rates, such as those on money market rates over policy rates, or yields on corporate debt over those on government debt.

The perception of increased risk is reflected particularly in risk premia on financial products of countries – such as Iceland – that have been hit hard by the financial crisis. The risk premia reflect greater uncertainty concerning the economic outlook in Iceland than in most other countries, in particular the sustainability of sovereign debt. This uncertainty, together with the inherent currency risk, leads investors to demand a higher rate of return on Icelandic assets.

One measure of the perceived riskiness of assets denominated in krónur is the credit default swap (CDS) price of insuring against the risk of default on Icelandic Government debt. The CDS spread on Icelandic Government debt remains around 8-9 percentage points, compared to 2-3 percentage points in other small industrial countries that have been hit hard by the current crisis, such as Greece, Ireland and Portugal.

As the CDS market remains thinly traded and vulnerable to market manipulation, its reliability as a measure of the exact level of the risk premium is open to question. However, the comparison of the

Chart I-4  
Short-term interest rates differential<sup>1</sup>  
Daily data January 4, 2007 - May 5, 2009

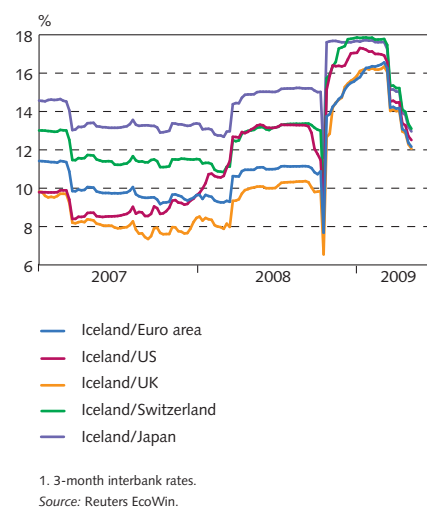


Chart I-5  
World trade<sup>1</sup>

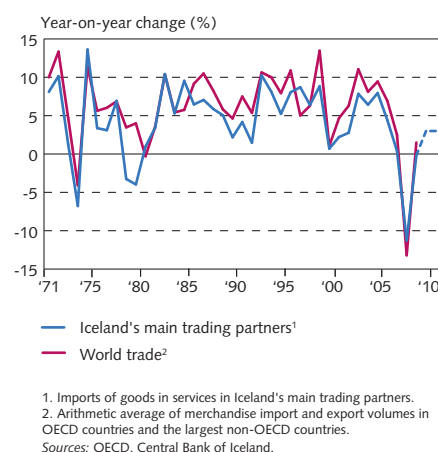


Chart I-6  
Output growth - comparison with MB 2009/1

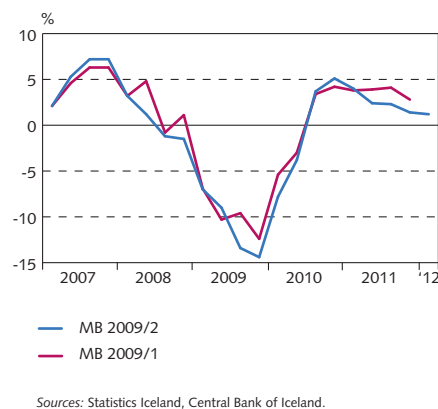
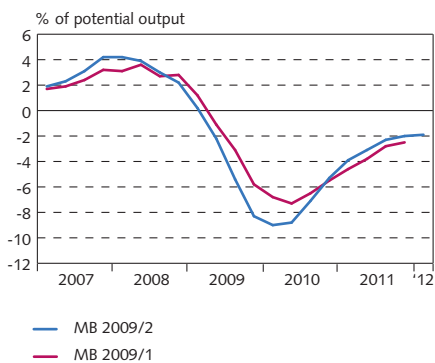
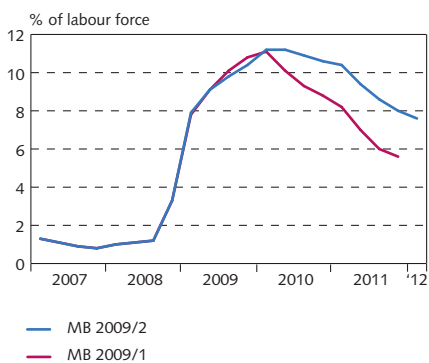


Chart I-7  
Output gap - comparison with MB 2009/1



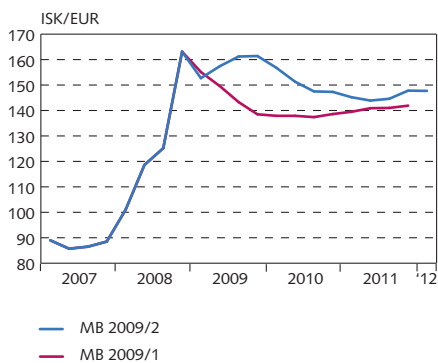
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-8  
Unemployment - comparison with MB 2009/1



Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-9  
Exchange rate of the euro -  
comparison with MB 2009/1



Source: Central Bank of Iceland.

CDS spread for Icelandic assets relative to assets of other industrial countries does suggest that the required additional return for holding króna assets is significant. The interest rate differential required to support and stabilise the króna in this period of great uncertainty is therefore commensurably higher.

### The international financial crisis spills over into global trade

While global economic activity began to slow down gradually during 2008, the outlook worsened swiftly from mid-September onwards. Since then, the impact on the global real economy has intensified as private sector wealth has declined sharply and the credit crunch has deepened. The latest OECD forecast is now for a 2.7% contraction in world output this year, the first global contraction in sixty years. The financial turmoil has hit the manufacturing sector and tradable goods particularly hard; hence the global trade outlook is for an even sharper downturn. The outlook suggests a 13% contraction of in global trade, and the imports of Iceland's main trading partners are forecast to contract by a similar magnitude.

### Adjustment of the domestic real economy is already underway ...

The restructuring of private sector balance sheets and the adjustment of the domestic economy are already underway, reflecting both the severity of the shocks hitting the economy and the economy's flexibility in adjusting to them.

Domestic demand is projected to contract more strongly than was assumed in January. This mainly reflects a downward revision of the investment profile in the current forecast, as well as a downward revision of Government expenditure, which is an important part of the fiscal consolidation needed during the next few years. Total output will also contract more than previously assumed, although a positive impact from net trade is likely to dampen the contraction somewhat. The output slack is still projected to peak in mid-2010, however, before the economy begins to turn around.

The labour market outlook reflects the above developments. Unemployment is expected to peak early in 2010 before gradually declining. Given the size of the negative shocks that have hit the economy, however, the slack in the goods and labour markets will persist well into 2013-2014.

### ... and inflationary pressures are disappearing rapidly

The outlook is for the exchange rate to remain somewhat weaker over the next three years than was forecast in January. Among other things, this reflects the deteriorating outlook for the global economy, which affects the balance of payments outlook. Consequently, the real exchange rate will fall somewhat more in the medium term than was assumed in January.

Although the króna has depreciated by 11.4% since the January forecast, the pass-through to inflation is likely to be modest. Although some of the depreciation may still be feeding through the import chain into domestic prices, it is likely, in light of the sharp contraction in domestic demand, that a significant share of the depreciation will

be absorbed by lower profit margins. Given the weak labour market and the sharp drop in corporate earnings, it also remains unlikely that the exchange rate depreciation will feed into wages. Hence the ongoing disinflation following the inflation peak in January is forecast to continue unchecked. The outlook is for inflation to return to single-digit numbers as early as Q3/2009, and to reach the inflation target early in 2010. This is supported by recent indicators of inflation expectations from financial markets and a corporate sector survey. On the other hand, rising inflation expectations observed in a recent survey of households and the volatility of breakeven measures of inflation expectations from bond yields suggest that inflation expectations remain sensitive to short-term economic news and have yet to be firmly anchored. However, given the current weak labour and goods markets, this is unlikely to entail a significant risk of second-round effects.

There is some probability of temporary deflation next year if the currency remains relatively stable, although persistent deflation is very unlikely. The current policy interest rate level implies that there is substantial scope to lower rates should the risk of persistent deflation arise. Given the openness of the economy and the large risk premium on ISK assets, such easing would presumably weaken the króna and push inflation back into positive territory. Furthermore, given the high level of indexation of domestic debt contracts to the domestic price level, a deflationary episode would not lead to a higher real debt burden, as it would in countries where financial contracts with fixed nominal interest rates are more common.

### The baseline scenario remains shrouded in uncertainty

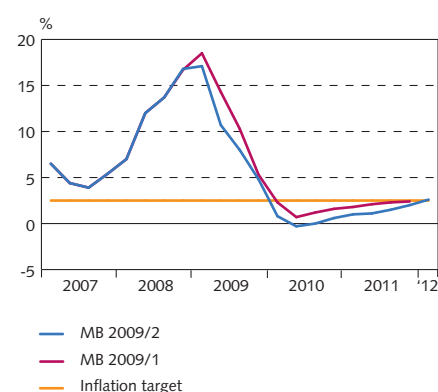
Central Bank staff considers the above baseline forecast to be the most likely outcome; however, the level of uncertainty concerning the path of the economy in the years to come is extremely high.

Charts I-11 and I-12 compare the baseline forecast for output and inflation, with two alternative scenarios based on different assumptions concerning the global economy, the reconstruction of domestic balance sheets, and the restructuring of the banking system.

In the first alternative scenario, the global contraction is more protracted than is assumed in the baseline scenario, further reducing world trade and demand for exports from Iceland. This will coincide with an even lower real exchange rate level. At the same time, it is assumed that the domestic economy will recover more slowly. The output contraction will therefore be larger and more prolonged than in the baseline scenario, possibly resulting in a second wave of corporate bankruptcies, costlier sectoral adjustment, and more elevated and persistent unemployment. In this scenario, the decrease in inflation will be stronger than in the baseline scenario, although a weaker króna will counteract this effect to some extent.

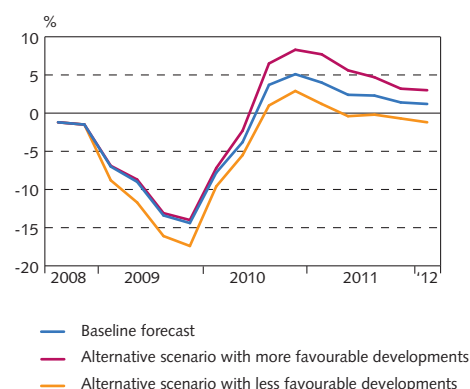
The second alternative scenario paints a more positive picture. It assumes that the global and domestic economies recover more quickly than is assumed in the baseline forecast. In this scenario, the contraction in output this year is similar to the baseline forecast, but

Chart I-10  
Inflation - comparison with MB 2009/1



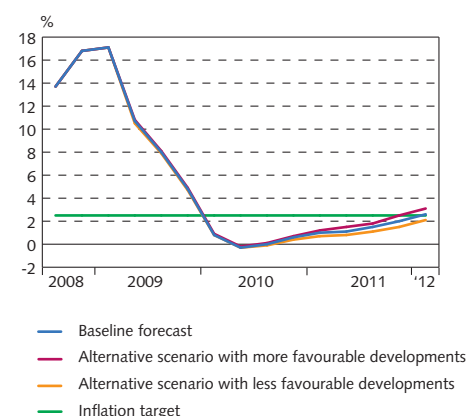
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-11  
Output growth - alternative scenarios



Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-12  
Inflation - alternative scenarios



Sources: Statistics Iceland, Central Bank of Iceland.

the recovery is swifter. The króna remains somewhat stronger than in the baseline scenario, thus counteracting the slightly greater inflationary pressures stemming from faster economic recovery.

### **Monetary policy easing commences, but policymakers face a dilemma**

Since the publication of *Monetary Bulletin* 2009/1 in January, the policy rate has been reduced by a total of 2.5 percentage points to 15.5%: first by 1 percentage point on March 19 and then by 1.5 percentage points on April 8.

Monetary easing is therefore underway, although the steps taken so far have been cautious. The sharp contraction of the real economy calls for a rapid relaxation of monetary policy. On the other hand, the need for exchange rate stability in the restructuring phase necessitates caution. This poses a difficult trade-off for policymakers. Lowering the policy rate in relatively small but frequent steps allows the Central Bank to observe the foreign exchange market's reaction to each rate cut.

The current outlook suggests that monetary policy easing can continue. However, the easing cycle is constrained by the disinflation outlook and the uncertainty surrounding the external debt situation. A credible programme for fiscal consolidation and financial sector restructuring is also an important determinant of the pace of monetary easing.

### **The financial crisis limits the effectiveness of monetary policy**

Due to the financial crisis, the mechanism for pricing and supplying credit to the private non-banking sector has largely ceased functioning. This reduces the effect of policy rates on other interest rates and on financial markets in general. Furthermore, in the wake of financial crises, households and firms typically increase their savings and deleverage their balance sheets. The breakdown of financial intermediation and the ensuing credit crunch limits the extent to which monetary policy can support the economic recovery. The current forecast assumes that the situation will gradually normalise, beginning in mid-2010, when it is expected that the standard transmission channels of monetary policy will be more or less restored.

### **Effective monetary policy hinges on successful anchoring of inflation expectations**

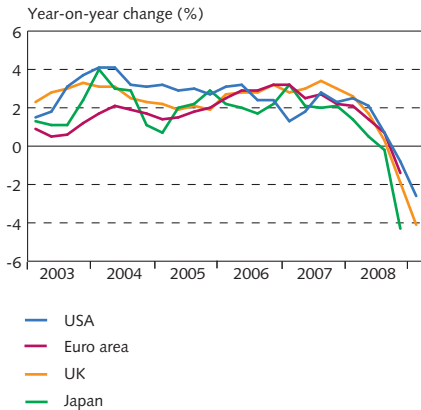
A credible nominal anchor is critical to the role of monetary policy in stabilising output and employment. It is clear from recent events in Iceland that a lack of confidence in the nominal anchor has prevented the Central Bank from easing monetary policy as rapidly as would otherwise be desirable. A credible nominal anchor is important in the aftermath of the crisis as well, as it strengthens the impact of less restrictive monetary policy on long-term yields, and therefore on borrowing costs.

While a stable exchange rate is the interim goal of monetary policy at the present time, the overriding long-term goal remains a credible nominal anchor in the form of low, stable inflation. Unless a

decision is made to the contrary, the Central Bank's effort to anchor inflation expectations will be based on the inflation targeting regime once the financial system becomes fully operational again. The Central Bank will review its operating procedure within the inflation-targeting regime to ensure its greater success in the future.

## II External conditions and exports

Chart II-1  
International growth  
Real GDP growth Q1/2003 - Q1/2009



The outlook for world economic growth has deteriorated steadily since late 2008. The financial crisis has affected the real economy in the form of declining consumption and production. A synchronised global slowdown has resulted in falling commodity prices and inflation and has contributed to declines in equity prices. Significant disruptions in the supply of trade credit have hurt world trade. Last year's fear of stagflation has given way to fear of deflation. Some countries, such as Ireland, Japan and the United States, have already seen prices drop year-on-year, while in others – such as the euro area – inflation is close to zero. This deteriorating outlook for the world economy makes an export-driven recovery for Iceland more uncertain. Furthermore, prices of key export goods will be lower, and terms of trade have deteriorated. A lower real exchange rate will partly compensate for this, however, as price competitiveness of the export sector in Iceland has increased.

### Deep and synchronised global recession ...

The global economic outlook has deteriorated sharply since the publication of *Monetary Bulletin* in January. The world economy is in a deep recession, and any hopes that emerging and developing countries would escape the downturn have evaporated. A number of countries have already turned to the IMF for emergency assistance.

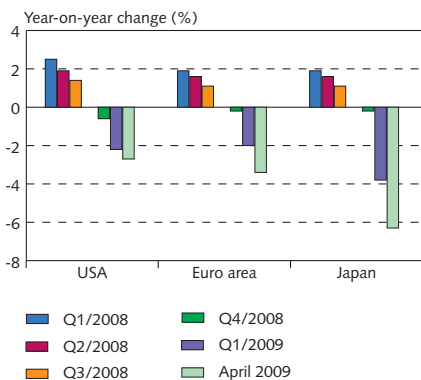
In most major countries, output fell year-on-year in Q4/2008, with declines ranging from 0.8% in the United States and close to 2% in the euro area and the United Kingdom to as much as 4.6% in Japan. A similar contraction is also occurring in the Nordic area, ranging from 2.4% in Finland to 4.9% in Sweden. The only exception is Norway, where output grew by a mere 0.4% year-on-year in the fourth quarter of 2008. In Q1/2009 output fell further, by 2.6% in the United States and 4.1% in the United Kingdom.

Forecasts for this year continue to be revised downwards, and the outlook is for the contraction to intensify. GDP in the OECD area as a whole is expected to fall for the first time since World War II, while world output, as defined by the OECD, is expected to contract by 2.7% in 2009. This puts global output well below the threshold set by the IMF, which defines a global recession as annual world output growth below 3%. The OECD forecast assumes that global output will gradually begin to recover in 2010. The contraction will be even more severe among Iceland's trading partners, or 4.4% in 2009.

According to an OECD forecast, however individual countries are affected differently by the global recession. Japan is expected to see the largest contraction in output, or 6.6% in 2009 and 0.5% in 2010. Other major OECD economies are not far behind, as output in the US, the UK, and the euro area is expected to contract by around 4% in 2009. In 2010, output in these same economies is expected to remain close to 2009 levels.

Unemployment rates are set to rise in line with the contraction in output. In the latest OECD forecast, the unemployment rate in the OECD area is projected at around 10% in 2010, up from 8.4% in

Chart II-2  
Output growth forecasts for 2009  
Time axis shows month of forecast (from Q1/2008)





2009. In 2010, unemployment is expected to reach 11.7% in the euro area and 10.3% in the US. Japan will not be hit as hard, as its jobless rate is projected at 5.6% in 2010.

### ... coinciding with huge losses of private sector wealth...

By early March, global equity prices had fallen some 50% from their mid-2007 peak. They have begun to recover somewhat over the past month, however, as fiscal stimulus packages and other government policy actions begin to have an effect. But it will clearly be some time before equity prices reach mid-2007 levels again. Another factor eroding household balance sheets is the substantial drop in house prices. In conjunction with the global slowdown, many countries – including the US, the UK, and Spain – have seen prices plummet as housing bubbles burst. These factors have strongly affected household and corporate wealth, deepening the recession in the real economy. Households have responded by stepping up their precautionary savings and reducing consumption, particularly of expensive durable goods, thus increasing the difficulties faced by sectors such as the automotive industry. Corporations have boosted savings as well, while deleveraging their balance sheets, prompting a contraction in investment. As a result, the global recession continues to deepen as consumption and investment decline worldwide.

### ... and mounting uncertainty

As a result of the developments mentioned above, consumer confidence has weakened sharply in line with rising unemployment, contraction in output, tightening of credit conditions, and the erosion of household balance sheets. In both the euro area and the US, consumer and corporate sentiment is at its lowest level since 1980. This has resulted in a further decline in investment and consumption.

### Oil and commodity prices plunge

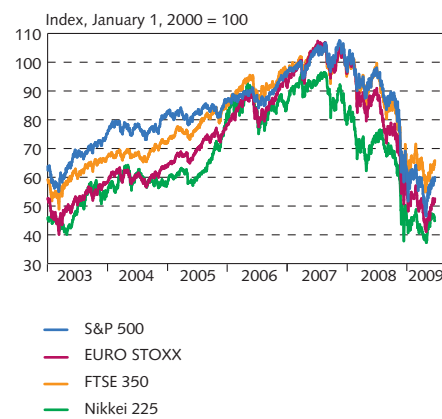
Oil prices bottomed out in December 2008, having dropped three-quarters from their mid-year peak. The plunge is largely due to a contraction in demand caused by the global downturn. Oil markets have been relatively quiet in recent months, with crude oil prices hovering in the range of 45-50 dollars per barrel since January 2009. The average price for the first fourteen weeks of 2009 was 15% below Q4/2008 averages. In order to prop prices up, OPEC has announced and to some extent implemented production cuts. As a result, forward prices are inching upwards, and year-end 2009 prices are currently expected to be 20% higher than mid-April prices. According to Brent Crude futures prices, oil prices are expected to rise considerably in the next two years, or around 20% in 2010 and 8% in 2011.

Commodity prices have fallen in tandem with oil prices as the global recession has deepened. The causes are largely the same: slowing demand due to the financial crisis and reduced household wealth. The difference between the mid-2008 peak in monthly prices and the December 2008 trough was almost 50%. Prices have rebounded somewhat since, or by 16% as of mid-April, but are expected to remain near 2006-2007 levels throughout 2009.

Chart II-3

#### Equity prices

Daily data January 1, 2003 - May 1, 2009

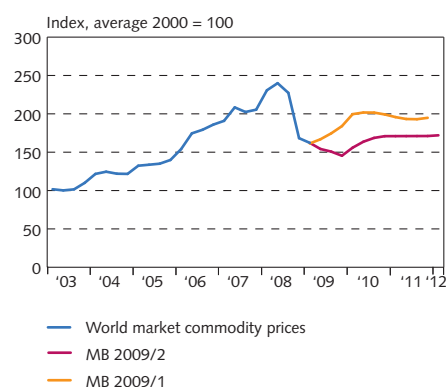


Source: Reuters EcoWin.

Chart II-4

#### Commodity prices<sup>1</sup>

Quarterly data Q1/2003 - Q1/2012

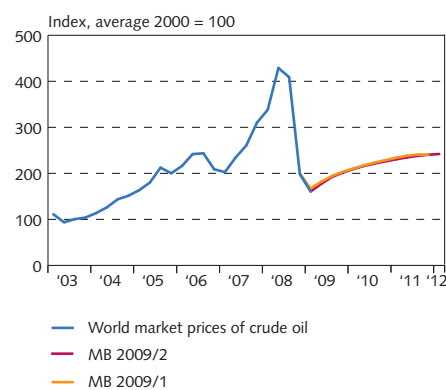


1. Non-oil commodity prices in USD.  
Sources: Bloomberg, Central Bank of Iceland.

Chart II-5

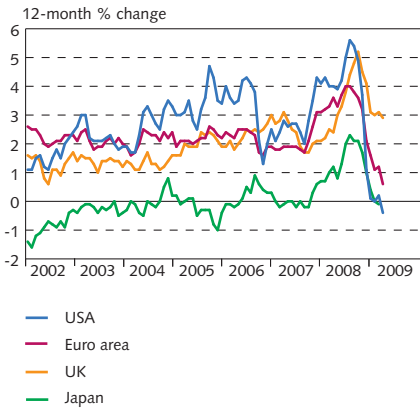
#### Oil prices

Quarterly data Q1/2003 - Q1/2012



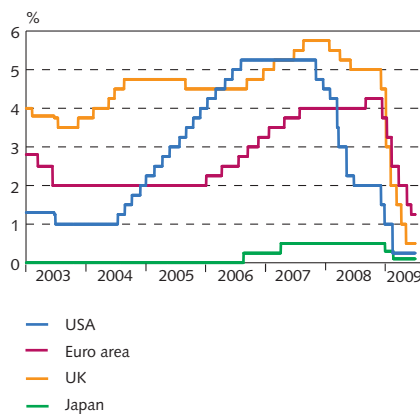
Sources: Bloomberg, Central Bank of Iceland.

Chart II-6  
International inflation  
Monthly data January 2002 - March 2009



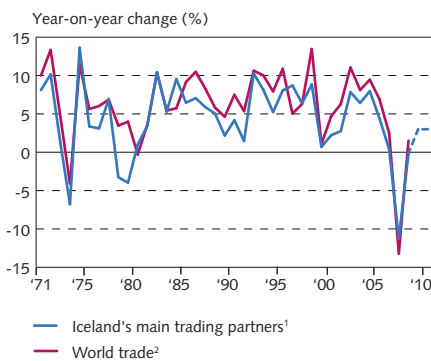
Source: Reuters EcoWin.

Chart II-7  
International policy rates  
Daily data January 1, 2003 - May 1, 2009



Source: Reuters EcoWin.

Chart II-8  
World trade<sup>1</sup>



1. Imports of goods in services in Iceland's main trading partners.  
2. Arithmetic average of merchandise import and export volumes in OECD countries and the largest non-OECD countries.  
Sources: OECD, Central Bank of Iceland.

Changes in oil and commodity prices have strongly affected the world economy. At the beginning of 2008, rising oil and commodity prices caused inflation spikes in many countries, including the UK. Since then, they have fallen substantially, pulling headline inflation rates down worldwide. Due to base effects from the earlier rise in oil and commodity prices, deflation is likely to occur in many countries, despite limited changes in core inflation.

### Central banks adopt alternative monetary policy measures as inflation subsides

As the recession deepens, inflation rates in many countries are converging towards zero. Inflation in the US measured -0.4% year-on-year in March, the first year-on-year decline in the US since 1955, and inflation for the year 2009 is projected at -0.4%. Japan has moved into deflation territory as well: in March, year-on-year inflation measured -0.3%, and annual inflation is projected at -1.2% for 2009 and -1.3% in 2010. The euro area is bordering on deflation, with consumer prices rising by only 0.6% year-on-year in March and inflation projected at 0.6% for 2009 as a whole. All over the world, inflation rates are falling for the same reasons: lower commodity and oil prices, coupled with declining demand. Only in a handful of economies, notably in Central and Eastern Europe, is inflation on the rise. In Poland, the depreciation of the zloty in February caused inflation to spike, with consumer prices rising 3.6% year-on-year in March. The Ukrainian hryvnia has also depreciated sharply, causing inflation to measure over 20% in end-2008. However, as soon as the currencies in the region stabilise, inflation is likely to retreat in Central and Eastern Europe as it has elsewhere.

Falling inflation rates have given many central banks more room to ease monetary policy in an attempt to stave off further deterioration of the global outlook. Key policy rates have been cut aggressively and are at historical lows in many countries. The US Federal Reserve, the Bank of Japan, and the Bank of England have cut their policy rates to near zero. As a result, they have turned to alternative measures to relax their monetary stance and have announced and implemented plans to buy government and commercial paper. Central bank balance sheets are likely to remain unusually large until the crisis subsides.

### World trade contracts sharply

As consumption, investment and credit contract around the world, trade follows suit. Imports and exports have contracted in most major economies, particularly Japan. Due to the severity and simultaneity of the current global recession, countries such as Japan and Germany, which base their growth primarily on export manufacturing, have seen the largest drop in output. Emerging and developing countries have been particularly reliant on private capital inflows and international trade; therefore, reversal of these two trends has hit these countries especially hard. All prior hopes that developing and emerging market economies would not be dragged into recession and could thereby boost global demand and enable export-driven recovery have been abandoned. The World Trade Organization recently forecast a

9% decline in world trade this year. If that forecast should materialise, 2009 will see the first decline in trade volume since 1982. The OECD recently forecast a 13% contraction in world trade this year and a contraction in imports of around 11% for Iceland's main trading partners. This rapid reversal of trade flows reflects the severity of the global crisis and the resultant tightening of the credit supply that is so important to facilitate trade. It also reflects how swiftly the financial crisis spills over between countries as a result of ever-closer cross-border trade links.

The international financial crisis has caused considerable turmoil in commodity markets in general and in ground metals markets in particular. While prices of the main ground metals rose rapidly during the first half of 2008, aluminium lagged behind, peaking last July at 3,300 US dollars per tonne. The price plunged in autumn 2008 and had fallen by 50% from its July peak by the end of the year.

The impact of the global financial crisis is twofold: on the one hand, less access to credit by hedge funds and commodity dealers has caused them to withdraw from metals markets to some extent. On the other hand, global contraction in the real economy, especially in the construction sector and automotive industries – both of which are major aluminium users – has reduced demand for aluminium.

Underlying fundamentals will still be the main drivers behind price developments in coming months. Global growth in demand slowed markedly in 2008, amounting to only about 2% compared to a 10% increase in 2007. According to commodity analysts, a drop in global demand of about 3-4% is anticipated in 2009.<sup>1</sup> However, recent years have seen sizeable increases in aluminium production, which grew by 12% in 2007 and over 5% last year. The increase in production, primarily from China, has exceeded consumption growth in the past few years. While production capacity has been rising rapidly, growth in demand has diminished. This has led to an increasing imbalance between supply and demand and a sudden rise in global inventories.

The LME (London Metal Exchange) aluminium inventories were 1 million tonnes in the first half of 2008. Stocks increased rapidly from mid-2008 and amounted to 3.7 million tonnes in mid-April 2009. Annual consumption in Western industrial countries is estimated at around 40 million tonnes. When this inventory is measured against the rate of consumption, stocks were equivalent to 2.5 weeks' consumption in the first half of 2008, but by mid-April 2009 they amounted to 8 weeks' consumption. The interplay of declining demand and greatly increasing stock levels has therefore depressed prices in the last eight months.

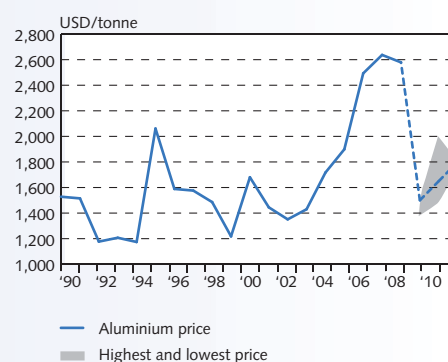
As a result of plummeting prices since last autumn, about three-quarters of global production is currently operating at a loss. A logical reaction would be to curtail production under these circumstances, but production cuts have been slow to emerge for a number of reasons. Production cutbacks in aluminium take time to implement and are expensive due to the technical costs of closing down pot-lines. In addition, power, which is the second-largest expense item, is generally a fixed cost. Moreover, Chinese production has been subsidised to some extent, and the Chinese authorities have been buying domestic aluminium at a premium. All of these factors have slowed the supply response to declining demand.

1. Commodity Monthly, Danske Bank, April 2009.

## Box II-1

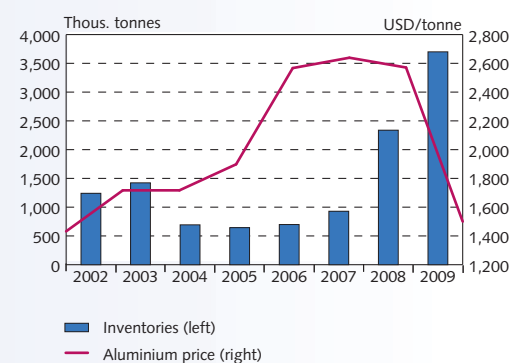
### The outlook for aluminium prices

Chart 1  
Aluminium price  
Annual data



1. Central Bank baseline forecast 2009-2011. Shaded area shows highest and lowest projections from forecasters other than the Central Bank.  
Sources: Danske Bank, Deutsche Bank, LME, Central Bank of Iceland.

Chart 2  
Relation between inventories and aluminium price



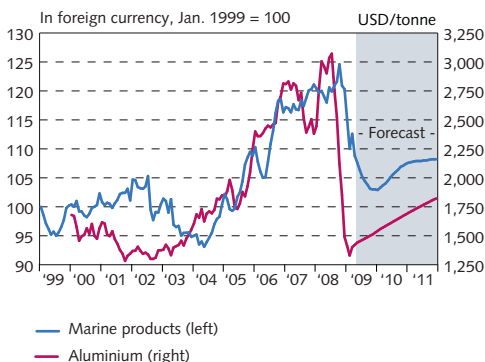
Sources: GFMS, London Metal Exchange.

Aluminium prices are not expected to bounce back in the coming months unless considerable cutbacks in production occur, followed by destocking. On the other hand, the probability is now greater that prices have bottomed out and a slow recovery will set in. The average price during the first fourteen weeks of this year was around 1,400 dollars per tonne, and LME forward prices indicate that the average price for 2009 will be around 1,470 dollars. Price forecasts from analysts and consulting firms average just under 1,500 dollars per tonne for 2009.<sup>2</sup> In addition, the US dollar has depreciated somewhat recently, which generally has a positive effect on commodity prices denominated in dollars. Production curtailments of 14% (about 5.5 million tonnes) have been announced, based on CRU estimates, but these cutbacks are not considered sufficient to boost prices in the short term. Some analysts (e.g. Davenport Equity Research and Norsk Hydro) suggest that cuts in production of up to 8-10 million tonnes this year (about one-quarter of annual global production) are necessary to achieve a balance between demand and supply and eventually reduce inventories.

Although economic recovery in the industrialised world would have a positive influence on aluminium prices, surplus production capacity is likely to restrain price increases. Prices are expected to rise only slightly this year, and not until well into 2010 will they increase appreciably. The baseline forecast assumes a 9-10% increase in prices in 2010 and 2011, following a 42% fall in prices this year over 2008. At the end of the forecast period, aluminium prices are expected reach 1,800 dollars per tonne, which is similar to their 2005 level. These assumptions are based on LME futures prices and price forecasts from leading analysts.

2. Platt's, Deutsche Bank, GFMS Metals Consulting, Danske Bank.

Chart II-9  
Prices of marine exports and aluminium



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

### Terms of trade have deteriorated further ...

Aluminium prices peaked in July 2008 and fell sharply thereafter, mostly in the fourth quarter. The downward trend continued for the first two months of 2009, although at a slower pace. Over the past two months, prices have risen again and are now close to end-2008 levels. In February 2009, aluminium prices had fallen 57% from their 2008 peak, but as of mid-April they had rallied by some 15%. The price drop was caused primarily by much weaker demand due to the global downturn and declining world trade, as is discussed above. Moreover, aluminium production growth has outstripped demand in the last few years, leading to accumulation of inventories and ultimately pressing prices downwards (see Box II-1).

For the last five years, marine prices have risen steadily and are now one-third higher in foreign currency terms than in mid-2004. This is a significant increase, especially considering that marine products are primarily consumption goods rather than conventional commodities. Prices of relatively expensive products, such as fresh and salted products, as well as cod, have risen most. Reduced demand from Iceland's main business partners has caused the prices of the most expensive products to fall sharply in the past few months. Less expensive products have also fallen in price, but to a lesser extent. Thus marine prices overall were 9.1% lower in Q1/2009 than in Q4/2008. Market participants believe the worst is over in terms of price decreas-

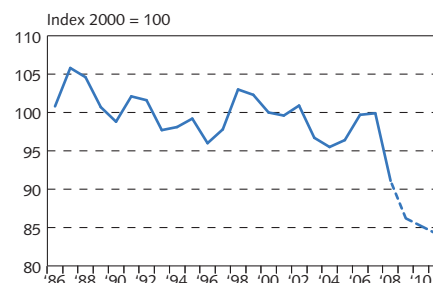
es, and that some of the main products will even see prices recover slightly in coming months. It is unlikely, however, that marine prices will rise to any marked degree before 2010 at the earliest. The current forecast assumes that they will be 12% lower in 2009 than in 2008, as opposed to a 9% decline in the January forecast. They are now expected to rise by 1% in 2010 rather than remaining unchanged, as was forecast in January.

Terms of trade deteriorated by 9% in 2008. It is clear that subsequent price changes since then and expectations of future prices will cause them to deteriorate even further. The influence of falling aluminium prices is critical, as aluminium is the second-largest component of Iceland's merchandise exports in 2009. Marine products are again the largest export category; therefore, falling marine prices have an impact as well. However, lower fuel prices together with lower industrial supplies prices tend to improve terms of trade. In view of all these factors, terms of trade are now expected to deteriorate by 5.3% in 2009 and by another 1.2% in 2010, compared with a decline of 3.5% in 2009 and a rise of 0.9% in 2010 according to the January forecast.

### ... and the real exchange rate drops

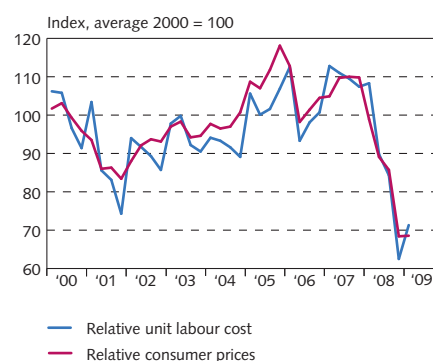
The real exchange rate is now at its lowest level since 1969, reflecting not only the financial crisis in Iceland but also the global recession and deteriorating terms of trade. The depreciated real exchange rate should improve the price competitiveness of domestic export industries as relative costs come down. It should also offset the worsening outlook for export prices. Against this, the low real exchange rate is proving difficult for the domestic tradable sector, which in many cases is heavily indebted in foreign currency. Over the longer term, the financial crisis in Iceland and the large real economic contraction most likely imply that the medium-term equilibrium real exchange rate has fallen. This will tend to support export-led growth over time.

Chart II-10  
Terms of trade<sup>1</sup>  
Annual data



1. Central Bank baseline forecast 2009-2011.  
Source: Statistics Iceland, Central Bank of Iceland.

Chart II-11  
Real exchange rate  
Quarterly data



Source: Central Bank of Iceland.

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

	Change from previous year (%) unless otherwise stated <sup>1</sup>			
	2008	2009	2010	2011
Exports of goods and services	7.1 (10.3)	-3.0 (0.4)	0.7 (4.9)	2.1 (4.2)
Marine production for export	-0.7 (-5.0)	0.0 (2.0)	0.0 (0.0)	0.0 (0.0)
Metals production for export	60.7 (57.8)	3.0 (7.9)	2.0 (1.7)	7.0 (7.1)
Export prices of marine products	-2.4 (0.0)	-12.0 (-9.0)	1.0 (0.0)	2.0 (0.0)
Aluminium prices in USD <sup>2</sup>	-0.1 (-2.3)	-41.8 (-39.2)	10.0 (7.5)	9.1 (7.2)
Fuel prices in USD <sup>3</sup>	36.4 (36.5)	-47.0 (-45.7)	19.0 (17.9)	8.0 (10.5)
Terms of trade for goods and services	-8.9 (-7.4)	-5.3 (-3.5)	-1.2 (0.9)	-1.1 (0.4)
Main trading partners' inflation <sup>4</sup>	3.4 (3.3)	-0.2 (1.2)	0.8 (1.8)	1.7 (2.3)
Main trading partners' output growth <sup>5</sup>	1.1 (1.1)	-4.4 (-1.0)	-0.2 (1.1)	2.3 (2.3)
Main trading partners' short-term interest rates (%) <sup>6</sup>	4.5 (4.5)	1.2 (2.6)	1.0 (2.5)	1.8 (3.2)

1. Figures in parentheses show forecast in *Monetary Bulletin* 2009/1. 2. Based on aluminium futures and analysts' forecasts. 3. Based on fuel futures. 4. Forecast based on OECD. 5. Forecast based on OECD. 6. Based on weighted average forward interest rates of Iceland's main trading partner countries.

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

### **Outlook for export-led recovery more uncertain than in January**

The export sector is being hit particularly hard by the global recession, and the contraction in demand from all of Iceland's main business partners makes export-led growth more uncertain still. These factors combine with the slowdown in global trade to create a dire situation for Icelandic exporters. While a low real exchange rate should stimulate export growth in the long term, it is clear that export markets will take time to recover. Thus the January forecast for export growth appears to have been too optimistic. The outlook is for exports of goods and services to decline by 3% year-on-year in 2009 before recovering slightly in 2010 and 2011. This is a much more pessimistic forecast than was presented in January, which projected modest growth for 2009 and robust growth in the 4-5% range for 2010-2011.

### III Financial conditions

In spite of a growing trade account surplus, the króna has been depreciating since mid-March after rising upon the introduction of the Rules on Foreign Exchange. The depreciation is probably due to a number of interrelated factors. Because some of them are transitory, the króna can be expected to recover in time. Volume on the inter-bank foreign exchange market has been thin, however, which could exaggerate short-term exchange rate volatility. The offshore exchange rate has remained lower than the onshore rate, although the difference between the two has narrowed recently. However, the offshore market is extremely illiquid as well. The interest rate differential with Iceland's main trading partners has narrowed, and the CDS spread on the sovereign has declined. Deposits rose after the banking system collapsed, but some of that increase has fallen back. Credit is very scarce, however.

#### Ambiguous indicators of real policy rate developments

Since the last issue of *Monetary Bulletin*, the policy rate has been cut by 2.5 percentage points in two steps. At the same time, inflation has slowed markedly. In terms of past inflation, the real policy rate has remained virtually unchanged, although it has dropped by just over a percentage point in terms of household inflation expectations. In both instances, it is just under 1.5%. However, the real policy rate has risen considerably in terms of the breakeven inflation rate on Treasury securities and businesses' inflation expectations; thus monetary policy has tightened by that measure.

Various measures of inflation expectations therefore give differing indications of the tightness of monetary policy. This is no surprise in an environment characterised by rapidly changing inflation and uncertain economic outlook. Under these circumstances, it may be desirable to rely on indicators of future inflation rather than past inflation, although past inflation cannot be ignored entirely, nor can measures such as household inflation expectations, which appear to be based on past inflation. On the whole, however, it is likely that inflation expectations will decline rapidly and that the real policy rate will rise in the absence of nominal rate cuts.

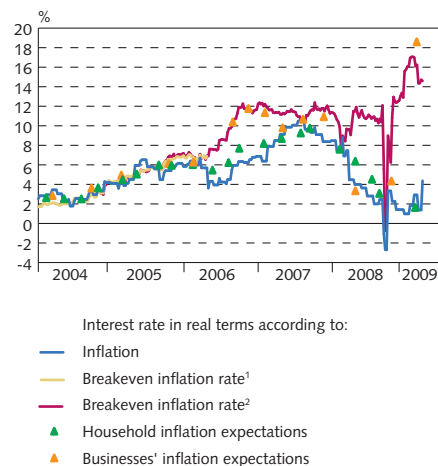
After the Rules on Foreign Exchange took effect in late November, the króna appreciated considerably, and inflation expectations subsided accordingly. The depreciation that began in mid-March has not yet resulted in a higher breakeven inflation rate, although there is generally a strong correlation among exchange rate movements, inflation, and inflation expectations. As is discussed later in this section, uncertainty in the bond market complicates estimates of inflation expectations. So far this year, headline inflation has been lower than forecast, which doubtless dampens inflation expectations despite the weaker króna.

#### Interest rate differential with abroad shrinks ...

The short-term interest rate differential with Iceland's main trading partners, measured in terms of three-month interbank rates, has nar-

Chart III-1

Central Bank policy interest rate in real terms  
Weekly data January 6, 2004 - May 5, 2009

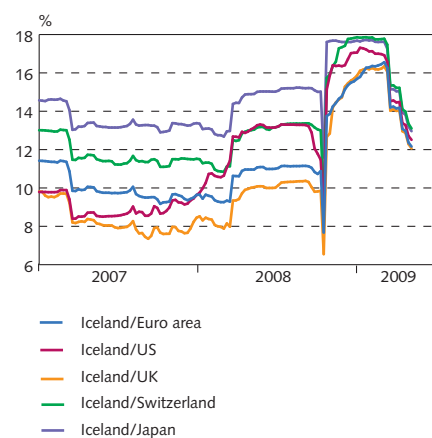


1. Spread between RIKB 13 0517 and RIKS 15 1001. 2. Spread between RIKB 13 0517 and HFF150914.

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

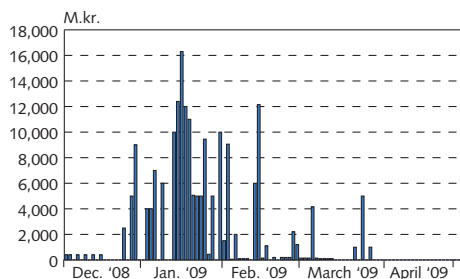
Chart III-2

Short-term interest rate differential<sup>1</sup>  
Daily data January 4, 2007 - May 5, 2009



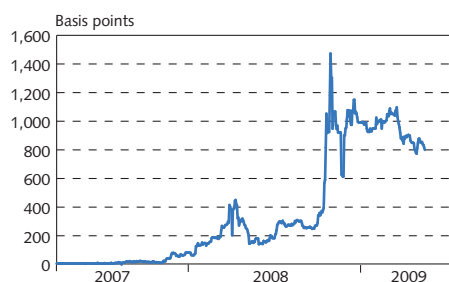
1. 3-month interbank rates.  
Source: Reuters EcoWin.

Chart III-3  
Turnover on the interbank  
market for Icelandic krónur  
Daily data December 1, 2008 - May 5, 2009



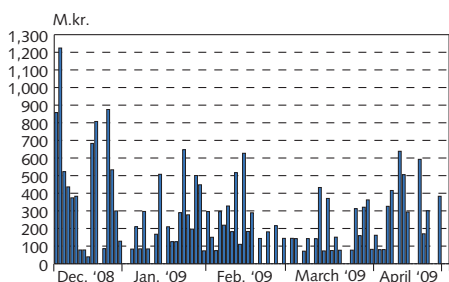
Source: Central Bank of Iceland.

Chart III-4  
CDS spread for the Republic of Iceland  
Daily data March 29, 2007 - May 5, 2009



Source: Bloomberg.

Chart III-5  
FX-market turnover  
Daily data December 4, 2008 - May 5, 2009



Source: Central Bank of Iceland.

rowed in recent months. Interest rates in the domestic interbank market have dropped more than foreign interbank rates. The differential is still in the range of 12-12½ percentage points against the euro, the US dollar, and the pound sterling. Three-month interbank rates in Iceland have fallen by nearly 5 percentage points since the beginning of the year. It should be borne in mind that interbank market turnover has been very low, and primarily limited to one-day and one-week interbank loans. The differential between domestic and foreign policy interest rates has shrunk by as much as three percentage points so far this year.

The interest rate differential with Iceland's main trading partners has narrowed in terms of Treasury bills as well, owing primarily to a fall in domestic T-bill yields. As with interbank interest rates, it should be noted that price formation is ineffective and there is no active market making with T-bills in the secondary market in Iceland; furthermore, attempts made in recent weeks to lengthen the maturity profile for Treasury securities appear to have lowered T-bill yields. Foreign investors have been important purchasers of T-bills, but they have also tended to hold them to maturity, which has reduced the effectiveness of price formation.

#### ... and the Republic's CDS spread declines

The CDS spread on the Republic of Iceland has declined by over 6 percentage points after peaking when the domestic banks failed in October. It remains high, however, at nearly 9 percentage points, but with little trading. Thus it would be imprudent to draw sweeping conclusions from the data underlying the CDS spread, although it does give some indication of the development of relative riskiness, for example, in comparison with other advanced economies. In those countries where CDS spreads have risen most – such as Ireland, Greece, and Portugal – they have reached 2-4 percentage points. A comparison of the yield on a euro-denominated Treasury bond maturing in 2011 and yields on comparable foreign government securities gives similar results. The yield on that bond in the secondary market has been at least 17 percentage points above that of a comparable German government bond. The spread illustrates the market's uncertainty about the Icelandic Government's ability to service its debt, as well as a risk premium due to an illiquid secondary market.

The large interest rate differential with abroad should be examined in the context of the high risk premium that investors demand on króna-denominated bonds from domestic issuers, as compared with foreign issues in other currencies. The high risk premium on Icelandic financial assets necessitates a wider interest rate differential than would otherwise be needed to support the króna. This will be even truer when the capital account restrictions are lifted.

#### Illiquid FX market exaggerates exchange rate volatility

One of the Icelandic authorities' principal tasks since the banking system collapsed in October has been to rebuild the financial market and ensure well-functioning cross-border payment intermediation. To that end, the Central Bank issued instructions concerning temporary



limitations on foreign exchange transactions after the banks fell. On November 28, the instructions were revoked and the Rules on Foreign Exchange adopted instead. The Rules authorised all foreign exchange transactions for current account payments but imposed restrictions on movement of capital to and from the country. The króna appreciated markedly thereafter, as the Rules reduced uncertainty about foreign exchange matters and made large-scale capital flight less likely. The foreign exchange market calmed down as a result, although the exchange rate has been volatile. Since mid-March, however, the króna has fallen somewhat after appreciating for some time.

Exchange rate developments must be examined in view of the low turnover on the domestic foreign exchange market. Monthly turnover has averaged 3.8 b.kr. so far in 2009, as opposed to 617.7 b.kr. in 2008. There are at least two causes for limited trade in the market. First, the current Rules on Foreign Exchange only permit current account-related foreign exchange transactions. Furthermore, the banks that now engage in foreign exchange transactions have been largely able to meet supply and demand for currency without trading in the interbank market. The banks' reluctance to settle trades in the interbank market is also attributable to limited turnover, which means that small amounts can have a pronounced impact on the exchange rate. This further reduces the effectiveness of the market and increases the risk of sharp exchange rate swings. After the Rules on Foreign Exchange were adopted, a spread developed between the exchange rates on the onshore and offshore markets for krónur (see Box III-1).

Chart III-6  
Exchange rate index of the króna  
Daily data January 3, 2007 - May 6, 2009



Source: Central Bank of Iceland.

The official exchange rate of the króna is determined by trading on the domestic interbank market between the Central Bank's market makers. Since the first half of 2005, trading by foreign banks, both among themselves and with Icelandic banks, has considerably affected the exchange rate. Transactions in krónur between two foreign banks are referred to as offshore trading.

Until the Icelandic banks collapsed and the interbank market temporarily ceased to function, both interbank and offshore trading were closely related, as free movement of capital ensured that any price differences would be short-lived. Such differences would create an arbitrage opportunity which meant they would quickly disappear.

Offshore trading in krónur is now available in several trading systems and on an over-the-counter (OTC) basis. Since the adoption of emergency legislation last year, offshore trading has been substantially lower than before and price formation erratic. The offshore exchange rate is determined primarily by settlement of financial instruments and market-related news. When the market has reached temporary equilibrium, the price of a euro has ranged from 190-210 krónur, while on several occasions demand for krónur has been practically non-existent and its exchange rate has plunged. This occurred in mid-November, for example, and again around the middle of March, when there were instances of transactions where over 250 krónur were paid for a euro. Following the adoption of capital controls, the offshore króna exchange rate rose against the euro at the beginning of December, and towards the end of April transactions have gradually begun once more.

#### Box III-1

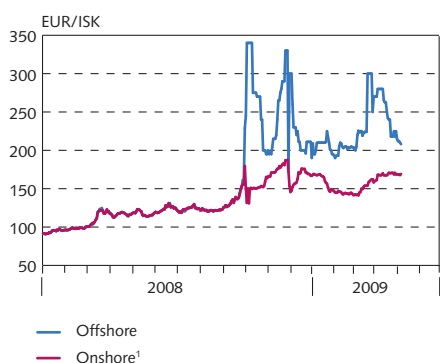
### The offshore market for krónur

Currency trading on the offshore market is estimated to be only a fraction of total trading in krónur; turnover is mostly within the domestic banking system. The Rules on Foreign Exchange of November 28, 2008 prohibit trading between the domestic and offshore markets. Foreign exchange trading between domestic and foreign parties is also very limited. Foreign direct investment and transactions resulting from interest payments are examples of authorised currency trading. As a result of the capital controls, arbitrage opportunities can develop without a correction in the difference in the króna price between the two markets, with the result that a price differential can persist as long as controls are in effect.

Offshore trading affects the domestic market both directly and indirectly. It directly affects the market by preventing foreign currency obtained for exports from finding its way to the domestic market, with the result that the exchange rate on the domestic market is lower than it would otherwise be. Offshore trading indirectly affects the domestic market by encouraging expectations of a possible weakening of the króna on the domestic market, with the result that law-abiding parties complying with provisions on currency repatriation delay selling their currency.

Without capital controls there is a grave danger that the domestic exchange rate would fall to the current level of the offshore market, and it could be argued that it could weaken even more and remain at that level for some time. Because the offshore exchange rate is determined by limited trading, the króna price on this market can rise rapidly to its level on the domestic market once confidence in the currency grows and the possibilities of transactions by both domestic and foreign parties increase.

Chart III-7  
The ISK exchange rate markets  
against the euro  
Daily data January 1, 2008 - May 6, 2009



1. The onshore rate is the daily closing rate.  
Source: Reuters.

### Króna slides in spite of trade account surplus

A surplus on the trade account should support a rise in the exchange rate – provided that all foreign-denominated export revenues are converted to krónur. Despite the development of a surplus on external trade from September 2008 onward – and likely on the services account as well – the króna has depreciated by 16.3% since mid-March and 1.4% since year-end. The depreciation is probably due to a number of interrelated factors, some of which are transitory. Thus it can be expected that trade flows will provide more effective support for the króna in the long run.

### Foreign currency inflows not necessarily in line with external trade developments

One reason the króna has appeared not to reflect developments in external trade is that foreign currency inflows need not accord with trade flows in the short run. The global financial crisis has reduced the availability of trade credit in international trade. Payment deadlines have become shorter, and it has become more difficult to obtain letters of credit. This is likely to affect Icelandic importers most strongly because the creditworthiness of Icelandic businesses has been damaged. Furthermore, it appears as though Icelandic exporters have been forced to grant longer payment deadlines in order to maintain business relations. These developments could weaken the króna temporarily when currency outflows increase and inflows contract. Over time the situation should normalise; however, it is unusually dif-

difficult to estimate currency flows based on information about goods and services transactions.

It is also unclear whether foreign exchange export revenues have been fully repatriated to Iceland. Very few companies have been granted exemptions from the Rules on Foreign Exchange, and it appears as though the Rules are being circumvented or simply violated in some cases. Exporters could realise considerable gains by violating or circumventing the Rules. Some exporters have received payment in krónur purchased by foreign parties on the offshore market. Both the Customs Act and the Foreign Exchange Act were amended on April 1 so as to prohibit payment for exports in Icelandic krónur, but it can be expected to take some time for the new provisions to have full effect.

Even if it is assumed that the Rules on Foreign Exchange are followed to the letter and krónur are not sold on the offshore market, it is not certain that a trade surplus will be fully reflected in increased foreign exchange supply in the onshore market. The rules requiring repatriation of foreign currency permit owners of currency to hold it in foreign-denominated accounts in Icelandic banks instead of selling it immediately. As long as the banks' foreign-denominated assets far exceed their liabilities, there is little incentive for them to limit their foreign-currency liabilities. However, there are few signs of large amounts having accumulated in foreign-denominated accounts in Icelandic financial institutions.

#### **A portion of foreign exchange revenues is used to meet obligations to the "old" banks**

Another factor in the recent depreciation of the króna is that firms have to some extent used foreign exchange revenues to fulfil obligations undertaken vis-à-vis the "old" banks prior to the effective date of the Rules on Foreign Exchange. It is highly unlikely that the old banks will exchange their foreign exchange receipts for krónur because the bulk of their liabilities are in foreign currency.

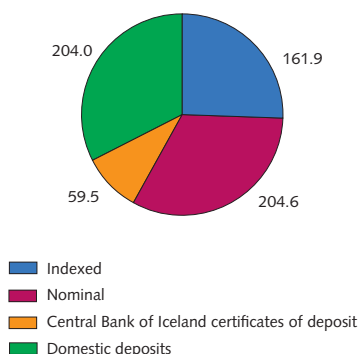
#### **Króna depreciation also reflects currency outflows for interest payments abroad**

Foreign exchange transactions arise not only from trade in goods and services. Interest payments remitted to foreign parties for bonds and foreign-denominated loans are permissible under the Act on Foreign Exchange. Although the old banks' obligations towards foreign creditors are not being honoured, public and corporate liabilities remain.

The most important factor is perhaps that, at the time the Rules were adopted, non-resident investors owned sizeable holdings in Government-guaranteed bonds, Central Bank certificates of deposit, and deposits in the Icelandic banks. The Rules authorise these parties to convert interest payments on these instruments to foreign currency. Conceivably, some portion of these payments has been reinvested in Iceland, in short-term Government securities and deposits. Because the market is so illiquid, these interest payments may well have affected the exchange rate of the króna, although it is not certain that they fully explain the recent depreciation. Such interest payments

Chart III-8

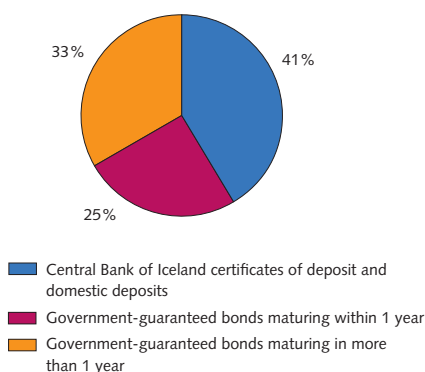
Deposits and Government-guaranteed bonds owned by non-residents in b.kr. in April<sup>1</sup>



1. This is an estimate of non-residents' holdings, but it should be noted that residents could be classified as non-residents if the securities concerned are stored in a foreign securities depository.  
Sources: Icelandic Securities Depository, Central Bank of Iceland.

Chart III-9

Deposits and Government-guaranteed bonds



Source: Central Bank of Iceland.

could become payable at a later date and become more significant for order flows in the foreign exchange market.

### Impact of policy rate on non-residents' interest payments is unclear

It has been asserted recently that Iceland's high policy rate undermines the króna because it generates large interest payments to non-resident investors and therefore boosts demand for foreign currency. It can be said, however, that the impact is much more complex than many would argue. The relationship between the policy rate and currency outflows is actually rather uncertain, and it is difficult to draw a clear and simple picture of this complex interaction.

Interest payments on ISK assets currently owned by non-residents fall into two categories. The first category includes interest-bearing assets that presumably are affected rapidly and directly by the Central Bank policy rate; that is, Central Bank certificates of deposit and Treasury bills issued after interest rate changes, and domestic deposit balances with variable interest rates that are linked to the policy rate. The second comprises assets that are only indirectly affected by the policy rate, such as outstanding bonds of various types. In the latter category, the impact of the policy rate could be very limited. A policy rate cut could even be accompanied by increased currency outflows, as is discussed below.

Furthermore, non-resident investors can be divided into two groups: those who have invested in Iceland for the short term in order to benefit from the short-term interest rate differential of recent years, and those who have invested in Iceland for the long term. It can be assumed that the long-term investors will tend to seek out longer debt instruments, such as indexed housing bonds and Treasuries maturing in 2019. The short-term investors are more likely to choose shorter bonds and deposits. The majority of non-residents who invest in Treasury securities hold the shortest maturities. Non-residents hold roughly 70 b.kr. in a Treasury bond series maturing in June 2009. When these bonds mature, those investors must reinvest the principal, and it is likely that some of them will seek out deposits and new bond issues (see Box III-2).

The policy rate can be expected to affect the yields of issued bonds at any given time. In the long run, the policy rate will therefore affect interest payments to non-residents. It should be borne in mind, however, that the effect of particular interest rate changes is determined largely by whether those changes are in line with market expectations or reflect new information. In general, long-term interest rates are determined by current and expected future short rates. Interest payments on outstanding bonds are therefore related to expectations about the policy rate over the maturity of the bond rather than just the present policy rate. Interest payments on new bonds – that is, those issued after interest rate changes – are thus determined not only by the present policy rate but also by the expected future policy rate. Therefore, a policy rate cut now should only affect rates on new bonds or previously issued bonds to the extent that the rate cut differs from market expectations. Expectations of substantial policy rate reductions

are already priced in the yield curve. A number of other factors can affect long-term yields, however, such as bond market liquidity and risk of default. The supply of bonds can also affect yields.

A policy rate cut can reduce future outflows due to new bond issues (particularly in the short run). On the other hand, it can temporarily increase foreign exchange outflows due to interest payments on outstanding bonds. If the policy rate is lowered more than expected, capital gains will be realised on outstanding bonds, and these gains can be expatriated under the Rules on Foreign Exchange. Thus it is not certain that a large policy rate cut would reduce outflows for the short term, although it would do so in the long run.

Similarly, it cannot be assumed that all non-residents' deposit rates follow the policy rate. According to Central Bank sources, deposits held by former Glacier bond owners in foreign banks often bear very low interest, and foreign banks with deposits in domestic banks have negotiated terms that are not necessarily linked to the policy rate.

In examining the effect of policy rate changes on interest payments and the exchange rate of the króna, it is appropriate to remember that policy rate changes will also affect non-resident investors' incentive to reinvest in domestic long-term bonds in the future. This is true at present but will be even more so once the capital controls have been lifted. A policy rate cut should encourage investors who are not willing to exit the Icelandic market at any exchange rate to invest in longer bonds. On the other hand, a too-rapid easing could undermine their confidence in exchange rate stability and thereby raise doubts concerning the inflation outlook, thus prompting them to shy away from all bonds except indexed or foreign-denominated bonds when the capital account restrictions are removed. Finally, rapid reduction of the policy rate could affect foreign investors' incentive to circumvent the capital controls.

High interest rates and capital controls have been necessary over the past several months in order to stabilise the króna. At present, the need to establish several preconditions for capital account liberalisation rules out speedy removal of the controls.

The outward pressure from investors locked in by the capital controls creates a spread between the onshore exchange rate and the rate at which positions are exchanged in the offshore market despite a policy rate of 15.5% and an onshore rate weaker than what is consistent with the estimated medium-term equilibrium real exchange rate.

The offshore market appears thin and volatile, however. In late April, transactions at 215-220 krónur per euro were reported, following early April transactions at rates exceeding 250. Market information indicates that a number of large investors will not convert at offshore rates that deviate greatly from the onshore rate.

This market information is supported by the results of a segmentation of non-residents' ISK holdings (Table 1). The holdings have been categorised by instrument (horizontal axis) and by investor portfolio considerations (vertical axis). The first is based on Central Bank of Iceland data, while the latter is based on a market review and information on investor categories.

### Box III-2

## Facing the “impatient investor” challenge

**Table 1 Estimation of current non-resident holders of ISK-denominated instruments (% of total)**

<i>Investor category<sup>1</sup></i>	<i>Indexed Government- guaranteed bonds</i>	<i>Nominal Government bonds and bills</i>	<i>Central Bank of Iceland certificates of deposit</i>	<i>Deposits</i>
Must exit	0	24	30	25
Wish to exit	5	24	30	30
Situational	10	21	30	25
Natural part of portfolio	20	21	5	10
Long-term bias	65	9	5	10

1. Allocation based on Central Bank assumptions and market information.

Source: Central Bank of Iceland.

Preliminary estimates indicate that roughly 40% (approximately 250 b.kr.) of the total holdings are held by those falling into the "impatient" non-residential investor category. A large portion of the remaining holdings is linked to long term-instruments and/or investors with a longer-term perspective. These numbers include the main share of positions locked in by the capital controls. They include already matured Glacier bonds which have been converted into other instruments that are listed in the table above. Other Glacier bond holdings maturing in the near future have non-residents as both payer and payee and do therefore not increase the króna position.

The short-term holdings are less sizeable than previously estimated. A conversion from short-term investors in "exit mode" to investors with a longer-term perspective – that is, a perspective based on their assessment of current and future interest rate levels, Icelandic investment opportunities, and the exchange rate outlook – should therefore allow for an increasingly robust investor base.

There are indications that some substitution of positions has already occurred on the offshore market, and the limited size of the short-term positions may allow such conversion to materialise. The Bank's analysis indicates that, given the limited depth of the offshore market, individual investors' decisions can make a significant difference in bringing the offshore rate up towards the onshore rate.

The Central Bank has been studying measures to strengthen the investor base. Such measures must be non-discriminatory and must further strengthen the Central Bank's foreign exchange reserves. If successful, they will help to "dry up" the offshore market.

As a first step, on May 6, 2009, the Bank invited companies that have significant foreign exchange earnings and are engaged in new investment projects to apply for long-term loans issued in krónur but repayable in foreign currency. Applications for such loans will be reviewed soon. The Central Bank will also investigate other measures that serve the same purpose.

### **Currency outflows for Glacier bond interest payments are not a pure addition to domestic bond interest outflows**

It should be borne in mind that Glacier bond brokerage firms hedged their position by investing in Icelandic bonds, such as Government securities or Central Bank certificates of deposit. An interest payment to an end investor in Glacier bonds therefore originates as an interest payment from a domestic party, which is transferred from the brokerage firm's commercial bank to that of the investor. A corresponding transfer then takes place between the accounts of the commercial banks concerned in domestic banks (or within the same bank).

Therefore, in estimating potential interest payment outflows, it is not possible to add Glacier bond interest payments and domestic bond interest payments together because, in essence, these are one and the same payment. When a Glacier bond issuer pays a foreign end investor in krónur, he must deliver a corresponding amount of krónur, which the investor can sell for foreign currency. The issuer's ISK holding is therefore reduced, but that of the foreign investor increases by that amount if he decides to hold the krónur, or it remains unchanged if he decides to exercise his right to send that amount out of the country. That being the case, simply calculating the sum of interest payments on Glacier bonds and domestic bonds will result in an overestimation of the potential currency outflows related to interest payments.

### Bond market uncertainty complicates interpretation of interest rate developments

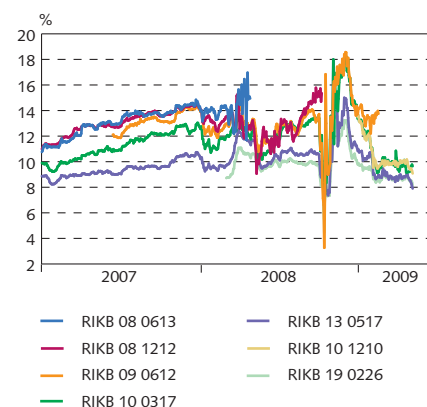
One of the Government's most important tasks in the aftermath of the financial crisis was to re-establish normal bond market trading and ensure effective price formation in the markets. New market making agreements were concluded with primary dealers in the secondary market for Government bonds. They took effect in early December after a two-month hiatus. Primary dealers are now four in number, as opposed to the previous seven. The minimum nominal bid quote for benchmark series was reduced from 100 m.kr. to 50 m.kr. Bid-ask spread requirements were relaxed as well.

With the re-establishment of formal market making, bid-ask spreads narrowed, but the pronounced uncertainty in recent weeks has strongly affected bond market price formation. There is uncertainty about the supply of Treasury-guaranteed instruments, whether they will be indexed or not, and what the maturity profile will be. Furthermore, the recapitalisation of the "new" banks is not yet complete; thus it is not yet clear how large the capital contribution from the Government will be, nor what form it will take. As a result, the Treasury's funding need for the recapitalisation is still unknown.

The ongoing discussion of possible write-down or cancellation of household and business debt and of changes in the price index used for financial indexation may also have affected price formation in the bond market. Legislative amendments on supplementary pension savings payouts also affected indexed HFF bond yields because of considerable initial uncertainty about the extent of and arrangements for the payouts.<sup>1</sup> The enactment of the statutory amendments probably had less impact on demand for indexed HFF bonds than was first thought, as the law eventually passed differed substantially from the original bill of legislation. A ceiling was set on the amount that could be paid out, and the payments were to be dispersed over nine months. Uncertainty about the fate of the legislation probably affected indexed HFF bond yields, as pension funds are the largest holders of these bonds. This

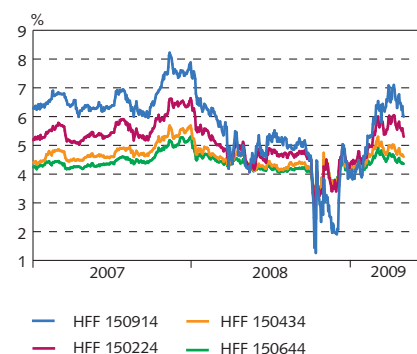
1. Over 20 thousand owners of pension savings have already applied for prepayment of their supplementary pension savings. More than 12.7 b.kr. will be paid to these parties over the next nine months.

Chart III-10  
Long-term nominal Treasury bond yields  
Daily data January 3, 2007 - April 30, 2009



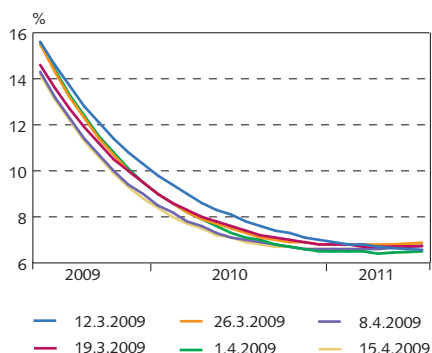
Source: Central Bank of Iceland.

Chart III-11  
Yields on indexed long-term bonds  
Daily data January 3, 2007 - April 30, 2009



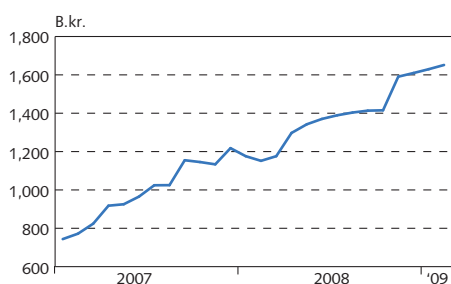
Source: Central Bank of Iceland.

Chart III-12  
Forward interest rates on Treasury bond market



Source: Central Bank of Iceland.

Chart III-13  
Banking system deposits - residents<sup>1</sup>  
Monthly data January 2007 - February 2009



1. Preliminary data for the new banks.  
Source: Central Bank of Iceland.

was reflected in a drop in indexed HFF bond yields after the law was passed. The possible takeover of the banks' mortgage loans by HFF has also been a source of uncertainty, as it has not been established to what extent this measure will be adopted. Furthermore, information is lacking on how large a portion of the mortgage loan portfolio earmarked for possible transfer was capitalised.

Since the November 2008 issue of *Monetary Bulletin*, yields on nominal Treasury instruments have been declining, as inflation expectations and headline inflation alike have fallen, followed by the policy rate. Yields on indexed HFF bonds, however, have risen since the last *Monetary Bulletin*, due in large part to waning inflation expectations (see Section VIII).

### Interest rate path indicates that market agents expect continued monetary policy easing

Forward interest rates on nominal Treasury bonds imply that the last policy rate cut was broadly in line with market expectations, as the path shifted downwards while its shape has changed only slightly. The downward slope of the interest rate path reflects market expectations of further policy rate easing, but due to the uncertainty described above, it is difficult to gauge exactly how large a policy rate cut is expected.

### Deposits rise sharply ...

In the first two months after the banks fell, bank deposits rose by roughly 19%.<sup>2</sup> They have subsided somewhat once again, as the financial position of households and businesses has deteriorated, in part because of an escalating debt service burden and falling employment levels. From end-September until end-February, the increase in banking system deposits amounted to more than 15%, or roughly 216 b.kr. The increase is mainly attributable to four factors.

First, it can be estimated that deposits increased by roughly 100 b.kr. as a result of payouts from various investment and money market funds when they were closed following the collapse of the commercial banks. This simply reflects a shift between asset categories rather than a net increase in deposits.

Second, deposits rose because of investor flight to secure instruments, as can be seen in diminishing corporate bond issuance caused by a collapse in demand. When examining developments in the money supply, it is necessary to consider the fact that such a shift is unlikely to enhance firms' access to credit because the supply of banking system credit has not risen correspondingly, as is discussed below. The emergency legislation passed in October 2008, which gave deposits higher priority than before, and the Government's pledge to guarantee bank deposits in full, siphoned capital from the corporate bond market to the deposit market.

The third reason for the sharp increase in deposits is the prohibition on investing in foreign securities. Capital has therefore been directed towards conventional deposits. The supply of investment

2. Based on preliminary data for the new banks.



options has dwindled due to equity market collapse and corporate delisting.

Finally, it is possible that temporary uncertainty about supplementary pension savings payouts prompted pension funds to invest in deposits rather than other assets. Pension funds' deposit balances thus increased by more than 68 b.kr. between September and end-February, partly because the investment and money market funds were closed.<sup>3</sup>

### ... but credit creation remains limited

The surge in deposits should provide the banks with ample liquidity; however, there has been little in the way of new lending since the banks fell. The limited credit supply appears to stem rather from uncertainty about the position of the banks themselves, their balance sheets, and the economy as a whole than from a liquidity shortage.

Because the interbank market has been virtually non-functional, the banks now rely on Central Bank facilities to address changes in their liquidity position. When the banking system failed, overnight and collateral loans from the Central Bank fell off sharply, mainly due to the collapse of the large commercial banks, and then later, at the end of the year, due to the Treasury's takeover of a portion of the financial institutions' debt to the Central Bank. The same thing happened when Straumur, SPRON, and Sparisjóðabankinn ceased operation. As borrowing from the Central Bank has not increased, it is clear that liquidity shortages are not a barrier to new lending.

In some instances, household borrowers paid down their loans when uncertainty peaked. Prompted by fear that the Government would not fulfil its promise to guarantee deposits in full, they elected to pay down their loans rather than run the risk of losing their savings. Accelerated payment of loans can also be traced to rising inflation expectations following the sudden depreciation of the króna.

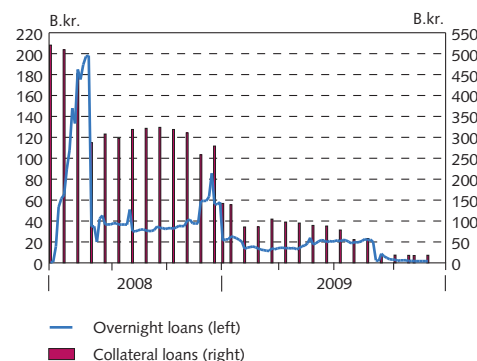
### Financial conditions of households and businesses have worsened substantially

In spite of declining policy interest rates worldwide, the international financial crisis has caused deterioration in the financial conditions of households and businesses across the globe. Loan commitments have been revoked, and loan agreement provisions have been amended to the detriment of borrowers. Access to credit has tightened drastically, and interest rate premia have risen.

Similar developments have been seen in Iceland. The policy rate has been lowered, but access to credit has become significantly tighter in the aftermath of the banks' collapse. Collateral values have been depleted by house price decreases and loss of financial wealth. As early as mid-year 2008, corporate bond issuance began to contract markedly, and the banks had begun experiencing difficulties in obtaining funding.

The situation has become even more difficult since the banks and the equity market collapsed and the Rules on Foreign Exchange

Chart III-14  
Central Bank overnight and collateral loans  
Daily data October 1, 2008 - April 22, 2009



Source: Central Bank of Iceland.

3. According to pension fund balance sheets.

were adopted. In addition to limited credit creation from the “new” banks, it has been difficult – even impossible – for firms to obtain market financing. Demand for corporate bonds is virtually non-existent and equity market activity close to nil. Furthermore, direct access by domestic firms to foreign credit is complicated by the Rules on Foreign Exchange. Even if there were no capital account restrictions, obtaining any significant sum on foreign credit markets would probably remain extremely difficult as long as the global financial crisis persists. The regulatory framework and the collapse of the banking system have most likely dampened foreign investors’ enthusiasm for investments in Iceland. Households’ access to credit is limited as well. However, households with sufficient collateral can obtain mortgage loans, particularly those from the Housing Financing Fund and the pension funds.

## IV Domestic demand and production

The Icelandic economy is in a deep recession. Unemployment has escalated swiftly and is approaching 10% for the first time since measurements began. The sharp adjustment in the real economy currently underway reflects both the severity of the crisis and the flexibility of the economy. The decline in domestic demand exceeds the drop in output, imports have fallen significantly, and a surplus has emerged on the trade balance. This will help to service the external debt burden in the absence of capital inflows. The domestic economy is likely to remain sluggish, and growth will have to be export-led. The outlook for external demand has deteriorated since the January *Monetary Bulletin*, however, as world trade is shrinking and export prices are falling in the deepest global crisis since the Great Depression. The macroeconomic outlook is therefore clouded with uncertainty. The GDP level is forecast to reach a trough in the beginning of next year after having fallen 20% from the peak reached in Q3/2007. Economic activity is assumed to pick up in the second half of 2010 and GDP growth to recover to 2½% in 2011. A considerable output slack will be present throughout the forecast horizon.<sup>1</sup>

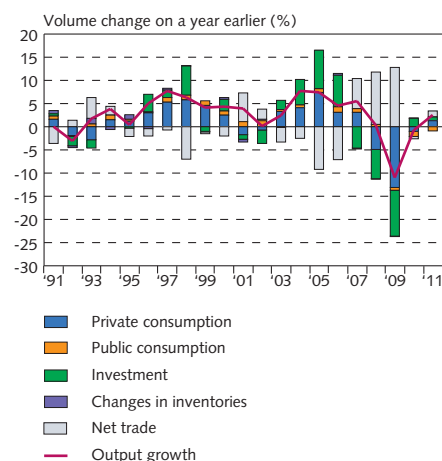
### Domestic demand is contracting and will remain sluggish while private sector balance sheets are restored

The private sector faces balance sheet strains due to a sharp fall in net wealth, corporate profits, employment, and household income, coupled with increased debt service. Debt-fuelled consumption and investment have given way to deleveraging, which is likely to suppress private consumption and investment throughout the forecast horizon and keep their share in GDP below historical averages (see Chart IV-2). Demand for credit is likely to remain weak while a large share of the private sector remains in a vulnerable equity position and deleveraging takes place. The supply of credit will also be limited until bank restructuring is completed and financial markets are restored. The protracted contraction in private demand and credit follows extraordinary expansion in recent years. The share of domestic demand in GDP has been far above historical averages (see Chart IV-2 and Table IV-1), asset and credit bubbles have built up, and unsustainable debt accumulation has taken place which relied on strong banking-related capital inflows.

### Private consumption to decline by almost one-fourth in 2009 ...

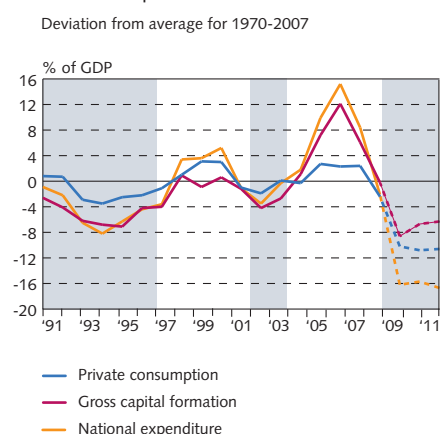
Economic indicators such as turnover, retail sales, imports of consumer goods, consumer confidence, and unemployment reflect the sharp adjustment currently underway as households attempt to restore their balance sheets. Consumer confidence has recovered slightly in recent months (see Charts IV-3 and IV-4) but remains at a historical low. Steep decline is evident in the goods, labour and asset markets. The contraction in private consumption, which began in early 2008, has progressed much more forcefully following the banking system collapse and is

Chart IV-1  
Output growth and contribution  
of underlying components 2009-2011<sup>1</sup>



1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

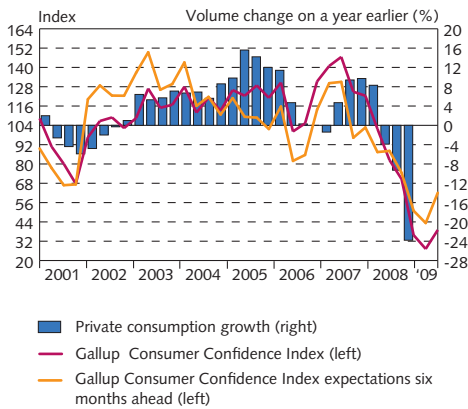
Chart IV-2  
Private consumption, gross capital formation and  
national expenditure as % of GDP 1991-2011<sup>1</sup>



1. Central Bank baseline forecast 2009-2011. Shaded areas show periods with negative output gap.  
Sources: Statistics Iceland, Central Bank of Iceland.

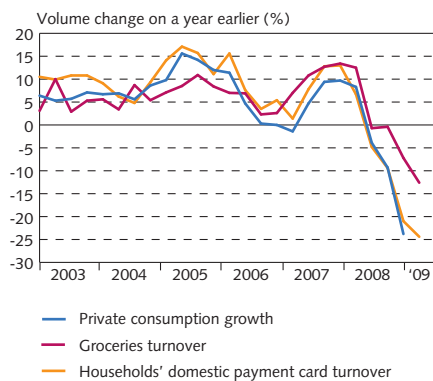
1. A more in-depth examination of the macroeconomic forecast can be found in Appendix 1 on page 56.

Chart IV-3  
Private consumption and consumer confidence<sup>1</sup>  
Q1/2001 - Q2/2009



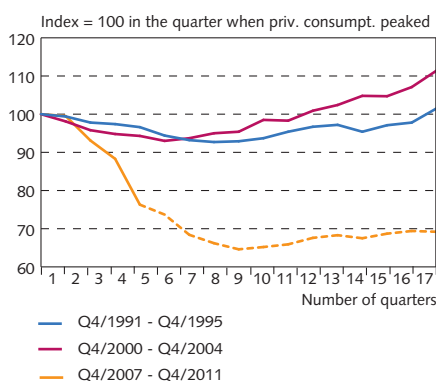
1. Three-month average of Gallup Consumer Confidence Index. The value for the index in Q2/2009 is for April.  
Sources: Capacent Gallup, Statistics Iceland.

Chart IV-4  
Private consumption, groceries and payment card turnover Q1/2003 - Q1/2009<sup>1</sup>



Sources: Center for Business Studies, Statistics Iceland, Central Bank of Iceland.

Chart IV-5  
Developments in private consumption after peaks in 1991, 2000 and 2007<sup>1</sup>



1. Central Bank baseline forecast 2009-2011. Seasonally adjusted data.  
Sources: Statistics Iceland, Central Bank of Iceland.

forecast at 23½% in 2009. The contraction in private consumption from its peak in 2007 is forecast to be larger and more protracted than during the recession in the early 1990s (see Chart IV-5). The decline will also be large in international comparison, but consumption tends to be more volatile in Iceland than in other advanced economies and the boom in the period 2003-2007 was exceptionally large.<sup>2</sup>

### ... as disposable income collapses and savings increase

Developments in real disposable income are an important driver of private consumption. This was evident in the expansion of 2003-2007, as well as in the decline in private consumption in 2008, when high inflation depleted real wages and employment levels dropped. Disinflation is gathering momentum, but employment is expected to decline further, nominal wages to increase only moderately, and income taxes to rise. Real disposable income is therefore projected to shrink by 15½% in 2009 and remain roughly unchanged in 2010 before rising moderately in 2011 (see Chart IV-6).

The household saving rate is likely to increase substantially following the banking system collapse, in line with experience from other crisis countries. This is a rational response in the aftermath of a financial crisis as households rebuild their balance sheets. Households prefer to build up financial buffers after the large shocks they have sustained recently and in light of the uncertain outlook. Pension fund savings have been depleted, financial assets in equity and various money mutual funds have decreased substantially, and house price deflation is gathering pace. Access to credit is not likely to return to earlier levels. In light of all this, increased precautionary saving is to be expected.

### Decline in residential investment to last three years and real house prices to fall 46% from the 2007 peak

Experience shows that expenditures with longer planning horizons suffer particularly in the aftermath of a financial crisis. Residential investment typically takes two years merely to stop declining.<sup>3</sup> This reflects the time needed to restore balance sheets, reduce the overhang of unsold property, and rebuild households' confidence in their financial security before they are comfortable with big-ticket purchases such as real estate. The Icelandic crisis is likely to have a drawn-out effect on the real estate market given its severity and the magnitude of the pre-crisis expansion. The contraction in residential investment, which began in 2008, is forecast to be more protracted than in a typical crisis and to last for three years (see Table IV-1), and the drop in house prices is likely to be at the high end of declines experienced by other crisis countries.<sup>4</sup>

2. See for example, Table 3.2 in Collyns, Charles and G. Russell Kincaid, (2003). "Managing Financial Crises: Recent Experience and Lessons for Latin America", *IMF Occasional Paper* 217, International Monetary Fund, Washington D.C.; and Pétursson, Thórarinn G., (2008). "How hard can it be? Inflation control around the world", *Central Bank of Iceland Working Papers* No. 40.
3. See International Monetary Fund, (2009). "From Recession to Recovery: How Soon and How Strong?", Chapter 3 in *World Economic Outlook*, April 2009, pp. 103-138.
4. See International Monetary Fund, (2008). "The Changing Housing Cycle and the Implications for Monetary Policy", Chapter 3 in *World Economic Outlook*, April 2008, pp. 1-30.

House prices have already fallen by close to 10% in nominal terms and 25% in real terms from their peak in October 2007, according to the Icelandic Property Registry. The baseline forecast assumes that house prices will decline by approximately 32% in nominal terms and 46% in real terms between 2007 and 2011. For comparison, the drop in nominal house prices in the United States from their peak in mid-2006 is approximately 31% for the 10 and 20-City Composite S&P/Case-Shiller Home Price Indices.<sup>5</sup> Similarly, real house prices fell by 52% in Finland between 1989 and 1993 following the Finnish financial crisis.

### Producers of highly tradable goods fare better than industries dependent on domestic demand

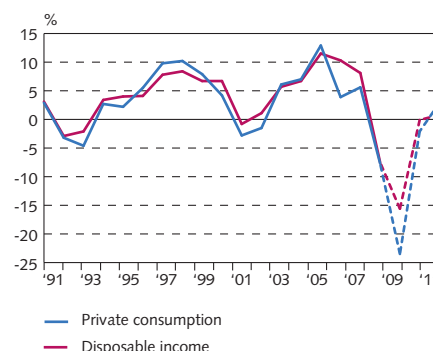
Icelandic firms face mounting challenges following the collapse of the banking system. Severe disruptions in credit supply are hurting highly leveraged firms that rely on outside funding for working capital. There are few substitutes for bank credit in the domestic economy, as the corporate bond market is dysfunctional and investors have access to high nominal yields on Government bonds and State-guaranteed deposits. Foreign-currency borrowing was widespread before the crisis, even in sectors with limited natural hedging. The large króna depreciation has in some cases wiped out firms' equity and left them with an unsustainable debt service burden. Furthermore, the collapse of swap markets has drained channels for firms to guard against exchange rate risk and left them vulnerable to additional króna fluctuations. As foreign credit has become scarce, an increasing share of firms is exposed to the high domestic nominal interest rates that are further depleting their earnings. Industries depending on domestic demand for their goods and services are contracting, while producers of highly tradable goods and services are better off. Large sectoral differences prevail, with sectors that benefitted the most during pre-crisis expansion, such as real estate, construction and sellers of imported durable consumer goods, experiencing the largest contraction.

### Corporate distress, credit crunch, and delayed bank restructuring to depress business investment

Widespread corporate distress is to be expected while firms deleverage and restore their balance sheets. The number of bankruptcies will continue to increase. Further delays in restoring the health of the banking system and financial markets would entail further risks to businesses. So will a protracted period with high interest rates and additional excess króna fluctuation.

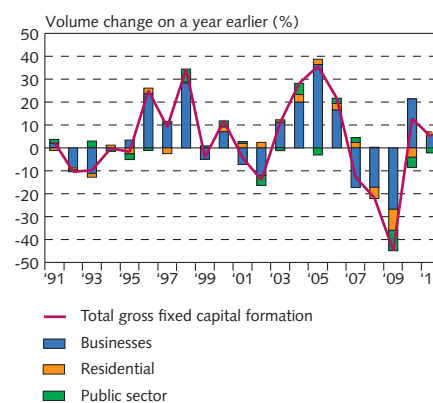
The Capacent Gallup survey conducted in March reflects the depressed sentiment among executives in Iceland's 400 largest firms. Almost 95% of participants view the current economic situation as bleak, although firms are a bit more positive on the future economic situation. Almost 30% of companies believe the situation will improve

Chart IV-6  
Private consumption and disposable income  
1991-2011<sup>1</sup>



1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-7  
Gross fixed capital formation  
and its main components 1991-2011<sup>1</sup>

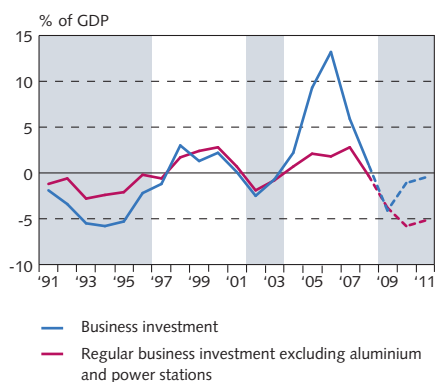


1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

5. The S&P/Case-Shiller Home Price Indices are constructed to track the path of typical single-family homes within the United States. The indices have a base value of 100 in January 2000. In February 2009, the 10-City Composite measured 154.7 and the 20-City Composite 143.2, but both indices peaked at above 200.

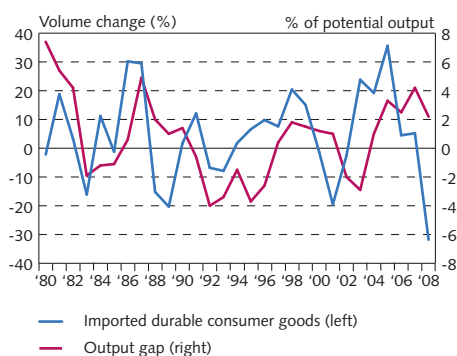
Chart IV-8  
Business investment as % of GDP 1991-2011<sup>1</sup>

Deviation from average for 1970-2007



1. Central Bank baseline forecast 2009-2011. Shaded areas show periods with negative output gap.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-9  
Output gap and consumption of imported durable goods<sup>1</sup>



1. Durable consumer goods that are either imported or have a high content of imported inputs include furnishings, household equipment, vehicles, telephones, audio, visual, photographic and information processing equipment, etc. Output gap is Central Bank's estimation.  
Sources: Statistics Iceland, Central Bank of Iceland.

in the next six months. A large majority of firms, or 73%, expect their investment outlays to contract in 2009. The contraction is most evident in commerce, construction, and manufacturing.

General business investment, excluding investment in aluminium and power stations, is expected to contract throughout the forecast horizon and its share in GDP to fall to below half its historical average (see Charts IV-7 and IV-8). Investment related to the Helguvík aluminium project will counteract some of the fall in general investment, but the share of gross capital formation in GDP is forecast to reach its lowest level since 1995. Uncertainty about the Helguvík project remains as attempts to secure financing are currently underway. The newly approved legislation from Parliament could ease the financing process, as favourable tax treatment in line with previous aluminium projects is ensured. The expansion of the Straumsvík aluminium smelter will be slightly delayed compared with the January forecast. Aluminium and power station investment is therefore assumed to increase substantially in the beginning of 2010.

### Public demand cannot replace private activity

Research shows that aggressive fiscal measures have often made a significant contribution to recovery from financial crises. However, the fiscal scope and effectiveness of expansionary fiscal policy is constrained by high levels of public debt and uncertainty about debt sustainability.<sup>6</sup> Hence, in Iceland's case, declining private demand cannot be compensated by expanding public consumption and investment. On the contrary, fiscal consolidation is needed to preserve public debt sustainability, as doubts on this front can slow the recovery process through lower consumer spending, higher long-term real rates, investor reluctance, and a weaker exchange rate.

Uncertainty about the fiscal outlook is discussed in Section V. As is explained there, fiscal consolidation is assumed to place equal weight on spending cuts and tax increases. Public consumption is forecast to contract throughout the forecast horizon, but its share in GDP will nevertheless be above its long-term average for most of the period. Public investment is forecast to contract by close to 48% this year and by one-fourth in 2010, which would bring it far below historical averages (see Chart V-6).

### Flexibility of the economy emerges in large import contraction, channelling part of the adjustment abroad ...

The Icelandic economy is a small, open economy. The adjustment underway is therefore reflected in a large import contraction. The annual drop in imports was 45% in Q1/2009. The decline is forecast to continue until early 2010, when aluminium and power station investment increases substantially. The consumption of imported durable goods began to decline ahead of the peak in output, a typical feature of the Icelandic business cycle (see Chart IV-9), and could increase early in the recovery.

6. See International Monetary Fund, (2009). "From Recession to Recovery: How Soon and How Strong?", Chapter 3 in *World Economic Outlook*, April 2009, pp. 103-138.

The large import contraction reflects the high import content of the Icelandic consumption basket – i.e., high import penetration – but also the fact that a large proportion of the needed adjustment is channelled through the external sector. The contraction follows the decline in domestic demand, but the large króna depreciation is likely to increase the extent of expenditure switching towards domestically produced products. Furthermore, import penetration in Iceland has increased in line with rising globalisation in recent years. This development has now been reversed, which adversely affects imports.

**... causing GDP to contract much less than domestic demand, but output slack will be present throughout the forecast horizon**

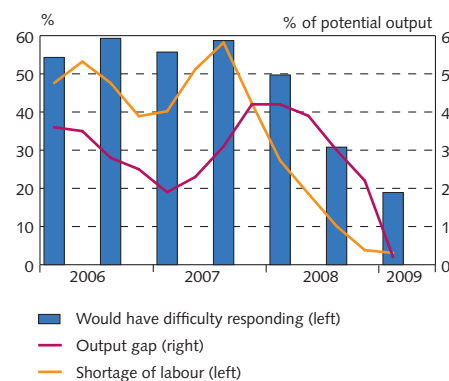
The current recession will be the most severe contraction in the post-World War II period. GDP is forecast to contract by 11% in 2009. The drop in GDP is smaller than the decline in domestic demand due to a positive contribution from net trade. The recovery phase is likely to be sluggish. It will depend both on the strength of external demand and on the effectiveness of domestic policy measures. The sharp increase in unemployment to levels far above its natural rate indicates the presence of a considerable output slack in the economy. This is backed by survey evidence that very few firms experience shortages of labour or would have problems responding to an unexpected increase in demand (see Chart IV-10).

The collapse of the banking system, the credit crunch, and the large króna depreciation have had disruptive repercussions not only for aggregate demand, as is explained above, but also for aggregate supply. This increases the uncertainty with regard to output gap estimates. The productive capacity of the economy is being adversely affected as the labour force has to be reallocated across industries. In the short run, this entails both a loss of human capital and transitory costs while workers in shrinking industries are trained in new skills. Potential output is also being adversely affected by the credit crunch, which leads to widespread corporate distress, a run-down of working capital, and increased capital scrapping. Potential output is therefore assumed to contract for most of the forecast horizon. Given the severity of the crisis and the sluggish recovery, the negative output gap is expected to be both large and protracted, bottoming out in the first half of 2010.

Chart IV-10

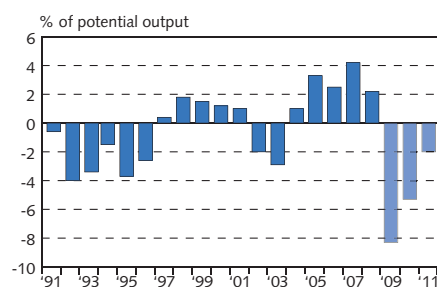
Indicators of use of production factors and output gap<sup>1</sup>

Q1/2006 - Q1/2009



1. According to Capacent Gallup Sentiment Survey among Iceland's 400 largest firms. Output gap is Central Bank's estimation. Sources: Capacent Gallup, Central Bank of Iceland.

Chart IV-11

Output gap 1991-2011<sup>1</sup>

1. Central Bank baseline forecast 2009-2011. Source: Central Bank of Iceland.

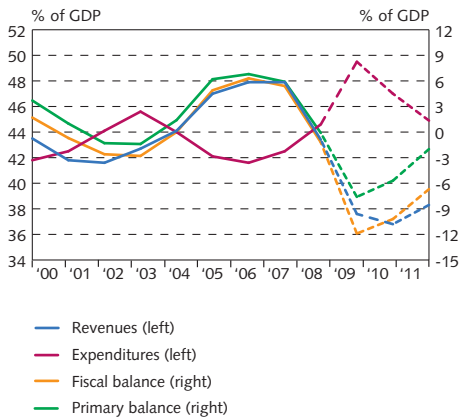
Table IV-1 Changes during different periods (%)

	2002-2007 <sup>1</sup>	2007-2011 <sup>2</sup>
Private consumption	40.6	-28.9
Public consumption	16.8	-8.2
Gross capital formation	104.9	-49.0
Business investment	140.7	-40.9
Residential investment	74.7	-61.3
Public investment	46.6	-67.8
National expenditure	46.5	-29.8
Exports of goods and services	32.0	6.8
Imports of goods and services	79.2	-46.4
GDP growth	30.6	-9.2
Disposable income	49.8	-21.4
House prices – nominal value	103.5	-32.3
House prices – real value	65.5	-46.0

1. Change from average for 2002 to average for 2007.

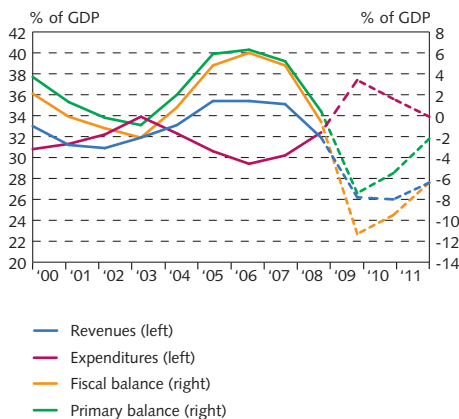
2. Change from average for 2007 to average for 2011 in the Central Bank's baseline forecast.

Chart V-1  
Public sector finance 2000-2011<sup>1</sup>



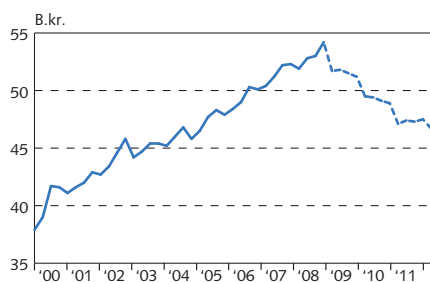
1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-2  
Treasury finance 2000-2011<sup>1</sup>



1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-3  
Public consumption<sup>1</sup>  
At fixed prices, Q1/2000 - Q1/2012



1. Central Bank baseline forecast Q1/2009 - Q1/2012.  
Sources: Statistics Iceland, Central Bank of Iceland.

## V Public sector finances

Fiscal management is extremely complex in an economic downturn like the one following the October 2008 collapse of the Icelandic banks. The Government is so constrained that it is hardly possible to refer to fiscal policy options under the current circumstances. There is no room to relax policy so as to mitigate the downturn. On the contrary, it is necessary to take action to reduce the deficit that would otherwise result, thereby exacerbating the downswing in the near term. It would be extremely difficult to finance unrestrained deficit operations, and they would add to the debt borne by the Treasury in the wake of the banks' collapse. The continually rising interest burden resulting from mounting debt would lead to an ever-deepening deficit, which would ultimately have to be funded with tax increases and borrowings. This would further undermine Iceland's sovereign credit rating. It is therefore essential for long-term growth that the Government present a credible plan as soon as possible to enhance confidence in the sustainability of the country's public sector finances and prevent further sovereign credit rating downgrades.

### Action necessary to guarantee a sustainable fiscal balance

It will be necessary to reduce the projected unrestrained deficit for 2009-2012 by an accumulated total of 52% of GDP. If the primary budget is to be balanced, the Government package must reduce the annual deficit by at least 7½% of GDP once all fiscal measures have been implemented in 2012. The cutbacks must be largest in 2010 and 2011 in order to prevent rapid accumulation of debt. The accumulated deficit for 2009-2012 would therefore total 32% of GDP after Government measures. However, the authorities have not yet stated how extensive the measures will be or what aspects of its operations will be most affected; however, it appears likely that they will affect both revenues and expenditures.

The January issue of *Monetary Bulletin* did not specify the measures needed but merely pointed out that fiscal policy action was necessary if the sustainability of public sector finances were not to be put at risk. The current baseline forecast for fiscal policy, however, includes possible measures based on the general declarations issued by the Government. No position is taken on how best to implement such measures; instead, the effect of the measures is distributed equally, both on the revenue and expenditure sides and across the various categories of Government operations. It is assumed that the fiscal consolidation package allows for increased tax revenues in the amount of 3.75% of GDP per annum, and for a corresponding annual cut in expenditures by the end of the cutback period. On the expenditure side, reductions in public consumption, public investment, and income transfers are assumed, while the revenue side includes hikes in direct household and corporate taxes. No increase in indirect taxes is assumed at this point.

### Performance improves gradually over the forecast horizon

A sharp contraction in tax revenues coupled with rising expenditures



related to interest and income transfer payments will combine to produce the worst fiscal outcome ever measured in Iceland, with a deficit of 11.9% of GDP in 2009. It was not originally planned to introduce the consolidation measures under the joint economic programme prepared by the IMF and the Government as early as 2009, but because tax revenues have been lower than expected, it is necessary to take action immediately. A 20 b.kr. cutback in Treasury expenditure is included in the above-mentioned fiscal performance figure. Beginning in 2010, however, the deficit will narrow gradually as the consolidation measures begin to take effect. Thus the baseline forecast assumes that performance will improve by more than 45 b.kr. in 2010, by another 40 b.kr. in 2011, and by nearly 10 b.kr. in 2012. As a result of these measures and improving economic conditions, the fiscal deficit is estimated at 2.9% of GDP in 2012. The forecast also assumes that the primary balance will be positive once again in 2012. From that time on, it will be possible to utilise the primary surplus to pay down the Treasury's debt.

In 2009, the worst year in terms of fiscal performance, total tax revenues are estimated at 37.6% of GDP, down from 47.9% in 2007, and then to recover slowly to about 40% of GDP by 2012. Comparable developments can be seen in total expenditure, although in the opposite direction. Total expenditure is projected at 49.5% of GDP for 2009, as opposed to 42.5% in 2007, and will gradually retreat to 42.5% of GDP in 2012.

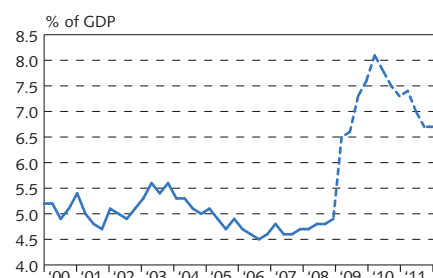
### Public consumption and income transfer payments will not fall below historical averages

Despite the sizeable contraction in public consumption and income transfers, the outlook for these variables is that they will not drop below their historical lows from before the last economic upswing. Therefore, by 2011, after a three-year consolidation period, public consumption will be at its 2005 level at fixed prices. It should be noted, however, that the cutbacks will occur from a historical peak in public consumption. Income transfer payments will increase sharply and reach their historical peak of more than 8% of GDP in 2010 and will remain above historical averages throughout the forecast horizon despite cutbacks. Investment, however, will fall below its historical average during the forecast horizon. After a three-year consolidation effort, investment will have fallen to nearly half of its average over the preceding decade as a proportion of GDP, or 1.7%.

### Public sector debt will be sustainable

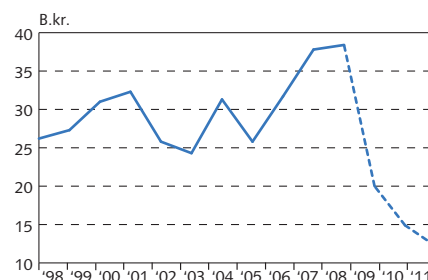
Considerable uncertainty remains about public sector debt throughout the forecast horizon. The debt ratio will be determined by the Treasury's access to foreign financing, which is generally available on better terms than domestic financing, and by the dividend realised from the banking assets taken over by the Government. Most likely, debt will rise early in the forecast period due to additional commitments and continuing deficit operations during the contraction period. For the longer term, however, the debt ratio is expected to taper off gradually.

Chart V-4  
Income transfers to households<sup>1</sup>  
Q1/2000 - Q1/2012



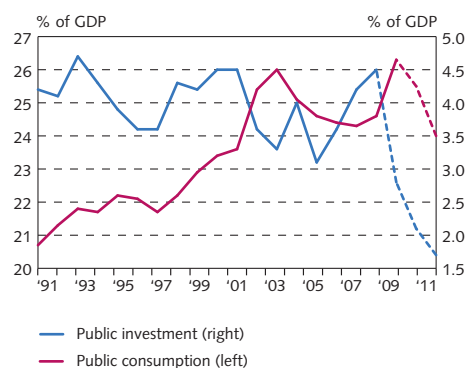
1. Central Bank baseline forecast Q1/2009 - Q1/2012.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-5  
Public sector fixed investment 1998-2011<sup>1</sup>  
At fixed prices



1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

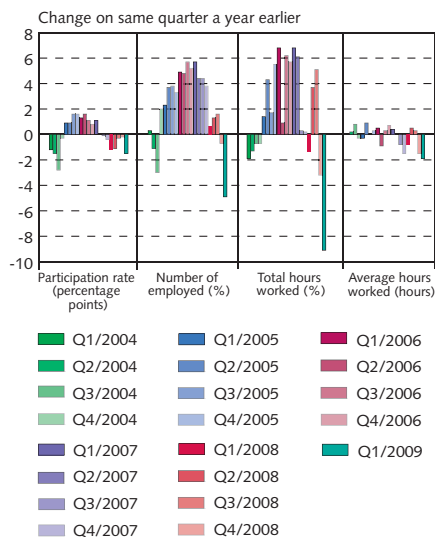
Chart V-6  
Public consumption and public investment as % of nominal GDP<sup>1</sup>



1. Central Bank baseline forecast 2009-2011.  
Sources: Statistics Iceland, Central Bank of Iceland.

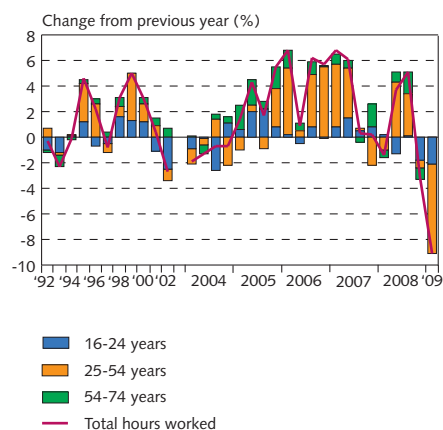
## VI Labour market and wage developments

Chart VI-1  
Changes in labour market



Source: Statistics Iceland.

Chart VI-2  
Contributions to changes in total hours worked



Source: Statistics Iceland.

Demand for labour has continued to contract in Q1/2009 after the profound turnaround in Q4/2008. Unemployment has never risen as fast or been as high since measurements began. So far, the drop in demand has only led to a contraction in labour supply among the youngest workers. Wages have responded to weakening labour demand, and in Q4/2008 nominal wages in the private sector fell for the first time. The negotiated wage increases that were to take effect in March 2009 have been postponed until June 2009, as has the renegotiation of labour market agreements.

### Unemployment at a historical high

Unemployment has hit record highs and risen at a record pace, with registered unemployment shooting up from 1.3% in September to 8.9% in March. Seasonally adjusted unemployment measured 7.6% in March. The previous peak was in January 1994, when registered unemployment was 7.5% and the seasonally adjusted rate 5.6%.

### Unprecedented rise in unemployment

The large and rapid rise in unemployment is unprecedented, compared both to prior downturns in Iceland and to other countries that have experienced serious financial crises (see Box VI-1). The rapid rise must be seen in light of the fact that excess demand for labour had prevailed for a very long time prior to the current crisis. Unemployment had been below its natural level (about 3%) since the end of 2004 and had hovered near 1% for two years by the time the crisis struck.

Furthermore, the current situation differs in important ways from a typical economic downturn. In a typical recession, unemployment gradually creeps upward as the slowdown in activity is transmitted through the production chain. Only at the latter stages of the slowdown do firms respond by shedding labour. In the current financial crisis, however, unemployment is rising fast early in the downswing as the financial sector and the industries most affected by asset price bubbles – construction and various services – are downsized.

This massive restructuring of the labour market may lead to a temporary rise in the natural rate of unemployment as labour is moved from domestic industries towards the tradable sector.

Another explanation for the sizeable increase in unemployment is liberalised eligibility rules for unemployment benefits, which entitle workers who are asked to work part-time to claim unemployment benefits. Given that one-fifth of the unemployed in April were actually unemployed part-time, the unemployment rate according to prior eligibility rules would have measured considerably below 8% in March.

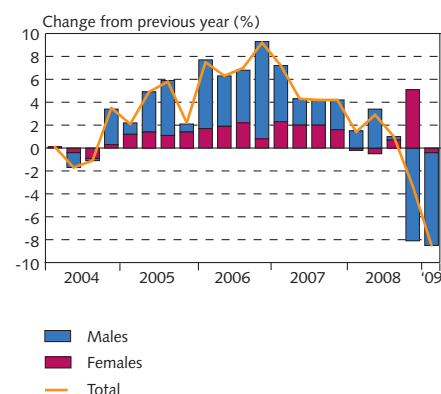
### Sharp contraction in hours worked

According to the Statistics Iceland labour market survey, total hours worked decreased by over 9% year-on-year in Q1/2009. The fall in hours worked was due to declines in both the average number of hours worked and the number of people working during the reference week.

### Only the youngest employees leave the labour market ...

The response to diminishing demand differs somewhat between age groups. A large decrease in the participation rate of the youngest age group (16-24), most of whom are probably students, fully explains the 1.5% drop in the participation rate in Q1/2009 and shows that workers in this group leave the labour market, as is customary when demand for labour diminishes. On the other hand, core workers – that is, the 25-54 age group – register as unemployed rather than leaving the labour market when out of work. The 5% year-on-year drop in employment is almost entirely explained by a decline in employment among males. Reduced employment among the youngest workers explains over 40% of the drop in employment, a far larger proportion than their 14% share in employment, while the share of those aged 25-54 was slightly less than their share in employment (60%). The results also confirm that a part of the contraction in demand has been absorbed by an increase in part-time employment, which rose by 4% year-on-year in Q1/2009.

Chart VI-3  
Changes in number employed



Source: Statistics Iceland.

Research shows that there tend to be significant differences between recessions associated with financial crises and those associated with other shocks.<sup>1</sup> Recessions associated with financial crises are more severe and more prolonged than recessions associated with other types of shock, and recoveries from financial crises tend to be more sluggish. In the aftermath of a financial crisis, private consumption growth tends to be weaker than during other recoveries, and private investment continues to decline after the recession trough as private sector balance sheets are rebuilt and access to credit normalises. The unemployment rate therefore rises higher than usual and may do so much earlier in the downturn than in typical business cycles.

There also tend to be important differences between recessions that are highly synchronised across countries and those that are not. Highly synchronised recessions are deeper and more prolonged than those confined to individual regions or countries. Recoveries from synchronised recessions have therefore been weak, particularly because export growth can only play a limited role in the recovery. Recessions that are associated with both financial crises and a global downturn are very rare, but they tend to be unusually severe and protracted.

### Unemployment outlook in comparison with other financial crises

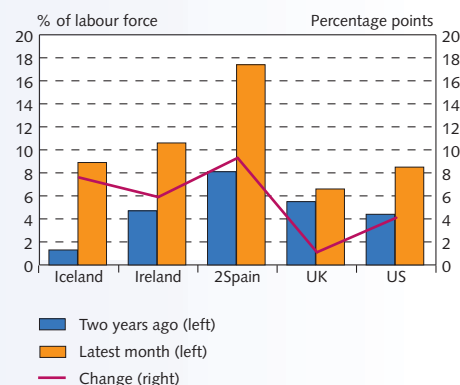
The current downturn in Iceland is associated with a deep financial crisis and a synchronised worldwide recession. It is therefore likely to be unusually severe, and the recovery is expected to be sluggish. The real economy has responded sharply, as can be seen in rapidly escalating unemployment and other indicators. Unemployment has already risen by nearly 8 percentage points since September 2008.

Although the real economy has already begun to adjust, unemployment rates are set to increase still further as output contracts, delaying the reallocation of workers across industries. According to the baseline forecast published in this *Monetary Bulletin*, unemployment will rise in the latter part of the year, peaking at over 11% in Q1/2010. Unemployment is expected to exceed 10% for about

### Box VI-1

## Unemployment and financial crisis

Chart 1  
Unemployment<sup>1</sup>



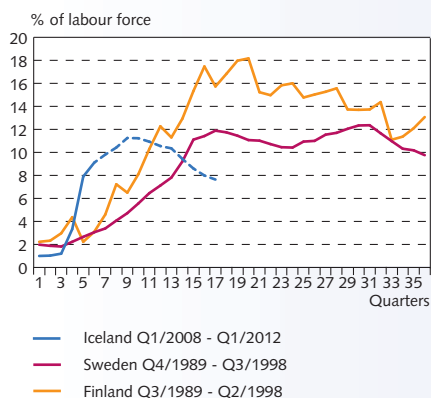
1. Latest month shows data for March for all countries excluding UK. Latest month for UK is January.

Sources: Directorate of Labour, Reuters Ecowin.

1. International Monetary Fund, (2009). "From Recession to Recovery: How Soon and How Strong?", Chapter 3 in *World Economic Outlook*, April 2009, pp. 103-138.

Chart 2  
Unemployment after banking crises<sup>1</sup>

First quarter is taken to be peak output gap prior to the downturn



1. Central Bank of Iceland baseline forecast Q1/2009 - Q1/2012.  
Sources: Directorate of Labour, Reuters Ecowin, Central Bank of Iceland.

1½ years, from Q4/2009 to Q1/2011, and remain very high well into 2013-2014. This is in line with the latest OECD forecast, which assumes that unemployment in OECD countries will peak in 2010 or early 2011, when it is expected to reach double-digit levels in many countries for the first time since the early 1990s.<sup>2</sup>

It is interesting to compare this scenario to the experiences of other countries that have suffered serious financial crises. According to a recent study of the aftermath of banking crises in the United States in 1929 and in wealthy countries and emerging markets in the post-World War II era, the unemployment rate has risen by an average of 7 percentage points from trough to peak.<sup>3</sup> As usual, the average conceals sizeable differences between countries. The greatest increase by far occurred in the US during the Great Depression, when unemployment rose by over 20 percentage points. The post-war crisis that came closest to this occurred in Finland in the early 1990s, when unemployment rose by 14 percentage points. This is followed closely by Colombia in 1998 and Spain in 1977, when unemployment increased by around 12-13 percentage points. In addition, during the 1990s Sweden experienced a larger-than-average rise in unemployment of about 8 percentage points. By comparison, the current baseline forecast assumes that unemployment in Iceland will rise by 10 percentage points from Q3/2008 (the last quarter before the crisis hit) to Q1/2010, when it is expected to peak.

Comparing the current unemployment profile with the developments in Finland and Sweden in the late 1980s and the 1990s (Chart 2) shows that, during the present crisis, unemployment in Iceland is forecast to peak at levels below those in Finland and Sweden. It is also expected to decline more rapidly than it did in those countries. In both Finland and Sweden, potential growth declined for five years following the onset of the downturn because of a rise in the structural unemployment rate and a reduction in potential employment growth.<sup>4</sup> In the 1990s, Sweden and, more particularly, Finland were helped out of deep recessions by the strong global upswing in the latter part of the 1990s.

2. OECD (2009). *Economic Outlook Interim Report* (March 2009).
3. Reinhart, C. M. and K. S. Rogoff (2009). "The aftermath of financial crises". *NBER Working Paper* 14656.
4. Haugh, D., P. Ollivaud and D. Turner (2009), "The Macroeconomic Consequences of Banking Crisis in OECD Countries". OECD, Economics Department *Working Paper*, No. 683.

### ... while foreign workers stay ...

The large influx of foreign workers to Iceland in recent years has added to the uncertainty regarding post-crisis developments in unemployment. Although preliminary numbers indicate that foreign nationals were 10% fewer at the end of last year than at mid-year, the spread of the global economic crisis to the immigrants' home countries has reduced the likelihood that a sizeable share of the EU-8 citizens living in Iceland will emigrate after becoming unemployed.

It is estimated that foreign nationals constituted around 11% of the labour force in 2008. Unemployment figures show that the share of foreign nationals among the unemployed is higher than their share in the labour force, but this is explained by the fact that they are over-represented in the sectors hardest hit by the crisis; i.e., construction and services.

### ... as do Icelandic nationals

A typical historical reflection of the flexibility of the Icelandic labour market is the migration of Icelandic nationals to and from Iceland over the business cycle. This feature is unlikely to be as pronounced as in previous downswings, as the global recession will affect demand for Icelandic nationals just as it affects demand for foreign nationals.

### One-fourth of businesses still want to cut staff

According to the Gallup Consumer Sentiment Index, household expectations concerning labour market developments have been more upbeat in the past few months, after bottoming out in January. However, this is inconsistent with the Capacent Gallup survey conducted in March among Iceland's 400 largest companies, which indicated that the labour market has yet to soften still further. Nearly one-fourth of the companies surveyed still want to cut back staff, as compared with well over half in the December 2008 survey. Most businesses appear to have already made the necessary staffing changes, as 64% want to keep unchanged staffing levels, up from 40% in the December survey. Just under one-fourth of businesses in the greater Reykjavik area expressed an interest in cutting back on personnel, more than twice the number in regional Iceland. The greatest change in recruitment plans was in the construction sector, where one-fifth of companies want to recruit staff now, as opposed to 5% in December.

### Unemployment may still rise substantially

The rapid rise in unemployment is in line with the January forecast. Although new unemployment registrations slowed somewhat in the latter half of March, it is now expected, in view of the worsening economic outlook, that unemployment will continue to rise in coming months, stabilising at approximately 11% in early 2010 and remaining close to that level until early 2011. It will then wane gradually as the economy recovers but remain above natural levels throughout the forecast horizon.

### Downward pressure on wages

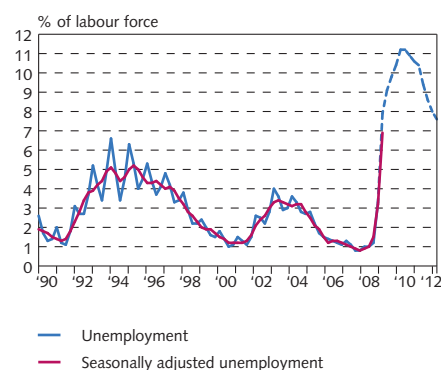
As is discussed above, unemployment figures and the results of the labour force survey indicate that people who become unemployed do not leave the labour market or emigrate to any significant degree. As weaker demand for labour is not outweighed by a weaker labour supply, the downward pressure on wages should be considerable. Nominal wages as measured by the Statistics Iceland wage index do not seem to have responded in accordance with this assumption, however. Certainly, the November wage index showed a month-on-

Chart VI-4  
Recruitment and redundancy plans of businesses over the next 6 months



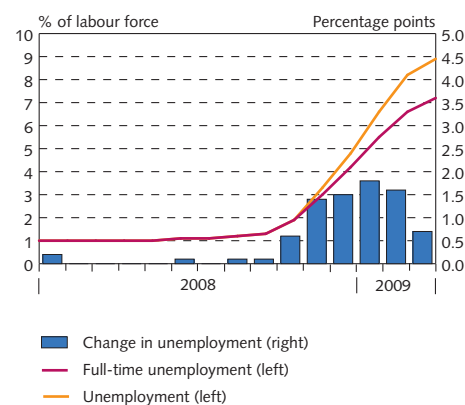
Source: Capacent Gallup.

Chart VI-5  
Unemployment rate<sup>1</sup>



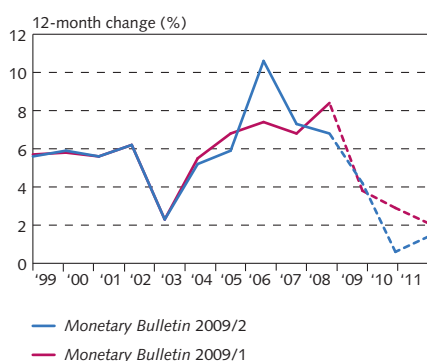
1. Central Bank baseline forecast Q1/2009 - Q1/2012.  
Sources: Directorate of Labour, Central Bank of Iceland.

Chart VI-6  
Unemployment



Sources: Directorate of Labour, Central Bank of Iceland

Chart VI-7  
Unit labour cost 1999-2011<sup>1</sup>



1. Central Bank baseline forecast 2009-2011.  
Source: Central Bank of Iceland.

month drop (0.6%) in nominal wages for the first time in its 20-year history. Furthermore, nominal wages in the private sector fell by 0.5% between quarters in Q4/2008.<sup>1</sup> On the other hand, they increased by 0.9% quarter-on-quarter in Q1/2009. In March, wages rose by 5.5% year-on-year, the most modest annual increase since the end of 2004. There are reasons why the wage index does not fully reflect the drop in nominal wages. First, wage reduction in some firms or sectors is being offset by a number of wage increases already decided in collective agreements in other firms or sectors. Second, the wage index only measures the changes in regular wages for those holding the same position within the same firm. It fails to capture the effect of job changes, within a firm or between firms, which in a downturn most often implies workers accepting lower wages.

### Alternative ways to cut wage costs

Employers wishing to cut costs have other options than reducing regular wages. The rapid rise in unemployment shows that cutting staff has been widely adopted. Other options are to ask staff to work reduced hours, something that is confirmed by labour force survey figures for Q1/2009. This solution is facilitated by the above-mentioned change in the legislation on unemployment benefits, which allows people who are unemployed part-time to claim unemployment benefits.

### Wage renegotiation postponed

The reduction in wage costs is probably more pronounced than official statistics indicate. Furthermore, real wages were 9% lower in Q1/2009 than in the first quarter of 2008. In addition, the renegotiation of the 2008 private sector wage settlement, which should have taken place in February, has been postponed until June, as have the negotiated wage increases that should have taken effect in March.

The Central Bank has assumed in previous forecasts that the review clauses would be triggered, and that they would result in additional increases in wage costs, although not large enough to preserve real wages. The current forecast assumes that only a small part of the previously negotiated wage increases for March 2009 will take effect this year and that, due to the deteriorating employment outlook, no renegotiation to safeguard real wages will take place.

Labour market participation has already begun to decline and is expected to continue doing so. For the year it is projected at some 2 percentage points less than in 2008, and at the end of the forecast horizon it is expected to be about 5 percentage points lower, or around 78%. This is a considerably lower participation rate than in the economic downturn of the early 1990s. Despite the expectation that such a large percentage of the work force will exit the labour market, it is assumed that unemployment will be high and will contain wage drift. Wage rises in 2009 and 2010 will therefore be unusually small.

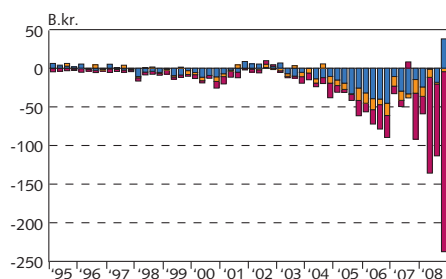
1. This is the first time since December 1988, when measurements were introduced, that the index has fallen due to a reduction in fixed wages. Earlier instances involved a distribution of one-time payments over the year or the rescission of wage rises with the enactment of emergency legislation.

As is discussed in Section IV, the financial crisis will cause a considerable contraction in potential output. As a result, productivity growth will be relatively modest, especially during the early part of the forecast horizon. Unit labour costs will therefore drop only marginally in the latter half of 2010, despite negligible wage rises. Wage costs will begin to rise once again early in 2011, when the economy picks up and the next contractual wage negotiations start, and will be consistent with the inflation target by the end of the forecast horizon.<sup>2</sup>

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2. As Chart VI-7 shows, historical data on unit labour costs have changed since the January issue of *Monetary Bulletin*. The greatest difference is the rather larger growth in wage costs in 2006, which is attributable to Statistics Iceland's review of wage costs to reflect new figures from firms' annual accounts.

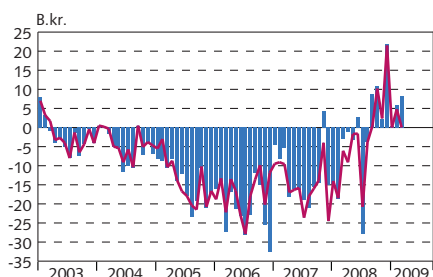
Chart VII-1  
Components of the current account<sup>1</sup>  
Q1/1995 - Q4/2008



■ Trade balance  
■ Services balance  
■ Income balance

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

Chart VII-2  
Merchandise account balance  
Monthly data at fixed exchange rate



■ Including ships and aircraft  
— Without ships and aircraft

Source: Statistics Iceland.

## VII External balance

The Q4/2008 current account deficit was the largest quarterly current account deficit ever recorded in Iceland. The current account balance was negative in the amount of 199.6 b.kr., or 50% of GDP, in Q4/2008, as opposed to 113 b.kr. in the third quarter. This negative balance is due primarily to a 232 b.kr. income account deficit, which increased by 140 b.kr. from Q3/2008. The income account deficit is attributable to losses on outward foreign direct investment and increased interest expense on external liabilities. The trade and services balance, however, has turned positive for the first time since 2003.

### Trade balance turns into surplus ...

The merchandise account balance turned positive in September 2008. The surplus totalled 43.7 b.kr. in the last four months of 2008 and 14.6 b.kr. in Q1/2009, at fixed exchange rates. The turnaround can be attributed largely to a 40% year-on-year contraction in imports of goods and services in both Q4/2008 and Q1/2009. This development is broadly in line with the January forecast.

The service account deficit narrowed somewhat year-on-year in Q4/2008, as revenue from foreign tourists increased by almost 150% year-on-year while Iceland residents' travel expenses abroad declined by 12% from Q4/2007. Although the outlook for exports has been revised downwards from January because of the deteriorating global outlook (see Section II), the baseline forecast assumes a steadily improving trade balance, with a surplus of roughly 10% throughout the forecast horizon.

### ... but the balance on income shows a large deficit

Although the trade balance turned positive in Q4/2008, the current account deficit was considerably larger than in the preceding quarter due to a sizeable deficit in the balance on income. In Q4, the current account balance was negative by roughly 50% of GDP, but for the year as a whole it was negative by 35% of GDP, as opposed to 16% the year before. The uncertainty associated with estimating and forecasting the income account is unusually large due to current corporate sector difficulties, but once the problems relating to failed financial institutions and firms have been solved, developments in interest payments will probably prove to be the main determinant of the balance on income.

On the income side, revenues from interest payments amounted to 63 b.kr., a 15% increase from the previous quarter. However, dividends and reinvested earnings were negative by 197 b.kr., mostly due to operating losses of Icelandic-owned foreign businesses, which are entered as negative reinvested earnings.

On the expenditure side, dividends and reinvested earnings were positive by 96 b.kr. in Q4/2008, up from 8 b.kr. in Q3, partly offsetting the negative dividends and reinvested earnings on the income side. The positive value on the expenditure side can be attributed to negative reinvested earnings, or losses, from Icelandic firms owned by



non-residents. Furthermore, interest payments were negative by 193 b.kr., an increase of 60 b.kr. from the previous quarter.

### Record current account deficit in 2008

The trade balance was negative by 35 b.kr. in 2008, compared to 135 b.kr. in 2007. Added to this was a deficit in the balance on income amounting to 468 b.kr., an increase of 403 b.kr. from 2007. Most of the increase stems from a 242 b.kr. rise in net interest payments. For the year as a whole, the current account deficit was 508 b.kr., or 35% of GDP, Iceland's highest annual current account deficit to date.

### Considerable uncertainty about long-term balance on income developments

As is mentioned above, the Q4/2008 current account deficit is the largest ever recorded in Iceland. The outlook is for a substantial surplus on the trade account concurrent with a sizeable contraction in domestic demand and imports. The greatest uncertainty regarding the current account centres on developments in the income account.

At present, the most important income account item is interest payments. The wage component is an insignificant part of the account and is unlikely to make any impact. The dividends and reinvested earnings items are currently reflecting losses and will probably continue to do so for some time. A turnaround in receipts of dividends and reinvested earnings is expected once the global recession comes to a close and returns on global equity markets normalise. Until then, further losses by Icelandic-owned foreign firms are likely to have a negative impact on the income account.

Large negative numbers in the dividends and reinvested earnings component are not likely to persist, since they are to some extent caused by fire sales by firms on the brink of bankruptcy. Once these firms fail or manage to pull through, this component is likely to return to a more normal level. According to the baseline forecast, the current account will report a modest deficit of close to 2% of GDP for 2009 but reach a surplus of 2% by 2011.

### Gradual improvement in international investment position

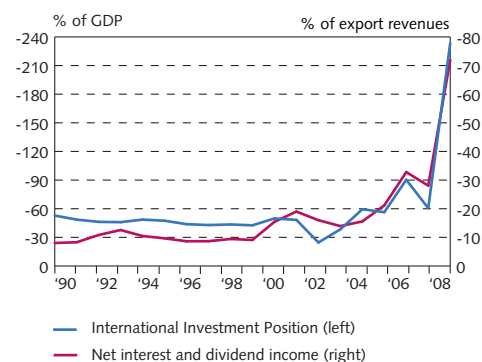
Another important component, although not presented in the balance on income, is debt write-off. Developments in this item are likely to be crucial for the Icelandic economy because it affects Iceland's international investment position.

The net interest payments component will be important as well. Interest income will probably contract because of the failure of the three large banks. Interest expense will increase, but it is uncertain by how much. This will depend on various factors, such as asset recovery and the resolution of the Icesave dispute, as well as the interest rate terms offered to the Icelandic Government. For the same reasons, it is extremely difficult to estimate and forecast the international investment position. Given a few reasonable assumptions, however, it is possible to argue that Iceland's net debt is currently less than 140% of GDP and will gradually improve over the forecast horizon (see Box VII-1).

Chart VII-3

International Investment Position and net interest and dividend income

Annual data 1990-2008

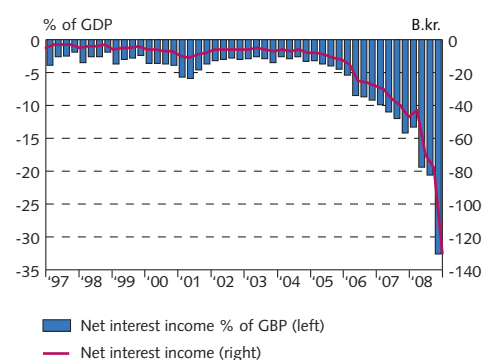


Sources: Statistics Iceland, Central Bank of Iceland.

Chart VII-4

Net foreign interest income

Q1/1997 - Q4/2008

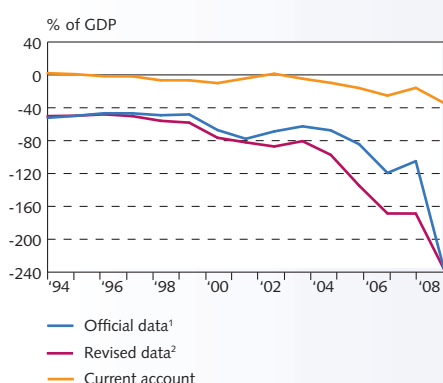


Sources: Statistics Iceland, Central Bank of Iceland.

Box VII-1

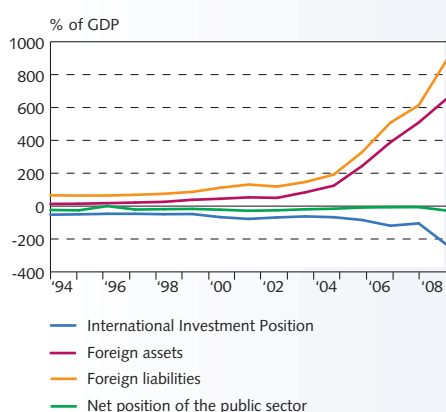
## Foreign debt and balance on income

Chart 1  
International investment position  
Annual data 1994-2008



1. Assets and liabilities at end-of-year exchange rates and GDP at current prices. 2. Using GDP deflator in 2008 and end-2008 (trade-weighted) exchange rate.  
Source: Central Bank of Iceland.

Chart 2  
Foreign assets and liabilities  
Annual data 1994-2008



Source: Central Bank of Iceland.

For a number of consecutive years, Iceland has been running a current account deficit financed by foreign borrowing. Figure 1 shows Iceland's international investment position (IIP, i.e. foreign assets net of foreign debt) at year-end as a proportion of GDP. According to figures published by the Central Bank, fifteen years ago Iceland's IIP amounted to around 50% of its GDP. This ratio remained fairly steady until the beginning of this century, reflecting a current account that was close to balance during that period. In the wake of the upswing at the end of 1990s, the current account deficit has increased gradually and the IIP has decreased. Measured as a proportion of GDP, the IIP had declined to -237% by 2008.

In addition to the current account deficit, which affects foreign borrowing, and GDP growth, which influences the denominator of the IIP ratio, the relationship between the exchange rate and domestic price levels also affects this ratio. If the exchange rate is relatively high compared to the domestic price level (making debt in foreign currencies relatively low in krónur terms) the IIP ratio appears relatively low. Since this debt is calculated at the exchange rate applicable at year-end, and GDP at average price levels for the year, the situation at the end of the year as compared to the average for the year is also important. The króna exchange rate was comparatively low relative to domestic price level in 2008 and especially low at year-end compared to the average price level for the year. As a result, the IIP ratio at year-end 2008 was especially low if the traditional method of calculating it is used. If, however, the IIP ratio is reassessed by adjusting for the changes in exchange rate using the trade-weighted index and for changes in price level of GDP, the depiction of the change in the debt ratio changes markedly.<sup>1</sup> Recalculating the debt ratios for the years before 2008 using year-end 2008 exchange rate and price level of GDP in 2008 shows, for instance, that around half of the decrease in the IIP as a ratio of GDP from -105% in 2007 to -237% in 2008 can be attributed to the low króna exchange rate relative to domestic price levels.

### Changes in foreign assets and liabilities

Chart 2 shows how foreign assets and liabilities of Icelandic parties have developed as a ratio of GDP and the difference between them (the IIP). The chart is based on the Central Bank's official statistics, and the curve showing the IIP is exactly the same as in Chart 1.

The chart shows that the net foreign debt of the public sector (including the Central Bank, the National Treasury and municipalities, but excluding public corporations such as Landsvirkjun and Reykjavik Energy) was very low at year-end 2007. The financial crisis and collapse of large domestic banks last autumn have transformed this picture, however.

Work has been underway recently on reassessing the foreign assets and liabilities of Icelandic parties with the help of information on corporate insolvencies. This work is not yet complete; in recent weeks large enterprises have become insolvent, and it is by no means certain that the wave of insolvencies has ended. Major issues have yet to be resolved with parties abroad, e.g. concerning foreign deposit accounts of the Icelandic banks, and the freeze on Landsbanki's UK assets is still in effect. Although Icelandic parties have lost enormous assets abroad, foreign investors have also had to write off huge debts owed by Icelandic parties. While the net public debt position will deteriorate considerably, more uncertainty

1. This assumes that all debt owed to foreign parties is foreign-denominated. Until very recently this was literally the case, but in recent years foreign debt has to a growing extent been denominated in krónur. A similar trend appears if the US dollar is used instead of the trade-weighted index.

clouds the private debt position and that of the national economy as a whole.

### Development of the balance on income

Part of the large-scale change in assets that has been taking place in the national position is recognised in official statistics as dividends and reinvested earnings.<sup>2</sup> A loss by a foreign company owned by Icelandic parties, for example, is regarded as negative dividends and reinvested earnings. This past year there were enormous losses by such companies due to their difficult financial situation and unfavourable market conditions. Table 1 shows that dividends and reinvested earnings were negative by 248 b.kr. in 2008. Of this amount, 197 b.kr. were recorded during the last quarter of the year. The table shows the dramatic reversal of the situation in 2008 from that of previous years, when there were high returns on foreign portfolios. A similar turnaround took place in the return on foreign investment in Iceland, which was negative by 102 b.kr. last year. Due to the negative IIP, interest expenditure naturally exceeded interest income, resulting in a negative balance on income of ISK 468 b.kr. in 2008, equivalent to 31.9% of GDP for the year. This negative balance on income reduced 2008 GNI by almost one-third from that of the previous year.

Table 1

	2004	2005	2006	2007	2008
<b>Balance on income</b>	<b>-38,829</b>	<b>-38,393</b>	<b>-87,213</b>	<b>-65,342</b>	<b>-468,042</b>
Revenues	32,944	91,153	180,829	322,267	-33,082
Wages	5,624	4,639	5,033	1,584	1,425
Dividends and rein. earnings	18,525	65,023	102,682	181,728	-247,771
Interest income	8,795	21,491	73,114	138,955	213,264
Expenditures	-71,773	-129,546	-268,042	-387,609	-434,960
Wages	-817	-1,533	-2,728	-3,443	-2,621
Dividends and reinv. earnings	-35,478	-66,606	-98,641	-91,394	102,459
Interest expense	-35,478	-61,407	-166,673	-292,772	-534,798

A loss of this magnitude naturally gives cause for considerable concern. On the other hand, it should be pointed out that the figures recognised in the balance on income reflect only part of the impact of the banking system's collapse on the Icelandic economy, as some changes in assets and liabilities are recorded as changes to the IIP without affecting the balance on income. This occurs, for example, when an Icelandic enterprise becomes insolvent and major liabilities owed to foreign creditors are written off. In the end, it is the foreign assets and liabilities of the entire economy that are significant, not only the changes recognised in the balance on income.

### Estimates of Iceland's current IIP

According to provisional figures on the foreign liabilities of domestic parties at the end of Q1/2009 – i.e., after Straumur-Burðarás, SPRON, Icebank and Baugur had all been declared insolvent – amounts owed by domestic parties to foreign creditors amounted to 2,500 b.kr., or to 175% of GDP forecast for 2009. Foreign debt of the Central Bank, the National Treasury and municipalities totalled 830 b.kr.; liabilities of deposit institutions now for the most part

2. The methodology used for estimating portfolio returns and expenditure is discussed in detail in the articles "Iceland's International Investment Position and Balance on Income", by Daniel Svavarsson and Pétur Örn Sigurðsson (*Monetary Bulletin* 2007/2) and "International Investment Position: Market valuation and the effects of external changes" by Daniel Svavarsson (*Monetary Bulletin* 2008/1).

publicly owned, amounted to 300 b.kr.; and that of public corporations was around 500 b.kr. Total liabilities of these parties amounted to 1,630 b.kr. Foreign debt of private parties, including companies owned by foreign parties, totalled 870 b.kr. These figures can be expected to increase by around 600 b.kr., later this year due to loans that will be taken by the Treasury to cover deposit guarantees in several European countries. Total debts of Icelandic parties could then reach around 3,100 b.kr., or the equivalent of 220% of GDP for the year. It should be pointed out that a large portion of this 600 b.kr. loan is expected to be repaid with proceeds from sale of Landsbanki's foreign assets in coming years. A report presented by the Minister of Finance on March 17 this year states that Landsbanki's Resolution Committee expects to obtain 527 b.kr. for the bank's assets, which can be used to repay this loan. If this proves correct, the net cost arising from the deposit insurance will therefore be 73 b.kr.<sup>3</sup> As is also mentioned in this report, all such estimates are clearly subject to considerable uncertainty.

Many of the assets still listed as foreign holdings of Icelandic parties are likely not of great value. Other assets, however, should be fairly accurately valued and secure; e.g., the Central Bank's foreign reserves amounting to 430 b.kr. and foreign assets of Icelandic pension funds of around 500 b.kr. If these assets, totalling 930 b.kr., are deducted from the liabilities of 3,100 b.kr., the outcome is net debt of 2,170 b.kr. or the equivalent of just over 150% of forecast GDP for this year. If assets of the old banks in Europe (which will be sold to pay off loans taken for deposit guarantees in these countries) amounting to around 500 b.kr. are included, the net debt decreases to 1,670 b.kr., or the equivalent of close to 120% of forecast GDP for this year. Iceland's IIP is around 300 b.kr. (or around 20% of GDP) lower due to equity in Icelandic companies held by foreign parties. The outcome is an IIP equivalent to -140% of the forecast GDP for this year.

These figures should be regarded as an upper limit for this debt burden, as some assets are likely undervalued and some additional debt can be expected to be written off by further insolvencies.

The baseline scenario in this issue of *Monetary Bulletin* assumes that the current account will show a 2% deficit this year and be in balance in 2010. After that, the current account should show a growing surplus. The net debt burden will therefore fall rapidly in coming years. Debt is forecast to be 100 b.kr., or 8% of GDP, lower in 2011 and to fall rapidly after that. All such forecasts are obviously highly sensitive to the interest rate assumptions used.

### Estimated balance on income

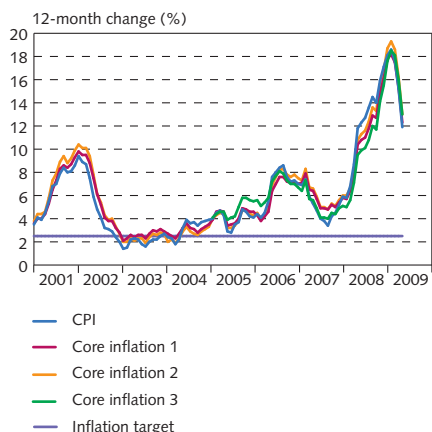
Negative dividends and reinvested earnings could result in significantly negative balance on income this year, as was the case last year. On the other hand, it seems reasonable to assume that once the present wave of insolvencies concludes, returns on foreign portfolios owned by Icelandic parties (e.g., pension fund assets of around 500 b.kr.) will approach what could be considered normal and the same will be true of returns on portfolios of foreign parties in Iceland. Interest income will likely be minimal, as was the case prior to the banks' expansion abroad, and interest expense will be determined by the foreign debt remaining after the wave of bankruptcies is past. Bearing this in mind, the balance on income should be estimated based on estimates of the IIP and the interest terms on offer, rather than on highly uncertain figures for portfolio returns.

3. The report is available in Icelandic at [http://www.island.is/media/frettir/thjodarbuskapur\\_fjarmal.1.pdf](http://www.island.is/media/frettir/thjodarbuskapur_fjarmal.1.pdf)

Due to the poor credit rating of Icelandic parties, foreign financial institutions demand a high risk premium on credit extended to them, amounting to as much as 10 percentage points over LIBOR. There is a good possibility of financing debt of Icelandic parties on more favourable terms through the involvement of foreign governments and the IMF. The Central Bank's baseline scenario assumes that it will be possible to finance foreign debt of public bodies through foreign-denominated loans with interest rates of 4-5%, while financial assets owned by non-residents in krónur will bear slightly higher interest in the near term. Given these assumptions, the balance on income is forecast to be negative by close to 10% of GDP for the next two years and improve rapidly thereafter.

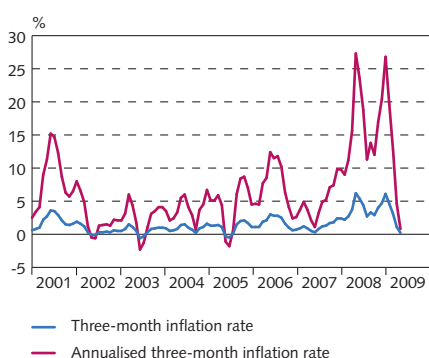
## VIII Price developments and inflation outlook

Chart VIII-1  
Inflation January 2001 - April 2009<sup>1</sup>



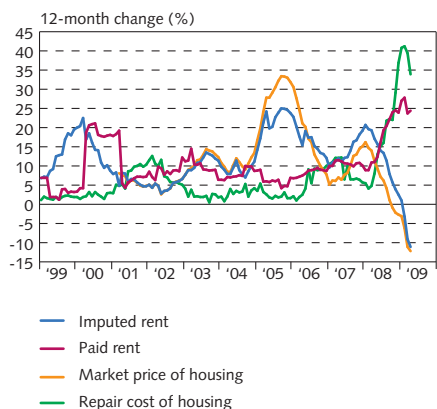
1. The core indices are compiled on the same basis as the CPI, with Core Index 1 excluding prices of agricultural products and petrol, and Core Index 2 excluding prices of public services as well. Core Index 3 also excludes the effect of changes in mortgage rates.  
Source: Statistics Iceland.

Chart VIII-2  
Three-month seasonally adjusted inflation  
January 2001 - April 2009



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-3  
Housing component of the CPI  
January 1999 - April 2009



Source: Statistics Iceland.

Inflation has fallen farther and more rapidly than expected in the January *Monetary Bulletin*, measuring just over 17% in Q1, nearly 1½ percentage points less than forecast. The króna was slightly stronger than expected in the first quarter, and declining house prices slowed inflation more than previously assumed. Global inflation has also slowed down substantially, and world commodity prices have stabilised after dropping sharply last year. The outlook is for rapidly declining inflation in the near term, due to a strong contraction in demand and a growing slack in the economy. Inflation expectations have tapered off markedly. Inflation appears set to drop to single-digit levels in the third quarter of 2009 and reach the inflation target early in 2010. The primary uncertainty on the upside centres on the exchange rate of the króna. Other factors are likely to reduce inflationary pressures.

### Disinflation is underway

Inflation peaked at 18.6% in January after having risen swiftly throughout 2008, primarily in response to the weakening of the króna. In April, the consumer price index (CPI) increased by 0.45% month-on-month, and twelve-month inflation measured 11.9%. Underlying inflation has subsided as well, measuring 13% in April.<sup>1</sup> The twelve-month rise in the CPI excluding the housing component was much greater, however, or 15.6%. Annualised seasonally adjusted three-month inflation measured 0.8% in April, as opposed to 4.6% in March and as high as 19½% in January. Although this is an extremely volatile measure of inflation, it nonetheless indicates how rapidly inflation is declining.

### Lower house prices a key factor in disinflation

The real estate market is in a deep slump, and lower house prices have begun to affect the CPI more strongly. The low turnover and large number of housing swaps complicate measurements. Most likely, the relatively large number of swaps delays the impact of falling house prices on headline inflation. Thus it is difficult to estimate whether, and to what degree, measurements capture actual house price declines. According to national figures from Statistics Iceland, nominal house prices had fallen by over 12% year-on-year, and real prices by 22%, as of April 2009. In comparison, at the beginning of 2009 nominal house prices had fallen by slightly more than 3% over the previous twelve months.<sup>2</sup>

### Exchange rate pass-through has diminished

As of April, prices of imported goods have risen by 20% in the past twelve months, down from the peak twelve-month increase of 30% in

1. Underlying inflation excludes volatile items, public services, and real interest rates.
2. According to the Icelandic Property Registry (IPR), house prices in the greater Reykjavík area had fallen by 8.5% year-on-year in March, but according to Statistics Iceland (SI), real estate prices nationwide had fallen by 11% at the same point in time. The methods used by IPR and SI to measure housing price indices are not exactly the same. First, SI uses a three-month moving average based on data from IPR to measure the market price of real estate. Second, it uses a required rate of return to calculate the present value of non-monetary purchase agreements such as swaps, while IPR does not include such contracts when measuring housing prices. In April 2009, SI used a required rate of return of approximately 23%. The nominal value of the property used as payment in housing purchases is therefore reduced by 23% when the present value of the purchase price is calculated.

January 2009. Exchange rate pass-through has been less pronounced in recent months. In Q1/2009, the króna was about 8% higher on average than in Q4/2008, but it has retreated again since mid-March. The sharp contraction in demand makes it harder for firms to pass currency depreciation through to prices; therefore, importers absorb a greater share of the depreciation by cutting profit margins. Waning global inflation has also affected imported goods prices. Inflation is approaching zero in a number of Iceland's main trading partner countries. World commodity prices have stabilised somewhat in recent months, while oil prices have risen slightly (see Section II). Global food commodity prices in euros have dropped by roughly 11% in the past twelve months and non-fuel commodities by approximately 23%.

Exchange rate pass-through over the next few months is still quite uncertain, as accumulated cost pressures may still remain in the wake of the substantial depreciation of the króna. The contraction in domestic demand reduces the likelihood of a strong impact on prices, however. There is also the risk that the inflation outlook will deteriorate if the króna continues to weaken, as further depreciation could undercut the disinflation process now underway.

### Tradable inflation remains high, while non-tradable inflation falls rapidly

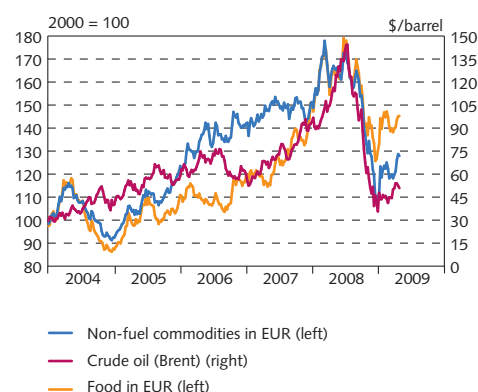
A sizeable gap has emerged between measured tradable inflation and non-tradable inflation. Prices of non-tradable goods, such as real estate and various services, are declining rapidly at present, while tradable inflation remains extremely high, due in part to last year's currency depreciation. The composition of the CPI reflects this. The rise in imports prices accounts for more than half of the 11.9% inflation figure, and domestic goods prices explain about 17%, while the entire housing component of the CPI is responsible for only 1½% of the increase. On the other hand, the CPI rose by 0.4% over the past three months, with imported goods contributing an approximately 1.4 percentage point increase, while roughly a 1.4 percentage point decrease can be contributed to the housing component.

### Producer prices a possible indicator of underlying cost pressures

Overall producer price inflation has slowed significantly since year-end 2008, primarily due to appreciation of the króna. The twelve-month increase measured 11.6% in March, down from 68½% in November 2008. However, only a portion of the products included in the producer price index affects domestic retail prices. The component that includes prices sold domestically could provide an indication of future developments in the price of certain products in the CPI. As of March 2009, the producer prices of these products had risen by 27% year-on-year and were still climbing. This could be a sign of underlying cost pressures that have yet to pass through to retail prices because of the contraction in domestic demand. Producer prices of food products could also indicate changes in consumer food prices. In April, domestic food prices in the CPI had risen by almost 15% year-on-year, while producer prices for food products had risen by about 22% as of March.

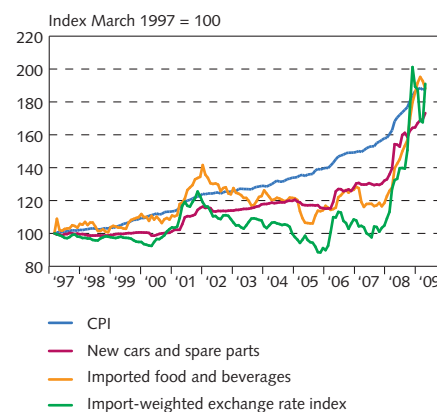
Chart VIII-4  
Commodity prices

Weekly data January 2, 2004 - April 17, 2009



Sources: Bloomberg, Reuters Ecowin.

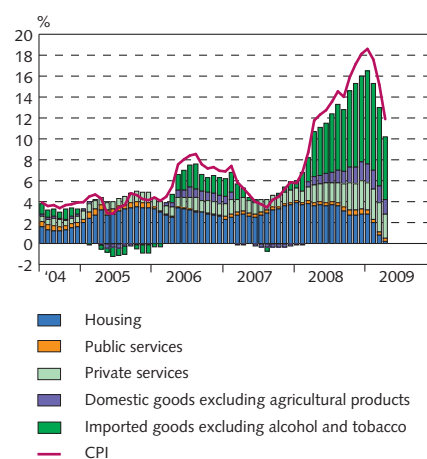
Chart VIII-5  
Import-weighted exchange rate and import prices March 1997 - April 2009



Source: Statistics Iceland.

Chart VIII-6  
Components of the CPI  
June 2004 - April 2009

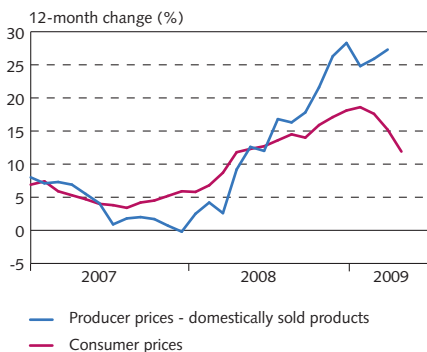
Contribution to CPI inflation in past 12 months



Source: Statistics Iceland.

Chart VIII-7

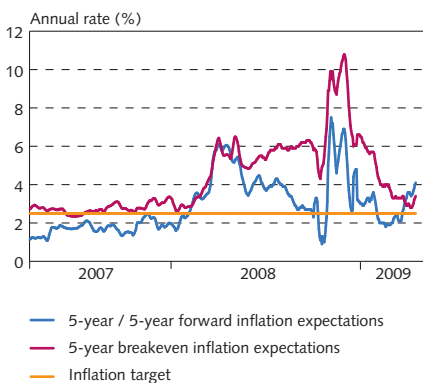
Producer prices of domestically sold products  
and consumer prices January 2007 - April 2009



Source: Statistics Iceland.

Chart VIII-8

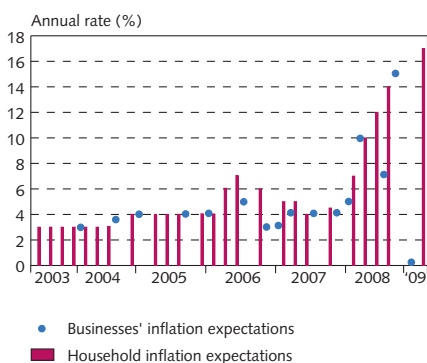
Inflation expectations according to the difference  
between nominal and indexed interest rates<sup>1</sup>  
Daily data April 2, 2007 - April 17, 2009



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

Chart VIII-9

Inflation expectations of businesses  
and households one year ahead



Source: Capacent Gallup.

### Inflation expectations have plunged by most measures

Five-year breakeven inflation rates on the bond market have declined considerably in recent months, averaging 3.5% during the period from February 2 to April 17, after having averaged almost 6.5% in the two months preceding. However, it should be borne in mind that the breakeven inflation rate comprises inflation expectations and an inflation risk premium, which makes it difficult to discern what is actually causing this development (see Section III). The breakeven inflation rate has been on the rise recently, particularly five-year inflation expectations five years ahead. The increase probably stems from uncertainty about supply and demand for Treasury securities over the medium term rather than from rising inflation expectations.

Businesses' inflation expectations have also fallen dramatically in the recent term. In a March 2009 survey of the nation's largest firms, management expected 0% inflation over the next twelve months, as opposed to 15% in the December 2008 survey. Respondents expect 4% inflation two years ahead. According to the survey, only 17% of firms plan to raise their prices for goods and services in the next six months, as compared with 70% in a similar survey conducted in October 2008. Nearly one-third plan to cut prices in the next six months, as opposed to only 6% in the last survey. These responses give a clear indication of how rapidly inflationary pressures have subsided.

In contrast with firm's expectations, household inflation expectations have risen, according to a survey carried out in March. Households expect inflation to measure 17% over the coming twelve months, as compared with 14% in October 2008, and they expect 7% inflation two years ahead. Therefore, households appear to assume that inflationary pressures will remain strong, possibly due to uncertainty about exchange rate developments and the capital account restrictions currently in effect.

### Rapid disinflation ahead ...

As in the January forecast, the outlook is for rapidly declining inflation in the near term. Inflation is projected to fall to 10.7% in the second quarter of 2009, 8% in the third, and just under 5% in Q4. This is a rather swifter pace than was assumed in January, when inflation was forecast at just over 10% in the third quarter and around 5½% in the fourth.

In the baseline forecast, inflation slows down rather more rapidly than is suggested by time-series models. According to a simple cost-push model, inflation will be just over 6% in Q4 but just under 8% according to a simple ARIMA model. These models are likely to overestimate near-term inflation pressures, as they do not capture the effects of sharply declining demand on inflation and inflation expectations, and the possible effect on the level of exchange rate pass-through. All of these factors play a key role in the baseline forecast.<sup>3</sup>

3. According to a simple cost-push model, inflation is determined by a statistically estimated relationship between inflation, developments in unit labour costs, and import price levels. The ARIMA model is a simple time series model wherein inflation is determined solely by its own historical development.



The baseline forecast assumes that inflation will continue to decline in 2010 and reach the inflation target early in the year. The outlook is for inflation to dip below the target temporarily, and the possibility of a short episode of deflation cannot be ruled out. Inflation is expected to realign with the target, however, at the end of the forecast horizon.

**... coupled with a deep economic recession ...**

As is explained in Section IV, the contraction in domestic demand appears likely to exceed the January forecast. The output gap is more than a percentage point narrower in the first quarter of the year than was forecast in January. The forecast assumes that a slack will emerge as soon as Q2 and peak in Q1/2010, one quarter earlier than was projected in January. The slack is also more pronounced than in the January forecast and remains larger throughout the forecast period.

Unemployment during the forecast horizon reflects these developments. It is projected to peak at about 11% in the first quarter of 2010, as was assumed in the January forecast, but will taper off somewhat more slowly than was indicated at that time (see Section VI).

**... will dampen exchange rate pass-through**

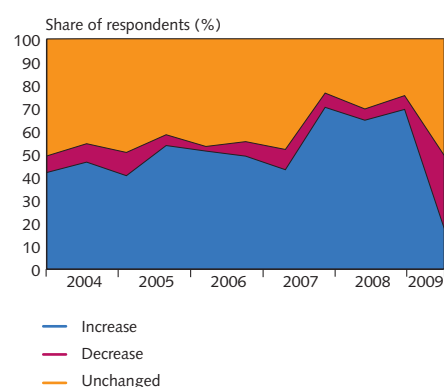
The strong contraction in domestic demand and the decided slack in the domestic markets for goods and labour make it unlikely that the recent depreciation of the króna (see Section III) will slow down the rapid disinflation that has set in. As is described earlier in this section, it is more likely that the contraction will force firms to absorb the depreciation by reducing their margins.

The baseline forecast assumes that the króna will weaken slightly in the first part of 2009 and then recover gradually throughout the forecast horizon. The EURISK exchange rate is expected to range between 150 and 160 for the remainder of the year and then ease down below 150 in 2010. For most of the forecast horizon, this is a rather weaker exchange rate path than was assumed in January.

**Limited inflationary pressure from the labour market**

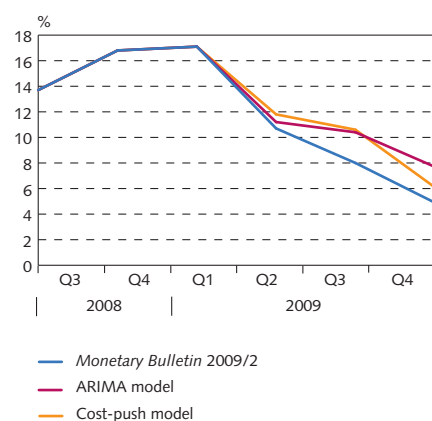
A pronounced slack in the domestic labour market reduces the likelihood of wage pressures stemming from currency depreciation. According to the baseline forecast, the outlook is for modest near-term wage inflation and a swift decline in unit labour costs (see Section VI). The forecast assumes that annual increase in unit labour costs will fall below the inflation target in the fall of 2009 and remain well below it until the latter half of 2011.

Chart VIII-10  
Firms' opinion of their price changes during the next six months



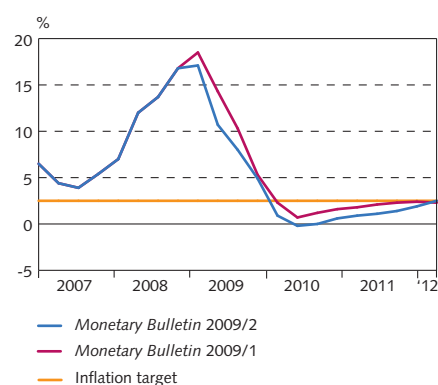
Source: Capacent Gallup.

Chart VIII-11  
Inflation forecast from different models



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VIII-12  
Inflation - comparison with Monetary Bulletin 2009/1



Sources: Statistics Iceland, Central Bank of Iceland.

## Box VIII-1

Updated  
macroeconomic model

The principal tool used by the Central Bank of Iceland for forecasting and simulations is its Quarterly Macroeconomic Model (QMM, see Daniélsson et al., 2009). Since January 2009, the Bank has been using a revised version of the model. This revision affects the Bank's macroeconomic forecasts and consists of two parts.

**Re-estimation and revision**

The model's behavioural relations are re-estimated and revised regularly. They are now estimated using data through 2006 instead of 2004, as in previous versions. In most instances the revision was minor, but in several instances the relationships were significantly altered. As a result of structural changes in the housing market in 2004, for example, the housing investment and housing price equations changed somewhat. Another example is the private consumption equation, which has changed to reflect new official household disposable income data from Statistics Iceland, which are now used instead of the Bank's own data.

**Forward-looking expectations**

To forecast the expectations of economic agents, previous versions of QMM have used backward-looking updating rules; i.e., inflation, interest rate and exchange rate developments were determined exclusively by historical trends and not by forward-looking expectations, as is assumed by the modern literature.

In the revised version of QMM, the Central Bank's policy rate is determined by forward-looking inflation expectations, inflation itself is also partly determined by forward-looking inflation expectations, long-term interest rates are determined by forward-looking expectations of the future short-term rate, and the real exchange rate is affected by the expected future real exchange rates. Expectations are therefore rational; that is, future model solutions are found by iterating the model so that expectations of, for example, the future inflation rate are consistent with the inflation path generated by the model. Expectations are therefore said to be model-consistent. The model's long-term solution is assumed to be consistent with the balanced growth path of the economy, as is discussed in Daniélsson (2009).

**The cost of reducing inflation**

Making the model forward-looking in this manner has important effects on its properties. Assuming forward-looking monetary policy improves its performance; i.e., the trade-off between inflation and output stability is much more favourable than under the previous policy rule, which assumed that inflation only responded to the current inflation rate.

Another important change concerns the cost of disinflation. It is well known from the literature that backward-looking models like the previous version of QMM suggest a relatively high sacrifice ratio; in other words, disinflation can only be achieved by creating a sizeable contraction in the real economy. Such models have often been compared to oil tankers that must exert considerable effort to change direction (see, for example, Berg et al., 2006). Fully forward-looking models, however, suggest that the cost is much less or even non-existent, and are sometimes compared to speedboats, which can change course very easily. The new version of QMM falls somewhere between the two: real and nominal inertia are introduced by assuming partly backward-looking behaviour, but key behavioural variables are also determined by forward-looking expectations. This is in line with the standard approach to economic modelling used by most central banks today.

This change in the structure of QMM affects the Bank's macroeconomic forecasts. Inflation and long-term rates, for example,

decline more rapidly in the new version of the model than in the previous version, since they are affected by forward-looking expectations rather than being based exclusively on historical developments where they were fairly high. As a result, in the new version of QMM, the policy rate needed to achieve a specified reduction of inflation is not as high as in the older version.

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## Appendix 1

### Baseline macroeconomic and inflation forecast 2009/2

Table 1 Macroeconomic forecast<sup>1</sup>

	B.kr.	Volume change on previous year (%) unless otherwise stated				
		2007	2008	Forecast		
<i>GDP and its main components</i>				2009	2010	2011
Private consumption	754.6	5.6 (4.3)	-7.7 (-6.7)	-23.5 (-25.2)	-2.1 (-4.3)	2.9 (5.5)
Public consumption	316.8	4.2 (4.2)	2.8 (3.5)	-2.7 (1.5)	-4.5 (1.8)	-3.9 (1.7)
Gross fixed capital formation	364.5	-12.8 (-13.7)	-21.8 (-23.5)	-44.8 (-28.9)	12.8 (10.8)	4.9 (-1.6)
Business sector investment	219.2	-24.5 (-26.0)	-27.2 (-29.0)	-44.5 (-31.9)	35.5 (27.7)	8.0 (-5.7)
Residential construction	90.6	13.2 (13.2)	-23.1 (-30.5)	-42.8 (-24.3)	-18.5 (-14.3)	7.8 (6.4)
Public works and buildings	54.7	19.2 (19.2)	1.6 (10.6)	-47.8 (-25.2)	-25.6 (-8.0)	-18.5 (5.5)
National expenditure	1,442.5	-0.6 (-1.4)	-9.3 (-8.7)	-23.5 (-20.3)	-0.3 (0.4)	1.4 (3.0)
Exports of goods and services	449.7	17.7 (18.1)	7.1 (10.3)	-3.0 (0.4)	0.7 (4.9)	2.1 (4.2)
Imports of goods and services	590.9	-1.0 (-1.4)	-18.0 (-16.5)	-35.6 (-26.9)	2.9 (10.7)	-1.4 (2.2)
Gross domestic product	1,301.4	5.5 (4.9)	0.3 (2.0)	-11.0 (-9.9)	-0.8 (-0.8)	2.5 (3.8)
<i>Other key aggregates</i>						
Trade balance (% of GDP)		-10.8 (-10.5)	-2.9 (-1.4)	10.8 (9.7)	9.5 (8.2)	10.3 (9.3)
Current account balance (% of GDP)		-16.1 (-15.4)	-34.6 (-21.2)	-1.8 (0.1)	-0.5 (0.2)	2.0 (4.8)
Output gap (% of potential output)		4.2 (3.2)	2.2 (2.8)	-8.3 (-5.8)	-5.3 (-5.5)	-2.0 (-2.5)
Unit labour cost (change between annual averages in %)		7.3 (6.8)	6.8 (8.4)	4.2 (3.8)	0.6 (2.9)	1.4 (2.1)
Real earnings (change between annual averages in %)		8.1 (8.0)	-7.5 (-6.7)	-15.6 (-17.1)	-0.1 (4.7)	0.8 (6.3)
Unemployment (% of labour force)		1.0 (1.0)	1.6 (1.7)	9.3 (9.4)	11.0 (9.8)	9.1 (6.7)
EURISK exchange rate		87.4 (87.4)	127.0 (127.0)	158.2 (146.6)	150.7 (138.0)	145.4 (140.8)

1. Figures in parentheses show forecast in *Monetary Bulletin* 2009/1.

Table 2 Inflation forecast (%)<sup>2</sup>

Quarter	Inflation (Change on same period of previous year)	Annualised quarterly inflation
		Measured value
2007:2	4.4 (4.4)	5.8 (5.8)
2007:3	3.9 (3.9)	5.6 (5.6)
2007:4	5.4 (5.4)	8.3 (8.3)
2008:1	7.0 (7.0)	8.2 (8.2)
2008:2	12.0 (12.0)	27.0 (27.0)
2008:3	13.7 (13.7)	12.1 (12.1)
2008:4	16.8 (16.8)	20.5 (20.5)
2009:1	17.1 (18.5)	9.6 (14.9)
		Forecast value
2009:2	10.7 (14.3)	1.4 (9.8)
2009:3	8.0 (10.3)	1.7 (-2.8)
2009:4	4.8 (5.3)	6.9 (0.3)
2010:1	0.8 (2.3)	-6.4 (2.4)
2010:2	-0.3 (0.7)	-3.1 (3.0)
2010:3	0.0 (1.2)	2.9 (-0.7)
2010:4	0.6 (1.6)	9.5 (1.8)
2011:1	1.0 (1.8)	-4.8 (3.3)
2011:2	1.1 (2.1)	-2.4 (4.3)
2011:3	1.5 (2.3)	4.2 (-0.2)
2011:4	2.0 (2.4)	11.9 (2.3)
2012:1	2.6	-2.6
<i>Annual average</i>	<i>Inflation</i>	
2007	5.0 (5.0)	
2008	12.4 (12.4)	
2009	9.9 (11.9)	
2010	0.3 (1.5)	
2011	1.4 (2.2)	

2. Figures in parentheses show forecast in *Monetary Bulletin* 2009/1.

## Appendix 2

### Forecast errors in Central Bank of Iceland inflation forecasts

One of the principal roles of the Central Bank of Iceland is to promote price stability. Because of delays in monetary policy transmission, the Central Bank's forecasts of developments in inflation and other economic variables play an important role in shaping monetary policy. Analysing errors in the Bank's forecasts can provide insight into the reasons for deviations in forecasts. Such deviations can stem from insufficient information on economic variables, misinterpretation of the state of the economy, and unforeseen events, among other things. Closer scrutiny of the Bank's forecasting errors can also provide indicators of possible systemic changes in the economy, which could prove useful in further development of the Bank's economic models.

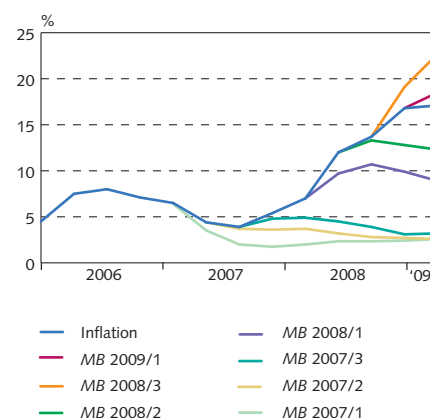
#### Inflation forecasts have underestimated inflation

It is clear that the transmission of monetary policy throughout the domestic economy has been ineffective in the recent past. In the first quarter of 2008, serious failures in domestic financial market operations began to emerge, leading to volatility in the exchange rate and in bond market yields. The króna depreciated by nearly 40% from Q4/2007 to Q3/2008, and the domestic policy rate was raised by over 4 percentage points. In early October, Iceland's three largest banks became insolvent. The króna plunged still further, and capital account restrictions were put in place. Thus conditions in the Icelandic financial market were extremely unusual for most of 2008 and could never have been captured satisfactorily by existing economic models.

Chart 1 shows the Central Bank's inflation forecasts as published in *Monetary Bulletin (MB)* 2007/1 through 2009/1, in comparison with actual inflation. Inflation climbed steadily during that period, and with the exception of the forecast in *MB* 2009/1, each new forecast assumed that inflation would exceed the levels in previous forecasts and that a higher policy rate would be needed to bring it down to the target. Inflation was underestimated in all of the Bank's forecasts except those prepared for *MB* 2008/3 and 2009/1. *MB* 2008/3 assumed that inflation would peak at close to 23% in the first quarter of 2009, while *MB* 2009/1 assumed a rate of 18.5%. Measured inflation proved to be 17.1%. The forecast assumed that the 30% ISK depreciation between Q3 and Q4/2008 would pass through more strongly to price levels, but this has not been the case; instead, mark-ups appear to have contracted sharply. In addition, demand and employment have declined more rapidly, and the output slack has developed sooner than expected (see Sections IV and VIII).

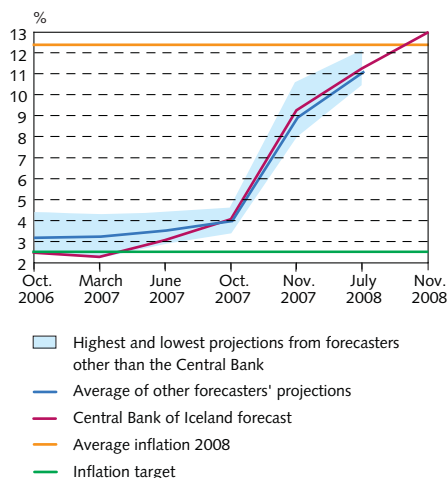
The forecasts prepared in 2007 underestimated the inflation rate ahead by a large margin. There are several reasons for this. First, economic activity was significantly underestimated for 2007. While the forecast projected GDP growth at just under 1% for the year, it

Chart 1  
Inflation forecasts *Monetary Bulletin*  
2007/1 - MB 2009/1 and actual inflation



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2  
Projections for annual inflation in 2008  
published at different times



Source: Central Bank of Iceland.

actually measured 5.5%. Furthermore, housing and wage inflation were much higher than forecasts had allowed for, especially in 2008. Moreover, the exchange rate of the króna was some 40% lower in 2008 than in 2007, while *MB 2008/1* had forecast only a 20% depreciation. Thus the errors in forecasting can be attributed in large part to overly optimistic exchange rate projections.

Chart 2 compares the forecasts by financial market analysts and the Ministry of Finance with the Central Bank's forecast for average year-on-year inflation in 2008.<sup>1</sup> The shaded area in Chart 2 shows the gap between the high and low values in these analysts' forecasts of average annual inflation for 2008. If the sample of forecasters were large enough, the average of the forecasts by analysts and the Ministry of Finance should be near the middle of the shaded area. The chart sheds light on whether the available information on the state of economic affairs was well utilised by forecasters. However, it is worth noting that the Central Bank did not begin to publish its own projected exchange rate and policy rate paths until 2007. Forecasts prepared for 2007 did not make full use of the Bank staff's assessment of the likely developments in these variables. Furthermore, it can be difficult to discern how well founded forecasts are by examining a single year, as developments over one year's time may be rather unpredictable. In order to gain a more accurate view of forecast quality, it is therefore necessary to examine a longer period of time and compare the primary criteria on which the forecasts are based, such as output growth, labour market conditions, and asset prices.

Early in the forecast period, the Central Bank projected that inflation would lie close to target levels in 2008, while other forecasters generally assumed that it would be somewhat higher. In 2006, forecasters projected that inflation would be in the range of 2.5-4.3%; however, they considered it more likely to be higher in 2008 than to be lower. In mid-2008, forecasters projected inflation for 2008 as a whole at 10.4-12%, and the Central Bank forecasted 11.3%. Actual inflation measured 12.4%.

### Assessment of forecasting errors over a longer period

In assessing inflation forecasts, it is important to consider the mean forecast error (bias) and the root mean square error (RMSE) of the forecasts concerned. The bias shows the forecasts' mean deviation from actual inflation and thus whether inflation is being systematically over- or underforecast. A negative sign indicates that inflation has been systematically underforecast. The RMSE, on the other hand, measures how much, on average, the forecast value differs from the true value. As forecasts extend farther ahead in time, the error will increase, as the level of uncertainty about developments in the main macroeconomic variables increases.

1. The Central Bank of Iceland conducts a quarterly survey among financial analysts, in which they are asked to forecast average year-on-year inflation 2-3 years ahead. Participants in the survey were Askar Capital hf. and the research departments of Glitnir, Kaupthing Bank, and Landsbanki. The Ministry of Finance's inflation forecast can be found on the Ministry's website. The Ministry did not publish a forecast in summer 2008, however. This survey has been conducted since October 2006 but was suspended due to the collapse of the banks in the autumn of 2008.

Table 1 shows the bias and RMSE in the Bank's inflation forecasts up to four quarters ahead since 1994. By this criterion, inflation has been underforecast two, three and four quarters ahead, to an increasing degree along the horizon. In all cases except those involving forecasting errors one and two quarters ahead, the bias proved to be statistically significant in terms of the 5% tolerance level. That period was one of virtually continuous economic upswing, which could conceivably explain the underestimation of inflation, as forecasts are based to a large degree on preliminary statistics. Furthermore, because there is generally a fair amount of uncertainty surrounding economic developments, it is in a sense misleading to publish point estimates only. Examples of factors that could result in substantial deviations from point estimates include changes in the global economy and exchange rate developments.

Table 1 Central Bank of Iceland inflation forecast errors since Q1/1994

(%)	Q1	Q2	Q3	Q4
Mean forecast error	0.0	-0.3	-0.9	-1.1
RMSE	0.6	1.6	2.4	1.8

Since adopting the inflation target in March 2001, the Central Bank has also published inflation forecasts two years ahead. Table 2 shows the bias and the RMSE for the period since the Bank introduced inflation targeting. A comparison of Tables 1 and 2 shows that the standard deviation for the one-year forecast has been greater since the Bank adopted the inflation target (3.3%) than it was for the entire period (1.8%).

Table 2 Central Bank of Iceland inflation forecast errors since Q2/2001

	No. of measurements	Mean forecast error (%)	RMSE (%)
Four quarters ahead	26	-1.5	3.3
Eight quarters ahead	24	-2.6	5.0

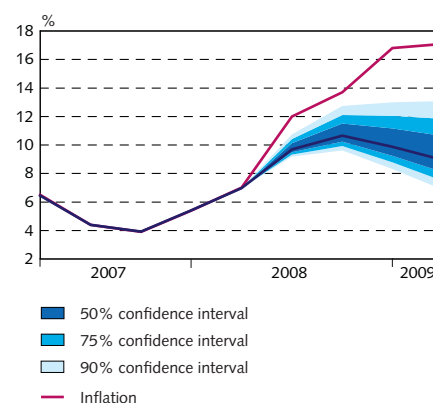
From Q2/2001 through July 2008, the Central Bank published its inflation forecast, together with the confidence intervals for the forecast. When assessing the Central Bank's inflation forecasting success, it is necessary to examine the forecast together with the confidence intervals, as the forecast for each quarter is based on uncertainties. Inflation is likely to be close to the baseline forecast, but marked divergences may be expected, particularly if key assumptions behind the forecast change.

Chart 3 compares inflation developments with the Central Bank's forecast for the first quarter of 2008, which appeared in *Monetary Bulletin* 2008/1. The chart illustrating the confidence intervals for the forecast shows the range in which inflation was 90% likely to lie. The red line shows actual inflation, which was much higher than projected and lies outside the 90% confidence interval for the entire forecast horizon.

Chart 3

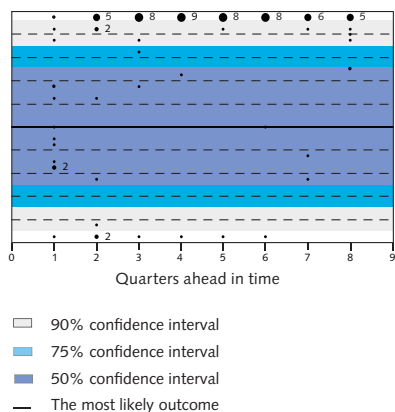
Central Bank's inflation forecast from  
MB 2008/1 and actual inflation

Forecasting period Q2/2008 - Q1/2009



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4  
Confidence intervals of inflation forecasts  
and measured inflation since MB 2005/1



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4 shows the distribution of measured inflation within the three confidence intervals (50%, 75%, and 90%); that is, where measured inflation lies with respect to the confidence intervals of the forecasts from Q1/2005 through July 2008. It can be seen that the majority of forecasts one quarter ahead are within the 50% confidence interval, and in 75% of cases they are within the 75% confidence interval. Forecasts three to six quarters ahead, however, are more often outside the upper 90% confidence interval, which indicates that in recent years the Central Bank has systematically underestimated the risk of inflation. This comes as no surprise, perhaps, in view of the fact that, in the past several years, the economy has endured a series of demand shocks that were difficult to foresee. Forecasts seven to eight quarters ahead are more accurate than those three to six quarters ahead. In 33-40% of forecasts seven to eight quarters ahead, inflation lies within the 90% confidence interval, as opposed to only 9-25% of forecasts three to six quarters ahead.

Table 3 illustrates the frequency with which inflation has been within the confidence interval of the forecast four and eight quarters ahead. With a sufficiently large sample, half of the forecasts might be expected to fall within the 50% confidence interval, three-quarters within 75%, and nine out of ten within 90%. A comparison of the distribution of forecasting errors with the assumed probability distribution reveals that the actual proportions are rather lower for forecasts four and eight quarters ahead.

Table 3 Distribution of measured inflation based on forecasts from Q2/2001<sup>2</sup>

	No. of measurements	50%	75%	90%
Four quarters ahead	24	6 (25%)	10 (42%)	13 (54%)
Eight quarters ahead	22	7 (32%)	13 (59%)	16 (73%)

Of twenty-four forecasts four quarters ahead, only six fell within the 50% confidence interval (25% of cases). Ten were within the 75% interval (42% of cases) and thirteen within the 90% interval (54% of cases). Therefore, inflation is frequently much higher than forecasts have suggested. Either the actual baseline forecast was inaccurate or the level of uncertainty was underestimated. It is appropriate to bear in mind that, for a long period of time, forecasts assumed that the policy rate and the exchange rate of the króna would remain unchanged. In some instances, however, that assumption should have resulted in overestimation of inflation rather than the reverse.

In general, it is more difficult to forecast inflation over longer horizons. This is reflected in a wider confidence interval. Of the twenty-two forecasts with a horizon of eight quarters, seven were within the 50% confidence interval (32% of cases), thirteen within the 75% interval (59% of cases), and sixteen (73%) within the 90% confidence interval. The forecasts eight quarters ahead seem to be considerably more accurate than those four quarters ahead; however,

2. In *Monetary Bulletin* 2004/1 and 2004/3, only a point estimate was published. Therefore, Table 3 includes only 24 measurements, while Table 2 includes 26.



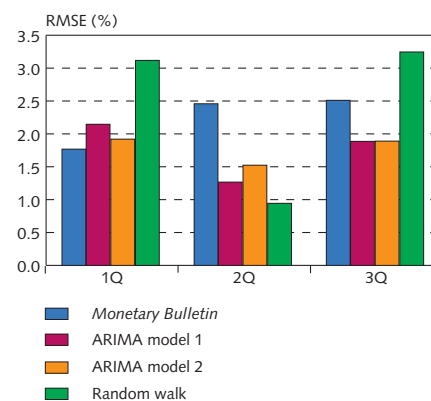
it is important to bear in mind that the confidence interval is generally twice as wide for an eight-quarter forecast than it is for a four-quarter forecast. If the forecasts allow for an endogenous monetary policy response, the effects should have more or less emerged eight quarters later. Therefore, errors in the forecasts of a central bank that is successful in operating an inflation target should not be systematic.

### Performance of various models in forecasting inflation

Inflation one and two quarters ahead are very important variables in the Central Bank's macroeconomic forecast preparation because, if these are inaccurate, there is the risk that the entire inflation path will deviate from actual inflation. The Central Bank of Iceland has recently developed naive ARIMA time series models that are intended for forecasting inflation one to three quarters ahead. These models use past inflation only and, unlike the Central Bank's Quarterly Macroeconomic Model (QMM), use no other economic indicators or measures or inflation expectations. The results yielded by these models will be among the items considered by the Bank in its short-term inflation forecasting.

ARIMA models have been quite effective in forecasting short-term inflation. In 2006, for example, Norges Bank's ARIMA model was more accurate in forecasting inflation two and three quarters ahead than were the bank's published forecasts. For projections one quarter ahead, however, the bank's forecasts were slightly more accurate.<sup>3</sup> Chart 5 compares the Central Bank's inflation forecasts one, two, and three quarters ahead for the year 2008. It compares the standard deviations (RMSE) for forecasts published in *Monetary Bulletin* with two different ARIMA models and with a simple random walk, which projects the same inflation as in the previous quarter throughout the forecast horizon. The first ARIMA model draws on forecasts for the principal subcomponents of the consumer price index and weights them together to create a single overall index.<sup>4</sup> The latter ARIMA model projects the overall index directly. As can be seen, the forecasts prepared using the ARIMA models are more reliable than the *MB* forecasts two and three quarters ahead, but less accurate one quarter ahead. The forecasts using the random walk are much poorer than other forecasts one and three quarters ahead but are more reliable indicators of inflation two quarters ahead. These results indicate that the Central Bank could enhance the accuracy of its inflation forecasts by using ARIMA models together with other tools.

Chart 5  
Forecast error for inflation in *MB*  
and from naive models in 2008<sup>1</sup>



1. The first quarter is the quarter in which the report is published or the first quarter forecasted; the second quarter is the quarter after the report has been published; the third is the following quarter.

Source: Central Bank of Iceland.

3. See also *Economic Bulletin 2/2007*, "Evaluation of Norges Bank's projections for 2006", pp. 77-89.

4. 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, cars and spare parts, petrol, other imported goods, alcohol and tobacco, housing, public services, and other services.

