



# MONETARY BULLETIN

2008 • 2

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

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

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

The framework of monetary policy and its implementation and instruments are described in the section entitled "Monetary policy and instruments", on pp. 73-76 of this edition of *Monetary Bulletin*.

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**Icelandic letters:**

ð/Ð (pronounced like th in English this)

þ/Þ (pronounced like th in English think)

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

**Symbols:**

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

## *Monetary policy statement by the Board of Governors of the Central Bank of Iceland*

### Policy rate remains unchanged

The Board of Governors of the Central Bank of Iceland has decided to hold the Bank's policy interest rate unchanged at 15.5%. Inflation rose sharply in the wake of the depreciation of the króna during the first months of the year and is now higher than the Bank forecast in April. According to the forecast published in this *Monetary Bulletin*, inflation will remain high into next year but decline rapidly thereafter. Lowering the policy rate later than was assumed in the last forecast will bring inflation to target at the time specified in April i.e. in Q3/2010.

As earlier Central Bank forecasts have shown, the outlook over the next two years is for a considerable contraction in GDP after a prolonged period of robust growth. That growth was not always sustainable, as is confirmed by the current account deficit. A contraction is therefore inevitable if equilibrium is to be restored.

Dwindling economic activity will better enable the Central Bank to contain inflation; however, the contraction will be a burden for many, particularly those who are most indebted.

The Central Bank is required by law to promote price stability. Many appear to think that the time is ripe to give greater consideration to the problems the credit crunch has caused in the economy and set other objectives aside, either temporarily or for the long term. At the present time, such efforts to stimulate the economy would have the opposite effect because they would precipitate a lower exchange rate, higher inflation, higher inflation expectations, and ultimately, a deeper economic contraction. They would weaken the balance sheets of indebted households and businesses and undermine financial stability.

In the coming months, it will be important to enhance confidence in the economy and effective market functioning. The Central Bank's swap agreements with Nordic central banks, its issuance of certificates of deposit, and the Government's plans for increased Treasury note issuance all contribute to the achievement of these goals and support the exchange rate of the króna. Iceland's commercial banks play an important role in maintaining confidence in the financial system. Under the current global financial market conditions, they must protect their liquidity and their capital position, seek all possible ways to reduce their need for foreign credit, and adapt the scope of their operations to dramatically changed circumstances.

Monetary policy is predicated on confidence, which takes a long time to build and consolidate. When adversity is at its peak, it is critical to stand fast and to adhere to the objectives that have been set. This is what the Bank intends to do so that it can begin to ease monetary policy with confidence when conditions permit it. As always, the most crucial task is to contain inflation and prevent the recent spurt

of inflation from causing a spiral of rising wages and prices and falling exchange rate. Real incomes will doubtless decline during the adjustment period, but that adjustment will be more transitory if these issues are addressed firmly. If these efforts are successful, it will be possible to expedite the reduction of the policy rate and the recovery of the economy. Monetary policy must provide the restraint that is required to reduce inflation and inflation expectations. Responsible parties must avoid undermining that restraint.

### Higher inflation and lower output growth

Inflation in Q2/2008 proved considerably higher than the Central Bank forecast in April, and given an unchanged policy rate path, the three-year inflation outlook has deteriorated as well. At the same time, indicators imply that the economy is cooling rather faster than previously anticipated. The first signs of an impending contraction are now coming to the fore. These conditions place monetary policy in a delicate position. Inflation developments suggest the need for tighter monetary policy, while declining demand could indicate that inflationary pressures will subside in the months to come. The Central Bank's priorities are clear. The inflation target takes precedence, not only because it is mandated by law, but also because the long-term cost of not bringing inflation down is large in terms of greater production loss. In the baseline forecast published in this Monetary Bulletin, the monetary stance is tightened by keeping the policy rate unchanged for considerably longer than was assumed in April. A similar result could be achieved by raising the policy rate somewhat now and then lowering it sooner than in the baseline forecast. Forecasts of this type are based on the assumption that the markets most important for monetary policy transmission function normally. This has been considerably lacking in recent months, increasing the uncertainty about the outlook in general and about exchange rate developments in particular. As a result, in the short term, the possibility of less favourable exchange rate developments than are assumed in the baseline forecast cannot be excluded. Furthermore, there is clearly a significant possibility that wages will rise more than in the baseline forecast, particularly if the króna weakens, because the premises for the recent wage settlements will not hold. In that event, inflation could rise higher early in the forecast horizon and persist longer than is set forth in the baseline forecast, and a further policy rate hike would be inevitable in spite of an economic contraction.

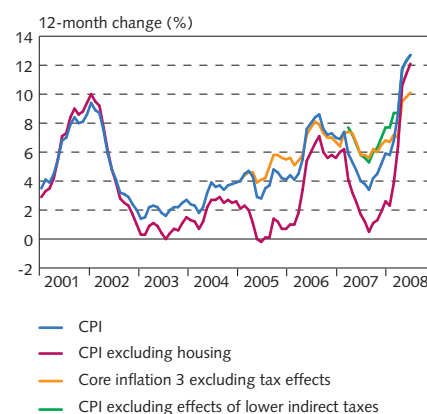
#### I Inflation outlook and monetary policy

##### Inflation far exceeds forecasts

Over the past three months, inflation has risen steeply and has been much higher than the Central Bank projected in April. In June it measured 12.7% in terms of the 12-month rise in the CPI, 4 percentage points higher than in March. To some extent, the inflation rate stems from exogenous factors that are beyond the Central Bank's control. For the most part, however, it is of domestic origin, as core inflation rose significantly as well. Core Index 3, which omits irregular items, public services, and the mortgage interest subcomponent of the CPI, climbed from 7% to 10.1% between March and June. In the second quarter of the year, inflation measured approximately 2 percentage points higher than the Central Bank projected in April, and a similar increase appears likely in Q3.

The inflation outlook two years ahead has deteriorated markedly from the forecast in *Monetary Bulletin* 2008/1. Towards the beginning of the period, this reflects primarily the effect of increased inflation that has already emerged, but it also stems from the weaker króna. Although GDP growth has begun to wane earlier than previously expected, this is not enough. In 2009, second-round effects will cause inflation to taper off more slowly than it would otherwise, partly because of increased wage rises. On the other hand, the effects of a higher policy rate than in the previous forecast will be felt in greater

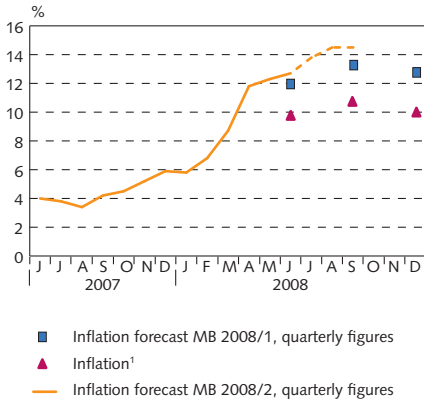
Chart I-1  
Various inflation measurements  
January 2001 - June 2008



Source: Statistics Iceland.

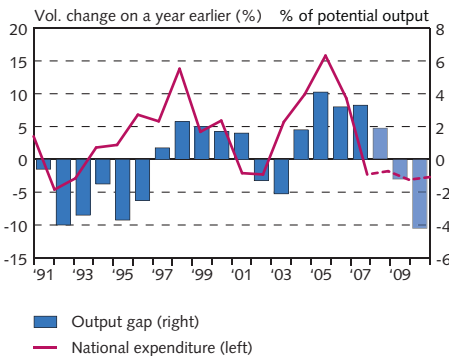
1. This article uses data available on July 1, 2008, but the forecast is based on data until June 26.

Chart I-2  
Inflation and inflation forecasts



1. Twelve month change in the CPI. Dotted line shows forecast from a simple cost-push model.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart I-3  
National expenditure and output gap 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

measure later in 2009. Diminished output growth this year and in 2010 will help as well.

### Weaker output growth in 2008 than previously forecast

The outlook is for somewhat slower GDP growth than was forecast in April, due to weaker private consumption and investment. According to national accounts data, domestic demand in Q1 was weaker than forecast, particularly gross fixed investment. According to those data, there was a marked reversal in residential investment growth. However, it should be noted that Q1 national accounts statistics on residential investment have repeatedly proven unreliable. Growth in private consumption measured 5% in the first quarter, just below previous projections. Indicators suggest that there was little or no growth in the second quarter, and perhaps even a contraction. The contraction is expected to intensify in 2008 and 2009 because real disposable income has dwindled considerably year-on-year, financial conditions are decidedly unfavourable, and the wealth effect has turned downward as well.

Business investment is likely to diminish more than projected in 2008. In the next few years, however, several large-scale development projects will counteract this, and overall investment will rise slightly once again. There is a considerable likelihood that the contraction could prove deeper, however. Under the current circumstances, it is not unrealistic to expect residential investment to shrink until it returns to the pre-housing boom proportion of GDP. Furthermore, investment in commercial real estate, particularly office and retail property, could fall off sharply. This risk is discussed in an alternative scenario (see Box IX-2). It is therefore quite possible that the contribution of a contraction in investment to the restoration of macroeconomic balance will be larger, and that of private consumption smaller, than in the baseline forecast.

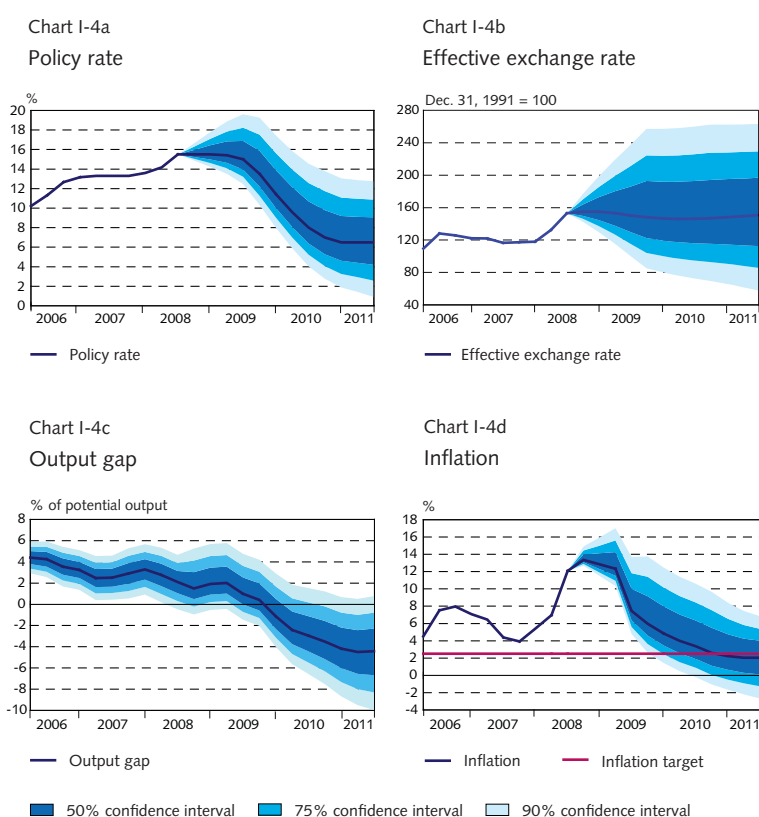
### The policy rate must remain unchanged longer or be raised higher if the inflation target is to be attained in a time frame similar to that in the April forecast

Higher initial inflation and a weaker króna, which at first lower the real policy rate, affect the inflation outlook more than does the likelihood that the output gap for the year will be narrower than in the April forecast. In order to reach the inflation target at around the time specified in the last forecast, it is necessary to raise the policy rate still higher early in the forecast horizon or begin reducing it later than was projected in April. The baseline forecast is based on the latter of these options. The delayed easing cycle means that the maximum difference between the two policy rate paths is just over 3 percentage points. The former option would entail a slightly smaller loss of production because it would allow the policy rate to be lowered somewhat earlier. The difference is insignificant, however, in comparison with the uncertainty involved.

The policy rate path assumed in the current forecast appears sufficient to achieve the inflation target in the third quarter of 2010, which is similar to the April forecast. This is a longer process than would generally be considered acceptable; however, given that infla-

tion is now some 10 percentage points above the Central Bank's inflation target, it is unrealistic to assume that it could be brought to target much sooner without extremely large policy rate increases and at the cost of a considerably sharper economic contraction. However, more rapid disinflation is not inconceivable if, for example, the króna becomes significantly stronger than is currently expected. The disinflation episode in 2002 gives an indication of how quickly inflation can subside if the króna appreciates rapidly during a period of considerable output slack and in the absence of housing inflation.

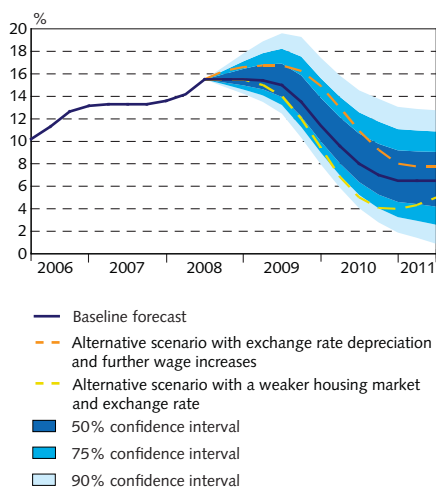
Chart I-4  
Baseline scenario in *Monetary Bulletin 2008/2*  
Forecasting period: Q3/2008 - Q2/2011



Sources: Statistics Iceland, Central Bank of Iceland.

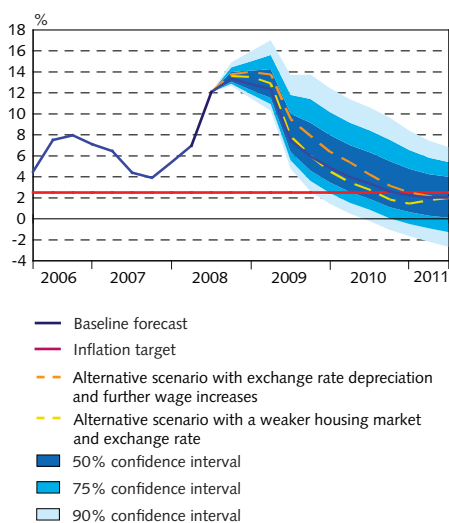
The króna may continue to be vulnerable in the near future, however. The FX swap market remains dysfunctional. Later in the year, when Glacier bonds amounting to over 100 b.kr. mature between August and November, other sources of funding will probably substitute for an active currency swap market only to a limited degree. Therefore, there is the risk of further downward pressure on the króna until domestic demand has contracted enough to diminish the need for foreign capital inflow, or access to the global financial markets improves.

Chart I-5  
Policy rate - alternative scenarios



Source: Central Bank of Iceland.

Chart I-6  
Inflation - alternative scenarios



Sources: Statistics Iceland, Central Bank of Iceland.

### A weak króna followed by substantial wage hikes could cause a prolonged inflation problem

Disposable income has already shrunk by approximately 4% year-on-year, the largest one-year reduction since the early 1990s. It appears as though disposable income and inflation will fall short of wage settlement premises by some 4-7 percentage points. If the króna depreciates further, the shortfall could be even greater. However, the main problem faced by the Icelandic economy is the fact that disposable income is higher than can be sustained by potential output. Without full access to foreign credit markets, the inevitable adjustment of disposable income to potential output will be more rapid than it would otherwise be. Attempts to prevent that adjustment can only result in higher inflation or higher interest rates – and ultimately, higher unemployment.

The alternative scenarios in this issue of *Monetary Bulletin* examine the consequences in the event that wage-earners are unwilling to accept a cut in real wages and demand a pay increase. This alternative scenario parallels that in the last *Monetary Bulletin*. Because the wage hike required to maintain disposable income will likely be larger than was assumed in April, the ensuing rise in inflation will be more prolonged than was projected then, and a higher policy rate will be required to contain it. In order to reach the inflation target within the forecast horizon, it could prove necessary to raise the policy rate to nearly 17% in Q1/2009, and the easing cycle could hardly begin before the third quarter of that year.

### A weaker housing market would expedite the disinflation process

Although the baseline forecast indicates that investment will contract, it will remain proportionally high in a historical context for some time. According to the forecast, it will be even greater than in 1998-2000 as a proportion of GDP, and even exceed the ratios during earlier periods of economic contraction. This forecast could easily prove exaggerated, however. For example, given recent developments, residential investment is likely to contract significantly. As in the April issue of *Monetary Bulletin*, the latter alternative scenario examines the repercussions of such a development. If house prices fall further and the negative output gap is wider, the inflation target will be attained earlier given an unchanged policy rate path, or it will be possible to begin lowering the policy rate sooner. In the alternative scenario, a part of the additional slack is used to reach the inflation target sooner, but with a rather lower policy rate path than in the baseline forecast.

On June 19, the Icelandic Government announced special measures aimed at facilitating residential investment financing. These include raising the loan ceiling, basing loan amounts on market value rather than fire insurance value, and issuing new bond series in order to enable the banks to finance new mortgages and re-finance existing ones. The wisdom of enabling more homebuyers to incur higher debt at a time when the housing bubble is shrinking is questionable. Measures of this type would be more suitable if they were adopted in response to a sizeable drop in house prices and were aimed at preventing prices from falling below the levels justified by fundamentals. Most likely, however, these measures will not greatly affect the overall



adjustment of house prices towards long-term equilibrium, although they may delay that adjustment somewhat. In the worst-case scenario, a greater number of homeowners could end up with negative equity in their property in a few years' time. Given these uncertainties, the overall decline in real housing prices assumed in the baseline forecast is roughly the same as in the April forecast.

### Market failures complicate monetary policy transmission ...

The forecasts presented in this *Monetary Bulletin* assume that the principal markets – that is, the money market, foreign exchange market, and bond market – will function more or less normally, although an attempt is made to take account of rising risk and interest premia. The situation has been different in the recent term, however (see Box III-1). Liquidity on foreign exchange, bond, and money markets has been extremely limited at times. As is described in Box III-1 in *Monetary Bulletin* 2008/1, the FX swap market has been virtually non-functional since March.

It can be said that the problem is threefold: first, the wide current account deficit implies a vast need for foreign funding; second, the banking system is large and has difficulty in obtaining funding in the global credit markets, which is critical for the financing of the current account deficit; and third, it will be difficult to roll over the large stock of outstanding Glacier bonds (roughly one-third of GDP) unless the banks' access to the foreign credit markets improves enough to restore normal functioning of the FX swap market. Alternatively, the extended issuance of Treasury notes, CDs, and other risk-free ISK assets could enable holders of Glacier bonds to roll over their investment.

If the current account deficit is to be funded through normal channels, there must be sufficient confidence in the Icelandic banking system, enabling it to obtain foreign credit without undue difficulty. That confidence has been quite elusive. The Central Bank has made an effort to enhance it by negotiating currency swap agreements with foreign central banks and expanding its issuance of certificates of deposit, which are available to non-resident investors and therefore contribute to increased inflow of foreign currency. Increased issuance of Treasury notes serves the same purpose. However, the main responsibility for the re-establishment of confidence in the banking system lies with the banks themselves.

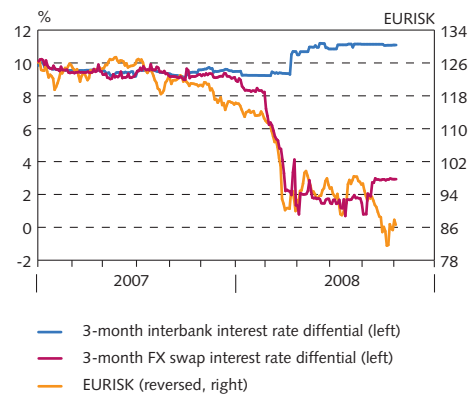
### ... and may necessitate a higher policy rate in order to restore price stability

If attempts to guarantee the proper functioning of the foreign exchange, bond, and money markets prove unsuccessful, a deeper economic contraction and higher inflation could result. The banks' difficulties in the foreign credit markets are manifested in a tighter domestic credit market, which dampens economic activity, and the depreciation of the króna, which pushes inflation upwards. The depreciation in March and the subsequent inflation can be attributed largely to such market malfunctions, although the underlying causes are a wide current account deficit and the difficulties faced by financial institutions. The effect of the policy rate on the markets becomes weaker, as is reflected in more

Chart I-7

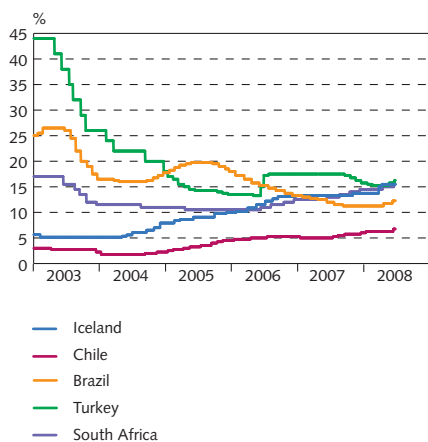
FX swap-implied ISK rate minus LIBOR and the exchange rate of the Icelandic króna against the euro

Daily data, August 1, 2007 - July 1, 2008



Sources: Bloomberg, Central Bank of Iceland.

Chart I-8  
Policy rates in Iceland and some  
emerging markets  
Daily data January 1, 2003 - June 20, 2008



Sources: Reuters EcoWin, South African Reserve Bank, Central Bank of Iceland.

volatile bond yields and an erratic exchange rate. This gives rise to the question of whether it is pointless to change the policy rate when the inflation outlook deteriorates because of poorly functioning markets. This is decidedly not the case. There is little doubt that certain actions taken by the Central Bank in March bolstered confidence in the króna and interrupted, at least temporarily, the inflation-exchange rate spiral. Limited impact from the policy rate is not a convincing argument for more passive monetary policy response. On the contrary, if the policy rate has limited effect on the exchange rate, making it impossible to prevent a temporary rise in inflation, a higher policy rate is needed to maintain a positive real policy rate and promote exchange rate stability. This will reduce second-round effects and provide a sufficient anchor for inflation expectations.

Preventing an excessive drop in short-term real interest rates as a result of foreign exchange market malfunctions of this type is particularly important in an economy where capital movements are unrestricted and where liquid deposits in the banking system roughly equal the size of the GDP. If a vicious cycle of currency outflow develops because returns cannot keep pace with inflation, it can be extremely difficult and costly to stop it. It is a common misconception that there are natural limits to how far a currency can fall before market forces reverse the decline. This is far from being universally true, especially when market failures limit investors' ability to purchase assets in the currency concerned when they consider it undervalued. The misunderstanding centres on confusion between nominal and real exchange rates. If price levels and wages adjust promptly to a lower exchange rate, there are no internal limits to how far a currency can fall, as should be clear to anyone familiar with the long history of continuous decline in the value of the króna. When inflation becomes very high, it can become self-sustaining, virtually independent of the real economy. Ultimately, only a central bank wielding tight monetary policy can contain such a vicious cycle and safeguard the value of the currency for the longer term.

### The Central Bank has the necessary tools

Because of the tightening of foreign credit markets, it was inevitable that the króna would depreciate temporarily and inflation would rise, leading to a sharper recession than would otherwise have occurred. The primary task of monetary policy is to ensure that the adjustment takes place without engendering a lasting inflation problem. In spite of difficulties in the markets, the Central Bank has the tools necessary to do this, although the path will doubtless be rougher and the adjustment harsher than otherwise. The sooner inflation tapers off and inflation expectations are anchored, the sooner monetary policy-makers can focus on other objectives, such as preventing an unnecessary contraction and supporting an economic recovery. Although many observers consider the Central Bank's policy rate more than high enough, it is worth noting that the policy rate in Iceland is similar to that in several other countries with a comparable inflation problem. Indeed, considering the inflation situation, it is possible to argue that the policy rate should be even higher.

## II External conditions and exports

Financial market turbulence and the US housing market slump appear likely to have more serious effects than previously believed. Although the international financial market crisis has seemed to ease, market conditions remain difficult and have deteriorated once again in recent weeks. The full impact on the real economy has yet to emerge. In general, forecasts of output growth continue to be revised downward while inflation forecasts continue to rise. Following several robust years, global GDP growth has slowed in the recent term, particularly in industrialised nations. Higher food and energy prices and falling asset market values have curtailed private consumption. In spite of slower growth, inflation has risen, especially in emerging market economies. Inflation expectations and the potential second-round effects of energy and food price hikes are cause for concern in developed countries and emerging nations alike.

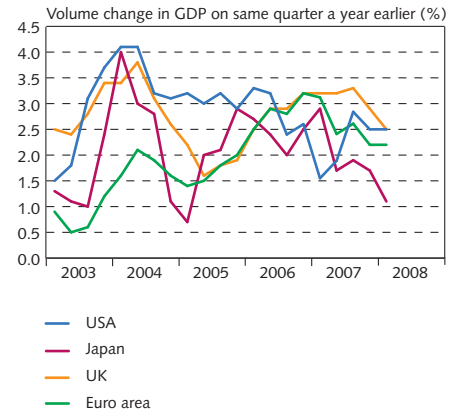
### Outlook for US output growth deteriorates

Forecasts of GDP growth in the United States continue to fall, and the housing market slump has intensified. Output growth in the US was considerably below estimated growth in potential output in the first quarter of 2008. In Q2, government tax refunds amounting to 107 billion US dollars will spur private consumption, but the stimulus is likely to be short-lived. Residential investment has continued to contract in the US, and real estate prices have fallen so far this year. Abundant supply juxtaposed with dwindling demand indicates that the market has not yet bottomed out. Unemployment has risen slightly and payrolls employment have fallen in number, but not enough to provide clear signs of a significant recession. In view of rising energy prices and the continuing downturn in the housing market, the prospects for output growth are rather poor for the coming year.

### Output growth slows in Europe and Japan ...

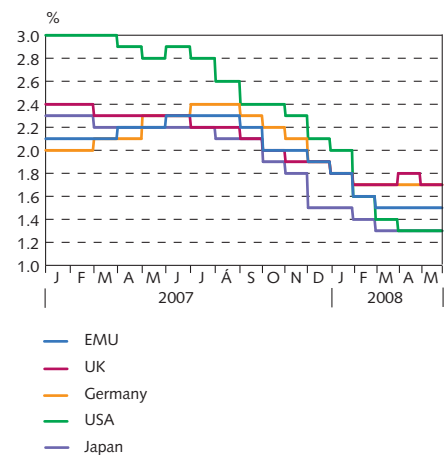
The economic slump in the US and the appreciation of the euro and the yen against the dollar have begun to affect exports in Japan and the EU. Exports from Germany, however, have been robust. In the first quarter, GDP growth in the euro area outstripped expectations, due in particular to surging growth in Germany. Construction sector investment was substantial because of an unusually mild winter, and merchandise trade was favourable in Germany. In recent years, German industries have been successful in cutting production costs and increasing their exportation of high-quality goods to emerging markets; therefore, they have been better able to absorb the impact of a strong euro than have firms in many other euro area countries, where competitiveness has waned in the past few years. Furthermore, Germany has not experienced a housing bubble recently. Consequently, financial market turmoil has made less of an impact there than it has in many other countries, even though several German banks have been forced to write off considerable amounts related to US sub-prime mortgage CDOs. Nonetheless, difficult conditions in the credit markets will affect investment in Germany as well as elsewhere.

Chart II-1  
Economic growth in main trading areas  
Real GDP growth Q1/2003 - Q1/2008



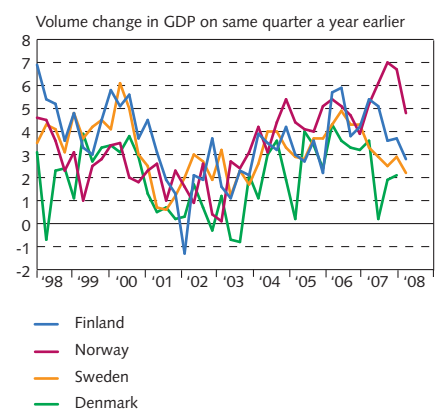
Source: Reuters EcoWin.

Chart II-2  
Output growth forecasts in 2008  
in main trading areas  
Time axis shows month of forecast (from January 2007)



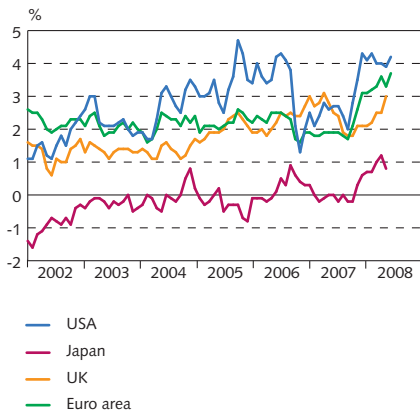
Source: Consensus Forecasts.

Chart II-3  
Economic growth in the Nordic countries  
Volume change in GDP on gross domestic product



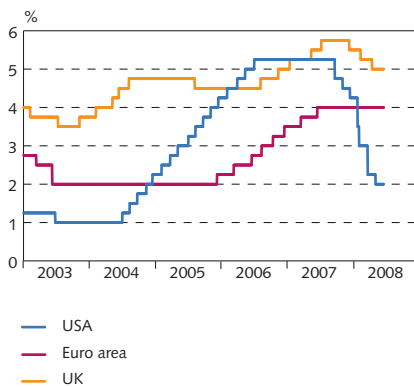
Source: Reuters EcoWin.

Chart II-4  
Inflation in the US, UK, Japan and euro area  
January 2002 - May 2008



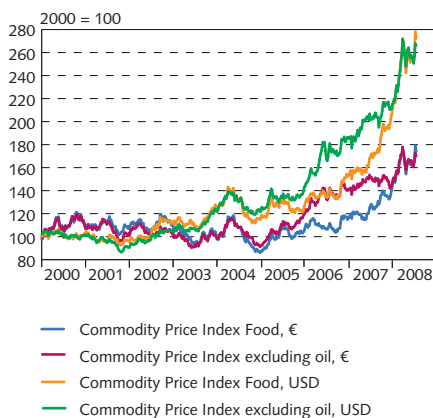
Source: Reuters EcoWin.

Chart II-5  
Policy rate of foreign central banks  
Daily data January 1, 2003 - June 13, 2008



Source: Reuters EcoWin.

Chart II-6  
World market commodity prices  
Weekly data January 7, 2000 - June 27, 2008



Source: Reuters EcoWin.

According to a survey by the European Central Bank (ECB), lending terms have been tightened significantly, and interest rates have risen. The financial crisis, the strength of the euro, reduced global GDP growth, higher food and energy prices, and higher interest rates are likely to make a sizeable impact on euro area growth in the latter half of the year. In 2009, output growth is expected to remain similar to 2008 levels, as these negative factors will still exist.

The first quarter in Japan came as a surprise. As has sometimes happened before – and contrary to forecasts – increased exports stimulated output growth despite waning exports to the US. Nonetheless, growth forecasts for Japan have continued to be revised downward, as they have for other countries. A stronger yen and slower output growth in most areas of the world will most likely dampen Japanese exports in the near future.

In the UK, output growth in the first quarter of the year fell to its lowest point in three years. Following a period of rising debt ratios, adverse financial conditions and a deteriorating real estate market will curtail private consumption growth. For the year as a whole, output growth is expected to fall to a 16-year low. Growth is expected to remain modest in 2009 and unemployment to rise, and the housing market slump is expected to continue to drive private consumption down. Dwindling output growth is also forecast for the Nordic countries in 2008.

### ... but remains strong in emerging market countries

Emerging market economies in Asia have been the primary drivers of global output growth over the past few years. China and India have recorded robust growth despite the unease in the global financial markets. Growth in these two countries has slowed marginally in the recent term, however. Mounting domestic demand offsets declining demand from the US and Europe to some degree.

### Escalating global inflation

In the euro area, inflation is at its highest level since the establishment of the European Monetary Union (EMU) in January 1999. According to preliminary data, inflation measured 4% in June 2008, exceeding the European Central Bank's inflation target for the tenth consecutive month. As is the case elsewhere, the primary cause is the dramatic rise in the price of oil, food, and other commodities; therefore, core inflation has not increased in line with the general price level. The likelihood of second-round inflationary effects becomes greater as general inflation rises higher and persists longer. The ECB has held its minimum bid rate unchanged for the past 12 months but has indicated that an interest rate hike is quite conceivable if inflation remains high.

Inflation measured 3.3% in the United Kingdom in May. It is quite likely to rise even further in June and approach peak levels since 1997, when the Bank of England achieved monetary policy independence. In the near future, rising energy prices will push inflation still higher, as well as exerting continuing upward pressure on general commodity prices. Moreover, inflation expectations are escalating, and businesses are attempting in ever greater measure to pass cost increases through to

goods prices. Core inflation has been much lower, which suggests that retailers have exercised restraint until now; however, core inflation rose in April, which could indicate that the second-round effects of energy and food price hikes have begun to emerge. The Bank of England lowered its bank rate by 0.25 percentage points in April in spite of elevated inflation, but maintained unchanged interest rates in May and June.

In the US, inflation has tapered off slightly in the past few months but remains considerable. Since September 2007, the US Federal Reserve Bank has lowered the federal funds rate seven times, for a total reduction of 3.25 percentage points. But the tenor of the economic situation has changed recently. Mounting inflation expectations are a source of concern, and if inflation turns upward again or remains high, it will be necessary to raise the fed funds rate. Inflation has risen considerably faster in China and other emerging market economies than in industrialised nations, reflecting both robust demand and the higher proportion of energy and, in particular, food in the consumer basket (see Box II-1 on inflation in emerging market economies).

Over the past several years, output growth in emerging market economies has outpaced that in industrial nations. For a long time this growth was accompanied by relatively low inflation, but the situation has changed in the recent term. Inflation is currently at a six-year high and has now reached double digits in many emerging market economies.

This situation stems from a number of contributing factors. Soaring oil prices, instability in the financial markets, and deteriorating housing market conditions have undermined GDP growth in industrialised nations, particularly the US. The US Federal Reserve Bank has responded by lowering the federal funds rate considerably. This has spurred a depreciation of the dollar, especially against the euro. Many emerging and oil export nations have adopted monetary policy that entails maintaining a constant exchange rate vis-à-vis the US dollar, or at least a managed floating regime imposing considerable limitations on appreciation. The rapid reduction of interest rates in the US undermines monetary policy restraint in these countries at a time when a tighter stance is necessary. As a result, output growth has remained strong despite dwindling demand from abroad because domestic demand has continued to grow. Strong domestic demand, rising commodity and food prices, and a low exchange rate have pushed inflation sharply upwards over the past year. Therefore, the robust GDP growth of the past few years is probably not sustainable over the long term.

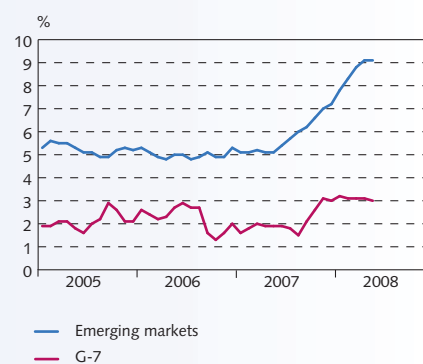
There is little margin to increase the short-term supply of commodities, and demand in emerging market economies is growing by leaps and bounds. Food commodities also constitute a much higher proportion of consumption among low-income countries; therefore, inflation that is concentrated in certain commodities can quickly evolve into a general inflation problem in emerging nations. Furthermore, inflation expectations are less securely anchored than they are in developed countries with experience of price stability, and this precipitates general inflationary effects and makes them more persistent than they would otherwise be.

Numerous factors have acted simultaneously to push inflation upwards. Oil and food prices play an important role, and growing

## Box II-1

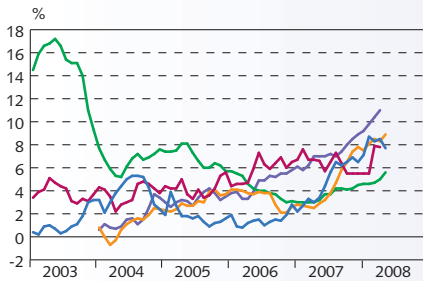
### Inflation developments in emerging market economies and monetary policy restraint

Chart 1  
Inflation in emerging economies and G-7  
January 2005 - May 2008



Source: Global Insight.

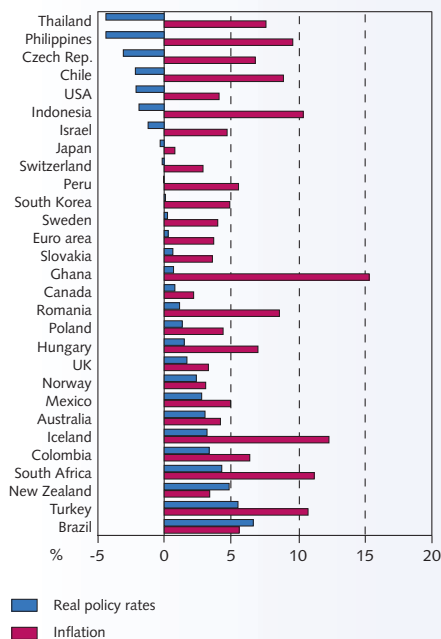
Chart 2  
Inflation in emerging markets  
January 2003 - May 2008



— China  
— India  
— Chile  
— Brazil  
— South Africa

Sources: Global Insight, Reuters EcoWin.

Chart 3  
Real policy rates and inflation  
May 2008



■ Real policy rates  
■ Inflation

Source: Dismal Scientist, Global Insight and central banks' websites.

demand in emerging countries has in turn pressed oil and commodity prices steadily higher. Increased commodity prices need not lead to general, long-term inflation if inflation expectations are sufficiently anchored. Negative supply shocks do not necessarily distort price stability for the long term and therefore do not necessarily require tighter monetary policy, which deepens the contraction. However, for monetary policy-makers that do not enjoy the benefit of firmly anchored inflation expectations or are managing overheated economies, there is good reason to be concerned about the second-round effects and to fear that inflation will become entrenched. In that event, it could prove necessary to tighten the monetary stance in order to anchor inflation expectations, even at the expense of a weaker economy.

### Sharply rising inflation has led to low – or even negative – real interest rates

After a period of low inflation, it appears as though the recent inflation burst has caught central banks in many emerging nations off guard. As a result, policy interest rates have not changed in line with inflation. Real policy rates have therefore dropped and have turned significantly negative in many of these countries. As a result, lending is still on the upswing in most emerging market economies, in spite of worsening financial conditions in the US and Europe. Although many emerging nations have been slow to respond to increased inflation, some of them have raised their policy rates recently in an attempt to combat it. Real policy rates are high, however, in countries such as Brazil and Turkey, which have recently raised their interest rates. At the same time, inflation expectations have risen sharply – especially in those countries where real interest rates have fallen the most – and in many instances are far above the inflation targets set by the central banks concerned.

In many emerging nations, subsidies, price controls, or exportation limits have been imposed in order to contain inflation. In Asia, for example, government subsidies of food and oil have become quite burdensome. In addition, they delay the establishment of balance between supply and demand; in other words, they only restrain inflation temporarily. However, the authorities appear ready to take on the resulting short-term expenditures for political reasons, as rising food and energy prices cause significant tension on the domestic front.

In China, output growth is expected to taper off slightly this year as export growth slows down. Nonetheless, the Chinese have tightened monetary policy, both with policy rate hikes and with increased reserve requirements. Because rising food prices have been one of the main drivers of inflation in China, the Chinese government has initiated various supply-stimulating projects in order to ease inflationary pressures.

In April, inflation hit a nine-year high in India, measuring 7.8%, which is considerably above the Reserve Bank of India's inflation target. Wholesale price inflation (WPI) has also risen substantially, reaching a 13-year high of 11% in the beginning of June. GDP growth has been robust, and domestic demand has increased rapidly. Food prices have risen astronomically, partly because of scanty domestic supply. Ceilings have been imposed on the exportation of rice and other grains. Food is an important component in the Indian consumer price index, and energy weighs heavily as well. In an unexpected move on June 11, the Reserve Bank of India (RBI) raised its repo rate by 25 basis points to 8%, the first hike in 15 months, and by a further 50 basis points at the end of June. The RBI has also increased reserve requirements and is expected to continue on this path.

In South America as well, rising inflation has called for monetary policy measures. In Chile, inflation hit a 14-year high in May, measuring 8.9%. In comparison, inflation was only 2.5% in Chile a year ago. In June the Chilean central bank, Banco Central de Chile, raised its policy interest rate by 0.5 percentage points to 6.75%, after holding it unchanged since December.

Inflation has also increased in Brazil. The Banco Central do Brasil has issued strong messages stating that inflation will not be allowed to run free and that the bank will raise its interest rates as necessary to combat it. The Banco Central raised its overnight lending rate by 0.5 percentage points twice, first in April and then again in June, to the current level of 12.25%. Brazil's real policy rate is among the highest in the world, but GDP growth has nonetheless been robust in the past year.

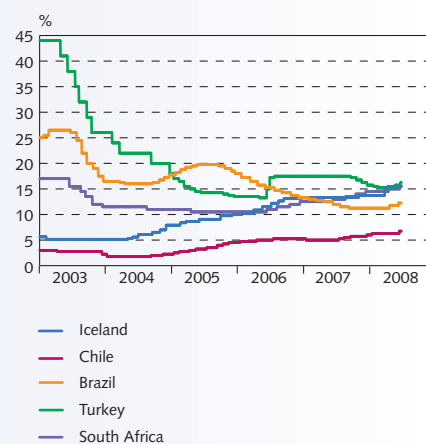
The South African Reserve Bank (SARB) also raised its prime interest rate in June, by 0.5 percentage points, in response to a sharply deteriorating inflation outlook in the recent term. The increase was the tenth prime rate hike since June 2006. In all, the SARB has raised its prime rate by 5 percentage points to the present 15.5%, its highest point in five years.

Monetary authorities in emerging market economies are therefore faced with serious challenges. Inflation has risen swiftly and GDP growth prospects have worsened. Market expectations concerning policy rate developments are changing, reflecting the market's apparent assumption that a tighter monetary stance will prevail in the near future. Bond yields suggest that the market retains confidence in the will and ability of most central banks to contain inflation. If that confidence is lost, the cost of underpinning price stability will likely be considerably greater.

Chart 4

Policy rates in Iceland and some emerging markets

Daily data January 1, 2003 - June 20, 2008



Sources: Reuters EcoWin, South African Reserve Bank, Central Bank of Iceland.

### Export value of marine products contracts

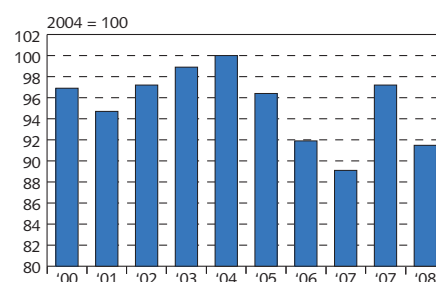
Fish catches declined considerably year-on-year during the first five months of 2008, largely because of the 50% contraction in the capelin catch and the 20% drop in the cod catch, both due to quota cuts in the current fishing year. Measured at constant prices, the catch value was 5.5% lower year-on-year during the first four months of 2008. Manufacturers of fish products have responded to smaller catches by increasing their production of the goods with the highest contribution margin. For example, exports of fresh marine products increased by one-third during the first four months of the year, as market prices have been very high.

In the beginning of June, the Marine Research Institute (MRI) announced its proposed catch quotas for the coming fishing year, which begins on September 1. The MRI recommends a slight reduction in the total allowable catch (TAC) for the principal demersal species. There is considerable uncertainty about the condition and tolerance of the capelin stocks, and it is likely that the TAC for blue whiting will be reduced during the coming year. In *Monetary Bulletin* 2008/1, it was assumed that the export value of marine products would be roughly 8% lower this year than it was a year ago. In view of the fact that, with the exception of cod, the TAC for several of the chief demersal species will probably be reduced next year and the haddock, redfish, saithe, and blue whiting catches will likely be rather smaller than was projected in April, it is now assumed that the export value of marine products could be as much as 13% less this year than in 2007. Export values are expected to fall by a further 3% in 2009.

Chart II-7

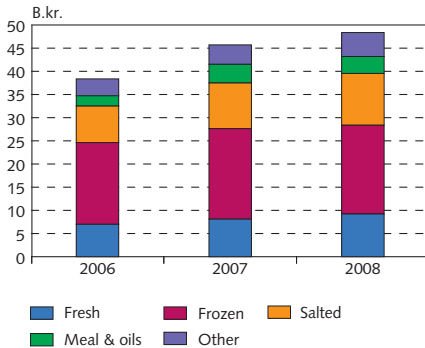
Fish catch value 2000-2008<sup>1</sup>

At constant prices 2007



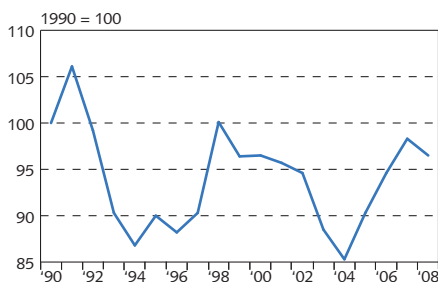
1. Annual data for 2000-2007. The two columns at the far right are the average for January-May 2007 and 2008.  
Source: Statistics Iceland.

Chart II-8  
Marine export value 2006-2008  
January - April



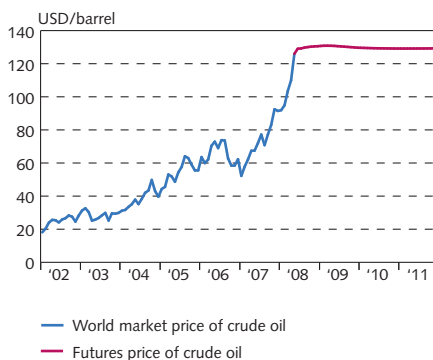
Source: Statistics Iceland.

Chart II-9  
Export prices of marine products<sup>1</sup>  
At fixed prices 2008



1. Deflated by the weighted CPI in main trading partner countries. Annual data for 1990-2007. The latest value is an average of January - April 2008.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart II-10  
World market price of oil<sup>1</sup>  
Monthly data January 2002 - December 2011



1. Forecast from end of May 2008.  
Sources: Bloomberg, NYMEX, Reuters EcoWin.

### Have marine product prices peaked?

Since mid-2004, the price of most marine products has climbed virtually without interruption. There are signs that the market upswing is coming to an end, however, with more sluggish sales and stagnant or even falling prices. This is especially the case with demersal species, more particularly the fresh and frozen-at-sea products. The price of most cod products continues to be very advantageous, however. The same is true of fishmeal and fish liver oils, which are typical commodities whose price tends to reflect, among other things, the price of vegetable proteins and oils, which has soared in recent months, as have most other commodity prices.

Sellers of marine products now cite several reasons for greater difficulty in the market. The price of most demersal fish products, both semi-processed and fully processed, is now very high, and price-based competition with meat products is growing stiffer. Dwindling output growth and slower growth in disposable income in the leading export countries – for example, the UK – also makes an impact. Moreover, the supply of several products has increased; for example, that of haddock and less expensive demersals. The April 2008 issue of *Monetary Bulletin* assumed a 3.5% rise in prices between 2007 and 2008. Given the conditions in the market, prices are now expected to rise slightly less in 2008, while the 2009 increase is likely to be in line with the April forecast.

### Oil prices at record highs

Crude oil prices have skyrocketed in recent months, climbing by roughly 75% in US dollar terms over the past 12 months and by 40% since the beginning of the year. Despite the incessant increase in fuel prices, demand continues to soar, especially in the Middle East and Asia, where government fuel subsidies are common. However, it is likely that subsidies will be reduced in these countries, as was the case in India in June. If so, prices will rise, which could dampen demand. Fuel consumption in the United States has dropped by 1% over the past 12 months in response to rising prices and the economic slowdown.

The OPEC nations maintain strict production limits, and attempts to increase production outside OPEC have not been successful enough. The role of speculation in pressing oil prices upwards is a subject of debate. The slide in the US dollar has also played a large part. Ultimately, however, the fundamental principles of supply and demand are believed to have been chief price determinants on the fuel markets. The current forecast assumes that crude oil prices will be nearly 70% higher in 2008 than in 2007, and that they will rise by a further 9% in 2009.

### Aluminium prices remain high

Since March, aluminium has sold at close to 3,000 US dollars per tonne, nearly one-fourth higher than in December 2007, bolstered by the general rise in energy prices. The price of energy in China, considered the world leader in aluminium production, will rise by 60% in 2008. While consumption in China is expected to keep pace with production in 2008, the Chinese may be forced to import aluminium

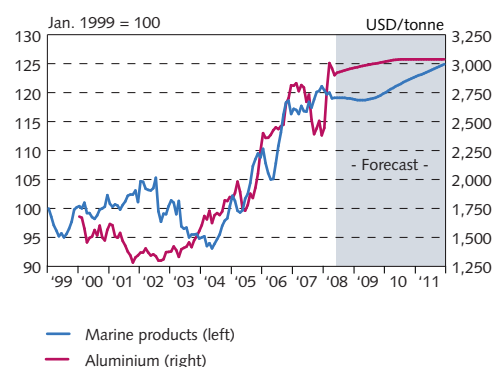


in 2009. The demand for aluminium continues to rise, especially in Asia, but growth in supply has outstripped demand, with the result that global supplies have increased in the recent term. The weak US dollar has also pressed prices upwards. On the whole, the conditions in favour of high – or even rising – aluminium prices appear stronger than those in support of a decline. The Central Bank's current baseline forecast allows for a scant 2% increase in aluminium prices in 2008, substantially less than was projected in March. However, the increases envisaged over the next two years are rather larger than was forecast then. As before, projections concerning aluminium price developments are based on futures prices. The current projections are based on the period from April 19 through May 30, 2008.

### Terms of trade will deteriorate sharply in 2008

Developments in import and export prices – particularly the dramatic rise in the price of oil – suggest that the terms of trade for goods and services will deteriorate by nearly 3% in 2008 instead of improving by that margin, as was projected in April. Terms of trade are expected to remain broadly unchanged over the coming two years.

Chart II-11  
Prices of marine exports and aluminium



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

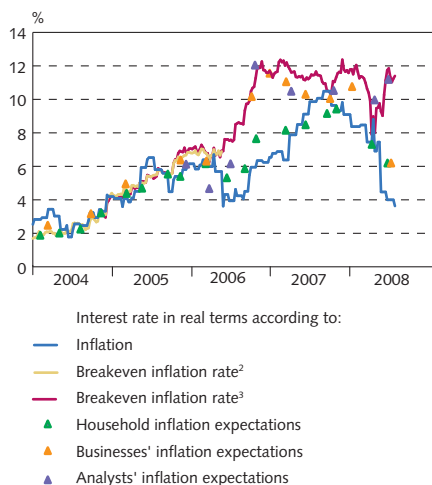
Table II-1 Exports and chief premises for the outlook for external conditions

	Change from prior year (%) unless otherwise specified <sup>1</sup>			
	2007	2008	2009	2010
Exports of goods and services	18.1 (18.1)	4.7 (4.5)	-1.0 (0.2)	3.9 (4.2)
Marine production for export	-4.0 (-4.0)	-13.0 (-8.0)	-3.0 (0.0)	0.0 (0.0)
Metals production for export	43.3 (43.3)	73.3 (72.1)	3.9 (4.0)	1.7 (0.4)
Export prices of marine products	9.5 (9.5)	2.5 (3.5)	0.0 (2.0)	2.0 (2.0)
Aluminium prices in USD <sup>2</sup>	8.0 (8.0)	1.8 (11.4)	3.5 (2.5)	1.4 (0.0)
Foreign fuel prices <sup>3</sup>	10.7 (10.7)	68.0 (33.1)	9.3 (-1.3)	-0.8 (-1.0)
Terms of trade for goods and services	0.3 (0.3)	-2.9 (3.6)	0.1 (0.9)	0.2 (-0.5)
Global inflation <sup>4</sup>	2.2 (2.2)	3.3 (2.5)	2.2 (2.0)	2.1 (1.9)
Global GDP growth	2.6 (2.6)	1.8 (1.8)	1.5 (2.1)	2.0 (2.5)
Foreign short-term interest rates (%) <sup>5</sup>	4.4 (4.4)	4.3 (3.7)	4.2 (3.1)	4.0 (3.1)

1. Figures in parentheses represent the forecast from *Monetary Bulletin* 2008/1. 2. Based on aluminium futures. 3. Based on fuel futures. 4. Consensus Forecasts. 5. Based on weighted average forward interest rates of Iceland's main trading partner countries.

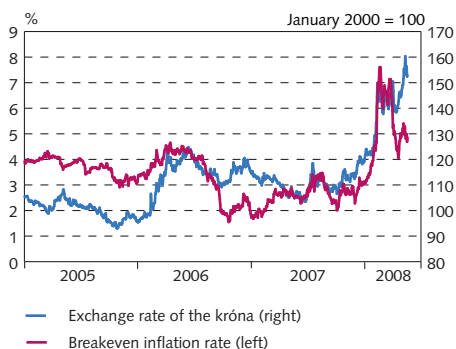
Sources: Bloomberg, Consensus Forecasts, IMF, New York Mercantile Exchange, Statistics Iceland, Central Bank of Iceland.

Chart III-1  
Central Bank policy interest rate in real terms<sup>1</sup>  
Weekly data January 6, 2004 - July 1, 2008



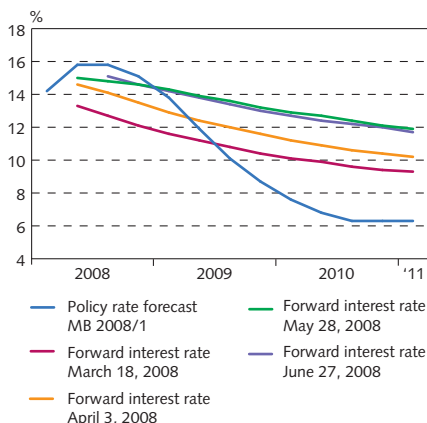
1. The policy rate has been converted to annual yield. 2. Spread between RIKB 13 0517 and RIKS 15 1001. 3. Spread between RIKB 13 0517 and HFF150914. Household, business and analysts' inflation expectations are based on inflation one year ahead.  
Sources: Capacent Gallup, Statistics Iceland, Central Bank of Iceland.

Chart III-2  
Breakeven inflation rate and  
exchange rate of the króna<sup>1</sup>  
Daily data January 3, 2005 - July 1, 2008



1. Spread between RIKB 13 0517 and HFF150914. Exchange rate of the króna according to a broad trade index.  
Source: Central Bank of Iceland.

Chart III-3  
Expected Central Bank policy rate based  
on forward interest rates and policy rate  
forecast in MB 2008/1  
Q1/2008 - Q1/2011



Source: Central Bank of Iceland.

## III Financial conditions

Since the last *Monetary Bulletin* was published, the monetary stance has relaxed in terms of most measurements of the real policy rate but has tightened as measured by credit supply. The exchange rate of the króna has remained low since March. FX-implied interest rates are still quite low, and the interest rate differential on the shortest contracts is negligible. The Icelandic banks' CDS spreads have come down from their peak levels at the end of March, although they rose again in June. The Icelandic Government has recently announced special measures related to the real estate and financial markets. These include a supplemental issue of short-term Treasury notes amounting to a maximum of 75 b.kr., easing of lending criteria for Housing Financing Fund (HFF) loans, and the issue of two new series of HFF loans: one designed for the re-financing of credit institution mortgage loans already granted, and the other for the financing of new mortgage loans granted by these institutions. Credit has been in short supply recently, but it is unclear what the effect of these measures will be.

### The real policy rate has fallen

The real policy rate, as measured against past inflation, has fallen by over 3.8 percentage points since the last *Monetary Bulletin* was published, despite a policy rate hike of 50 basis points at that time. The decline can be traced to surging inflation in the wake of the depreciation of the króna during the first quarter of the year. Measured in terms of the breakeven inflation rate on Treasury notes, the real policy rate has increased since the last *Monetary Bulletin* was published. Most likely it is due mainly to increased demand among non-resident investors for the shortest series of nominal Treasury notes, as a result of the low interest rate differential in the FX swap market. Based on households' inflation expectations, the real policy rate fell by 1.1 percentage points between mid-March and June, according to surveys carried out in those months, but by 3.1 percentage points according to businesses' inflation expectations. Measured by the inflation expectations of financial market analysts, however, the real policy rate rose by 1.2 percentage points over roughly the same period. By all criteria except the last, it can be concluded that monetary conditions have eased considerably in the past few months. On the other hand, there is significant evidence of tightening financial conditions. The supply of credit has continued to dwindle, and premia on base interest rates have risen. Government measures and the recent interest rate reduction by the Housing Financing Fund have an offsetting effect, however.

### High policy rate expected through 2008

Given the forward interest rates based on the government bond and interest rate swap markets, it can be concluded that financial market agents currently expect the policy rate to be cut more slowly in 2008. In other respects, they appear to assume that the downward cycle will resemble that prior to the April issue of *Monetary Bulletin*. Increased demand among non-resident investors for the shortest nominal Treasury notes doubtless has a considerable effect, however, and complicates

any interpretation of forward interest rate developments and changes in expectations concerning policy rate developments. Yields on these notes have fallen recently despite policy rate hikes, and market participants' forecasts it imply that they expect the monetary stance to be tighter than previously assumed over the coming months. A survey of financial market analysts' forecasts reveals that analysts now expect the policy rate to remain higher than previously projected throughout 2008 and hold broadly unchanged over the next two years (see Appendix 2).

Yields on the two shorter indexed HFF bonds have been volatile. A rise in June probably reflects investors' expectations that the depreciation of the króna in March had been fully passed through to price levels. Yields on two longer series of HFF bonds have remained low, however. There has been considerable uncertainty concerning the future of the HFF, and the uncertainty about the supply of long-term indexed bonds bearing a Treasury guarantee has affected demand by pension funds, the largest holders of these series. It is unclear how the recently announced Government measures aimed at stimulating the real estate and financial markets fit with the intended change in the role of the HFF.<sup>1</sup> Yields on indexed HFF bonds rose following the announcement, but until further information concerning the implementation of these measures is available, uncertainty will reign. This is detrimental, not least for monetary policy conduct, which depends on the smooth transmission of the policy rate to the longer end of the indexed yield curve.

### The exchange rate has remained low and volatile

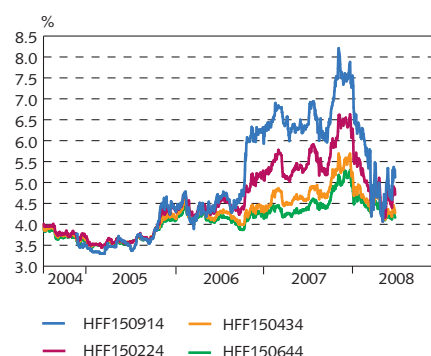
Yields on the króna in the foreign exchange swap market are still low, and the positive interest rate differential is virtually non-existent on the shortest contracts. As long as this situation persists, it is difficult for issuers of Glacier bonds to hedge against foreign exchange risk, and the outlook is poor for the possible rollover of bonds already issued, especially since the supply of bonds with a Treasury guarantee is limited. This puts pressure on the króna and probably explains to a large extent the depreciation in March and the low, volatile exchange rate since then.

The Central Bank has responded to this situation in two ways: it has increased its issuance of certificates of deposit, which have been made accessible to non-resident investors, and it has raised the policy rate. Both of these measures seem to have facilitated currency swap market activity and caused the króna to appreciate temporarily. The issuance of certificates of deposit opened a new channel for capital inflow and position-taking in the króna, but at the same time such issuance affects the supply of domestic money. Turnover in the inter-bank market has contracted sharply in recent weeks, partly in response to the CD issuance. Non-resident investors' demand for short-term Treasury-guaranteed financial instruments has increased sharply. Given the developments in the yields on the shortest nominal Treasury notes, it can be concluded that the issuance of the CDs has siphoned off a portion of that demand but has by no means satisfied it in full.<sup>2</sup>

1. The EFTA Surveillance Authority (ESA) has commented formally on the Treasury guarantee enjoyed by the Fund.

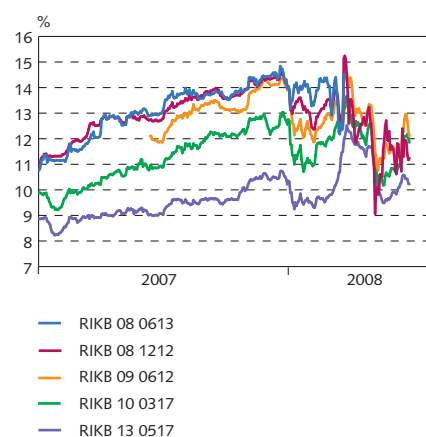
2. For further discussion of the importance of normal market functioning and the impact of market malfunctions on monetary policy conduct and the exchange rate of the króna, see Box III-1.

Chart III-4  
Yields on indexed long-term bonds  
Daily data January 8, 2004 - July 1, 2008



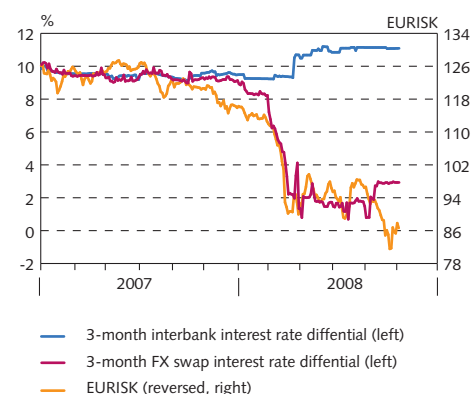
Source: Central Bank of Iceland.

Chart III-5  
Long-term nominal Treasury bond yields  
Daily data January 3, 2007 - July 1, 2008



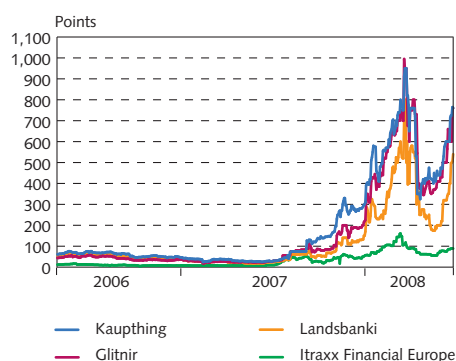
Source: Central Bank of Iceland.

Chart III-6  
FX swap-implied ISK rate minus LIBOR and the exchange rate of the Icelandic króna against the euro  
Daily data, August 1, 2007 - July 1, 2008



Sources: Bloomberg, Central Bank of Iceland.

Chart III-7  
CDSs of Icelandic banks and  
Itraxx Financial Index  
Daily data July 8, 2006 - July 1, 2008



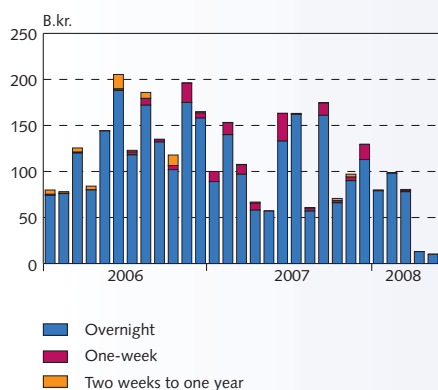
Sources: Bloomberg, Reuters.

### Confidence in the domestic banks is a prerequisite for the recovery of the currency swap market

A prerequisite for the restoration of normal FX swap market activity is the re-establishment of foreign markets' confidence in the Icelandic banks. Given the developments in the banks' credit default swap spreads, however, that re-establishment of confidence could be some time in coming. After spiralling to historical peaks in late March, the banks' CDS spreads began to decline, partly because of positive news about the banks' financing and partly in line with a general downward trend in CDS spreads of foreign banks. The Icelandic banks' spreads have generally changed in line with those of foreign financial institutions, but they have been subject to wider fluctuation. Since the beginning of June, however, the Icelandic banks' CDS spreads have begun to rise once more, as have those of foreign international banks.

## Box III-1 The importance of well-functioning financial markets

Chart 1  
Turnover of krónur in the interbank market  
January 2006 - May 2008



Source: Central Bank of Iceland.

Chart 2  
Daily turnover in interbank FX market  
Daily data April 3, 2006 - May 29, 2008



Source: Central Bank of Iceland.

Well-functioning money markets, foreign exchange markets, and secondary markets for securities are important factors in the transmission of monetary policy to the economy as well as a key foundation for long-term economic growth and stability. However, in recent months, severe financial tensions following the global credit crisis have shaken this important foundation in Iceland. For the future, it is important that market participants continue to address these issues in an appropriate way. The development and growth of a well-functioning swap and derivatives market will continue to play a central role in improving risk management and financial stability and, ultimately, price stability and overall economic stability.<sup>1</sup>

### Money and interest rate swap markets

Competitive and liquid money markets allow market participants to access short-term funding or investment possibilities and manage liquidity risk. Furthermore, they support the transmission of monetary policy to the real economy, provide information on market participants' assessment of future interest rates, and enhance price formation for financial assets. In recent months, trading volume in the interbank market for domestic currency – where commercial and savings banks make short-term loan agreements with each other – has been very low. The disappearance of external funding liquidity through FX swaps led to an evaporation of domestic market liquidity under stress.<sup>2</sup> Turnover fell from 80 b.kr. in March to 12.7 b.kr. in April and diminished further to 9.5 b.kr. in May (see Chart 1). Tensions in money markets have been widespread across the world, and interbank market rates in developed countries have soared, reflecting higher credit risk. In Iceland, the tightening of access to liquidity combined with unwillingness to trade has resulted in adjustment primarily through quantities. Foreign market participants remain hesitant to take a direct credit risk in the Icelandic banks and prefer Government-guaranteed securities denominated in krónur. Following the halt of Eurobond issuances, activity in the interest rate swap market has fallen dramatically as well.

1. For further reading, see, for example, Gray, S. T. and N. Talbot (2006), Developing financial markets. Bank of England, Handbooks in Central Banking, no. 26; and Bernanke, B. S. (2008), Liquidity provision by the Federal Reserve, Speech at the Federal Reserve Bank of Atlanta May 13, 2008.
2. Further, the 75 b.kr. issuance of certificates of deposits by the Central Bank of Iceland may have contributed to the drying up of liquidity, and domestic market participants are now reluctant to trade in the uncollateralised interbank market.

It is important to understand why the banks are not managing short-term liquidity via the money markets and thus place excess balances of domestic liquidity at the Central Bank. In order to enhance the effectiveness of the money market, a review of the incentives structures in the market is beneficial when signs of normalisation in global credit markets emerge. Second, it is important to attract large Icelandic, and perhaps foreign, financial institutions to the money market with the purpose of intensifying competition. That said, an improvement in global money markets and funding conditions of the Icelandic banks will have positive spill-over effects on the Icelandic money market.

### Foreign exchange markets

A liquid foreign exchange market helps to lower the volatility of the spot exchange rate and reduce the costs in cross-currency transactions. Pricing in the Icelandic FX spot market functions relatively well; however, market liquidity remains low compared to other small developed currency markets (e.g. measured by bid-ask spreads). Increased offshore market-making could contribute to increased market liquidity. The most critical issue at the moment is the distorted FX swap market, where the domestic banks are reluctant to engage in transactions. Tight funding conditions in offshore markets – as is indicated by elevated (although relatively illiquid) credit default swap spreads – is reflected in the prices of FX swaps.<sup>3</sup> Against the backdrop of the global liquidity crisis, it has been a primary task of the Central Bank of Iceland to take measures to secure confidence in the Icelandic financial system. The currency swap arrangement with the Nordic central banks has been one such measure.

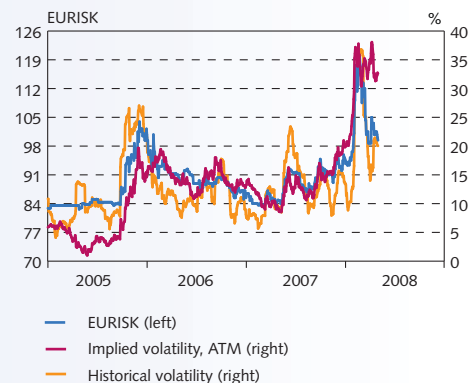
It should be a priority to foster the growth of well-functioning foreign exchange derivatives markets (forward, swap and option markets). The establishment of a liquid foreign exchange derivatives market tends to enhance risk allocation, contribute to better investment decisions, and lower spot exchange rate volatility. At the moment, firms and investors are virtually forced to hedge their FX exposure on the spot market (since it is difficult to obtain forward rate contracts), and this contributes to excessive spot exchange rate volatility (see Charts 2 and 3). Recent months have seen a continued weakening of the domestic currency, which has prompted further demand for hedging foreign exchange exposure. A possible solution could be to foster the development of derivatives exchanges as a complement to the over-the-counter forward and swap market. An organised market may do a better job than over-the-counter markets in reducing counterparty risk, facilitating price discovery, and providing small businesses with access to risk-sharing instruments.<sup>4</sup>

### Secondary markets and current account adjustment

The (virtually) risk-free yield curve derived from secondary markets has been severely distorted, as the demand for highly rated króna-denominated securities has been strong relative to the limited supply.<sup>5</sup> Because of this limited supply, the bond price is much more driven by short-term disturbances than economic fundamental variables.

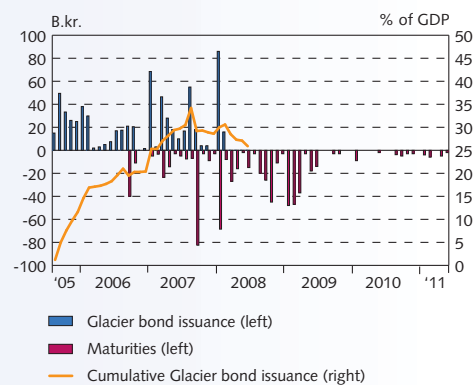
The cumulative amount of outstanding króna Eurobonds as a percentage of GDP has fallen in recent months; however, it is important to consider the fact that a large amount of Eurobonds is scheduled to mature in late 2008 and early 2009, with potential implications for the exchange rate and financial stability (see Chart

Chart 3  
EURISK 1-month volatility (implied and realised)  
Daily data July 1, 2005 - May 30, 2008



Source: Bloomberg.

Chart 4  
Króna Eurobond issuance<sup>1</sup>  
Monthly data



1. Data until July 1, 2008 inclusive.

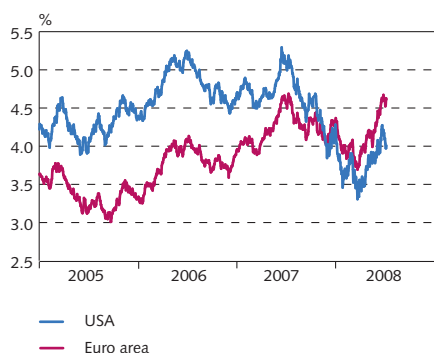
Sources: Reuters, Central Bank of Iceland.

3. See *Monetary Bulletin* 2008-1, Box III-1, and *Financial Stability* 2008, Appendix 2.

4. For further reading, see Chan-Lau, J. A. (2005). „Hedging foreign exchange risk in Chile: markets and instruments.” *IMF Working Paper*, no. 37.

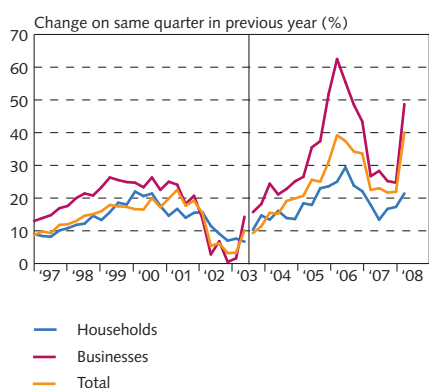
5. Securities are traded in secondary markets after issuance and before redemption.

Chart III-8  
Yields on 10-year government bonds  
Daily data January 3, 2005 - July 1, 2008



Source: Reuters EcoWin.

Chart III-9  
Quarterly credit system lending growth<sup>1</sup>  
Q1/1997 - Q1/2008



1. Due to a reclassification of lending series, after Q3/2003 data by sector are not comparable with earlier data.  
Source: Central Bank of Iceland.

4). It is doubtful that additional large-scale króna Eurobond issuances will occur in the near term, as the issuance depends on the Icelandic banks' comparative funding advantage in foreign currency. From a financial stability perspective, it is thus desirable to increase the supply of Government bonds to enable some of the Eurobond holders to roll over their ISK exposure into Government bonds. Bond issuances would prevent long-term investors from being forced to exchange their króna exposure for foreign currency. This could help prevent a continuing of the rapid downward pressure on the króna and a sharp current account adjustment as capital inflow suddenly dries up. In the medium term, however, capital inflows are better used on productive investments in Iceland than on investments in Government bonds. It is important to remember that the Treasury is without debt in net terms and hence has little need for new bond issuance at present.

### Growing global concerns about inflation

Interest rates abroad have begun to rise again after a period of decline. Fears about mounting inflation have escalated significantly so far in 2008, and yields on government bonds in Europe and the US have risen since March, as a result of these fears and central banks' responses to them. Since the April issue of *Monetary Bulletin*, both the US Federal Reserve Bank and the Bank of England have lowered their policy rates by 25 basis points, but there is little likelihood of further cuts in the near future because of concerns about rising inflation. Policy rates have held steady in most other industrialised nations but have been raised in many emerging market countries, where a serious inflation problem appears imminent.

### Credit supply remains limited

Credit system lending during the first quarter of the year far outstripped that a year ago, with annual lending growth now approaching record levels. The increase is largely due to the depreciation of the króna. At the end of March, the broad merchandise exchange rate index was almost 33% higher than at the same time last year. Actually, lending growth by deposit money banks has slowed, if account is taken of estimated exchange rate adjustments and price indexation. Annual growth is nonetheless robust, nearly 30%. The issuance of new mortgages by the banks has contracted sharply in the first half of 2008. This is one of the reasons for unprecedentedly low real estate turnover. At the same time, demand for housing mortgage loans has been directed more toward the HFF and the pension funds, which have not tightened their lending terms to the degree that the banks have. Although available data could suggest otherwise, there are strong indications that the supply of credit has shrunk sharply and terms have deteriorated.

Several factors could explain why credit statistics show an increase in lending at a time when other evidence indicates tightening credit conditions. First, loan commitments may have been given before financial market conditions became more difficult. Second, when large projects are in the pipeline, the banks may consider it

to their benefit to continue financing projects already launched and see them through to completion rather than cutting off financing immediately, which would leave half-constructed property that is difficult to sell. Third, the squeeze in the market for corporate notes and bills has probably caused some companies to resort to bank loans. Therefore, businesses have not necessarily assumed more debt but have transferred more of it to the banking system balance sheet. In some instances abroad, banks have acquired firms and transferred them to their balance sheets, and it is possible that this has happened in Iceland as well. In the first five months of the year, overdraft loans to businesses grew by one-fourth year-on-year. This could be attributable to market difficulties, as well as to the fact that overdraft loans are easier to obtain than are longer-term loans.

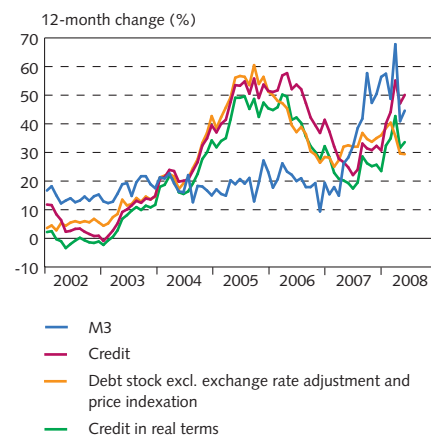
The newly announced Government measures are likely to have a mildly stimulative effect on credit. The ceiling for HFF loans is to be 80% of the purchase price of the property rather than its fire insurance valuation, as it was previously. In addition, the Fund's maximum loan amount was raised from 18 m.kr. to 20 m.kr. Also announced was the establishment of two new series, one for the purpose of refinancing mortgage loans already granted, and the other to facilitate credit institutions' financing of new mortgage loans. It is clear that raising the ceiling on HFF loans will enhance the supply of credit, but until further information is available it will be difficult to determine what effect the new loan series will have.

### Financial conditions have continued to deteriorate

Businesses and households' financial conditions have deteriorated significantly in the recent term and continue to do so despite the fall in the real policy rate. Nominal interest rates and short-term lending rates have continued to rise. It has proven difficult for businesses to obtain capital on the bond market, and the terms of the issues that have been launched have worsened substantially. Inflation has risen sharply following the depreciation of the króna during Q1/2008, and this has emerged in rising value of outstanding indexed and foreign-denominated debt. Declining house prices have further eroded indebted homeowners' equity. With turnover in the real estate market at an all-time low, homeowners could find it difficult to sell property if they need to do so. In order to counteract the diminishing supply of credit from the banking sector, the HFF has lowered its lending rates twice since *Monetary Bulletin* was last issued: by 0.3 percentage points in April and by 0.15 percentage points in June.

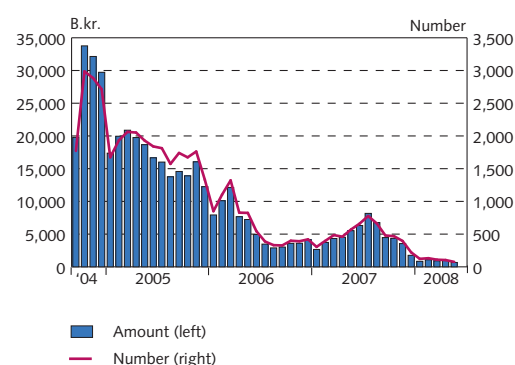
Growth in money supply gained pace after the credit markets began to tighten and asset prices to fall. In response to the difficulties stemming from their dependence on wholesale financing, the Icelandic banks have been seeking ways to increase the share of deposits in their funding. This partially explains the increased growth in the money supply. Although year-on-year growth in the money supply has fallen from its peak in March 2008 due to declining growth in the most liquid deposits, which had grown very rapidly in the preceding months, it is still extremely high at 44%.

Chart III-10  
Growth of M3 and bank credit  
January 2002 - May 2008



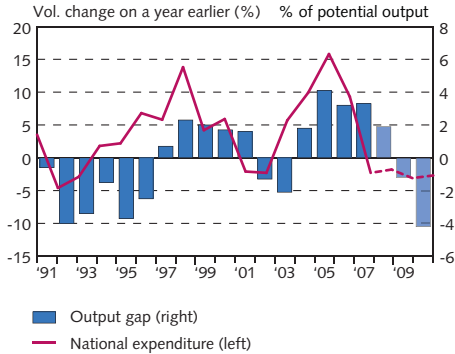
Source: Central Bank of Iceland.

Chart III-11  
Number and amount of DMBs' new housing loans  
September 2004 - May 2008



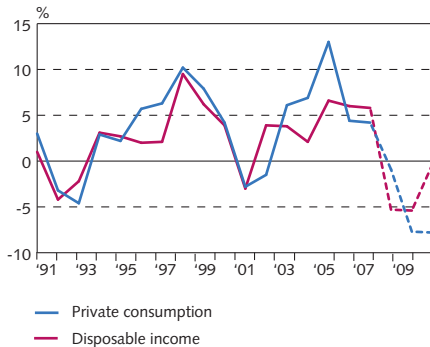
Source: Central Bank of Iceland.

Chart IV-1  
National expenditure  
and output gap 1991-2010<sup>1</sup>



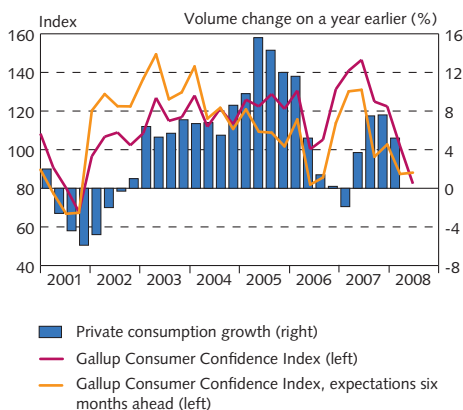
1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-2  
Private consumption and  
disposable income 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010. Disposable income is the Central Bank's estimate.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-3  
Private consumption and consumer confidence<sup>1</sup>  
Q1/2001 - Q2/2008



1. Three-month average of Gallup confidence index.  
Sources: Capacent Gallup, Statistics Iceland.

## IV Domestic demand and production

The adjustment of the economy towards equilibrium has begun. Demand is waning rapidly, asset prices are falling, the cost of capital is rising, real wages are declining, and a contraction in employment lies ahead. Households, businesses, and the economy as a whole must withstand a heavier debt burden and begin deleveraging during a time of falling income, deteriorating credit terms, and economic contraction. Because of the financial market difficulties that have triggered the steep depreciation of the króna, the adjustment will be more rapid than it would otherwise have been, and it will be harder to predict. The credibility of monetary policy and the effectiveness of monetary policy transmission greatly affect both the speed of the adjustment and the cost, in terms of production loss, of regaining price stability.<sup>1</sup>

### Private consumption growth is declining rapidly ...

According to preliminary figures from Statistics Iceland, private consumption growth measured 5.2% for the first quarter of 2008, rather less than was forecast in April. It gained pace towards the end of 2007 and remained robust through the early months of 2008. The depreciation of the króna, high inflation, the cooling of the real estate market, and layoffs in the labour market all contribute to a downturn in private consumption. The April 2008 issue of *Monetary Bulletin* stated that a turnaround in private consumption trends was expected this year. There are signs that this turnaround will be even swifter than was assumed in the April forecast. Sales figures indicate that private consumption growth has fallen off sharply in recent months and that a contraction is in the offing or perhaps underway already (see Chart IV-4). Other indicators of waning activity include new motor vehicle registrations, which have declined significantly after reaching record highs at the beginning of the year, and the Gallup Consumer Confidence Index, which is at its lowest point since year-end 2001 (see Chart IV-3). It is projected that the second quarter will see a slight contraction and that private consumption will drop by approximately 1% over the year as a whole.

### ... with an approximately 15½% drop projected over the forecast horizon

A contraction in private consumption is inevitable, and it plays a key role in the adjustment of the economy towards equilibrium. The past several years' growth in private consumption has been driven by rapid rises in real disposable income, an abundant supply of credit in domestic and foreign currency, and expectations of a continuing increase in income and employment. Real disposable income rose by over one-fourth between 2002 and 2007. In the near future, households will be faced with a heavier debt burden and may have to reduce their debt

1. The baseline forecast is based on the policy rate path that the Bank's staff deem sufficient to bring inflation down to the inflation target within an acceptable time frame and stabilise it near 2.5% thereafter. A more in-depth examination of the macroeconomic forecast can be found in Appendix 1 on page 56. The principal changes in the macroeconomic forecast since the publication of *Monetary Bulletin* 2008/1 are summarised in Box IV-1, and the main changes in the inflation forecast can be found in Box IX-1.



in a climate of worsening financial conditions, declining employment, and falling real disposable income caused by inflation and heftier loan payments. Real disposable income is projected to shrink by nearly 11% over the forecast horizon. In addition, households' wealth will decline due to falling asset prices. According to the forecast, private consumption will be approximately 15½% less in 2010 than it was in 2007. Although this is a marked contraction, it should be examined in the context of the past several years' dramatic increase in private consumption, which grew by 13% in 2005 alone (see Table IV-1). It is possible that private consumption will rebound sooner than projected if the economy adjusts more quickly than is assumed here, for example, or if a greater proportion of the adjustment falls on investment than is implied in the baseline forecast.

This Box describes the main changes in the macroeconomic forecast since *Monetary Bulletin* 2008/1, while Box IX-1 examines the changes in the inflation forecast and the drivers of those changes. Macroeconomic adjustment according to the baseline scenario is expected to develop broadly in line with the forecast published in *Monetary Bulletin* 2008/1. Domestic demand is projected to be somewhat weaker because private consumption, residential investment, and regular business investment are expected to contract more than was assumed in the last forecast. However, large-scale investments in the aluminium and power sectors and growing public investment offset that contraction to a degree. The outlook for economic growth is less favourable for 2008, but the contraction forecast for 2009 and 2010 is similar to that projected in April.

#### The policy rate must remain high longer if the inflation target is to be reached in the same quarter as in the last forecast

Inflation is considerably higher than in the last forecast, and the policy rate must be held high for a longer period if inflation and inflation expectations are to be brought to target within an acceptable time frame. In the current forecast, the inflation target is attained in the same quarter as in the April forecast. A contraction in private consumption plays a key role in the economy's adjustment towards equilibrium. The current forecast projects that the contraction will measure nearly 3 percentage points more than was predicted in April. It is driven by the same forces as were described at that time: falling disposable income and asset prices, rising unemployment, and deteriorating financial conditions. The decline in real disposable income is estimated at 5 percentage points greater than in the last forecast, due chiefly to higher inflation, a higher policy rate, and a heavier debt burden. Unemployment is projected to rise more slowly early in the forecast horizon but reach the level projected in April toward the end of the forecast horizon.

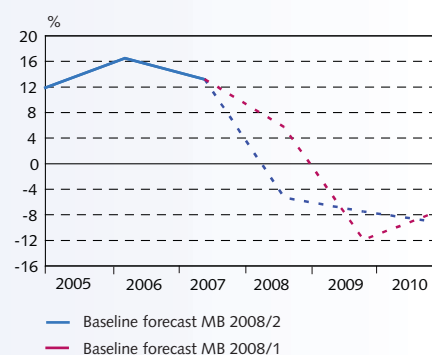
#### A steeper decline in private consumption and regular business and residential investment is offset by investments in the public sector and the aluminium and power sectors

Investments in the power and aluminium sectors during the forecast period are projected at 55 b.kr. more than previously estimated, and public investment will grow considerably as well. Regular business investment is expected to decline by 15 percentage points more during the forecast period, and residential investment by 7 percentage points more, than was assumed in the April forecast. The more sizeable contraction in private consumption will outweigh the smaller downturn in investment; therefore, domestic demand will

### Box IV-1

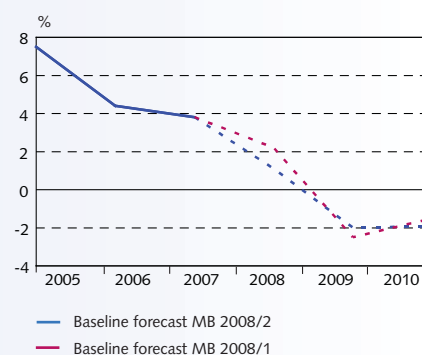
## Changes in the macroeconomic forecast from *Monetary Bulletin* 2008/1

Chart 1  
Residential investment growth 2005-2010



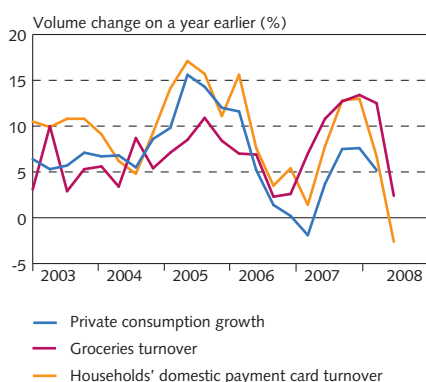
Sources: Statistics Iceland, Central Bank of Iceland.

Chart 2  
Economic growth 2005-2010



Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-4  
Private consumption, groceries  
and payment card turnover  
Q1/2003 - Q2/2008<sup>1</sup>



1. The value for Q2/2008 is the average for April and May.  
Sources: Federation of Trade and Services, Statistics Iceland,  
Central Bank of Iceland.

shrink slightly more than in the previous forecast, with the decline concentrated in 2008. The export forecast has not changed materially, as the poorer outlook for the fisheries sector and the effect of the weaker króna on general exports tend to cancel each other out. Imports are expected to decline in 2008 in response to reduced demand. Output growth is projected at 1.1% in 2008 instead of the previously assumed 2.2%, but the outlook for 2009 and 2010 is broadly unchanged from the April forecast.

### Aluminium and power sector investment and public construction projects are on the rise ...

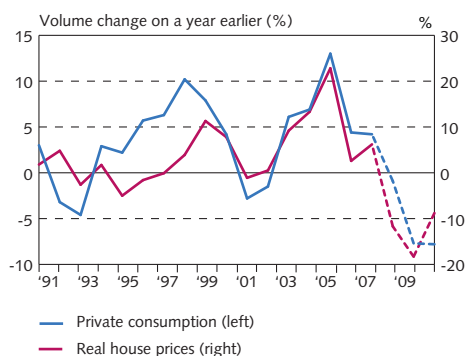
According to the baseline forecast, regular business and residential investment will contract, while public investment and investment in the aluminium and power sectors will gain momentum. Public investment is expected to increase in line with growing indications of an economic contraction and will likely exceed the April forecast. Investment in power plants and aluminium smelters will be more extensive than was projected in the April *Monetary Bulletin*. The cost of building the first phase of the Helguvík aluminium smelter, together with energy procurement and laying of power lines, is currently estimated at nearly 150 b.kr. The baseline forecast also assumes that the Straumsvík aluminium smelter will be expanded within its current property boundaries at a cost of 20 b.kr. Investments related to the construction of an aluminium foil anodising plant in North Iceland and data centres in South Iceland are estimated at more than 10 b.kr. during the same period. Some uncertainty remains, however, concerning energy procurement and other arrangements for some of the above-mentioned projects. Furthermore, several other major development projects not mentioned here are under consideration.

### ... but other business investment is declining rapidly in a difficult season on the credit and asset markets

Business operations are increasingly affected by the global credit crisis and tight monetary policy. The last issue of *Monetary Bulletin* reported evidence indicating that financial institutions had greatly curtailed their lending for new projects but had continued to grant loans for projects already underway. Access to credit remains tight, and the conditions for corporate bond issuance have deteriorated markedly. Heavy indebtedness has become a burden for many businesses. Their debt burden has increased due to rising interest expense, and falling asset prices coupled with shrinking demand for goods and services have eroded their equity. The drop in equity lessens collateral value and compromises businesses' access to credit. Some businesses could be forced to sell assets in order to reduce their debt, and this could possibly trigger an even further decline in asset prices.

Given these circumstances, the baseline forecast allows for a decided contraction in general business investment during the forecast horizon, especially investment in commercial real estate. Extensive development projects involving the construction of supermarkets, hotels, and office buildings are currently in progress, but it appears that some of these will be completed later than originally planned.

Chart IV-5  
Private consumption and  
real house prices 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

In some instances, work could be delayed indefinitely. In spite of a considerable downturn in business investment during the forecast horizon, investment as a proportion of GDP is significantly higher throughout the horizon than it has been in earlier episodes of economic contraction (see Chart IV-8). Thus there is some likelihood that a deeper contraction will ensue.

### Business executives are pessimistic but disagree on whether the worst is over

According to their responses to the opinion poll carried out by Capacent Gallup, most executives in Iceland's 400 largest firms view the current economic situation as weak. The Gallup Economic Index<sup>2</sup> has decreased rapidly and is currently at 3.9 after having reached a maximum value of close to 200 a year ago. Executives seem to disagree on whether the worst is over. One-third of them believe that the economic situation will be better in six months, whereas 42% of executives think it will be worse.

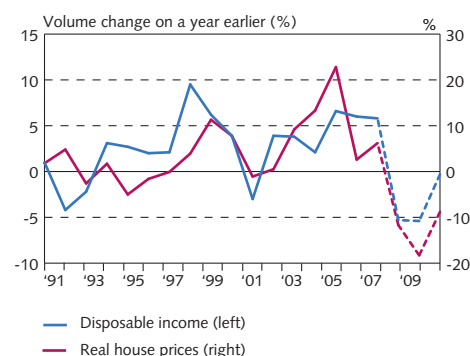
### The projected decline in real estate prices is broadly in line with the April forecast ...

The forecast appearing in the April issue of *Monetary Bulletin*, wherein the Central Bank projected a roughly 30% drop in real house prices, met with vehement response. The forecast was based on the assumption that house prices would fall back to their estimated equilibrium levels over the next three years. There are several reasons to expect a sharp decline in housing prices in the years to come. Real house prices have risen very steeply in recent years, there are prospects of a considerable contraction in real disposable income, credit markets are under stress, and there is an increasing glut of residential housing. Nevertheless, the April forecast did not assume that house prices would fall below estimated equilibrium, as they did during the recession of the 1990s.

The rapid rise in real house prices has been an international phenomenon. The current global episode of rising house prices has persisted twice as long as the average in previous periods of economic upswing, and the rise in prices is three times the previous average.<sup>3</sup> The global housing bubble is now shrinking fast (see Box IV-2).

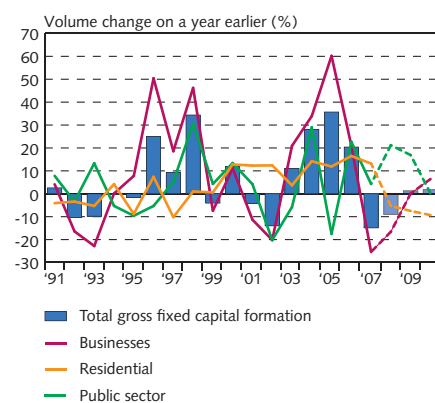
The domestic housing market surge of the past few years was driven primarily by burgeoning disposable income, falling lending rates, abundant foreign credit, increased loan ceilings and higher loan-to-value ratios, lengthening of maturities, enhanced possibilities for debt re-financing, and a shortage of zoned building sites. Expectations of continuing housing inflation and speculation magnified the upswing in Iceland, as they did elsewhere, and a housing bubble developed.

Chart IV-6  
Disposable income and real house prices  
1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-7  
Gross fixed capital formation  
and its main segments 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

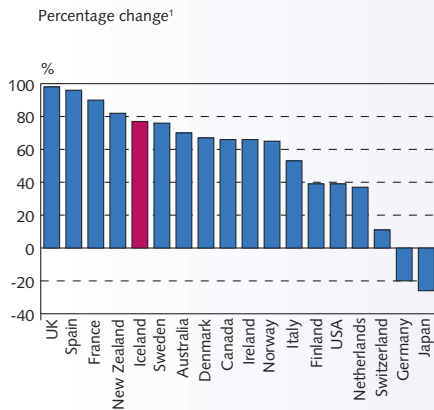
2. The Gallup Economic Index is based on a Gallup opinion poll among executives in Iceland's 400 largest firms on the economy and is compiled from responses to the question: Do you consider economic conditions to be generally positive, negative, or neutral? An index value below 100 means that the respondents who view economic conditions as negative outnumber those who consider them positive.

3. See International Monetary Fund (2008), "Chapter III - The Changing Housing Cycle and Its Implications for Monetary Policy", *World Economic Outlook*, April.

Box IV-2

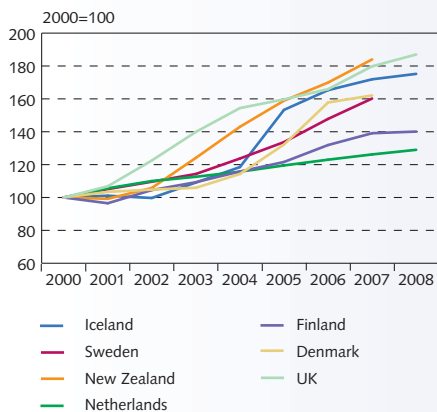
## The housing market in a global context

Chart 1  
Increase in real house prices  
from the turn of the century



1. Percentage change from Q4/1999 to year-end 2007.  
Sources: Goldman Sachs, Central Bank of Iceland.

Chart 2  
Real house price index<sup>1</sup>



1. Data for the year 2007 are averages for available quarters, as data were not available for the year 2007 and figures for 2008 are based on the first quarter.  
Sources: Land Registry of Iceland, OECD.

The forecast appearing in the last issue of *Monetary Bulletin*, wherein the Central Bank projected an approximately 30% decline in real house prices, met with vehement response. In the revised baseline forecast, house prices are projected to fall slightly more, or a roughly 19% in nominal terms, from average 2007 to 2010. This corresponds to a real decline of one-third.<sup>1</sup> If this materialises, the past five years' real price increases will be largely reversed. Nonetheless, prices would be close to their estimated long-term equilibrium value.

### Iceland is not an island

The steep increase in house prices in the 21st century is an international phenomenon, as Chart 1 indicates. In most countries, housing inflation has been characterised by dramatic increases in real housing prices above what can be explained by underlying fundamentals. In this context, Iceland is not an island. From the turn of the century until year-end 2007, real house prices rose by over 77% (based on the real increase since Q4/1999) and are probably far above their long-term equilibrium. From the beginning of the current upswing in 2002 until 2007, nominal house prices have increased by 104% and real prices by 66%. The decline that is projected for the next three years must therefore be examined in the context of the soaring real estate prices of the past several years.

### Where will the housing bust cause the most damage?

In most countries, real estate price increases have slowed considerably in the recent term, and some of the countries that have experienced the greatest increases are now seeing a reversal of that trend. Figures for Q4/2007 and Q1/2008 indicate that house prices have fallen in real terms in countries like the US, Denmark, Ireland, Norway, Spain, and Switzerland.<sup>2</sup>

Economists at Goldman Sachs have assessed the likelihood of a decline in GDP growth and other economic variables in 17 countries. The countries most likely to experience an economic contraction are Spain, Ireland and the US. In all of these countries, house prices have risen steadily in real terms for several years (see Charts 2 and 3), and the increases are considerably greater than the rise in real disposable income. Furthermore, residential investment and employment levels in sectors related to the housing market have deviated far from underlying long-term fundamentals in these four countries. In Goldman Sachs' opinion, Japan, Switzerland, the Netherlands, and Germany need not fear an economic downturn caused by housing deflation. In all of these countries, house prices have risen very little or have actually fallen in real terms. Residential investment has been below its underlying long-term average, and construction sector employment as a proportion of total employment levels has contracted.<sup>3</sup>

### Previous experience of housing busts

A sizeable deviation of real prices from long-term equilibrium is likely to trigger a sharp correction whose effect on the real economy could vary greatly.<sup>4</sup> A recent study of housing busts in OECD countries since the early 1970s revealed that, in the average bust, real house

1. Real house prices fall by nearly 31% during the forecast horizon, which extends from Q2/2008 until Q2/2011. This is virtually the same decline as was assumed for the forecast horizon of the April forecast.  
2. See OECD (2008), *Economic Outlook*, 83, June 2008 (preliminary issue).  
3. Real prices have fallen by 20% in Germany and 26% in Japan since the turn of the century.  
4. See Goldman Sachs, *Global Economics Weekly*, April 16, April 23, and May 14, 2008.

prices fell around 30%.<sup>5</sup> The average duration of declining real prices was six years. The study revealed a positive correlation between the housing bust, on the one hand, and a negative output gap and a decline in GDP growth, on the other. The decline in GDP growth averaged five percentage points from the peak. Output growth began to wane before real house prices, and it bottomed out seven quarters after the bust began. The output gap bottomed at around the time real prices hit their lows.

### What is hidden behind the average?

There is often an important hidden difference lying behind average figures. The study showed that the severity and duration of the repercussions of a housing bust varied directly with the previous level of imbalance in the economy. The impact on output growth was greater in countries with a wide output gap, strong credit growth, and a wide current account deficit at the time the bubble burst.

### Probable developments in Iceland

As Chart 1 illustrates, real house prices in Iceland have risen by more than those in Ireland and the US, but less than in the UK, Spain, and New Zealand, all of which are countries where the after-effects of a housing bust could prove most severe.<sup>6</sup>

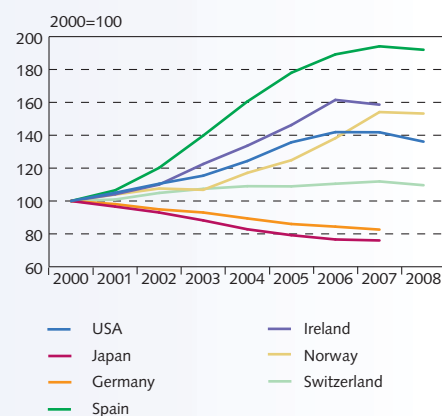
The Icelandic credit market has tightened markedly, the supply of housing has increased, and the OMXI15 index has fallen by more than one-fourth so far in 2008. The Central Bank projects that GDP will contract by nearly 3% from the 2007 average to the 2010 average and that the negative output gap will measure just over 4%. The Bank also forecasts that the decline in real house prices will not be over by that time. Nominal house prices will begin to rise again in late 2010, but real prices will not increase until somewhat later.

Although the level of uncertainty is high, particularly as regards developments on the global financial markets, most indicators suggest that the impact on the Icelandic economy could be sizeable, both in international comparison and in a historical context. In view of past housing market crises, and given the pre-existing imbalances in the domestic economy, it is not unrealistic to assume that the after-effects will be even more severe in Iceland. One of the alternative scenarios in Box IX-2 describes the possible turn of events should the domestic housing market contraction prove even deeper than is assumed in the baseline forecast.

5. Goldman Sachs, *Global Economics Weekly*, April 16 and May 14, 2008. The reports examine instances in OECD countries where real house prices have fallen by more than 15% since 1970. See also Chapter II, *World Economic Outlook*, IMF, April 2003 and 2008.

6. The nominal price increase has been greater in Iceland, however, than in the UK, Ireland, and Spain.

Chart 3  
Real house price index<sup>1</sup>



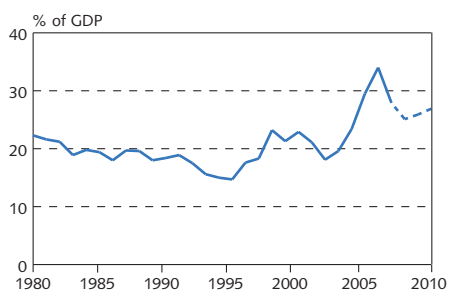
1. Data for the year 2007 are averages for available quarters, as data were not available for the year 2007 and figures for 2008 are based on the first quarter.

Source: OECD.

Most of these catalytic factors have lost momentum or reversed, however. A 30% drop in real house prices is close to the average housing price deflation experienced in the wake of comparable housing bubbles in 15 OECD countries.<sup>4</sup> However, the pace of the adjustment according to the April forecast would be more rapid than that in the average OECD housing burst. Macroeconomic imbalances, soaring

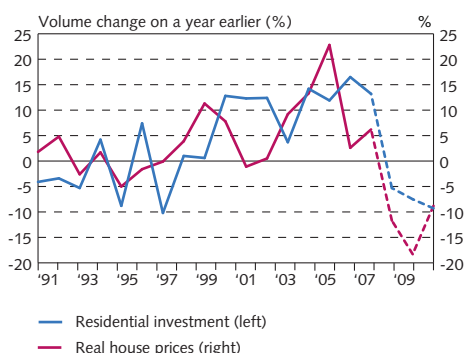
4. See Goldman Sachs, *Global Economics Weekly*, April 16, April 23, and May 14, 2008.

Chart IV-8  
Gross fixed capital formation  
as % of GDP 1980-2010<sup>1</sup>



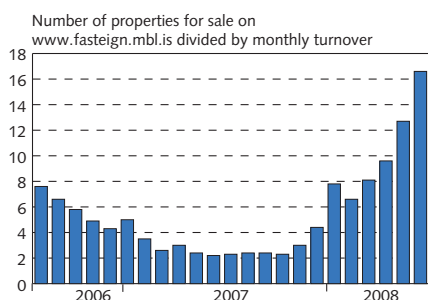
1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-9  
Residential investment and  
real house prices 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-10  
Unsold real estate  
August 2006 - June 2008



Sources: Morgunblaðid, Land Registry of Iceland, Central Bank of Iceland.

lending growth, and the sensitivity of the economy to the effects of the credit crisis indicate that the fall in real housing prices in Iceland could exceed the average.<sup>5</sup>

### ... and is supported by recent data

Various indicators, including the most recent data on residential investment, suggest that the housing market downturn could occur more rapidly than was forecast in April. Preliminary figures from Statistics Iceland indicate a 13.5% decline in residential investment in Q1/2008, following a 16% increase in Q4/2007. However, it is likely that these figures overestimate the contraction somewhat.<sup>6</sup>

There are growing signs of a glut of available residential housing. Unsold property is increasing as a proportion of turnover (see Chart IV-10). A Central Bank survey carried out in June among largest construction contractors in Iceland also indicates a steep decline in residential investment in 2008. Among the companies participating in the survey, the number of apartments under construction at year-end 2007 was roughly half that a year previously. Furthermore, the companies only intended to commence work on slightly more than one-third of the construction project volume that they had begun on a year earlier. Only a very small proportion of unsold property has been converted to rental housing as yet.

The Government's June 19 announcement concerning measures related to the real estate and financial markets does not significantly change the prospects for a housing market downturn. Although these measures could slow the trend down and affect the distribution of price reductions by location, property size, and property age, they are not likely to stop or reverse the process of adjustment. The Government's measures could potentially reduce the likelihood that the housing market slump will be as abrupt as is described in the alternative scenario in Box IX-2. This is not a given, however, since the measures are implemented too early in the cycle. For example, raising loan-to-value ratios now could lead to more households having negative equity in their property at the bottom of the slump, which could delay recovery. It is most likely, however, that the impact will be modest.

The baseline forecast projects that residential investment will contract by 5% in 2008 and decline further in 2009 and 2010. In the forecast, the proportion of residential investment to GDP falls to 5%, which is close to the estimated long-term equilibrium value.<sup>7</sup>

5. The alternative scenario in the last issue of *Monetary Bulletin* assumed a larger decrease in house prices than in the baseline forecast, as well as assuming a sharper contraction in residential investment. A similar alternative scenario appears in this *Monetary Bulletin*. See Box IX-2, pp. 54-55.
6. Dwindling turnover in the residential housing market reduces contractors' incentive to register housing that is ready for use. Therefore, it is probably common that nearly finished property is still listed as weather-proof. For this reason, the investment that has already taken place could be significantly underestimated in preliminary figures. The listed value of a given property at these two defined phases of construction often differs by approximately 40%.
7. See Lúdvík Eliasson and Thórarinn G. Pétursson (2008), "The residential housing market in Iceland: Analysing the effects of the recent mortgage market restructuring", *Housing Studies*, forthcoming.

## GDP forecast to grow by 1% in 2008 and then contract in 2009 and 2010

According to preliminary figures from Statistics Iceland, GDP rose by just over 1% year-on-year in Q1/2008. The episode of robust growth is coming to an end, and a downturn is in sight. For the past five years, Iceland has enjoyed an increase in output of close to 30% at constant prices and a rise in final domestic demand of 44%. In 2008, both private consumption and investment are expected to taper off, and domestic demand is projected to contract by approximately 2%. According to the baseline forecast, exports will grow modestly, partly as result of the depreciation of the króna but mainly due to increased exportation of aluminium. Output growth for the year is projected at 1%. The contraction in 2009 and 2010 is broadly in line with the previous forecast, approximately 2% for each of the two years. The size of the downturn should be considered in the context of the enormous expansion over the preceding years (see Table IV-1).

Table IV-1 Changes during various periods (%)

	2002-2007 <sup>1</sup>	2007-2010 <sup>2</sup>
Private consumption	39.4	-15.7
Public consumption	15.6	11.4
Gross capital formation	97.9	-6.1
Business investment	134.4	-11.1
Residential investment	74.7	-20.5
Public investment	28.4	42.1
National expenditure	43.8	-7.4
Exports of goods and services	32.5	7.7
Imports of goods and services	78.3	-7.1
GDP	28.4	-2.8
Real disposable income <sup>3</sup>	26.7	-10.8
House prices – nominal value	103.5	-18.8
House prices – real value	65.5	-34.2

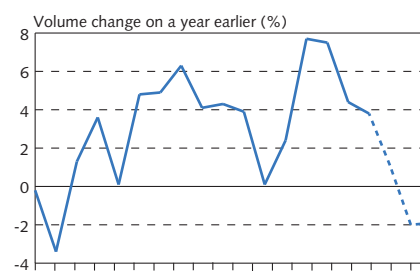
1. Change from average for 2002 to average for 2007.
2. Change from average for 2007 to average for 2010 in the Central Bank's baseline forecast.
3. Central Bank estimate.

Sources: Statistic Iceland, Central Bank of Iceland.

### Output gap narrows rapidly, but less slack is forecast in coming years due to slower potential output growth

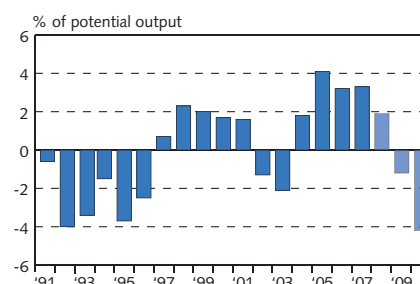
The output gap is narrowing rapidly and will turn negative around mid-2009 if the forecast is borne out. Other indicators, such as the Capacent Gallup survey among executives in Iceland's 400 largest firms, also suggest rapidly decreasing pressure on production capacity. The share of firms reporting a shortage of labour has decreased from roughly half a year ago to just under one-fifth in the most recent survey. As a result of weaker output growth, the estimated output gap for 2008 declines to just under 2%. A slack will develop in 2009 and peak in the latter half of 2010. It will be less pronounced and will peak somewhat sooner than in the April forecast, which assumed that the negative output gap would grow throughout the forecast horizon.

Chart IV-11  
Economic growth 1991-2010<sup>1</sup>



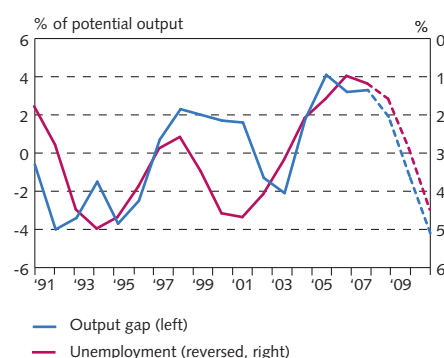
1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart IV-12  
Output gap 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Source: Central Bank of Iceland.

Chart IV-13  
Output gap and unemployment 1991-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

The difference is explained by the downward revision of potential output growth due to the effects of the global credit crisis and rising commodity and energy prices. The capital stock will therefore grow more slowly, as will productivity.



## V Public sector finances

The outlook for public sector performance is rather poorer than was forecast in the last issue of *Monetary Bulletin*, due in large part to a sharper contraction in private consumption.

### Falling revenues and rising expenditures ...

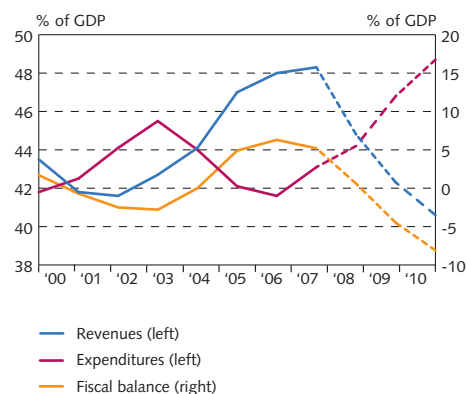
According to a recent Statistics Iceland assessment of public finances in Q1/2008, revenues were down slightly year-on-year in real terms. Public expenditure is estimated to have risen by 2% in real terms between Q1/2007 and Q1/2008. Nonetheless, estimates indicate a 16 b.kr. public sector surplus for the first quarter, which is considerably higher than is forecast for the year as a whole.

### ... throughout the forecast horizon

The public sector outlook is broadly unchanged since the last *Monetary Bulletin*. Public sector performance is projected to be in balance this year but deteriorate as the forecast horizon progresses, resulting in a deficit amounting to around 8% of GDP by the end of the horizon. The slacker performance can be traced primarily to the effects of the economic contraction on Treasury tax revenues, which are projected to decline by 17% in real terms between 2007 and 2010. Revenues from taxes on personal financial income and corporate profits are expected to fall by 30-40 b.kr. and consumption tax revenues by 40 b.kr., both in real terms. The decline in taxes on capital stems from very different financial market conditions, while the contraction in consumption tax revenues is attributable to a sharp drop in private consumption and fewer purchases of highly taxed items such as motor vehicles and consumer durables. A smaller decline, 4½% in real terms, is expected in municipal tax revenues, mainly due to a slowdown in the construction sector.

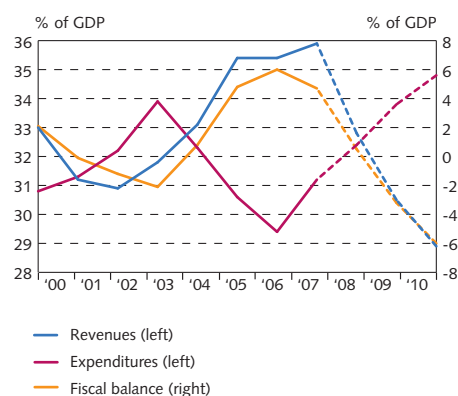
Public expenditure is expected to rise by 70 b.kr. in real terms between 2007 and 2010, due in part to the economic contraction. Public expenditure as a proportion of GDP is expected to increase from 43% in 2007 to 48½% in 2010. This assumes that public consumption growth will hold at 2000-2007 levels – that is, by 3½-4% per year and by almost 40 b.kr. in real terms – between 2007 and 2010. It assumes as well that public investment will be largely in line with recent Ministry of Finance estimates; that is, it will rise by 20% in 2008 and by nearly that amount in 2009, reaching almost 6½% of GDP in 2009 and 2010. Transfer outlays – especially Treasury expenditure related to the social security system – will increase as a result of the economic contraction, mainly due to the poorer employment situation. Other factors include the implementation of promises made in connection with the recent contractual wage settlements, such as hikes in unemployment benefits, child allowances and mortgage interest allowances. Accordingly, public debt rises, and net interest payments increase from near zero in 2007 to around 20 b.kr. in 2010.

Chart V-1  
Public sector finance 2000-2010<sup>1</sup>



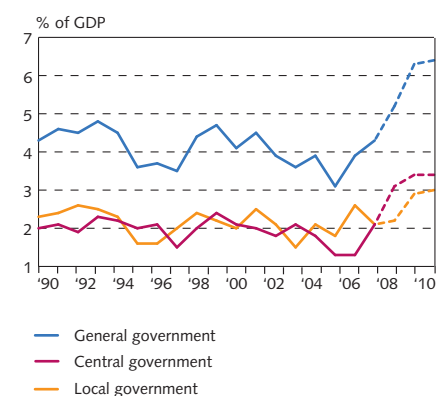
1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central Bank of Iceland.

Chart V-2  
Central government finances 2000-2010<sup>1</sup>  
Including social security



1. Central Bank baseline forecast 2008-2010.  
Sources: Statistics Iceland, Central bank of Iceland.

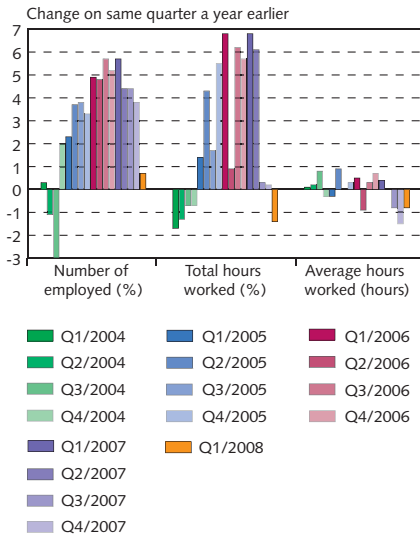
Chart V-3  
Public sector fixed investment 1990-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Source: Statistics Iceland, Central bank of Iceland.

## VI Labour market and wage developments

Chart VI-1  
Changes in labour market  
2004-2008

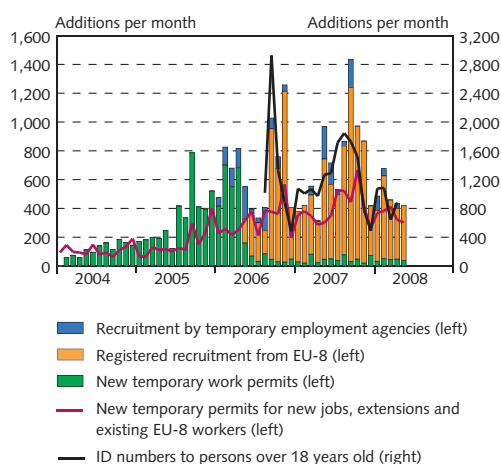


Despite reports of layoffs, signs of reduced pressure in the labour market are not yet clearly reflected in statistics. Unemployment is negligible, and there was a substantial influx of foreign workers in May. A slowdown in national ID issuance to foreign nationals indicates, however, that labour imports are on the wane, and unemployment could escalate rapidly in the latter half of the year. The review clauses in the recent wage settlements will be triggered next year. The baseline forecast does not assume that the review will result in significant increases in wage costs; however, the consequences of larger wage increases are examined in an alternative scenario.

### Contraction in hours worked

According to the Statistics Iceland labour market survey, total hours worked decreased in the first quarter of 2008, for the first time since Q4/2004. The reduction is explained by a shorter work week, but the number of persons in the labour market rose marginally compared to the past three years. In the latter half of 2007, the growth in total hours worked slowed considerably compared to the two preceding years, despite a significant increase in the number of persons at work, as average hours worked decreased. The shorter work week appears to be explained by supply-side factors, as most people who worked less than usual during the reference week claimed to have done so because they took time off for leisure during that week. A substantial rise in real wages and disposable income in recent years, together with the strong position of workers after a long period of excess demand for labour, may have made it easier for workers to take time off. A similar trend preceded the turnaround in the labour market in 2001; that is, a drop in hours worked and an increase in the number of persons at work. In 2002, both hours worked and persons at work decreased concurrent with a rise in unemployment.

Chart VI-2  
ID number issuance and  
foreign labour registration



### Signs of a turnaround in labour market data still ambiguous, ...

Data on labour imports do not suggest that the reduction in hours worked in Q1 stemmed from declining demand for labour. During the first four months of the year, the number of new registrations at the Directorate of Labour was up from the same period a year ago. New registrations in May, however, were fewer than in May 2007, but overall importation of labour appears to have remained strong and the number of re-registrations of foreign workers has been higher so far in 2008 than it was at the same time a year ago. Registered unemployment has remained unchanged at just below 1% so far in 2008.

### ... but indicators suggest decreasing demand ...

On the other hand, figures on national ID number issuance give an early indication that demand for labour is on the wane. In the first five months of 2008, the number of ID numbers issued to persons aged 18 and over declined by 20% year-on-year. As an employee must have a national ID number in order to work, it is likely that new registrations with the Directorate of Labour will continue to decline in coming months.

**... and unemployment is likely to rise rapidly in the autumn**

Information from employment agencies, the Directorate of Labour, and parties in the labour market indicates that falling demand for labour will soon surface in rising unemployment. Announcements of redundancies have increased, especially at the end of May, and queries concerning procedures for redundancies have become more frequent as well. Furthermore, wage arrears are on the rise, as are instances where employees are laid off and offered rehire on less favourable terms.

A survey conducted in June among the 400 largest companies in Iceland also indicates that labour demand will diminish over the next six months. One-fourth of companies surveyed expressed an interest in cutting back on staff in June, up from one-fifth in March. The number of companies indicating a need to recruit had dropped markedly, from 25% in March to 16% in June. The drop was largest in sectors where demand was previously strongest, particularly the financial and insurance sector and the specialised services sector. Contrary to the development in other sectors, 25% of companies in the fishing industry wanted to recruit staff, up from 4% in March. About 80% of businesses said their supply of workers was sufficient, as opposed to only half in March. Sentiment in the greater Reykjavik area did not differ from that in other regions, unlike what has been observed during the past year.

According to the Gallup Consumer Confidence Index in June, consumers' assessment of current employment conditions has deteriorated since April, declining to its lowest level since January 2003, when unemployment was nearly 4%.

The current situation is rather reminiscent of early autumn 2001. At that time, unemployment had remained just above 1% for over a year but rose sharply over the ensuing six months, reaching 2.4% in January 2002.

**Foreign workers leave Iceland**

Because the departure of people who leave Iceland permanently is not recorded officially, little is known about the extent to which foreign nationals who come to Iceland for employment reasons leave the country again. However, the issuance of E-301 certificates by the Directorate of Labour could provide an indication.<sup>1</sup> E-301 issuance increased substantially last year, and by mid-2008 the number of certificates issued already approached that for all of 2007. The increase in 2007 and early 2008 is explained by the completion of the large aluminium smelter projects in East Iceland, as Bechtel, unlike most other employers, applied for E-301 certificates for its employees when their work in Iceland was finished. However, in the past few months, applications for E-301 issuances have increasingly been from submitted by other employers.

According to information from employment agencies, most foreign workers leave the country when they cannot find work. This

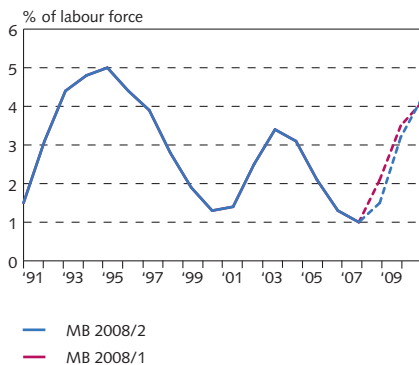
Chart VI-3  
Recruitment and redundancy plans  
of businesses over the next 6 months



Source: Capacent Gallup.

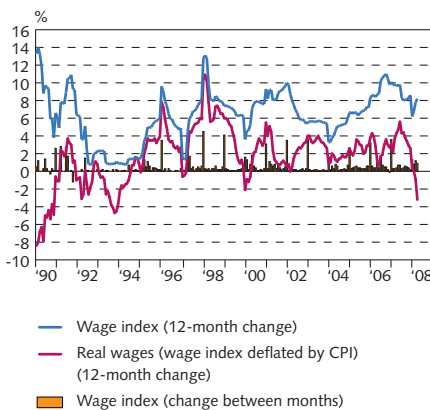
1. E-301 certificates are issued to individuals intending to seek work in another EEA State. They confirm an individual's unemployment insurance and his period of employment in the country of issuance.

Chart VI-4  
Unemployment rate 1991-2010<sup>1</sup>



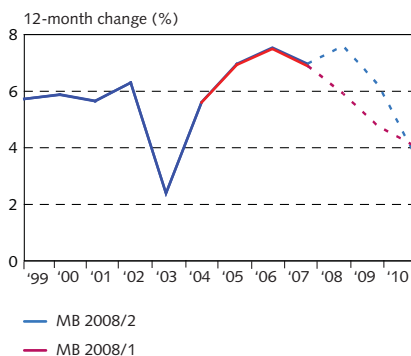
1. Central bank baseline forecast 2008-2010.  
Sources: Directorate of Labour, Central Bank of Iceland.

Chart VI-5  
Nominal and real wages  
Statistics Iceland wage index



Source: Statistics Iceland.

Chart VI-6  
Unit labour cost 1999-2010<sup>1</sup>



1. Central Bank baseline forecast 2008-2010.  
Source: Central Bank of Iceland.

trend is probably encouraged by rapidly improving employment and wage-earning opportunities in Poland, the country of origin of a large majority of Iceland's foreign work force. Furthermore, the recent depreciation of the Icelandic króna has eroded the value of the salaries of those employees who send a portion of their income as remittances to their home country.

### Unemployment at historical high at the end of the forecast horizon

Unemployment during the spring was less than was forecast in April. Because most foreign workers seem to leave the country upon losing their jobs, it is expected that dwindling demand for labour will not be fully reflected in unemployment figures during the first part of the forecast horizon. Nevertheless, in the current forecast, unemployment is projected to rise swiftly in late summer and early fall. On average, it is expected to be 0.5 percentage points lower this year than in the April forecast. It is expected to rise rapidly in line with declining economic activity, however, and approach the historical peak of the mid-1990s toward the end of the forecast horizon.

### The largest decline in real wages since 1993

The Statistics Iceland wage index rose slightly more in April and May than was projected in the April forecast, apparently because of rapid implementation of the wage rises resulting from the recent private sector wage settlements rather than greater-than-expected wage drift. In April, the 12-month change in real wages was negative for the first time since 2000, and by May it had shrunk by 3.9%, the largest contraction since 2003.

The recent wage settlements between the state and local governments and the member associations of the Icelandic Federation of Labour (ASÍ), the Federation of State and Municipal Employees (BSRB), the Icelandic Teachers' Union (KÍ) and the Association of Academics (BHM) entails a larger direct wage hike than was allowed for in the April forecast. Most of the wage settlements took effect in May and June and will remain valid for slightly less than one year. They will therefore expire shortly after the review of the premises for the private sector wage settlements negotiated earlier this year.

### Review clauses will be triggered

The assumptions underlying the private sector wage settlements are two: inflation must have slowed down in the latter half of 2008 and early 2009, and real wages in the private sector must not fall between January and December 2008. According to the inflation forecast, inflation will be considerably above the level assumed in the wage settlements during the time horizon specified, making it virtually inconceivable that the premises of the settlements will hold.

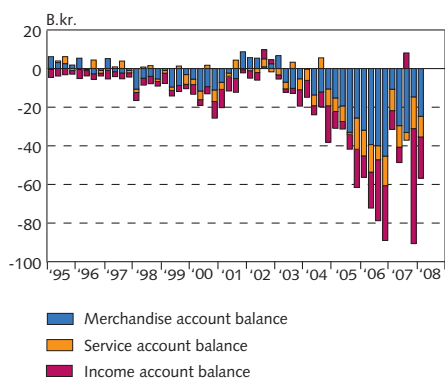
As in the last forecast, it is assumed that the review will result in additional increases in wage costs, but not large enough to safeguard real wages. The estimated cost effect of the review in early 2009 is somewhat higher than that assumed in the last forecast, however. Heftier wage increases in 2008 and 2009, coupled with lower pro-

ductivity, will raise unit labour costs in both years by 1.5 percentage points above the levels assumed in the April forecast. Over the course of the forecast horizon, wage costs are expected to rise more slowly as the direct impact of the wage settlements abates. Wage drift is expected to be contained by rising unemployment. As forecast, wage costs will therefore be consistent with the inflation target by the end of the forecast horizon.

### **Substantial wage settlement review calls for monetary policy response**

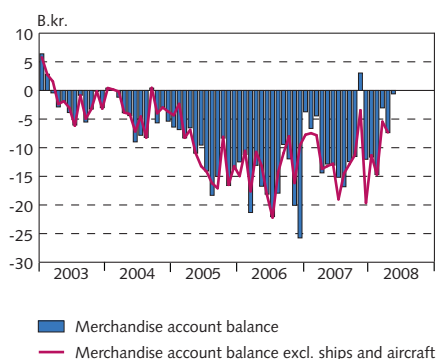
If labour market tension subsides more slowly than is currently expected, wage costs could increase more than is assumed in the baseline forecast. If unions seek to maintain real wages in next year's wage review, a wage-price spiral could result. In order to break that spiral, significantly tighter monetary policy may be required. The alternative scenario in *Monetary Bulletin 2008/1* (Box IX-2) presented a possible monetary policy response to such developments, based on the inflation outlook at that time. An update of that scenario can be found in this *Monetary Bulletin*. If wages rise as assumed in the alternative scenario, wage-induced inflationary pressures will be significantly stronger than in the baseline forecast and the policy rate will be higher and decline slower.

Chart VII-1  
Current account balance components<sup>1</sup>  
Q1/1995 - Q1/2008



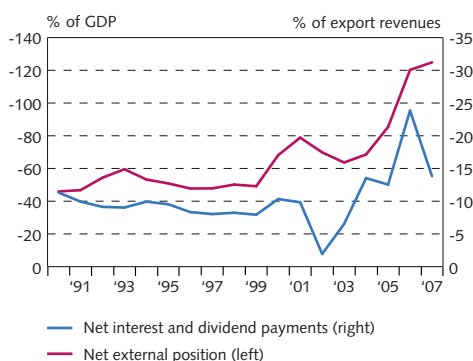
1. Net current transfer is included in balance on income.  
Sources: Statistics Iceland, Central Bank of Iceland.

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



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VII-3  
Foreign debt and dividend payments  
and net external position  
Annual data 1990-2007



Sources: Statistics Iceland, Central Bank of Iceland.

## VII External balance

The current account balance was negative by 57 b.kr. in Q1/2008. The deficit narrowed by 34 b.kr. from the previous quarter but was much larger year-on-year. The balance on income improved by 38 b.kr., as revenues increased because of positive returns on foreign shareholdings. The service account deficit diminished by 6 b.kr., while the merchandise account deficit grew by 10 b.kr. quarter-on-quarter. Because the quarterly calculation of the current account balance is subject to considerable fluctuation, the results from individual quarters should be interpreted with caution. The full effects of the depreciation of the króna on the current account balance will not emerge until later in the year.

### Imports decline

Developments in irregular items do not strongly affect the merchandise account deficit during the first three months of the year. Imports and exports of ships and aircraft, which often cause wide fluctuations, were negligible; however, such transactions partly explain the narrow merchandise account deficit in Q1/2007. Developments in the balance on income were much more positive than expected in the first quarter, primarily due to improved returns on foreign shareholdings.

Exports of goods and services grew in Q1, in line with the April forecast, but the volume of imported goods and services turned out considerably below the forecast. This is mainly because of the significant year-on-year decline in the importation of ships and aircraft, which is very volatile. According to data on merchandise trade in April and May, imports have fallen off much more rapidly in Q2 than was projected in the April forecast. It appears, however, that exports in Q2 will increase much more than the forecast indicated; thus the outlook is for a more favourable current account balance in Q2 than in Q1.

In Q1/2008, the service account deficit decreased by just over 0.4 b.kr. year-on-year. Although the service account deficit changed little between years, service revenues and expenditures rose substantially. Service revenues from foreign tourists increased sharply year-on-year in Q1 despite the modest increase in tourist visits to Iceland so far in 2008. Iceland residents' travel expenses abroad also rose considerably.

### Income account deficit narrows

The balance on income was negative in the amount of 20.2 b.kr. in the first quarter of the year. This is considerably less than at year-end 2007, when it was negative by 58.2 b.kr., but is a much wider deficit than in the preceding quarters, due primarily to increased revenues from returns on residents' shareholdings abroad. Returns on shareholdings were negative in the amount of 13.1 b.kr. in Q4/2007, when foreign businesses owned by Iceland residents recorded operating losses and reinvested earnings were therefore negative, with the loss entered as negative reinvested earnings. In Q1/2008, however, returns on shareholdings were positive by 29.7 b.kr. Returns consisted largely of reinvested earnings, which totalled 23.8 b.kr. in the first quarter of 2008.

### Net international investment position deteriorates sharply in early 2008

Iceland's international investment position (IIP) was negative by 2,212 b.kr. at the end of Q1/2008, having deteriorated sharply quarter-on-quarter. The foreign asset stock grew by 1,279 b.kr., or 20%, in comparison with the preceding quarter, while foreign liabilities grew by 1,907 b.kr., or 24%, over the same period. This increase is due mainly to the depreciation of the króna; that is, the nearly 30% rise in the price of foreign currencies between periods.

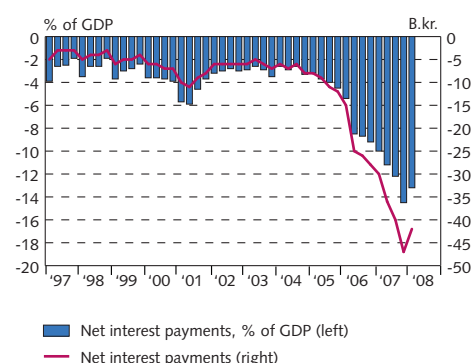
Of foreign assets, bond holdings increased by the greatest proportion, or 32%, and lending to non-residents rose by 29%. In krónur terms, the Central Bank's foreign exchange reserves increased in value by 35% from year-end 2007. On the liability side, the increase in foreign short-term debt was proportionally the greatest, totalling 60% quarter-on-quarter. Foreign long-term debt also increased considerably, or by 25%, and non-residents' bond holdings in Iceland rose by 26%. During the same period, non-residents' equity holdings in Iceland declined by 24%.

It is worth noting that both outward and inward foreign direct investment are recorded at book value, in accordance with international practice. However, it is generally assumed that asset prices will rise over the long term, and if the proportion of direct investment to the international investment position is high, it is likely that official statistics on the IIP will not fully reflect the market value of foreign assets and liabilities. The results of an analysis carried out by Central Bank of Iceland economist Daníel Svavarsson and published in the last *Monetary Bulletin* indicate that the estimated market value of inward and outward foreign direct investment is, on average, more than twice the recorded book value. It is difficult to verify the estimated market value, however, because unlisted companies are not sold on a regulated securities market.<sup>1</sup>

### Considerable uncertainty about income account developments over the coming months

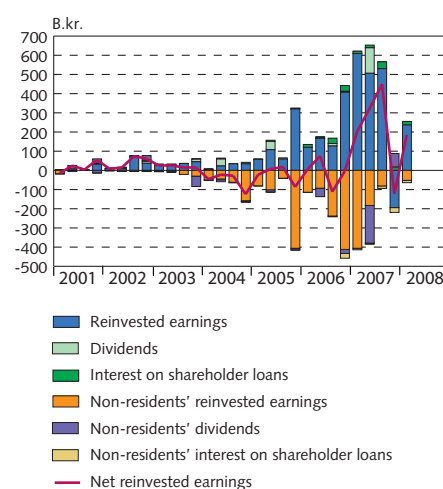
Developments in net income receipts over the coming quarters are subject to considerable uncertainty. The income account deficit will be substantial over the next few years, but exactly how large it will be is determined by the value of the foreign assets purchased by residents in the past several years. It is highly probable that the interest rate balance will be less favourable. The interest expense on the nation's sizeable foreign debt will rise, probably in excess of interest income; furthermore, the net external debt position was negative by 309% of GDP in Q1/2008. There is also considerable uncertainty about developments in returns on residents' foreign equity holdings. Most stock prices have plummeted so far in 2008, and returns on foreign equity holdings will probably be limited during the year. The profitability of domestic companies also affects income receipts, as dividend payments to foreign shareholders are recorded as expenses. Therefore,

Chart VII-4  
Net foreign interest payments  
Q1/1997 - Q1/2008



Sources: Statistics Iceland, Central Bank of Iceland.

Chart VII-5  
Direct investment and investment expenditure  
Q1/2001 - Q1/2008



Source: Central Bank of Iceland.

1. For further discussion of the international investment position, see the paper by Daníel Svavarsson in *Monetary Bulletin* 2008/1.

strong profitability among foreign-owned companies in Iceland will have a generally negative impact on the balance on income. Despite the general expectation of deteriorating profitability among businesses, aluminium companies are likely to perform well because of high global aluminium prices. A large part of foreign direct investment in Iceland is in the aluminium sector; therefore, rising earnings on non-residents' direct investments in Iceland are expected to widen the income deficit in 2008.

#### **Larger current account deficit than forecast in April**

In the current baseline scenario, the current account deficit is larger than was forecast in April. The deficit for 2008 is projected at 17.4% of GDP, primarily because the value of imports is expected to be higher than previously forecast. Although import volumes will contract still further than previously assumed, the value of imports will expand initially. Because the króna has been weaker in 2008 than previously forecast, nominal import values will be higher. Offsetting this, the relatively small deficit in the first quarter will lead to a smaller income deficit in 2008, although the deficit is projected to grow throughout the year as a result of deteriorating terms of trade and poorer returns on equity investments. Over the next two years, the current account deficit is expected to be somewhat wider than in the April forecast, albeit gradually diminishing.



## VIII Price developments

Inflation has risen swiftly in recent months, much more than was forecast in the last *Monetary Bulletin*, and measured 12.7% in June. Strong inflationary pressures have surfaced in the vast majority of the subcomponents of the consumer price index. The effects of the Q1/2008 exchange rate drop on imported goods prices were considerably greater and emerged more quickly than previously assumed. It is conceivable that accumulated hidden cost pressures due to wage hikes, rising global oil and food prices, and other factors came to the fore when the króna fell. Services price inflation has also risen since March. The more modest rise in the housing component offsets this, however, as house prices have fallen in recent months.

### Inflation at an 18-year high

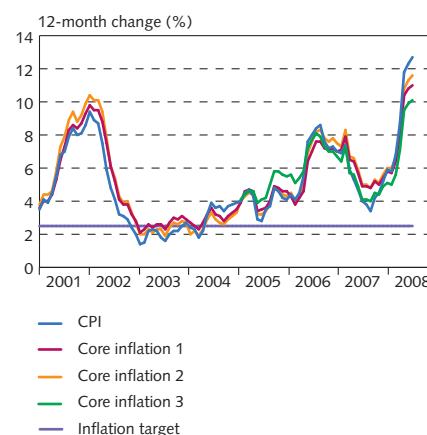
So far in 2008, the consumer price index has risen by an average of 1.5% per month. Inflation measured 7% in the first quarter of the year, and the last *Monetary Bulletin* projected Q2 inflation at 9.7%. Actual inflation was more than two percentage points higher, however, or 12%, its highest level since 1990. Underlying inflation based on Core Index 3 measured just over 10% in June. Although it has not increased as rapidly as headline inflation because it excludes the effects of rising real interest rates and increases in the price of agricultural products, fruit, vegetables, and fuel, it has nonetheless risen by three percentage points since March.

Furthermore, the relative contribution of the various components of the CPI to inflation has changed since housing inflation began to taper off and the króna depreciated. Price hikes on imported goods explain nearly 40% of year-on-year inflation, and the weight of the housing component has dwindled. Inflation excluding the housing component has therefore risen very quickly, measuring roughly 12% in June, up from 2.3% at the beginning of the year.

### Considerable cooling of the housing market

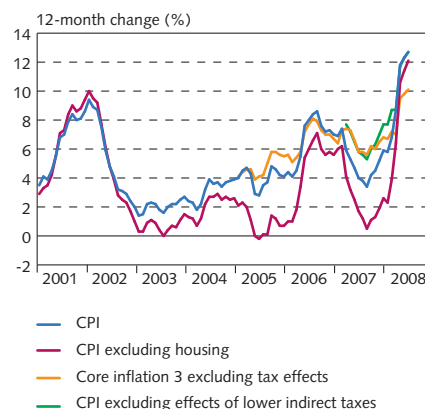
Real estate market activity has slowed considerably since the beginning of the year, and turnover is very low. Seasonally adjusted house prices in the greater Reykjavik area have fallen by 2½% in nominal terms and 7% in real terms since the beginning of the year. Prices in regional Iceland have developed in a similar manner. Therefore, annual housing inflation has tapered off, measuring approximately 7% in June.<sup>1</sup> The supply of credit – in krónur and in foreign currency – has dwindled in recent months, and real disposable income has declined. The liquidity crisis and the unrest in the global financial markets have prompted domestic commercial banks to reduce their lending activity and lower their loan-to-value ratios. The demand for credit has therefore been directed more strongly toward the Housing Financing Fund (HFF) and the pension funds. It is also probable that high inflation, fluctuations in the exchange rate of the króna, and the

Chart VIII-1  
Inflation January 2001 - June 2008<sup>1</sup>



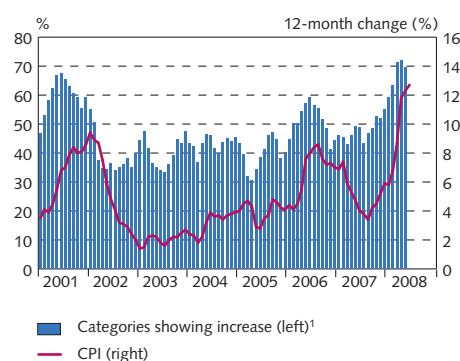
1. The core indices are compiled on the same basis as the CPI, with Core Index 1 excluding prices of agricultural products and petrol, and Core Index 2 excluding prices of public services as well. Core Index 3 excludes the effect of changes in real mortgage rates.  
Source: Statistics Iceland.

Chart VIII-2  
Various inflation measurements  
January 2001 - June 2008



Source: Statistics Iceland.

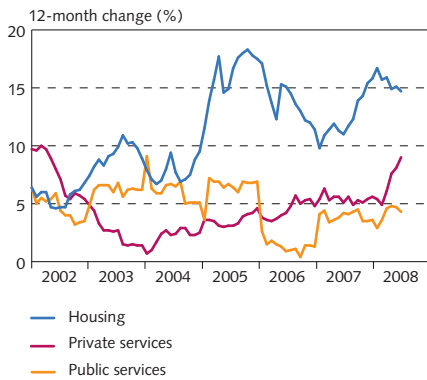
Chart VIII-3  
Distribution of price increases in CPI  
January 2001 - June 2008



1. 3-month centred average.  
Source: Statistics Iceland.

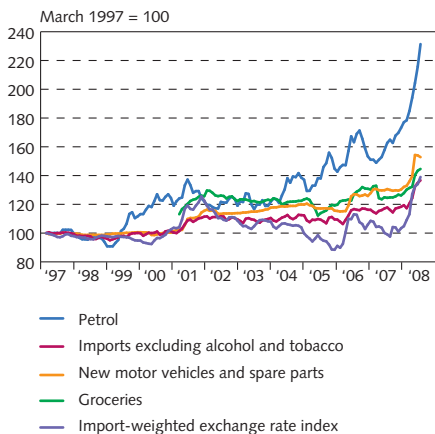
1. According to a Statistics Iceland market price index.

Chart VIII-4  
Prices of housing and services  
January 2002 - June 2008



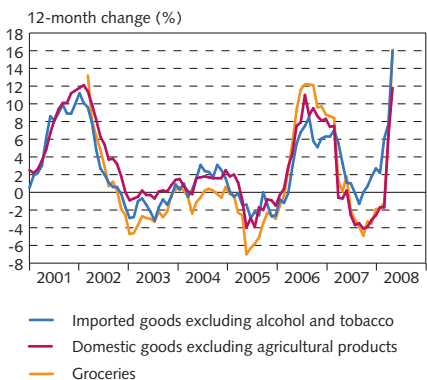
Source: Statistics Iceland.

Chart VIII-5  
Import-weighted exchange rate  
and import prices March 1997 - June 2008



Source: Statistics Iceland.

Chart VIII-6  
Goods prices January 2001 - June 2008



Source: Statistics Iceland.

prospect of falling house prices have curtailed the demand for credit and dampened demand for property. Recent changes in the HFF's lending arrangements will facilitate access to credit, however, because the maximum loan amount was raised and the ceiling will be based on the purchase price instead of the fire insurance value, as it was previously (see Chapter III and IV).

Statistics Iceland uses a three-month moving average to measure the market price of real estate; therefore, falling house prices affect inflation with some delay. Low turnover in the real estate market also makes measurements more volatile. Furthermore, the impact of declining house prices is counteracted by the effect of rising real interest rates on the housing component, which has amounted to just over one percentage point in the past 12 months but is now diminishing. Paid rent has risen by over 16% year-on-year and, in recent months, has increased more than the cost of owner-occupied housing. High interest rates, a tight credit supply, and high inflation make real estate purchase a less feasible option and bolster the demand for rental housing, which could push rent upwards still further. On the other hand, the supply of rental housing will also increase under the current circumstances, as some property is difficult to sell. Increased real estate maintenance costs have also slowed down housing disinflation.

### The depreciation of the króna has penetrated swiftly to import prices

The exchange rate of the króna fell precipitously in March and again in June and was quite volatile during the interim. On average, the exchange rate was 14% lower in Q2/2008 than in Q1, and by mid-June it had fallen nearly 30% year-on-year. Over the past few months, inflation has been higher than forecast in the last *Monetary Bulletin*, primarily because exchange rate pass-through has been more rapid than indicated, either by expectations or by models estimated on the basis of historical data. Import prices have risen by over 15% year-on-year, and by approximately 9½% since March.<sup>2</sup>

There are a number of possible reasons for this rapid pass-through (see Box VIII-1). The depreciation is unusually large, and the prospects of a full reversal are poor. If merchants believe the depreciation is more or less permanent, they will be more inclined to pass it through to prices. Tremendous hikes in global energy and commodity prices have amplified the effect. Crude oil and food prices are at record highs, with food prices in Iceland rising by 16½% and fuel prices by roughly 42% over the past 12 months.<sup>3</sup> Domestic costs weigh rather heavily in the pricing of imported goods. Various domestic costs such as wages and housing expenses rose significantly in 2007, but those increases were offset by a strong króna; therefore, the costs do not surface until the exchange rate falls by a considerable amount. When

2. In the past 12 months, the price of imported food and beverages has risen by 23% and the price of new motor vehicles and spare parts by 17%.

3. This refers to general food prices; that is, both domestic production and imports.

prices are constantly changing, consumers' price awareness tends to become blunted, and inflation expectations rise. This makes it easier for firms to pass increased costs through to the price of goods. The interplay of these and other factors may have contributed to greater pass-through than was indicated by historical experience.

### Considerable pressure on services prices

Services price inflation has risen markedly in recent months. In June, the price of private services had risen by 9% year-on-year, the largest annual increase since the spring of 2002. The effects of wage hikes, which were previously counteracted by the strong króna, have therefore emerged forcibly. Increases in the lowest wages following the recent wage settlements may also have had an especially strong effect in service sectors. The cost of other supplies has also risen sharply in response to the depreciation of the króna, but these effects have not yet fully emerged. Increased services price inflation has not been limited to a certain few categories but has emerged in most branches of private services. Domestic demand has remained rather strong until very recently and has enabled firms to pass a large portion of their increased costs through to prices. It is likely that the review clauses in the wage settlements will be triggered in 2009. Should the review result in substantially higher wages, the price of services could continue to rise significantly (see Chapter VI).

### Inflation expectations have been volatile

Inflation expectations have been very volatile in recent months. They increased sharply as a result of the exchange rate decline in March, coupled with financial market unrest and rising risk premia. The break-even inflation rate averaged 5.6% between April 8 and July 1, 2008, after having decreased somewhat in the beginning of April (see Chart VIII-7). Twelve-month inflation two years ahead is expected to be almost 6%, as measured by the difference between forward nominal and indexed interest rates. Expectations of average inflation over the next five years peaked at approximately 7% in mid-May but have tapered off since then. Expectations of long-term inflation have also increased considerably, even though they ignore current inflationary pressures (see Chart VIII-8).

In a survey carried out among financial market analysts in mid-June 2008, respondents expected higher inflation in 2008 and 2009 than they did in a comparable survey conducted in April (see Appendix 2). On average, the analysts estimated inflation at just over 11% for 2008, two percentage points more than they predicted in April. They expect inflation to approach 5% in 2009, as compared with 4.3% in the previous survey. For 2010, they project inflation at an average of 3.3%, which is in line with their April forecast.

Household inflation expectations have risen considerably, according to a May 2008 survey indicating that households expect inflation over the coming 12 months to equal 10%, as opposed to 7% in the March survey. In a June 2008 survey among Iceland's largest firms, respondents expected 10% inflation over the next 12 months, compared to 5% in March.

Chart VIII-7  
Inflation expectations

Weekly data January 7, 2003 - July 1, 2008

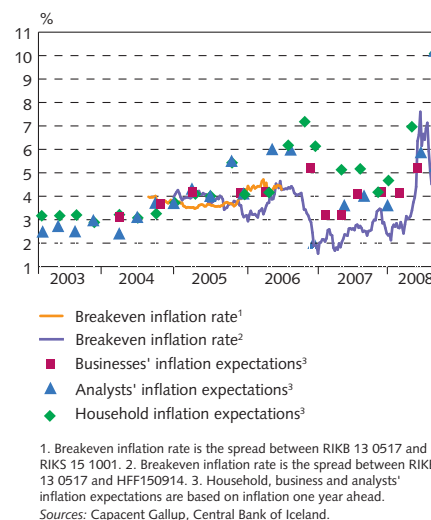


Chart VIII-8  
Inflation expectations according to the difference between nominal and indexed interest rates¹

Daily data January 10, 2005 - June 24, 2008

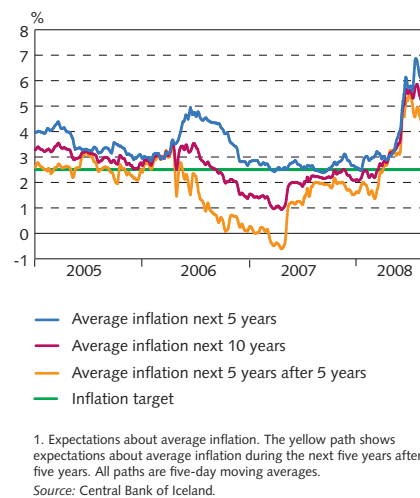
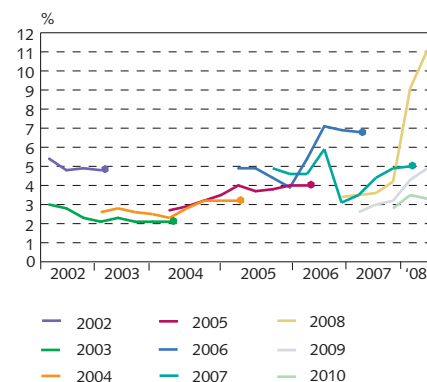


Chart VIII-9  
Financial market analysts' forecasts for average year-on-year inflation¹



Box VIII-1

## The effect of exchange rate movements on inflation

Chart 1

Exchange rate of the króna<sup>1</sup>  
Daily data January 3, 2007 - July 1, 2008



1. Exchange rate according to a broad merchandise index.  
Source: Central Bank of Iceland.

Measured inflation has been much higher in recent months than was forecast in the last *Monetary Bulletin*, largely because of much stronger exchange rate pass-through than is suggested by recent historical experience. The magnitude, speed, and persistence of exchange rate changes can affect the strength of the pass-through. The króna fell sharply in mid-March, and by the end of the first quarter the exchange rate had depreciated by approximately 25% year-on-year. As Chart 1 illustrates, the exchange rate index has been extremely volatile since that time. The exchange rate has remained very low, however, and fell still farther in mid-June. Import price inflation is currently the most important source of consumer price inflation, whereas house price inflation was previously the principal driver of general inflation.

### Exchange rate fluctuations make a considerable impact on inflation in Iceland ...

The impact of exchange rate shocks on domestic prices and inflation is usually summarised in terms of a phenomenon called exchange rate pass-through, which is the effect that a permanent exchange rate shock of a given magnitude has on prices and inflation over time. Table 1 gives estimates of exchange rate pass-through in Iceland using three different models: a simple cost-push model, a structural VAR model, and the Central Bank's quarterly macroeconomic model (QMM). The table reports the effects of a permanent 10% depreciation on annual inflation. The first two models are also re-estimated using a more recent time period in order to determine whether the pass-through has declined, as appears to be the case in a number of other countries (see, for example, Gagnon and Ihrig, 2004).

Table 1 The impact of a permanent 10% currency depreciation on annual inflation (percentage deviation from baseline scenario)

	Impact effect	After 1 quarter	After 2 quarters	After 3 quarters	After 1 year	After 2 years
Cost-push model <sup>1</sup>	0.8 (0.6)	2.2 (1.6)	2.9 (1.8)	3.3 (1.9)	2.6 (1.3)	0.0 (0.2)
VAR model <sup>2</sup>	0.8 (0.8)	2.5 (1.5)	2.9 (1.7)	3.5 (2.0)	3.2 (1.3)	0.7 (0.0)
QMM model <sup>3</sup>	0.4 (0.4)	1.1 (1.1)	1.3 (1.3)	1.4 (1.5)	1.1 (1.2)	0.1 (0.6)

1. A simple cost-push model, where inflation is determined by its own time lags and the lags of wage and domestic-currency import price inflation, estimated for the period 1961-1990 (see Gudmundsson, 1990). Figures in parentheses represent results for the period 1992-2008. 2. A structural VAR model containing domestic and foreign inflation, exchange rate changes, short-term interest rates, and the output gap, estimated for the period 1985-2005 (see Pétursson, 2008). Figures in parentheses represent results for the period 1990-2005. 3. Results based on the Central Bank's quarterly macroeconomic model (QMM), where monetary policy is determined by a simple Taylor rule. Figures in parentheses indicate effects in the absence of monetary policy response.

According to the cost-push model and the VAR model, a permanent 10% currency depreciation raises annual inflation by 2½-3 percentage points one year after the shock. The effects have more or less disappeared two years after the shock. The pass-through effects seem to have subsided, however, when the models are re-estimated from the early 1990s, as is the case in many other countries. The Central Bank's QMM yields similar results: inflation is about 1.5 percentage points higher six months after the shock and about 1 percentage point higher a year later, but the effects have almost disappeared after two years.

### ... and the effects seem to be more pronounced in Iceland than elsewhere

In general, the degree of exchange rate pass-through appears to be greater in Iceland than in many larger developed countries. According to the above estimates, the price level is about 4% higher

two years after the exchange rate shock, based on the cost-push and VAR models. According to Pétursson (2008), for example, a comparable result for the euro area is about 2%, while it is negligible in the United States. Based on a more recent time period, or using the QMM model, the pass-through effect declines to about 2%, but this has also occurred in most other countries; therefore, the pass-through effect remains considerably stronger in Iceland than in most other economies.

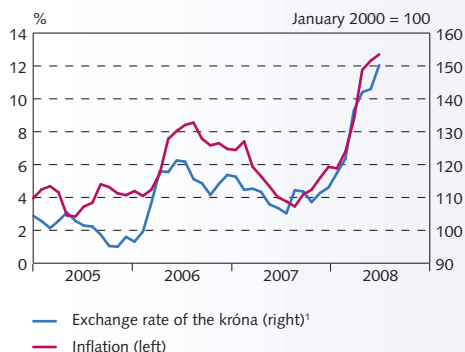
There could be numerous reasons for this (see Pétursson, 2008). For example, imports are generally priced in foreign currency because the Icelandic króna is rarely used in international trade (so-called producer currency pricing). In larger economies such as the US or the euro area, however, a large proportion of international trade is priced in the currency of the area concerned (local currency pricing). A currency depreciation would therefore have a less marked effect on the price of imported goods than it does in Iceland. Furthermore, because of the small size of the economy, few domestic manufacturers compete with imported goods. Substitutability between imports and domestic goods is inevitably less, and it is therefore easier to pass exchange rate movements through to retail prices. It can also be argued that the small and imperfect financial markets in Iceland make currency hedging more difficult, thus prompting importers to pass exchange rate changes through to prices.

#### **Various interrelated factors contribute temporarily to strong exchange rate pass-through**

In recent months, exchange rate pass-through seems to have been stronger than usual. Several factors may be at work. First, an accumulation of underlying cost pressures may have been unleashed when the króna fell in March. Wages have risen substantially in the recent term, and private sector wage costs have increased accordingly. While the króna was relatively strong, it was difficult for the service sector to raise prices in line with these wage increases because of direct and indirect competition with imported services. Private sector services prices rose much less, for example, than the past few years' rise in wages might suggest. In addition to the effect of a strong króna, it is likely that wages actually rose less than the wage index implied because of the massive increase in the number of foreign workers receiving minimum wages. On the other hand, the contractual wage settlements in March entailed a significant increase in minimum wages, which probably raised overall wage costs sharply for many service companies at a time of diminishing restraint from a strong króna.

Second, price stickiness may have declined because of the magnitude and persistence of the exchange rate shock. Businesses often maintain unchanged nominal goods prices for a considerable length of time in spite of changes in market conditions or exchange rates. There are various reasons for this sort of behaviour. For example, changing listed prices entails menu cost, such as the cost of printing new price lists or promotional brochures (like those distributed by IKEA to households throughout the country) and the cost of notifying consumers of new prices. Companies also risk losing market share if their competitors are slower to raise prices, and they run a certain reputational risk if the price increase over and above competitors' prices draws attention. In order to justify the cost of raising prices, the anticipated profit from the price change must exceed the cost. If the currency depreciation is substantial and is not likely to reverse itself, the cost of changing prices will be small in proportion to the profit generated by the higher price. Furthermore, a significant cost increase affecting all competitors simultaneously reduces

Chart 2  
Inflation and exchange rate of the króna  
January 2005 - June 2008



1. Exchange rate according to a broad merchandise index.  
Source: Statistics Iceland.

the impact of a price hike on a company's reputation. Price changes therefore occur more frequently when exchange rate movements are large and inflation is high (see, for example, Devereux and Yetman, 2002).

Third, it is well to bear in mind that oil and commodity prices have increased substantially at the same time that the exchange rate of the króna has fallen. Not only do higher oil prices affect inflation directly, they also put upward pressure on the price of imported goods because of the increased cost of transporting the goods to Iceland.

Fourth, it has been very difficult for firms to hedge against currency risk through forward agreements in the months since the domestic FX swap market became dysfunctional. This may have led to both faster and stronger exchange rate pass-through effects.

Fifth, it is conceivable that exchange rate pass-through has become stronger because the credibility of monetary policy has weakened. It is clear that the ability of monetary policy to affect exchange rate developments has been limited recently, due to the impaired functioning of the foreign exchange swap market. Inflation can increase swiftly, and inflation expectations – even over longer horizons – can rise precipitously. Various studies of the relationship between exchange rates and inflation show that, in countries where the credibility of monetary policy is substantial and inflation expectations have been securely anchored, the pass-through of exchange rate shocks to inflation is dramatically reduced (see, for example, Mishkin, 2008). If the public is convinced that the central bank has the will to fight inflation with all means at its disposal, as well as the ability to achieve its objective within an acceptable time frame, an exchange rate shock is less likely to generate second-round effects on inflation, leading to a more transitory inflationary effect.

#### References

- Devereux, M. B., and J. Yetman (2002), "Price setting and exchange rate pass-through: Theory and evidence". In the book *Price Adjustment and Monetary Policy*, pp. 347-371, a compendium published following the eponymous conference held at the Bank of Canada, November 2002. Ottawa: Bank of Canada.
- Gagnon, J. E., and J. Ihrig (2004), "Monetary policy and exchange rate pass-through", *International Journal of Finance and Economics*, 9, pp. 315-338.
- Gudmundsson, G., (1990), "A statistical survey of inflation in Iceland, 1962-1989" (in Icelandic), in *Fjármálatíðindi*, 37, pp. 43-53.
- Mishkin, F., (2008), "Exchange Rate Pass-through and monetary policy", NBER *Working Paper* No. 13889.
- Pétursson, T. G., (2008), "How hard can it be? Inflation control around the world", Central Bank of Iceland *Working Papers*, forthcoming.

## IX Inflation forecast

As has previously been discussed, inflation in Q2/2008 exceeded the forecast in the last *Monetary Bulletin*. Although signs of an economic slowdown have emerged, the inflation outlook has deteriorated and inflation is expected to remain high until the beginning of 2009, whereupon it is expected to fall off rapidly. According to the revised baseline forecast, the inflation target should be reached at the time specified in the April forecast; that is, in Q3/2010. In order for this to materialise, it is necessary to delay the easing of monetary policy until the beginning of 2009 and keep the policy rate high for a longer time than previously assumed.

### Inflation will peak in Q3

In the second quarter of 2008, inflation far outstripped the Central Bank's April forecast, which projected that it would reach 9.7% during Q2 and peak at 10.7% in Q3. Actual inflation was 12% in the second quarter and appears set to peak in the third quarter at just over 13%. It is expected to remain above 12% until the second quarter of 2009 but then fall rather quickly and align with the inflation target in Q3/2010 (see Chart IX-1).

As is described in Chapter VIII and Box VIII-1, there are a number of possible reasons why inflation has exceeded the levels forecast in April, and why the pass-through of the exchange rate drop has been unusually rapid. Commodity prices have also risen more than was assumed in the April forecast, and wage increases in Q2 are estimated to have been greater than was projected in April.

In the April forecast, one of the main uncertainties related to the short-term inflation outlook was the possibility that the sharp depreciation of the króna would pass through rapidly to domestic prices under the current conditions of high inflation and poorly anchored inflation expectations. Another risk factor was the possibility that wage inflation had been underestimated. Both of these uncertainties have now materialised, and they explain to a large degree the poorer short-term inflation outlook.

### Narrower output gap early in the forecast horizon ...

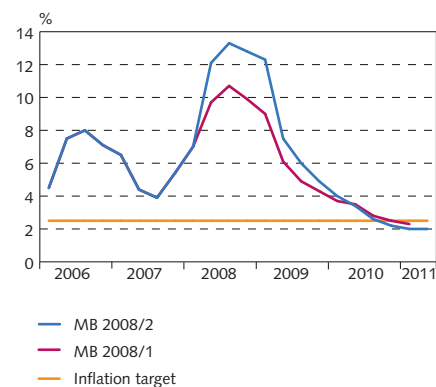
The decline in payment card turnover and new motor vehicle registrations, the lowest consumer confidence measurements among households and businesses since year-end 2001, and developments in real wages and asset prices all indicate that domestic demand will contract markedly in the near term.

The outlook is for a 2% output gap in 2008, somewhat less than in the April forecast. As was projected in April, the output gap is expected to turn negative in the latter half of 2009, in line with the deteriorating economic outlook. The output slack is projected to peak at the beginning of 2011 but will be somewhat less pronounced than in the April forecast (see Box IX-1).

### ... but underlying cost pressures remain strong ...

Underlying inflationary pressures remain substantial, however. It is likely that global energy and food prices will continue to rise, and exchange

Chart IX-1  
Inflation - comparison with MB 2008/1



Sources: Statistics Iceland, Central Bank of Iceland.

rate developments are shrouded in uncertainty. For most of the second quarter of 2008, the exchange rate of the króna was broadly in line with the Bank's April forecast, but the króna depreciated rapidly in June. In April the Bank expected the exchange rate index to be near 150 in Q2/2008, but the depreciation in late June pushed it higher. The exchange rate index was projected to hover near 145 in the third quarter, after which the króna would gradually strengthen until mid-2009. The current baseline forecast assumes that the króna will be weaker during the forecast horizon, with the exchange rate index averaging 155 during Q3/2008 and then appreciating slowly until the latter half of 2010. At that point, the króna is expected to depreciate as the policy rate is lowered and the interest rate differential with abroad narrows.

Wage costs have risen sharply in the past few years. Inflation is high and the tension in the labour market is subsiding slowly. Under such circumstances, there is the risk that a wage-price spiral could develop. The review clauses in the recent contractual wage settlements will probably be triggered early in 2009 as a result of high inflation and the recent drop in real disposable income. If this materialises, inflation developments in 2009 could be less favourable than in the baseline forecast (see Box IX-2).

#### **... and inflation expectations remain high**

Inflation expectations are projected to remain high for most of the forecast horizon and are not expected to align with the target until after inflation reaches target levels, as expectations are determined somewhat by historical inflation developments. If inflation expectations were more forward-looking, or if the inflation target provided a more credible nominal anchor, it might be possible to bring inflation to target sooner than in the baseline forecast.

#### **Falling house prices are a key to disinflation in the years to come**

As in recent Central Bank forecasts, it is assumed that house prices will decline gradually after the tremendous increases of the past few years. Although the reduction has emerged more slowly than was projected in earlier forecasts, house prices have developed more or less in line with the Bank's forecast during the second quarter. The current baseline scenario assumes that the next few years' drop in real estate prices will resemble that presented in the April forecast. This decline will play a key role in disinflation over the next few years, both indirectly (through a contraction in private consumption) and directly (by affecting the housing component of the CPI).

#### **Uncertain prospects**

Inflation forecasts are based to a large extent on economic models. Such models are always imperfect representations of the actual economy, partly because they are estimated from historical data that span considerable structural changes in the economy. In many instances, it is necessary to make assumptions about important economic variables that make a substantial impact on future developments. This is why the Central Bank places strong emphasis on the assessment of uncertainties in its forecasts.



This Box describes the main changes in the inflation forecast since the publication of *Monetary Bulletin* 2008/1 and compares the current baseline forecast with the probability distribution of the previous one.

The inflation outlook has deteriorated since the last forecast, particularly for the short term. In the forecast, this contributes to a narrower output gap; therefore, inflation will be lower later in the forecast horizon, because inflation will cause real disposable income and private consumption to contract more decisively than was projected in April. This will help to contain inflation towards the end of the forecast period. In the last *Monetary Bulletin*, it was assumed that the policy rate would peak at 15.75% and begin to ease downwards toward the end of the year. The Board of Governors decided, however, to raise the policy rate to 15.5% at that time. Now it is assumed that the policy rate will remain unchanged at 15.5% and the easing cycle will be delayed until the beginning of 2009. This policy rate path is sufficient to bring inflation down to target at the same time as in the previous forecast.

#### Exchange rate somewhat lower than assumed in April

The exchange rate path in the baseline forecast is similar to that in the April baseline scenario. However, it will be lower early in the forecast horizon because recent developments suggest that the króna is rather unlikely to appreciate before next year. The April forecast assumed that the measures adopted by the Central Bank and the Government to improve the functioning of the domestic financial markets would combine with high interest rates and a low real exchange rate to support the króna. This has not come to pass. However, the króna is expected to appreciate over the course of 2009 and align with the April forecast by the end of the current forecast horizon (see Chart 1).

#### The output gap will be narrower in 2008 than in the previous baseline forecast, but the outlook two years ahead is similar ...

As is discussed in Chapter IV, the outlook for GDP growth in 2008 is less favourable than was projected in April. The baseline forecast assumes that output growth over the next two years will be broadly in line with the April forecast but that domestic demand will be rather weaker during the forecast horizon. This will ease inflationary pressures. However, growth in potential output in 2008 and 2009 is projected to be somewhat less than in the previous forecast, owing to the negative effects of the credit crisis and the recent oil and commodity price hikes, which are now expected to persist longer than was projected in April. Therefore, in 2008 the output gap will be a bit narrower than in the last forecast, but the outlook for 2009-2010 is broadly similar to that presented in April (see Chart 2). The output slack will be somewhat less, however, and will peak sooner than in the previous forecast.

#### ... although unit labour costs will rise faster

Slower growth in potential output will be reflected in slower productivity growth, which will not recover until late in the forecast horizon. Furthermore, it appears as though wage hikes will be more sizeable in 2008 and 2009 than was allowed for in the April forecast, due in large measure to higher inflation and slower growth in unemployment (see Chapter VI). Heftier wage growth and less growth in productivity will press unit labour costs upwards, thereby increasing inflation.

#### The short-term inflation outlook has deteriorated once again

The short-term inflation outlook has deteriorated still further since the last *Monetary Bulletin* was published. In the current baseline

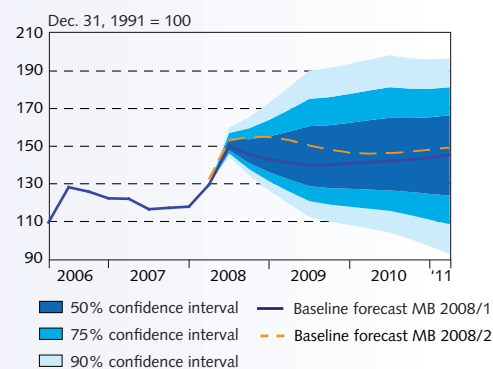
### Box IX-1

## Changes in the inflation forecast since *Monetary Bulletin* 2008/1

Chart 1

#### Effective exchange rate

Baseline forecast and confidence intervals MB 2008/1 and baseline forecast MB 2008/2

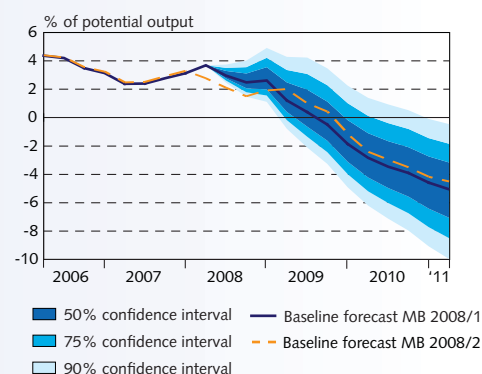


Source: Central Bank of Iceland.

Chart 2

#### Output gap

Baseline forecast and confidence intervals MB 2008/1 and baseline forecast MB 2008/2

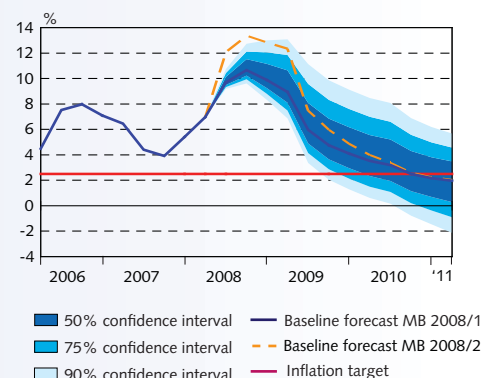


Sources: Statistics Iceland, Central Bank of Iceland.

Chart 3

#### Inflation

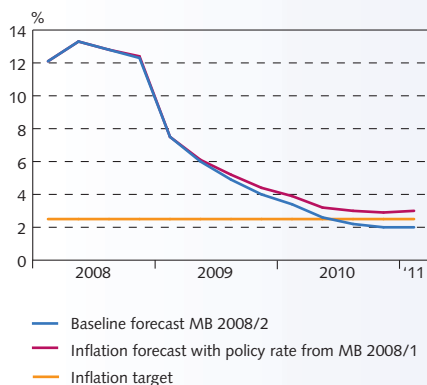
Baseline forecast and confidence intervals MB 2008/1 and baseline forecast MB 2008/2



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 4  
Inflation

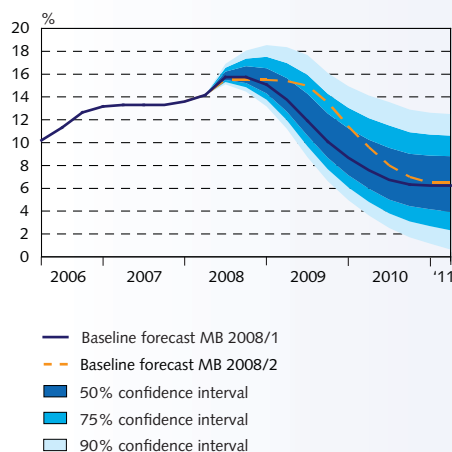
Baseline forecast and forecast with policy rate from MB 2008/1



Sources: Statistics Iceland, Central Bank of Iceland.

Chart 5  
Policy rate

Baseline forecast and confidence intervals MB 2008/1  
and baseline forecast MB 2008/2



Source: Central Bank of Iceland.

scenario, inflation peaks in the third quarter of 2008 at just over 13%, as opposed to 11% in the April forecast. As Chart 3 illustrates, in April it was considered extremely unlikely that inflation would be so high this year.

According to the revised baseline forecast, inflation will remain very high well into 2009. It will begin to taper off rather quickly towards the end of that year but will exceed the level in the April forecast until 2010. The Bank expects inflation to align with the inflation target in the third quarter of 2010 and hover just below target at the end of the forecast horizon. It will then rise back to the target level by year-end 2011.

#### The impact on the policy rate path in the baseline forecast

The worsening inflation outlook eases monetary policy restraint by reducing the real policy rate. Counteracting this, however, is the fact that conditions on the domestic and international financial markets have deteriorated, with the result that households' and businesses' overall financial conditions have probably deteriorated slightly in spite of a lower real policy rate (see Chapter III).

In the last *Monetary Bulletin*, it was assumed that the policy rate would peak at 15.75% in Q2/2008; however, the Board of Governors of the Central Bank raised the policy rate to 15.5% in April and decided to hold it unchanged at its interest rate decision meeting on May 22. In order to analyse whether the policy rate path published in the last *Monetary Bulletin* would have sufficed to bring inflation to target within an acceptable time frame, it is assumed that the policy rate peaks at 15.5% and then follows the path in the last *Monetary Bulletin* beginning in Q4 (the policy rate path in the April forecast yields virtually the same result). As Chart 4 indicates, inflation tapers off rather more slowly than in the baseline forecast and bottoms out at around 3% early in 2011, whereupon it begins to rise again. The inflation target would not be achieved during the forecast horizon, and inflation might pick up once again by the end of the forecast horizon. Therefore, the policy rate path in the April forecast would not have anchored inflation expectations firmly enough.

According to the policy rate path in the current baseline forecast, the policy rate remains unchanged at 15.5% until the first quarter of 2009. It falls off gradually until mid-year and then is lowered more rapidly. It remains considerably higher than was projected in April until mid-2010 but ultimately aligns with that forecast. At the end of the forecast horizon, the policy rate will probably be slightly below its neutral stance. However, the policy rate path in the new baseline forecast is within the 50% probability distribution of the previous forecast for most of the forecast horizon (see Chart 5).

In recent forecasts, the Bank has focused on uncertainties related to exchange rate movements and wage developments. In April, it was considered highly likely that exchange rate and wage developments during the forecast horizon would be less favourable than in the baseline scenario. These uncertainties have materialised to some extent and are therefore included in the current baseline forecast; however, there is a considerable risk that their impact will be even greater than the baseline scenario indicates. In addition, it was previously believed that the contraction in the construction sector could be deeper and occur more rapidly than in the April forecast, and that unemployment would rise more sharply. Data for Q1 suggest that the downturn in residential investment is indeed emerging more quickly than was pro-

jected in April. It was also thought highly probable at that time that monetary policy transmission would be swifter and that inflation could subside earlier than in the baseline forecast. Had that been the case, the policy rate could have been cut sooner.

The transmission of monetary policy to the real economy has been somewhat weaker than was projected in the last forecast, however, to the extent that the interbank market and the foreign exchange swap market have not functioned normally and price formation in the bond market has been erratic due to a shortage of bonds at the short end of the yield curve. This has resulted in a depreciation of the króna and has pushed inflation upwards. On the other hand, the availability of credit has shrunk. In particular, it is more difficult for households and businesses to obtain foreign-denominated loans. Those who are directly affected by monetary policy restraint have therefore increased in number, and the depreciation of the króna has made a palpable impact on the balance sheets of households and businesses. There is still a strong possibility that the effect of monetary policy on the real economy will be greater than in the baseline forecast because of limited access to credit. However, that development does not necessarily result in lower inflation because the exchange rate could fall still farther, as the banks' difficulty in obtaining credit abroad is the principal cause of the depreciation of the króna.

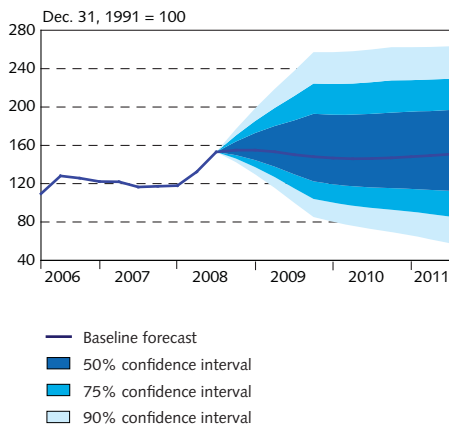
In the main, the uncertainties in the current forecast are the same as those presented in April (see Table IX-1). However, the level of uncertainty has increased still further, especially as regards short-term exchange rate and inflation developments. As before, it is quite possible that the exchange rate will be lower during the forecast horizon than is allowed for in the baseline scenario. Furthermore, there is a greater risk that wages will rise more than in the baseline forecast, as it appears as though the reduction in real wages that workers will be faced with at year-end will be greater than previously anticipated. The contraction in the housing market could also develop sooner than is assumed in the baseline forecast. The recently announced changes in the Housing Financing Fund (HFF) rules will probably not prevent the continuing adjustment in house prices, although they could delay that adjustment and perhaps reduce the likelihood of a sharp fall in prices.

As was the case in April, the most important uncertainties in the current forecast involve the interaction between the exchange rate and wage developments, on the one hand, and the housing market, on the other. These two factors are selected for further examination in the two alternative scenarios described in Box IX-2. The first alternative scenario illustrates the possible developments in inflation and the policy rate if a weaker króna results in larger wage hikes than is indicated in the baseline forecast. In the second alternative scenario, house prices are lower and the contraction in the construction industry deeper than in the baseline forecast, leading to increased unemployment and a more pronounced economic slump.

### **Inflation risk profile tilted to the upside ...**

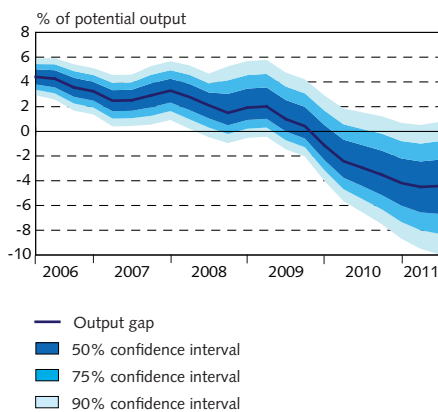
In assessing the economic outlook, it is important to consider not only the baseline forecast but also the risk profile. Such an assessment

Chart IX-2  
Effective exchange rate  
Forecasting period Q3/2008 - Q2/2011



Source: Central Bank of Iceland.

Chart IX-3  
Output gap  
Forecasting period Q3/2008 - Q2/2011



Sources: Statistics Iceland, Central Bank of Iceland.

Table IX-1 Main asymmetric uncertainties in the baseline forecast

Uncertainty	Explanation
Exchange rate developments	Wide current account deficit, reassessment of risk by foreign investors, and problems in the domestic financial markets could exert additional downward pressure on the króna.  High inflation could affect businesses' pricing decisions, contributing to higher inflation than in the baseline forecast. This could surface, for example, in faster pass-through from króna depreciation to domestic prices.
Wage costs	The wage rises provided for in the recent wage settlements could be larger than assumed in the baseline forecast if contract review results in further pay hikes.
Housing market	House prices could fall faster, the contraction in the construction sector could be deeper, and unemployment could rise more than in the baseline scenario.
Transmission of monetary policy	If monetary policy transmission is swifter, inflation could taper off more quickly and the policy rate could be cut sooner.

includes calculating the probability distribution of the output gap, as well as that of the exchange rate, inflation, and the policy rate. The width of the probability distribution sheds light on the extent of the uncertainty, and its shape reflects an assessment of which uncertainties are considered most important. The assessment of risks is subject to considerable uncertainty, as is the baseline forecast itself. This is particularly so in the case of exogenous variables and government decisions – such as those regarding major aluminium sector investments – that could make a profound impact on economic developments.

As before, there is great uncertainty surrounding the exchange rate of the króna, and this uncertainty is reflected in the probability distribution of the forecast (see Chart IX-2). For the short term, the króna is considered more likely to fall than to rise above the level in the baseline scenario. The effective interest rate differential in the foreign exchange swap market has vanished, and demand for the króna has contracted sharply as a result. Toward the middle of the forecast horizon, the króna is likely to be weaker than in the baseline scenario; however, toward the end of the horizon, as the economy approaches sustainability, the probability distribution becomes symmetrical. As has emerged previously, the uncertainty concerning exchange rate developments has increased since the April forecast.

The output gap is expected to disappear in the latter half of 2009. As before, the risk profile is skewed to the upside early in the forecast horizon because of the possibility that the output gap is underestimated in historical data. The distribution becomes symmetrical, however, as the forecast horizon progresses (see Chart IX-3). At that point, the possibility of a deeper contraction due to a weaker housing market weighs against the possibility of a milder contraction due to heftier wage hikes, as is explored in the alternative scenarios. Also published with the current forecast is an assessment of uncertainties about historical developments in the output gap, which reflect

both the above-mentioned uncertainties about the re-examination of historical data and those relating to assessment methods.

Chart IX-4 indicates some likelihood that inflation will be higher than in the baseline scenario during the coming quarters, primarily because of the greater likelihood of continuing depreciation of the króna and the probability of stronger underlying cost pressures. Uncertainties concerning inflation developments are considered to have escalated since the April forecast, in line with greater uncertainty about the exchange rate. There is a roughly 50% likelihood that inflation will be between 1% and 5½% when the inflation target is achieved according to the baseline scenario, in the third quarter of 2010. The probability of attaining the inflation target before the beginning of 2010 is negligible.

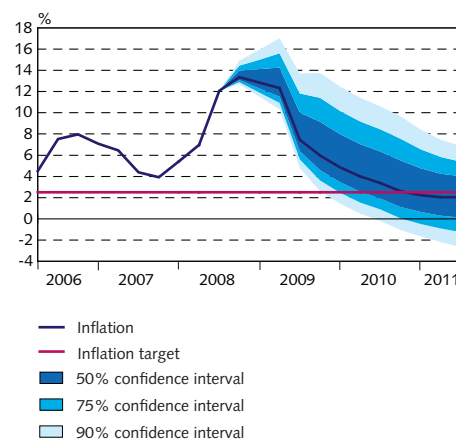
### ... suggesting the potential need for a tighter monetary stance than indicated in the baseline forecast

The uncertainties involved in forecasting the macroeconomic and inflation outlook make it quite difficult to forecast the policy rate path needed to attain the inflation target within an acceptable horizon. Should economic developments or monetary policy transmission evolve differently than is assumed in the baseline forecast, the policy rate must be adjusted.

Because the inflation outlook has deteriorated somewhat from the April forecast – particularly the short-term outlook – it is necessary to maintain a high policy rate for longer than was assumed in April. The policy rate will average 15.5% until the first quarter of 2009, whereupon it will begin to move downward. The easing cycle will begin roughly six months later than was projected in April. According to the current forecast, the policy rate will remain high until 2010 but will have returned to neutrality in the latter half of that year. In view of the risk profile of the baseline forecast, however, it is considered highly likely that a further policy rate hike will be necessary. The first of the two alternative scenarios in Box IX-2 supports this conclusion. According to that scenario, it will be necessary to raise the policy rate further and begin lowering it later than in the baseline forecast. The latter alternative scenario suggests, however, that interest rates could be lowered more rapidly in 2009 if the economic contraction proves deeper than is allowed for in the baseline forecast. However, monetary policy may also have to respond to the offsetting effects of a housing market slump and the depreciation of the króna on inflation.

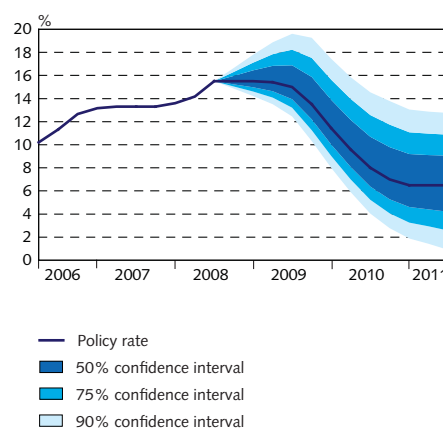
The probability distribution of the policy rate path is shaped similarly to that for inflation. As Chart IX-5 shows, there is a significant probability that the policy rate will average between 15¼% and 16% in Q3/2008. In Q4, there is a corresponding likelihood that the policy rate will range from 15% to 16½%. Further along the forecast horizon, the confidence interval increases sharply, underlining the great uncertainty currently surrounding the economic outlook.

Chart IX-4  
Inflation  
Forecasting period Q3/2008 - Q2/2011



Sources: Statistics Iceland, Central Bank of Iceland.

Chart IX-5  
Policy rate  
Forecasting period Q3/2008 - Q2/2011

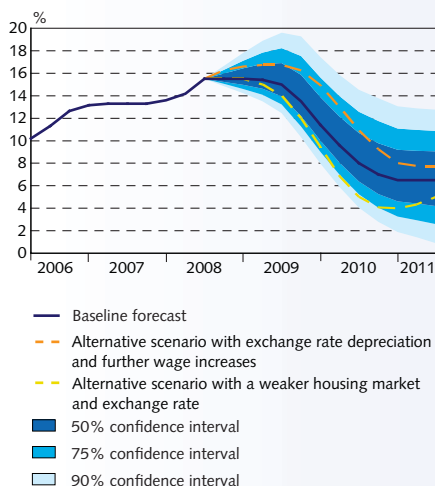


Source: Central Bank of Iceland.

Box IX-2

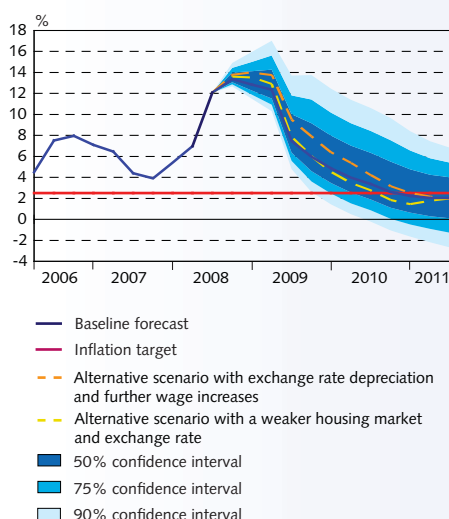
Alternative scenarios

Chart 1  
Policy rate - alternative scenarios



Source: Central Bank of Iceland.

Chart 2  
Inflation - alternative scenarios



Sources: Statistics Iceland, Central Bank of Iceland.

Unforeseen shocks or changed assumptions concerning important underlying factors in the forecast can cause economic developments to deviate substantially from forecasts. It is therefore important to assess the sensitivity of forecasts to deviations in key economic variables. Potential deviations are numerous, but the uncertainties that are considered most important are examined more closely in alternative scenarios.

As in the last issue of *Monetary Bulletin*, the two most important uncertainties in the baseline forecast centre on more adverse exchange rate developments than are assumed in the baseline scenario and the interaction of these developments with wage inflation, on the one hand, and a sharper-than-expected contraction in the domestic housing market, on the other.

**Further exchange rate decline and heftier wage rises could necessitate a higher policy rate**

As was discussed in the last *Monetary Bulletin*, there is a considerable risk that a spiral of falling exchange rate and rising wages could develop, with severe consequences for the inflation outlook and for general economic stability. In order to prevent such a vicious cycle, the Bank emphasised that monetary policy intervention might be required in order to anchor inflation expectations firmly. That message is still relevant.

As in April, the króna is weaker in this alternative scenario. The exchange rate index is around 170 for the remainder of the year and then falls off to the 150-160 range for the rest of the forecast horizon. It is also assumed that wages will rise by an additional 4 percentage points over and above the baseline forecast early in 2009, in an attempt to compensate for the decline in real wages that will occur this year. It would be easy to argue for even greater wage hikes and, consequently, an even steeper depreciation of the króna, although these would be offset by rising unemployment and the policy rate provided for in the baseline forecast.

As was the case in the comparable alternative scenario in the last *Monetary Bulletin*, a weaker currency and larger wage increases will combine to push inflation higher. The outlook two years ahead, assuming the policy rate path set forth in the baseline forecast, is therefore unacceptable. In order to prevent a continuing spiral, the policy rate is raised to 16.75% at the beginning of next year and is held considerably higher throughout the forecast horizon than in the baseline scenario (see Chart 1). In spite of this, inflation will be some 2 percentage points higher than in the baseline forecast in mid-2009. However, the policy rate path in the alternative scenario ensures that inflation is brought to target by the end of the forecast horizon (see Chart 2).

**A deeper housing market slump offers the possibility of a more rapid policy rate reduction**

The latter alternative scenario presents the possible monetary policy response to an even faster cooling of the domestic housing market. As was described in the last *Monetary Bulletin*, house prices have begun to decline around the world, and construction sector activity has fallen off as well. There are signs of a similar development here in Iceland.

As in the April forecast, this alternative scenario assumes that the credit crisis and rising risk premia will cause nominal house prices to drop similar to the alternative scenario in April. The decline in real prices is similar to that described in April, nearly 40% over the course of the forecast horizon. As was described in the April issue of *Monetary Bulletin*, this development is in line with the housing market contraction in the Nordic market in the early 1990s. It is also

consistent with other OECD nations' experience of housing market corrections in the wake of sharp increases (see Chapter IV and Box IV-2). This alternative scenario also assumes that residential investment will contract more than in the baseline forecast, to about 3% of GDP by the end of the forecast horizon. As a result of the contraction in the construction industry, unemployment among construction workers will rise higher than in the baseline forecast, although some of these workers will leave Iceland. According to this scenario, unemployment will approach 6% at the end of the forecast horizon, roughly 1 percentage point higher than in the baseline forecast. It is assumed that this rapid cooling of the domestic real estate market will be accompanied by an even weaker króna than in the baseline forecast. Therefore, in the alternative scenario the exchange rate remains low throughout the forecast horizon, about 5% below that in the baseline forecast.

The weaker króna limits the Central Bank's scope to lower the policy rate, even though the residential housing market – and the economy as a whole – contracts faster than in the baseline forecast. Early on, the effect of a lower exchange rate dominates the effects of a more rapid economic downturn. Inflation is therefore somewhat higher than in the baseline forecast until mid-2009, whereupon it begins to fall more quickly. The policy rate remains unchanged until Q1/2009 but is then lowered more rapidly than in the baseline forecast. By the end of the forecast horizon, it is about 1.5 percentage points lower (see Chart 1). This allows for the attainment of the inflation target at the end of the forecast horizon, roughly one quarter earlier than in the baseline scenario (see Chart 2).

### **Credibility affects the need for monetary policy response to deviations**

The alternative scenarios provide a concise view of the problems that monetary policy faces in the battle against inflation. On the one hand, the Central Bank is faced with the chronic inflation caused by the second-round effects of the depreciation of the króna and rising prices of oil, food, and other commodities. On the other hand, the Bank must deal with a deep economic contraction that it would be desirable to mitigate. However, it has little scope to do this because inflation expectations are high and unstable.

The alternative scenarios should not be viewed as forecasts, however, but rather as tools that can shed light on the effect that the main uncertainties in the baseline forecast could have on inflation and the possible monetary policy responses to deviations from the forecast. The strength of the response required will be determined to an extent by the credibility of monetary policy. If there is a general lack of confidence in the Central Bank's will and ability to hold inflation close to target, a firmer response is needed. The alternative scenarios show how the Central Bank could respond to uncertainties in a systematic and predictable manner. Therefore, they play the important role of informing the market and the general public about how monetary policy is conducted, which should enhance its effectiveness.

## Appendix 1

### Baseline macroeconomic and inflation forecast 2008/2

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

	B.kr.	Volume change on previous year (%) unless otherwise stated			
		2007	2008	Forecast	
				2009	2010
<i>GDP and its main components</i>					
Private consumption	746.6	4.2 (4.2)	-0.9 (0.3)	-7.7 (-7.0)	-7.8 (-6.6)
Public consumption	314.4	3.3 (3.3)	3.5 (3.5)	4.0 (4.0)	3.5 (3.5)
Gross fixed capital formation	351.6	-14.9 (-14.9)	-9.0 (-5.2)	1.3 (-0.4)	1.8 (-2.4)
Business sector investment	213.1	-25.4 (-25.4)	-16.6 (-16.2)	0.1 (4.1)	6.4 (1.9)
Residential construction	90.6	13.2 (13.2)	-5.3 (5.7)	-7.5 (-11.9)	-9.3 (-7.2)
Public works and buildings	47.9	4.3 (4.3)	21.2 (29.4)	16.9 (1.5)	0.3 (-10.6)
National expenditure	1,415.6	-2.3 (-2.3)	-1.9 (-0.3)	-3.3 (-3.3)	-2.7 (-3.2)
Exports of goods and services	451.7	18.1 (18.1)	4.7 (4.5)	-1.0 (0.2)	3.9 (4.2)
Imports of goods and services	587.9	-1.4 (-1.4)	-4.1 (-2.6)	-4.2 (-2.2)	1.1 (-0.6)
Gross domestic product	1,279.4	3.8 (3.8)	1.1 (2.2)	-2.0 (-2.5)	-1.9 (-1.5)
<i>Other key aggregates</i>					
Current account balance (% of GDP)		-15.6 (-15.6)	-17.4 (-16.6)	-13.3 (-12.2)	-10.7 (-9.9)
Output gap (% of potential output)		3.3 (3.1)	1.9 (2.6)	-1.2 (-1.9)	-4.2 (-4.6)
Unit labour cost (change between annual averages in %)		7.0 (6.9)	7.6 (5.9)	6.2 (4.7)	3.8 (4.1)
Real earnings (change between annual averages in %)		5.8 (5.8)	-5.3 (-3.1)	-5.4 (-3.2)	-0.3 (0.8)
Unemployment (% of labour force)		1.0 (1.0)	1.5 (2.1)	3.2 (3.5)	4.2 (4.1)
Foreign exchange index (Dec. 31, 1991 = 100)		118.4 (118.4)	148.8 (142.6)	149.5 (140.5)	146.8 (142.6)

1. Figures in parentheses show forecast in *Monetary Bulletin* 2008/1.

Table 2 Inflation and policy rate forecast (%)<sup>2</sup>

Quarter	Policy rate	Inflation	Annualised quarterly inflation
		(Change on same period of previous year)	
		Measured value	
2007:1	13.3 (13.3)	6.5 (6.5)	2.0 (2.0)
2007:2	13.3 (13.3)	4.4 (4.4)	5.8 (5.8)
2007:3	13.3 (13.3)	3.9 (3.9)	5.6 (5.6)
2007:4	13.6 (13.6)	5.4 (5.4)	8.4 (8.4)
2008:1	14.2 (14.2)	7.0 (7.0)	8.2 (8.2)
2008:2	15.5 (15.8)	12.0 (9.7)	27.0 (17.0)
		Forecast value	
2008:3	15.5 (15.8)	13.3 (10.7)	10.8 (9.3)
2008:4	15.5 (15.1)	12.8 (9.9)	6.4 (5.3)
2009:1	15.4 (13.8)	12.3 (8.9)	6.4 (4.6)
2009:2	15.0 (11.9)	7.6 (6.0)	6.7 (4.7)
2009:3	13.5 (10.1)	6.0 (4.8)	4.4 (4.4)
2009:4	11.4 (8.7)	4.9 (4.1)	2.0 (2.7)
2010:1	9.6 (7.6)	4.0 (3.5)	2.8 (2.3)
2010:2	8.0 (6.8)	3.4 (3.2)	4.2 (3.3)
2010:3	7.0 (6.3)	2.6 (2.5)	1.4 (1.6)
2010:4	6.5 (6.3)	2.2 (2.2)	0.6 (1.5)
2011:1	6.5 (6.3)	2.0 (2.0)	2.0 (1.4)
2011:2	6.5	2.0	4.2
Annual average	Policy rate	Inflation	
2007	13.4 (13.4)	5.0 (5.0)	
2008	15.2 (15.2)	11.3 (9.3)	
2009	13.9 (11.1)	7.6 (5.9)	
2010	7.8 (6.7)	3.0 (2.8)	

2. Figures in parentheses show forecast in *Monetary Bulletin* 2008/1.



## Appendix 2

# Financial market analysts' assessments of the economic outlook

For each issue of *Monetary Bulletin*, the Central Bank surveys financial market analysts' assessments of the economic outlook. The latest survey was conducted in mid-June, and participants were Askar Capital and the research departments of Glitnir, Kaupthing Bank and Landsbanki. The main changes from the survey conducted in April are that analysts expect less growth during the forecast horizon and more inflation in 2008 and 2009.

### Outlook for sustained high inflation well into 2009

Analysts project that inflation will be higher than previously predicted early on in the forecast horizon, as prices have risen rapidly in the recent term due to the depreciation of the króna and substantial underlying cost pressures. The outlook is for sustained high inflation until the latter half of 2009. Financial analysts forecast that inflation will average just over 11% in 2008, which is in line with the Central Bank's baseline forecast. Most of them believe inflation will subside very quickly in 2009, averaging just under 5% for the year as a whole, and fall to 3½% in Q2/2010. The majority of the analysts assume that inflation will be close to target at the end of the forecast horizon; that is, in Q2/2011. The Central Bank's baseline forecast allows for rather slower disinflation, with inflation averaging 7½% in 2009 and falling to 3½% in Q2/2010, in line with analysts' predictions. In the baseline forecast, the inflation target is attained in the latter half of the year 2010.

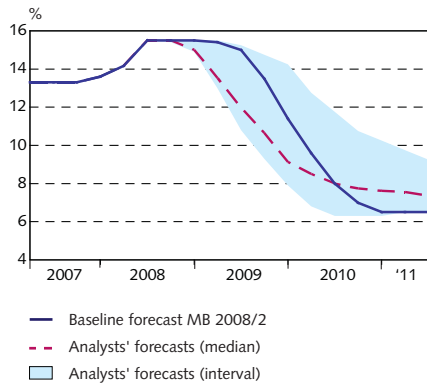
### GDP growth negligible early in the forecast horizon

There are various signs that output growth is slowing markedly, due in particular to a contraction in investment and the cooling of the real estate market. Private consumption remains rather strong, however. As in the last survey among financial market analysts, respondents assume that GDP growth will be negligible in 2008. They project an average of ½% growth in 2009, which is one percentage point lower than their previous prediction. Two survey participants expect negative GDP growth this year, and only one expects a contraction next year. They believe output growth will gain pace somewhat in 2010, averaging just over 2%. This diverges decidedly from the Central Bank's baseline forecast, which assumes just over 1% GDP growth in 2008 and a contraction of 2% in both 2009 and 2010. The financial market analysts are therefore much more optimistic than the Central Bank is.

### Divergent exchange rate forecasts

The exchange rate fell steeply in March and again in June, and was extremely volatile in the meantime. Market analysts forecast an average exchange rate index of 144 in 2008 and roughly 140 for the remainder of the forecast horizon. On the other hand, they disagree about exchange rate developments, with one respondent expecting a

Chart 1  
Policy rate path MB 2008/2  
and analysts' forecasts  
Forecasting period Q3/2008 - Q2/2011



Source: Central Bank of Iceland.

substantial appreciation of the króna over the course of the forecast horizon. The Central Bank's baseline forecast projects a weaker króna during the forecast horizon and believes that the exchange rate index will average just under 150 in 2008 and 2009.

### Most analysts expect a policy rate cut late in 2008

On April 10, the Central Bank raised the policy rate by 50 basis points to 15.5%. All of the market analysts believe the policy rate has peaked. Most of them expect the easing cycle to begin late this year, and they forecast the average policy rate at 15% in 2008 and 12% in 2009. The policy rate path specified by most of the analysts is very similar to the one on which the Central Bank's last baseline forecast was based. The policy rate path in the current baseline forecast assumes, however, that the policy rate will be held high for longer than the analysts expect, and that the downward cycle will be delayed until the first quarter of 2009.

### Cooling asset markets

Equity prices have continued to fall in recent months, and analysts are more pessimistic than before about the stock market. On average, they predict that the OMXI15 index will be just below 5,000 in Q2/2009 and slightly above 5,800 a year later.

However, they disagree somewhat on developments in house prices during the forecast horizon. Most of them expect house prices to fall over the coming 12 months, but their responses cover a broad range. On average, they forecast that, by Q2/2009, house prices will have dropped by 3½% year-on-year; however, they expect prices to remain relatively stable from mid-2009 until 2010. Only one respondent predicted that house prices would fall without interruption over the next three years.

Table 1 Overview of financial market analysts' forecasts<sup>1</sup>

	2008			2009			2010		
	Average	Lowest	Highest	Average	Lowest	Highest	Average	Lowest	Highest
Inflation (year-on-year)	11.1	10.4	12.0	4.9	3.5	7.5	3.3	1.5	4.5
GDP growth	0.1	-0.5	1.0	0.5	-2.5	3.5	2.3	1.4	3.8
Effective exchange rate index of foreign currencies vis-à-vis the króna (annual average)	144	142	148	140	128	154	139	125	150
Central Bank policy rate (annual average)	15.0	14.9	15.1	12.0	10.3	14.9	8.4	6.5	11.3
	2009:2			2010:2			2011:2		
Inflation	5.1	3.0	9.8	3.6	2.1	5.0	3.2	2.5	4.5
Effective exchange rate index of foreign currencies vis-à-vis the króna	139	128	151	141	125	156	140	123	150
Central Bank policy rate	12.5	10.8	15.3	8.5	6.3	11.8	7.6	6.5	9.3
Nominal long-term interest rate <sup>2</sup>	8.6	7.2	11.0	7.9	6.8	10.5	7.2	6.8	7.5
Real long-term interest rate <sup>3</sup>	4.2	3.8	4.5	3.8	3.4	4.5	3.7	3.0	4.5
OMXI15 share price index	4,959	4,000	5,350	5,860	5,000	6,341	6,851	6,000	7,583
Housing prices (year-on-year)	-3.4	-8.6	1.6	0.2	-1.6	3.0	2.7	-3.8	6.6

1. The table shows percentage changes between years, except for interest rates (percentages), the exchange rate index (index points) and the OMXI15 index (index points). Participants in the survey were Askar Capital and the research departments of Glitnir, Kaupthing Bank, and Landsbanki. 2. Based on yield in market makers' bids on non-indexed T-notes (RIKB 19 0226). 3. Based on yield in market makers' bids on indexed Housing Financing Fund bonds (HFF150644).

Source: Central Bank of Iceland.

## Appendix 3

### Iceland and Latvia: Macroeconomic adjustment and monetary policy

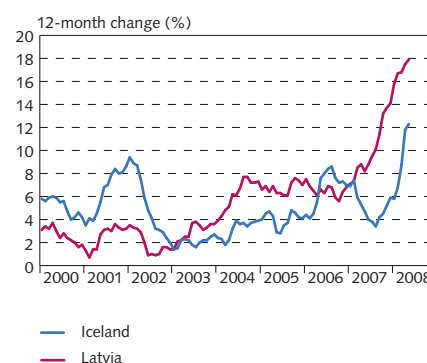
It is instructive to compare the success of economic policy in Iceland to that of other countries that face similar problems but adhere to different monetary policy arrangements, such as a fixed exchange rate policy. In recent years, Iceland and Latvia have been battling high inflation, fuelled largely by burgeoning domestic demand, and a wide current account deficit. Strong growth in lending has generated demand-driven inflation in both countries, as well as contributing to rising real estate prices. The difference between the two is that Iceland adheres to autonomous monetary policy and a floating exchange rate, while Latvia follows a fixed exchange rate policy, with its currency, the lats, pegged to the euro.

From 1991, when Latvia gained independence, until 1998, inflation was very high, initially because of necessary changes accompanying the departure from a centrally planned economy. A period of price stability followed, with annual inflation remaining close to 2% until 2004. Since 1994, Latvia has adhered to a fixed exchange rate policy. On January 1, 2005, the lats was pegged to the euro instead of the previous currency basket consisting of the US dollar, the euro, the pound sterling and the yen. This was done to guarantee stability and increase foreign investment and exports, as well as facilitating the adoption of the euro. At around that time, however, a period of mounting inflation began, similar to that in Iceland. Since 2004, inflation has only once fallen below 6%. In April 2008, annual inflation measured 17.5%, its highest level since August 1996. Most of the symptoms were the same as in Iceland. The current account deficit rose from 4.8% of GDP in 2000 to 22.8% of GDP in 2007. Lending has grown very rapidly in recent years, although foreign-denominated loans, particularly loans in euros, are more common than in Iceland. In 2007, 86% of loans granted in Latvia were denominated in euros.

#### The impossible trinity

According to the impossible trinity theory, a nation can choose only two of the following three options: free capital movement, autonomous monetary policy, or a fixed exchange rate.<sup>1</sup> The reason is that if a country decides to allow free capital movement and maintain a fixed exchange rate, monetary policy will be bound by the fixed exchange rate and will therefore be in the hands of the central bank of the country to which the currency is pegged. An interest rate hike implemented to combat inflation, for example, will cause capital to flow into the country, and the currency will appreciate, which is incompatible with the fixed exchange rate policy. Iceland and Latvia have both chosen to allow free movement of capital, but the Icelandic government has

Chart 1  
Inflation in Iceland and Latvia  
January 2000 - May 2008



Sources: Statistics Iceland, Statistic Latvia.

1. Mundell, Robert A. (1963), "Capital Mobility and Stabilization Policy Under Fixed and Flexible Exchange Rates." *Canadian Journal of Economics and Political Science*, 29(4), pp. 475-485.

Chart 2  
Current account balance in Iceland and Latvia  
% of GDP 2000-2007



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

elected to maintain autonomous monetary policy, while the Latvian government adheres to a fixed exchange rate. This is natural in view of Latvia's plans to adopt the euro, preferably no later than 2012, as the country has been an EU Member State since 2004. It is worth mentioning that, in order to meet the requirements for membership in the European Monetary Union (EMU), a country must join the ERM II, which implies that the exchange rate of its currency may not deviate more than  $\pm 15\%$  from a central rate against the euro for two years prior to EMU entrance.<sup>2</sup> Some countries have adopted a narrower exchange rate band. Iceland and Latvia use different tools to combat inflation; however, the fundamental role of monetary policy is the same in both countries: to provide a credible anchor for inflation expectations. In Latvia this is done by guaranteeing a fixed exchange rate of the lats against the euro. This engenders an economic adjustment because of the deteriorating competitive position resulting from a rising real exchange rate, which curtails GDP growth in the long run. Iceland seeks to anchor inflation expectations through a formal inflation target and systematic, transparent monetary policy conduct.

### Government measures in Latvia

Although the Latvian government does not maintain autonomous monetary policy and therefore cannot use monetary policy to affect economic developments to any marked degree, it can influence demand through general economic policy. In April 2007, the government launched a campaign against inflation, with the aim of cooling down the overheated economy. The campaign involved a government pledge to balance the fiscal budget, bringing the budget into balance in 2008 and into surplus in 2009 and 2010. Furthermore, the government promised not to reduce taxes in the near future and to amend the tax code so as to make the tax environment less favourable to speculators. An important element in this campaign involves regulatory changes to the credit market. The government set more stringent rules for banks' lending to individuals, thereby attempting to contain lending growth. Furthermore, it is working toward improvements in the labour and energy markets and is making an effort to increase competition and eliminate monopolies. The government has also pledged to impose ceilings on public sector wage rises.

One of the Bank of Latvia's few available instruments to contain credit growth has been reserve requirements. During the credit boom of 2005-2007, however, reserve requirements have been of limited effectiveness in raising banks' lending rates or slowing credit rates, since the rules have partly been circumvented through, for example, longer-term foreign exchange funding. The bank raised the ratio from 6% to 8% at year-end 2005 but began to reduce it again at the beginning of 2008, in response to the global credit crisis. The reserve requirement now stands at 6%. The Bank of Latvia concluded that the credit market had slowed down enough to justify this reduction, but the bank's reserve requirement must equal that of the European Central Bank, 2%, before the country adopts the euro. The Latvian economy has

2. For further discussion, see Appendix 4 in this issue of *Monetary Bulletin*.

slowed down in recent months, with GDP growth in Q1/2008 negative by 1.9%.

### **The dilemma of choosing exchange rate arrangements for small, fast-growing open economies with unrestricted capital flows**

The Latvian economy has grown by leaps and bounds in the past few years. Measured at constant price levels, GDP rose by over 10% in 2007 and more than 12% in 2006. It could be argued that a fixed exchange rate policy is poorly suited to a country undergoing such rapid growth. When the exchange rate is pegged to the currency of a developed country with slower GDP growth, such a policy means that nominal interest rates will be low compared with GDP growth. Increases in the relative price level or the real exchange rate, which are inevitable when countries become more wealthy (the so-called Balassa-Samuelsson effect), materialise as rising prices rather than as a rising exchange rate. The Bank of Latvia's policy rate has been 6% since May 2007, after having remained in the 3-5% range since 1997. This means that the real policy rate in Latvia has been negative since 2004, when inflation took off again. A negative real policy rate has prompted a surge in lending. This in turn has boosted domestic demand and sparked higher inflation and a wider current account deficit. A rise in the real exchange rate will ultimately curtail growth and bring inflation down, given that the exchange rate remains fixed. This is doubtful, however, in view of the current account deficit, but it should be pointed out that, through its bilateral agreement with the European Central Bank, Latvia has a stronger backstop for the fixed exchange rate than Iceland had during its fixed exchange rate era. Furthermore, Latvia's foreign exchange reserves are relatively large, at least as large as the supply of money in circulation. In countries with a currency board – such as Latvia's neighbours, Estonia and Lithuania – the central bank is commonly required to maintain substantial foreign reserves. Sizeable foreign reserves enhance the ability of the Bank of Latvia to keep the exchange rate of the lats stable and to build confidence in the currency, as it is easier to avoid attacks by speculators.

The other option for conducting monetary policy is a floating exchange rate and an inflation target. However, small open economies that choose this arrangement face the problem that the pass-through from exchange rate fluctuations to the domestic price level is stronger than in larger economies.

### **Iceland's battle with inflation**

For decades, monetary policy in Iceland was based on various fixed exchange rate policies, which were enforced using methods that varied in their credibility. The fixed exchange rate policy had run aground by 2001, when the króna was allowed to float and inflation targeting adopted. In recent years, the Central Bank of Iceland has exerted stringent monetary policy in an attempt to control inflation. This has not been successful, however, as has been discussed in detail in *Monetary Bulletin*. The problem is the same as that in Latvia, although the methods of addressing it differ. It is likely that a difficult economic adjustment is ahead for both countries, and it will be interesting to compare how they fare, even though they differ in many respects.

## Appendix 4

# Outlook for EMU expansion in coming years

On May 1, 2004, ten new countries became Member States of the European Union (EU): Estonia, Cyprus, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, the Czech Republic, and Hungary. A scant three years later, on January 1, 2007, Bulgaria and Romania joined them. According to the Maastricht Treaty, EU entrants must adopt the euro when they have achieved sufficient economic stability; that is, when set convergence criteria have been met. Only two Member States – Denmark and the United Kingdom – have been granted a formal exemption from this requirement. Therefore, all other EU accession countries plus Sweden must adopt the euro at the first suitable opportunity

### The Maastricht criteria

Considerable preparation must take place before countries can adopt a common currency. Increased economic convergence among members of the European Monetary Union (EMU) is considered a prerequisite to successful adoption of the euro. In order to ensure that this convergence takes place, EMU members must meet certain economic conditions usually referred to as the Maastricht criteria.<sup>1</sup> These requirements centre on the following economic fundamentals: inflation, interest rates, exchange rate stability, fiscal performance, and public sector debt.

Table 1 The Maastricht criteria

<i>Requirement</i>	<i>Description</i>
Price stability	The inflation rate of a given Member State must not exceed by more than 1.5 percentage points that of the three best-performing Member States in terms of price stability.
Interest rate differential	The nominal long-term interest rate must not exceed by more than 2 percentage points that of, at most, the three best-performing Member States in terms of price stability.
Exchange rate stability	Member States must have participated in the European Exchange Rate Mechanism (ERM II) for at least two years without severe tensions and without currency devaluation. Their currency may not deviate by more than $\pm 15\%$ from the median value determined by ERM II.
Fiscal performance	The fiscal deficit may not exceed 3% of GDP.
Public sector debt	Public sector debt may not exceed 60% of GDP; otherwise, the ratio must have diminished sufficiently and must be approaching 60% at a satisfactory pace.

1. So named for the Dutch city Maastricht, where the treaty stipulating the criteria that countries must fulfill in order to adopt the euro was signed.

In addition to these economic requirements, EMU members must fulfill specified conditions concerning institutional infrastructure. Furthermore, prospective members must implement certain monetary policy changes aimed at guaranteeing the central bank's independence from the government.<sup>2</sup>

### EU accession countries<sup>3</sup>

Of the 10 countries that became EU Member States in 2004, seven of them had the stated objective of adopting the euro as soon as possible. As a result, Estonia, Cyprus, Latvia, Lithuania, Malta, Slovakia, and Slovenia joined ERM II soon after joining the EU. Three of these countries have already adopted the euro – Slovenia on January 1, 2007, and Cyprus and Malta a year later – thus joining the 12 countries that had previously done so.<sup>4</sup> Slovakia will be the 16<sup>th</sup> country to adopt the euro. On May 7, 2008, the European Commission announced that Slovakia fulfilled all of the Maastricht criteria and could therefore proceed with its plans to begin using the euro on January 1, 2009.

Estonia and Lithuania had planned to adopt the euro on January 1, 2007, and Latvia on January 1, 2008; however, none of them fulfilled the Maastricht criteria in time to carry out their plans because of the difficulty in meeting price stability criteria. As a result, they were forced to abandon those plans. Inflation has been on the rise in Estonia, Latvia, and Lithuania in the recent term, and inflationary pressures are still evident, due in part to exogenous factors such as high oil and commodity prices. Forecasts indicate that inflation in these countries will not fall to levels compatible with the Maastricht criteria until after 2009. It is considered that Lithuania could perhaps adopt the euro after 2010, Estonia beginning in 2011, and Latvia some time during the period 2012-2014.

### Non-ERM II countries

One of the first steps a country takes towards adoption of the euro is to join ERM II. Of the 12 countries that have joined the EU since 2004, Poland, the Czech Republic, Hungary, Bulgaria, and Romania have not joined ERM II. The governments of the Czech Republic, Poland, and Hungary have decided that ERM II membership shall last as short a time as possible so that the convergence requirement concerning exchange rate stability is fulfilled. Therefore, the exchange rate of these three countries' currency will not be pegged to the euro until about two years prior to the planned adoption of the euro.

Poland, the Czech Republic, and Hungary, apart from not having joined ERM II, are all countries with a fiscal deficit in excess of the requirement for public sector performance. They are now working on

2. Further information on the Maastricht criteria can be found on the website of the European Union: [www.europa.eu](http://www.europa.eu).

3. Further information on the EU accession countries discussed in this section and the following section can be found on the websites of their respective central banks.

4. The 11 EU Member States that have been members of the EMU since its inception and adopted the euro on January 1, 1999 are as follows: Austria, Belgium, Finland, France, Holland, Ireland, Italy, Luxembourg, Portugal, Spain, and Germany. Greece adopted the euro on January 1, 2001, the 12th country to do so.

measures designed to improve fiscal management. Apart from Slovakia, Poland is the only EU accession country that is close to meeting the price stability requirement. Until recently, inflation in Poland was within the limits stipulated in the Maastricht criteria. However, inflation has increased in the recent term because of rising food, energy, and oil prices. Higher wage costs have also increased inflationary pressures. Current forecasts indicate that inflation in Poland will return to levels compatible with the Maastricht criteria in 2010. The Polish, Czech, and Hungarian governments have not specified an exact date for the adoption of the euro, apart from declaring that they will adopt it as soon as possible. It is clear, however, that they will not be able to do so until at least 2011.

Bulgaria and Romania joined the EU nearly three years later than the 10 countries discussed above; therefore, they have had a shorter time to prepare to adopt the euro. However, both Bulgaria and Romania have ambitious plans for doing so. The Bulgarian government aims to join ERM II soon and to adopt the euro as soon as possible. Romania aims to adopt the euro in 2014.



## Continuing turmoil in the financial markets

Considerable turbulence continues to plague the global financial markets. The situation improved somewhat in April, however, as a result of co-ordinated efforts by leading central banks and the US Federal Reserve Bank's unexpected rescue of investment bank Bear Stearns from imminent collapse. Developments in the money markets have been somewhat positive, especially at the shorter end of the curve. Investors have been more risk-averse than they were in 2007, however, and their caution is reflected, for example, in high prices of credit default swaps. Rising oil and commodity prices have increasingly led to higher inflation in most parts of the world. Icelandic financial institutions still have very limited access to foreign credit markets. Icelandic banks' CDS spreads declined in April and May and then rose once again in June, but are lower than they were in April despite the recent increase. Turnover in the interbank money market has contracted substantially, and REIBOR rates have not changed markedly. The Central Bank's access to foreign currency was enhanced significantly in May when the Bank announced bilateral currency swap agreements with the central banks of Sweden, Norway, and Denmark.

### Monetary policy has relaxed in the US and the UK

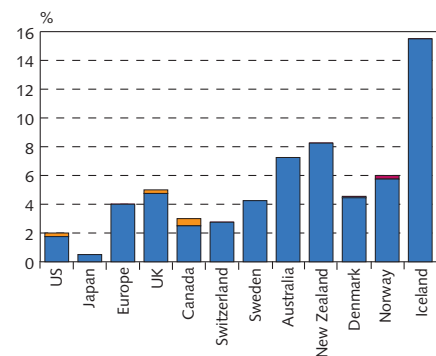
In April, the US Federal Reserve Bank lowered its federal funds rate by 25 basis points to the current level of 2%. The Bank of England cut the bank rate in mid-April, also by 25 basis points, but the European Central Bank (ECB) has held its minimum bid rate unchanged for a full year. In June, upon announcing its decision to hold the minimum bid rate unchanged, the ECB intimated that, because of mounting inflationary pressures, it might raise interest rates on its next decision date. The market responded quickly, and interest rate developments in the swap markets imply that the market expects interest rates in the euro area to rise by at least 50 basis points before the end of the year.

In spite of the fact that the Federal Reserve cut the fed funds rate by a total of 1.25 percentage points in January 2008, the dollar held its ground against the euro for the first two months of the year. In early March, however, the euro began to appreciate markedly against the dollar, peaking in mid-April at a historical high of nearly 1.6 US dollars. Since that time the dollar has appreciated somewhat against the euro, due in part to growing inflationary pressures in the US, which in turn stem from rising oil and commodity prices and the growing conviction that the Federal Reserve's interest rate cuts are at an end.

### Money markets have yet to recover fully

Considerable turmoil still reigns in the foreign money markets in spite of broad-based action taken by the Federal Reserve, the Bank of England, and the ECB. Money market rates on interbank loans with maturities of up to one month have remained more or less consistent with policy rates, but rates on longer-term nominal interbank loans have risen decidedly since the beginning of March. The differential between nominal and indexed interest rates has also widened during the period. When money market rates are high in comparison with policy rates, this is a sign of continuing caution in the interbank market, with the exception of very short-term transactions. The differential between

Chart 1  
Changes in selected central banks' policy interest rates since the last *Monetary Bulletin*<sup>1</sup>



1. The red portion of the bar represents the increase, and the yellow portion shows the decrease.  
Source: Reuters.

1. This article uses data available on June 23, 2008.

Chart 2  
Spreads of three-month interbank rates  
to three-month expected rates<sup>1</sup>

Daily data January 1, 2007 - June 18, 2008

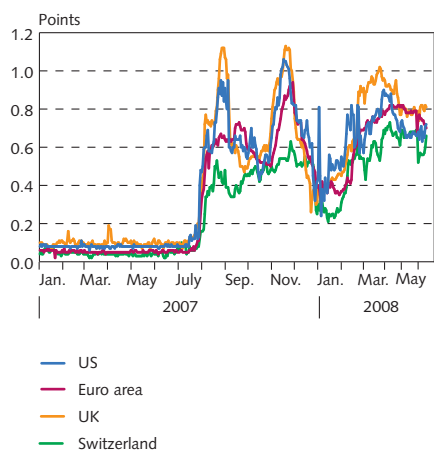
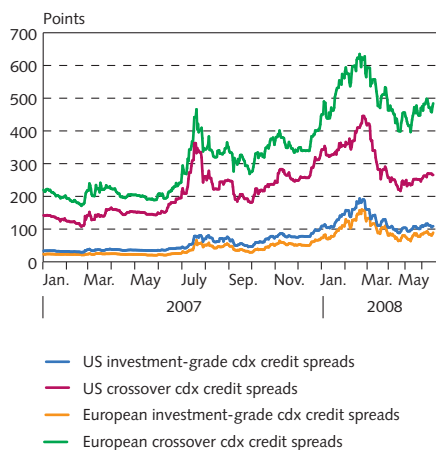


Chart 3  
5-year corporate bond CDSs  
in Europe and in the US

Daily data January 1, 2007 - June 18, 2008



Sources: Bloomberg, Reuters.

money market rates and expected policy rates (see Chart 2) has declined somewhat in recent weeks but remains much wider than it was before the advent of the financial market turmoil late in the summer of 2007. This differential reflects a portion of the risk premium that banks and other financial undertakings must pay in order to obtain interbank loans.

Demand for liquid assets is still brisk among financial institutions and is likely to remain so for a while to come. Developments in the global economy are cloaked in uncertainty, particularly in view of rising oil and commodity prices and mounting inflation. However, the economic situation in Asia's leading emerging market countries remains stable, with robust GDP growth projected for the medium term. Furthermore, oil export countries are enjoying the benefits of increased revenues from rising oil prices. The underlying supply of savings worldwide is therefore still ample.

### Volatility in the bond markets

Concerns over the credit ratings of monoline insurers have caused a certain amount of turbulence in the bond markets in the recent term. Monolines' business model is based on their having the highest possible credit rating, with the result that the bonds they guarantee receive a higher credit rating. Many companies of this type are experiencing severe difficulties in the wake of the US sub-prime mortgage crisis, and in many instances their credit ratings have been lowered. For example, Ambac and MBIA, two of the largest companies in this market, were downgraded in June by both Standard & Poors and Moody's. As a result, the value of the guarantees granted by the companies has dropped, and owners of the guarantees are forced to increase their write-offs.

In recent months, many banks have been forced to take on the assets and liabilities of special purpose vehicles (SPVs) that have invested in structured securities related to sub-prime mortgages in the US. Consequently, a number of banks have had to write off significant losses on structured securities that have adversely affected the banks' capital position. In view of the banks' large and frequently unexpected write-offs, it is unlikely that the full repercussions of the US sub-prime crisis have emerged. The turbulence in the equity markets and the increased risk aversion of bond market investors have prompted banks to secure funding more from sovereign wealth funds and through the issuance of covered and convertible bonds.

### Limited activity in the króna interbank market

Trading on the interbank market for krónur has contracted sharply in recent months. In May, trading volumes totalled 9.5 b.kr., down from 12.7 b.kr. in April, which had been the lowest-volume month in the króna market to date. There is little movement in listed REIBOR rates, which have been virtually unchanged for several weeks. Therefore, under the current conditions, the króna market does not sufficiently facilitate the transmission of monetary policy.

As is mentioned above, the turmoil in the interbank markets is not limited to Iceland, although the effects in Iceland are certainly

greater than in most other countries. However, the underlying problems are largely the same. One of the factors that compromise market functioning at a time of global illiquidity is increased counterparty risk. The banks are simply not willing to lend to one another without collateral. During an economic slowdown, write-offs of loans increase, and financial institutions prepare to protect their capital ratios. Their purchases of Central Bank of Iceland certificates of deposit does not affect their capital ratios, but unsecured lending in the interbank market generally has a negative effect. The considerable uncertainty about how long the current financial market difficulties will last has also prompted banks and other financial institutions to make every effort possible to protect and enhance their liquidity position.

### Icelandic banks still have limited access to foreign credit

The Icelandic banks' CDS spreads rose constantly in early 2008, finally peaking in March. At that time, Glitnir and Kaupthing's CDS spreads were approximately 10 percentage points, while Landsbanki's was slightly lower, at 8 percentage points. Then the banks' spreads declined rapidly until the beginning of May, when they held steady for a while. They turned upwards again in early June, in line with increases in the CDS spreads of other European financial institutions, signalling that risk aversion was on the rise once more.<sup>2</sup> The banks' high CDS spreads and their limited access to foreign credit have obstructed the functioning of the foreign exchange swap market. The interest rate differential that Iceland's commercial banks could previously offer foreign investors has vanished. Glacier bond issuance has been more or less at a standstill because foreign investors have few options for hedging against foreign exchange risk.<sup>3</sup>

### The bond market

Nominal bond yields were particularly volatile in the first half of the year, due in large part to the uncertain inflation outlook and the depreciation of the króna. The relatively shallow nominal bond market also played a part. Foreign demand for short-term Treasury notes in connection with carry trading has tended to magnify the volatility. Yields on HFF bonds have fluctuated less than Treasury note yields, which have tended downwards during the year.

In response to brisk demand for short T-notes, the Treasury held special auctions in March and May, when it offered T-note series maturing in December 2008. Notes were sold for a nominal value of roughly 7 b.kr. in the former auction and 15 b.kr. in the latter. On June 19, the Government announced a supplemental issue of short-term Treasury notes for up to 75 b.kr. It was then decided to offer 15 b.kr. for sale in series RIKB 08 1212 and 10 b.kr. in series RIKB 09 0602.

Demand for long-term T-notes has not been as pronounced as that for short-term notes, as long-term securities are accompanied by

Chart 4  
Interest rates in the interbank market  
and Central Bank policy rate

Daily data January 3, 2007 - June 16, 2008

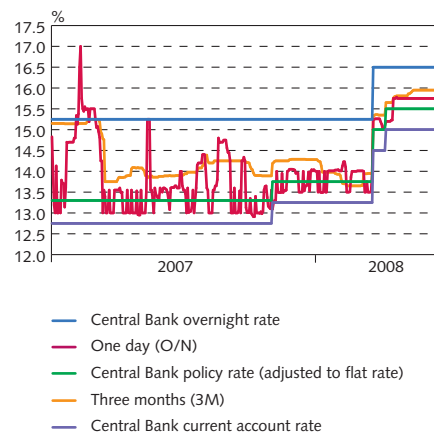


Chart 5  
CDSs of Icelandic banks and  
Itraxx Financial Index

Daily data May 2, 2007 - June 20, 2008

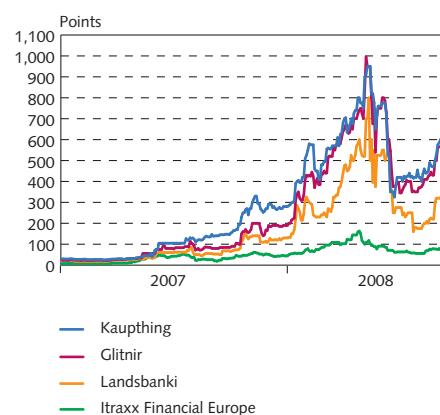
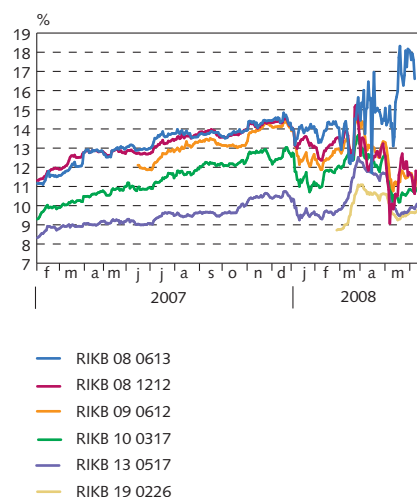


Chart 6  
Treasury note yields

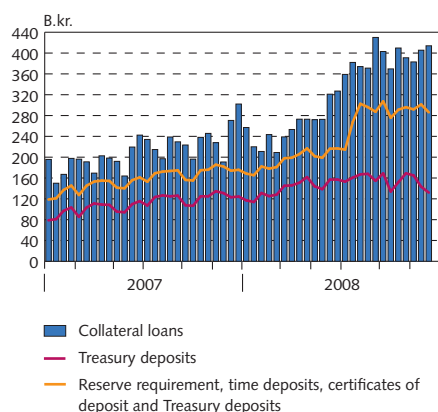
Daily data February 1, 2007 - June 20, 2008



2. For a more detailed discussion of the Icelandic commercial banks' CDS spreads and their pricing, see Appendix 2 on pp. 69-74 of the Central Bank of Iceland's publication *Financial Stability 2008*.

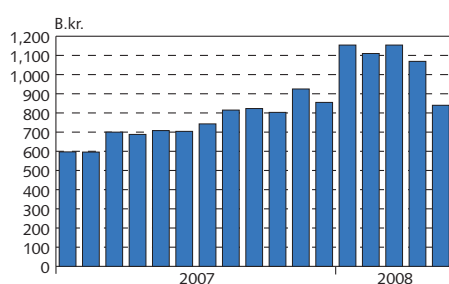
3. For further discussion, see Box III-1 on pp. 19-20.

Chart 7  
Collateral loans, certificates of deposit,  
Treasury deposits and reserve requirement  
Daily data July 4, 2007 - June 18, 2008



Source: Central Bank of Iceland.

Chart 8  
Forward currency position  
of the commercial banks  
At month-end January 2007 - May 2008



Source: Central Bank of Iceland.

greater interest rate risk, especially when the inflation outlook is very unstable. The Government Debt Management Prospect for 2008 announced plans to issue Treasury notes in RIKB 19 0226 in the amount of 35 b.kr. The Prospect assumed this would be achieved in six monthly auctions, the last of which would be held in June. At present, a nominal value of just over 29 b.kr. has been sold; therefore, one more auction will probably be needed in order to meet the goal.

In order to meet the demand for Treasury notes, securities lending facilities to primary dealers have been gradually increased. Securities lending to primary dealers promotes more effective price formation in the bond market, as primary dealers have the option of selling the securities short, provided they submit other securities as collateral. At present, seven primary dealers have the option of borrowing up to 7 b.kr. in the shorter benchmark series of Government securities, as opposed to 4 b.kr. at the beginning of the year. Primary dealers have made extensive use of these facilities. The average balance of securities loaned to primary dealers tripled in just four months, from 40 b.kr. in January to 120 b.kr. in May.

Collateralised Central Bank loans have increased substantially since the beginning of the year, and the balance has not fallen below 350 b.kr. since the beginning of April. A part of this increase is due to the certificate of deposit issuance at the end of March. At that time, the balance in krónur on the market fell by some 75 b.kr. However, the rules concerning financial institutions' reserve requirements were amended in March so as to co-ordinate them more fully with the rules of the European Central Bank. According to the new rules, the balances of Icelandic banks' foreign branches are deducted from the reserve base, which increases the banks' liquid assets in foreign currency. As a result, financial undertakings' reserve requirements fell by nearly 20 b.kr. two months after the rules were amended.

The Treasury's balance with the Central Bank has increased steadily so far in 2008 but has been subject to fluctuation (see Chart 7).

### Continuing pressure on the króna

Currency market turnover hit a historical high of 1,212 b.kr. in March. Trading has tapered off sharply since then, with May volume at just below 559 b.kr. For the first three weeks of June, trading volume totalled 420 b.kr. The exchange rate of the króna has been extremely volatile in recent months. On June 23 the exchange rate index was 164.27, its highest level since measurements began. At that point, the króna had depreciated by approximately 5.8% since the beginning of April and over 35% since the beginning of the year. The index reached an intraday peak of 170.46 on June 23.

The banks' forward balance in the foreign exchange market totalled 840 b.kr. at the end of May, having dropped substantially since the end of March, when it totalled 1,154 b.kr. The lower position suggests that investors have reduced their króna positions and/or refinanced foreign-denominated loans. On July 1, the Central Bank of Iceland issued new rules on the foreign exchange balance of financial institutions. The principal change from previous rules is that the mismatch between financial institutions' foreign currency assets and lia-

bilities shall not exceed 10% of own funds at any given time, whereas the permissible mismatch was previously 30%. The lower mismatch percentage allowed under the new rules is intended to reduce risk and promote more effective currency price formation in the interbank market. The Central Bank is still permitted to grant special authorisations to financial institutions with substantial overseas operations, thus permitting them to maintain a positive foreign exchange balance separate from their general foreign exchange balance, so as to protect their capital ratios in the event of adverse exchange rate movements.

### Slump in the equity market

The total market value of Icelandic companies listed on the OMX exchange has dropped considerably in 2008. At the market close on June 23, the OMXI15 index stood at 4,513 points, its lowest since October 11, 2005. The large decline in the domestic equity market as compared with markets abroad is due partly to the large proportion of financial companies in the Icelandic index, as financials constitute some 80% of the OMXI15. In most markets, financial company stocks have fallen more than companies in other sectors. A comparison of developments in the Icelandic index and price trends among financial companies in the other Nordic countries reveals a much less pronounced difference.

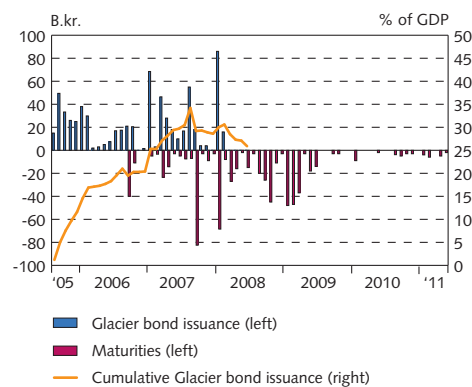
So far this year, a total of seven companies have announced plans for delisting; therefore, the number of companies listed on the OMX exchange in Iceland will probably drop sharply during the year. The board of directors of 365 hf. called a shareholders' meeting on July 1, for the purpose of presenting shareholders with a proposal to delist the company from the Icelandic exchange. The boards of Vinnslustöðin, FL Group, Skipti, Icelandic Group, TM Insurance, and Flaga have announced similar plans.

### Government and Central Bank measures

In mid-May, the Central Bank announced that it had concluded bilateral currency swap agreements with the central banks of Sweden, Norway, and Denmark. The agreements are a contingency measure that provides the Central Bank of Iceland with access to euros if the need arises. Each of the agreements provides access to 500 million euros in exchange for Icelandic krónur. The Central Bank may draw on the agreements when and if necessary. These agreements greatly enhance the Central Bank's access to foreign liquid assets.

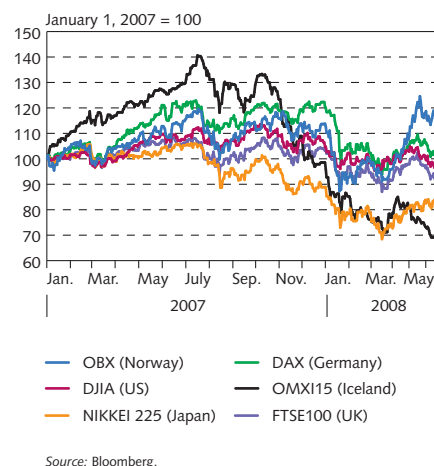
Because of the Treasury's strong recent performance and low debt position, the supply of risk-free Treasury notes has been very limited, which has generated mounting pressure on the bond and foreign exchange markets. In order to enhance market activity, it has been decided to expand the issue of short-term Treasury notes. As is discussed above, a total of 75 b.kr. will be issued, but this is partially offset by the fact that T-notes valued at 15 b.kr. matured in June. Furthermore, the Board of Governors of the Central Bank has decided to continue issuing certificates of deposit in September, when the CDs issued in March mature. Issuance of CDs and T-notes is particularly important in view of the poorly functioning currency swap market. Purchasing

Chart 9  
Króna Eurobond issuance<sup>1</sup>  
Monthly data



1. Data until July 1, 2008 inclusive.  
Sources: Reuters, Central Bank of Iceland.

Chart 10  
Development of selected share indices  
Daily data January 1, 2007 - June 20, 2008

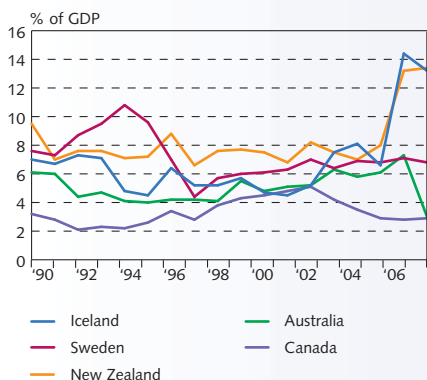


Source: Bloomberg.

Box 1

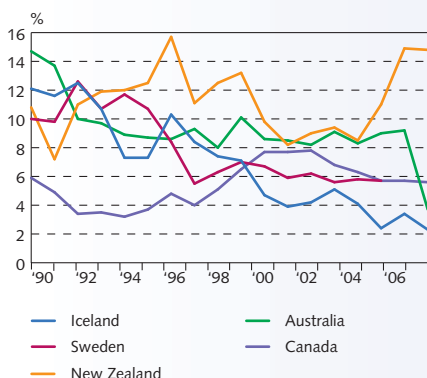
## The Central Bank of Iceland's foreign exchange reserves

Chart 1  
Foreign reserves 1990-2007



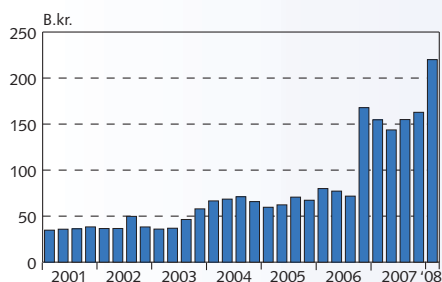
Source: IMF.

Chart 2  
Foreign reserves of foreign debt  
1990-2007



Source: IMF.

Chart 3  
Foreign reserves of the Central Bank of Iceland  
Quarterly data



Source: Central Bank of Iceland.

Most central banks maintain foreign exchange reserves to some degree. The purpose of holding foreign reserves can vary; therefore, there are no rules or generally accepted criteria concerning their minimum size.<sup>1</sup>

### Foreign reserves increased through regular currency purchases

In the fall of 2002, the Central Bank began purchasing foreign currency on the domestic currency market according to a pre-announced schedule. Since then, the Bank has purchased over 2 billion US dollars on the domestic interbank market in regular increments. Initially, the purchases were used to repay the Bank's foreign short-term debt. That process was completed in mid-2003. Thereafter, they were used to repay foreign Treasury debt, with the result that net foreign Treasury debt is now zero. In a sense, this represents an indirect foreign reserve fund, in that a debt-free Treasury with an acceptable credit rating generally has ready access to global credit markets. Regular currency purchases were discontinued at the end of March 2008 because of the conditions on the foreign exchange market. They will resume as soon as market conditions permit.

### Foreign reserves increased dramatically through foreign borrowings

The Central Bank's foreign reserves increased from 7 b.kr. in mid-2001 to 60 b.kr. in the fall of 2006. Towards the end of that year, a foreign loan was taken at the Central Bank's behest, with the aim of fortifying the reserves. This doubled the Bank's foreign exchange reserves. A Box in *Financial Stability 2007* (p. 46) discussed the strengthening of the foreign reserves and the points of view taken into account at that time.

### Access to foreign liquidity enhanced with swap agreements

In May 2008, the Central Bank concluded a bilateral currency swap agreement with three Nordic central banks, for a total amount of 1.5 billion euros. These swap agreements are essentially the equivalent of foreign reserves. Including the agreements, the foreign reserves now total 3.5 billion euros, or 400 billion Icelandic krónur. Because the Central Bank is not carrying any foreign debt at present, its foreign reserves have expanded from 7 b.kr. to approximately 400 b.kr. since mid-2001. The Government wishes to strengthen the foreign reserves still further, and work is being done to carry this out.

1. Appearing in *Monetary Bulletin* 2005/3 was an article by Haukur C. Benediktsson and Sturla Pálsson on central banks' foreign reserves, explaining, among other things, the purpose of maintaining foreign reserves.
2. During the first half of 2000, the Central Bank of Iceland's foreign exchange reserves totalled just over 30 b.kr. In the middle of that year, the Bank began intervening in currency market trading in order to counteract the depreciation of the króna that had begun in the spring. In order to preserve the foreign reserves, the intervention measures were funded with short-term foreign loans. As a result, the Central Bank's foreign currency balance deteriorated sharply, falling to only 7 b.kr. in mid-2001. The Bank's final intervention in the currency market took place in the fall of 2001. In an article appearing in *Monetary Bulletin* 2003/1, Gerdur Ísberg and Thórarinn G. Pétursson discussed in detail the intervention and its effect on the exchange rate of the króna. Their conclusion was that the effect was rather limited.

krónur in the currency market and investing them in risk-free króna instruments is analogous to a swap agreement, where investors pay foreign interest rates on the currency used to fund the investment and receive krónur interest rates. Foreign investors can hedge against exchange rate risk through forward agreements on the currency market. Measures of this type should foster an increased supply of krónur in the market for forward contracts. T-note and CD issuance therefore substitutes for the currency swap market to a certain extent.

The Housing Financing Fund (HFF) is planning to establish two new loan series. The first involves lending to financial institutions in the residential mortgage market for re-financing of mortgages already issued by those institutions. By issuing certificates of deposit, the Central Bank subtracts liquidity from the króna market, which tightens the monetary stance. On the other hand, re-financing financial institutions' mortgage loans may enhance those institutions' access to liquidity, as the liquidity of HFF bonds and their eligibility as collateral are much better because they bear a Treasury guarantee.

The second newly announced series centres on lending to credit institutions for the financing of new mortgage loans. The prerequisite for loans in these series is that they be conducive to guaranteeing the security and supply of credit and that they promote normal price formation in the real estate market. A special fee will be charged for these loans because of the Government guarantee. The Housing Financing Fund's financing of the above-specified mortgage loans granted by financial institutions will be secured by the institutions' portfolio of mortgage loans, in a manner similar to that applying to covered bonds: either with liquid assets or with mortgage bonds that are eligible as collateral for Central Bank of Iceland facilities.





# Monetary policy and instruments

## The objective and implementation of monetary policy

The objective of monetary policy is price stability. On March 27, 2001, a formal inflation target was adopted, as follows:<sup>1</sup>

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

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

Macroeconomic and inflation forecasts perform an important function in monetary policy conduct. As of *Monetary Bulletin* 2007/1, the Bank's forecasts are based on the policy rate path that its staff consider appropriate for attaining the inflation target. The policy rate path is chosen with the aim of bringing inflation to 2½% within an acceptable horizon and stabilising it close to that target afterwards. Confidence limits are presented for the policy rate to underline the uncertainties surrounding the forecast, emphasising that the policy rate path is liable to change over time as new data become available.

The Central Bank announces interest rate decisions on scheduled, prearranged dates. Before an interest rate decision is made, the Board

## Overview of Central Bank interest rates June 23, 2008

Traditional instruments	Current rate (%)	Last change		Rate one year ago (%)
		Date	Percentage points	
Current accounts	15.00	April 10, 2008	0.50	12.75
Overnight loans	16.50	March 25, 2008	1.25	15.25
Required reserves	15.00	April 10, 2008	1.25	13.00
Collateral loans – policy rate	15.50	April 10, 2008	0.50	13.30
Certificates of deposit, 7 days	15.25	April 10, 2008	0.50	13.20

1. Joint declaration of the Government of Iceland and the Central Bank of Iceland. Published on the Central Bank of Iceland website, [sedlabanki.is](http://sedlabanki.is).

of Governors convenes monetary policy meetings, as is detailed in the Bank's internal rules on the preparation, arguments for and presentation of monetary policy decisions, which are set pursuant to the provisions of the Central Bank Act. The internal rules are published on the Central Bank website: [www.sedlabanki.is](http://www.sedlabanki.is).

### **Main monetary policy instruments**

In particular, the Central Bank implements its monetary policy by managing money market interest rates, primarily through interest rate decisions for its collateral loan agreements with credit institutions, which then affect other interest rates. Yields in the money market also have a strong impact on currency flows and thereby on the exchange rate, and in the long run on domestic demand. Generally speaking, transactions with financial institutions can be classified as regular transactions and other transactions. Transactions between financial institutions and the Central Bank are subject to the Rules on Central Bank of Iceland Facilities for Financial Undertakings, no. 317 of April 2, 2008.

#### ***Regular transactions:***

- Current accounts are deposits of the credit institutions' undisposed assets. These are settlement accounts for netting between deposit institutions and for interbank market trading, including transactions with the Central Bank. Interest rates on these accounts set the floor for overnight interest rates in the interbank market.
- Overnight loans are provided at the request of credit institutions and secured with the same securities that are eligible for collateral loan transactions (see below). Overnight interest rates form the ceiling for overnight interest rates in the interbank market.
- Certificates of deposit are issued with a maturity of 7 days, at the request of credit institutions. They are registered at the Icelandic Securities Depository and with Clearstream. Their function is to counteract temporary surplus liquidity in the banking system. The auction format is fixed-price. Financial institutions can also deposit funds in time deposit accounts bearing the same interest rate.
- Collateral loans are the Central Bank's main instrument. Auctions of 7-day agreements are held every week. Credit institutions must put up securities that are eligible as collateral, as specified in the Central Bank's Rules no. 317 of April 2, 2008. Auctions can be fixed-price or auctions where the total amount is announced. Fixed-price auctions have been used so far. The interest rate on collateral loans constitutes the Central Bank's policy rate.

#### ***Other transactions:***

Other transactions take place as decided by the Board of Governors.

- Collateral loans, certificates of deposit, and time deposits with periods other than those assumed in regular transactions
- Currency swap agreements
- Repurchase agreements with securities that are deemed eligible as financial collateral according to Article 11 of the Rules on Central

## Central Bank of Iceland interest rate decisions

Date Policy rate interest decision dates in 2008	Interest on collateral loans (%)		Change
	Nominal rate <sup>1</sup> (policy rate)	Yield	
July 3, 2008	15.50		0
May 22, 2008	15.50		0
April 10, 2008	15.50		0.50
March 25, 2008	15.00		1.25
<i>Previous decisions</i>			
December 20, 2007	13.75		0
November 1, 2007	13.75		0.45
September 6, 2007	13.30		0
July 5, 2007	13.30		0
May 16, 2007 <sup>1</sup>	(13.30)	14.25	0
March 29, 2007	(13.30)	14.25	0
February 8, 2007	(13.30)	14.25	0
December 21, 2006	(13.30)	14.25	0.25
November 2, 2006	(13.09)	14.00	0
September 14, 2006	(13.09)	14.00	0.50
August 16, 2006	(12.65)	13.50	0.50
July 6, 2006	(12.21)	13.00	0.75
May 18, 2006	(11.54)	12.25	0.75
March 30, 2006	(10.87)	11.50	0.75
January 26, 2006	(10.20)	10.75	0.25
December 2, 2005	(9.97)	10.50	0.25
September 29, 2005	(9.75)	10.25	0.75
June 3, 2005	(9.07)	9.50	0.50
March 22, 2005	(8.61)	9.00	0.25
February 18, 2005	(8.38)	8.75	0.50
December 2, 2004	(7.92)	8.25	1.00
October 29, 2004	(6.99)	7.25	0.50
September 17, 2004	(6.53)	6.75	0.50
July 1, 2004	(6.06)	6.25	0.50
June 1, 2004	(5.59)	5.75	0.25
May 6, 2004	(5.35)	5.50	0.20
February 10, 2003	(5.16)	5.30	-0.50
December 12, 2002	(5.63)	5.80	-0.50
November 6, 2002	(6.10)	6.30	-0.50
October 15, 2002	(6.57)	6.80	-0.50
September 18, 2002	(6.85)	7.10	-0.50
August 30, 2002	(7.31)	7.60	-0.30
August 1, 2002	(7.59)	7.90	-0.60
June 18, 2002	(8.15)	8.50	-0.30
May 16, 2002	(8.42)	8.80	-0.50
April 30, 2002	(8.88)	9.30	-0.30
March 26, 2002	(9.15)	9.60	-0.50
November 8, 2001	(9.60)	10.10	-0,80
March 27, 2001	(10.33)	10.90	-0.50

1. The policy rate as quoted until May 2007 is presented as a nominal discounted rate.

Bank of Iceland Facilities for Financial Undertakings. The purchases must take place on a regulated securities market.

#### **Reserve requirements**

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

#### **Intervention in the foreign exchange market**

Foreign exchange market intervention, in keeping with the declaration on the inflation target from 2001, is employed only if the Central Bank considers this necessary in order to promote its inflation target or sees exchange rate fluctuations as a potential threat to financial stability.

# Economic and monetary chronicle

## April 2008

On April 7, the Minister of Social Affairs issued a regulation raising rent subsidy allowances effective April 1, as an element in the Government's pledges related to the contractual wage agreements signed on February 17.

On April 10, the Board of Governors of the Central Bank of Iceland decided to raise the Bank's policy interest rate by 0.5 percentage points, to 15.5%.

On April 17, the third auction of RIKB 19 0226 was held. Offers were accepted for 2.9 b.kr. nominal value at an average yield of 10.64%.

On April 17, Standard & Poor's Rating Services lowered its foreign- and local-currency sovereign credit ratings on the Republic of Iceland to A and AA-, from A+ and AA, respectively. The ratings for short-term local-currency obligations (A-1+) and short-term foreign currency obligations (A-1) were affirmed. The outlook for the long-term sovereign ratings remains negative.

On April 21, Standard & Poor's lowered the long-term credit rating for Glitnir from A- to BBB+. The rating for short-term obligations was affirmed at A-2. The outlook for long-term obligations is negative.

## May 2008

On May 9, Fitch Ratings lowered its credit ratings for Kaupthing and Glitnir. The banks' ratings for long- and short-term obligations were lowered from A to A-, and from F1 to F2, respectively. The banks' individual ratings of B/C and their support ratings of 2 were unchanged. The outlook for long-term obligations is negative.

On May 13, securities lending facilities to each primary dealer in series RIKB 08 1212 and RIKB 09 0612 were increased from 5 b.kr. to 7 b.kr. nominal value in response to demand for short-term nominal Treasury notes.

On May 15, Parliament passed a law abrogating the taxation of businesses' capital gains on the sale of equity securities and transferred the administration of tax matters for large corporations to the Regional Tax Director in the Reykjavík district. Previously, it was possible to defer the payment of taxes by reinvesting in other equities within two years.

On May 16, the Central Bank announced the conclusion of bilateral currency swap agreements with the central banks of Norway, Sweden, and Denmark. The agreements are a contingency measure, and the Central Bank can draw on them at need. Each of the agreements provides access to a maximum of 500 million euros.

On May 20, Moody's Investor Service lowered the Republic of Iceland's sovereign credit rating by one notch, from Aaa to Aa1. The country ceiling for bank deposits in foreign currency was also down-

graded from Aaa to Aa1. The outlook for the sovereign credit ratings was changed from negative to stable.

On May 22, the Board of Governors of the Central Bank of Iceland decided to hold the Bank's policy interest rate unchanged at 15.5%.

On May 23, new agreements were signed by the Central Bank of Iceland in connection with the issue of Government securities and market making in the secondary market. The objectives of the agreements are to maintain the Treasury's access to loan financing and to enhance price formation in the secondary market for Government securities. The agreements were concluded with seven financial institutions and remain valid for one year.

On May 27, a special auction of short-term Treasury notes was held. The series offered was RIKB 08 1212. Offers were accepted for 15 b.kr. nominal value at an average yield of 12.45%.

On May 28, Parliament approved an amendment to the Act on Electronic Registration of Title to Securities, stipulating that settlement instructions for electronic securities denominated in foreign currencies and held in a domestic securities depository shall take place through the intermediation of a securities depository that fulfils requirements comparable to those set forth in the Act on the Security of Transfer Orders in Payment Systems. The settlement system shall have ready access to the foreign currency in question.

On May 29, the fourth auction of RIKB 19 0226 was held. Offers were accepted for 6.5 b.kr. nominal value at an average yield of 9.55%.

On May 29, Parliament passed an act of law abolishing the stamp fee on a purchaser's first apartment.

On May 30, Parliament approved amendments to the Income Tax Act in accordance with Government pledges related to the signing of the private sector wage settlements in February 2008. The amendments involve raising the personal tax credit, raising the income threshold for child subsidy allowances, reducing the income-linkage of child benefits, raising the asset threshold for mortgage interest allowances, and reducing the corporate income tax rate. In addition, the exchange rate differential for legal entities' operations can be distributed over three years.

### June 2008

On June 4, the Central Bank of Iceland issued new Rules on Foreign Exchange Balance, which took effect on July 1, superseding the previous Rules no. 318/2006. The principal change is that the maximum mismatch between foreign-denominated assets and liabilities has been reduced from 30% to 10%. However, financial undertakings can apply for authorization to maintain a separate positive foreign exchange balance in order to hedge against the effects of adverse exchange rate movements on their equity ratio.

On June 19, the Government approved special measures related to the housing market and the arrangements for Housing Financing Fund

(HFF) loans. The ceiling was raised from 18 m.kr. to 20 m.kr., with the maximum loan amount set at 80% of the purchase price of the property instead of the fire insurance value, as it was previously. Furthermore, two new bond series were established for the purpose of financing mortgages granted by financial institutions.

On June 19, the Government announced a supplementary issue of Treasury notes in series, RIKB 08 1212, RIKB 09 0612, and RIKB 10 0317, which will be issued on the domestic market for a total of 75 b.kr.

On June 19, the Board of Governors of the Central Bank of Iceland decided that its certificates of deposit (SI 08 0924) will be reissued upon the maturity of the CDs issued in March. The current CD issue matures in September 2008. Decisions concerning the issuance of certificates of deposit next year will be made in view of market conditions at that time.

On June 23, the Housing Financing Fund (HFF) decided, following the June 20 auction of HFF housing bonds, to lower the Fund's lending rates by 0.15 percentage points. HFF bonds with a prepayment clause now bear 5.05% interest, and bonds without a prepayment clause bear 5.55% interest.

On June 27, Kaupthing held an auction of covered bonds. The issue is intended to finance the bank's mortgage loans to individuals, and offers were accepted for 4.8 b.kr. nominal value. The weighted average yield in the auction was 5.17%, and the bank's lending rates will be based on that yield plus a premium of 0.9%. The bank's lending rates will therefore fall from 6.4% to 6.05% following of the auction.





## Tables and charts

Tables and charts are generally based on statistical information available on June 23, 2008, apart from financial market data, which are from May 30, 2008. A list of symbols is on p. 2.

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Table 1 Main monthly indicators

	Consumer prices % change in CPI <sup>1</sup> over the previous		Exchange rate % Ch. in effective exchange rate <sup>1,2</sup>		Yields (end of period, %)				Money and credit (end of period) <sup>6</sup>					
	1 month	12 months	1 month	12 months	Short-term		Long-term <sup>5</sup>		Base money	M3	DMB lending	DMB foreign liabilities <sup>7</sup>		
					Central Bank col- lateral loans <sup>3</sup>	3-month REIBOR <sup>4</sup>	RIBK 10 0317	RIBK 13 0517					RIKS 15 1001	HFF 150644
2005	.	4.0	.	11.4	9.97	10.2	7.9	7.8	4.1	4.1	-3.9	17.7	51.5	96.4
2006	.	6.8	.	-10.5	13.30	15.2	9.8	8.9	4.9	4.2	33.1	15.4	41.4	73.5
2007	.	5.0	.	2.5	13.75	14.3	12.6	10.2	.	4.3	23.0	63.3	30.7	22.3
2006														
August	0.3	8.6	4.7	-12.2	12.65	13.3	8.8	8.0	4.3	4.1	30.7	17.9	47.2	80.0
September	0.6	7.6	1.0	-13.5	13.09	13.5	8.6	7.8	4.1	3.9	60.2	19.3	42.2	81.2
October	0.2	7.2	3.2	-13.8	13.1	14.3	9.2	8.0	4.6	4.2	37.3	9.4	39.5	75.1
November	0.0	7.3	-2.7	-16.2	13.1	14.5	9.7	8.4	4.8	4.3	25.4	19.4	36.8	75.4
December	0.0	7.0	-2.1	-15.4	13.3	15.2	9.8	8.9	4.9	4.2	33.1	15.4	41.4	73.5
2007														
January	0.3	6.9	0.3	-16.6	13.3	15.1	9.3	8.3	5.1	4.4	44.4	17.9	37.3	68.6
February	0.4	7.4	3.5	-10.9	13.3	15.3	9.9	8.8	5.5	4.4	-8.4	14.9	32.1	55.8
March	-0.3	5.9	-0.2	-3.1	13.3	13.8	10.5	9.1	5.0	4.3	102.7	26.1	27.8	40.1
April	0.6	5.3	1.0	6.4	13.3	14.1	10.8	9.2	.	4.3	28.2	28.2	26.6	31.7
May	0.9	4.7	3.6	9.7	13.3	13.9	10.8	9.1	.	4.3	46.0	32.1	24.8	34.1
June	0.5	4.0	1.0	14.3	13.3	13.9	10.9	9.1	.	4.4	48.5	38.5	22.1	33.1
July	0.2	3.8	1.7	15.8	13.3	14.1	11.4	9.5	.	4.6	61.7	44.8	24.0	48.3
August	0.0	3.4	-6.3	3.6	13.3	14.3	11.9	9.6	.	4.5	210.3	58.2	33.1	60.7
September	1.3	4.2	0.5	3.2	13.3	14.2	12.2	9.5	.	4.6	56.7	47.5	31.4	65.6
October	0.5	4.5	3.2	3.1	13.3	13.9	12.5	10.2	.	5.0	83.0	50.6	30.8	63.8
November	0.6	5.2	-2.1	3.7	13.8	14.3	12.2	10.4	.	5.3	182.0	56.6	32.3	59.0
December	0.7	5.9	-1.5	4.4	13.8	14.3	12.6	10.2	.	4.9	23.0	63.3	30.7	59.1
2008														
January	0.2	5.8	-3.6	0.4	13.8	13.9	11.1	9.5	.	4.7	85.6	51.2	40.1	69.1
February	1.4	6.8	-3.5	-6.4	13.8	13.7	12.1	9.8	.	4.4	218.7	42.4	44.1	66.8
March	1.5	8.7	-10.5	-16.1	15.0	15.4	13.2	12.3	.	4.4	158.6	25.4	55.1	100.2
April	3.4	11.8	-3.8	-20.2	15.5	15.8	12.5	11.7	.	4.3	177.2	49.7	47.1	91.7
May	1.4	12.3	-0.7	-23.4	15.5	16.0	10.5	9.6	.	4.2				

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

Table 1 (continued) Main monthly indicators

Position B.kr.	Foreign exchange market and reserves			Foreign trade and external conditions					Public finance				
	Gross foreign currency reserves: as ratio of:			Trade balance (b.kr.)	Mer- chandise exports (b.kr.)	Mer- chandise imports (b.kr.)	Marine product prices 12-mo.% ch. <sup>10</sup>	Real exchange rate of króna <sup>11</sup>	Labour market		Reg. Treasury		
	Merch. imports <sup>8</sup>	For. short- term liab. <sup>9</sup>	net pur- chases (b.kr.)						Un- employ- ment	Wages, 12-mo. % change <sup>12</sup>	financial balance, % of reg. revenues, from Jan. <sup>13</sup>	Equity prices <sup>14</sup>	Housing prices <sup>15</sup>
2005	67.3	2.9	0.16	24.6	194.4	288.9	8.9	111.4	2.1	6.8	25.0	64.7	31.0
2006	68.5	2.8	0.20	18.0	242.7	401.2	8.5	104.2	1.3	9.5	22.1	15.8	5.0
2007	72.1	2.9	0.08	19.4	305.1	395.2	.	108.6	1.0	9.0	15.1	-1.4	15.0
2006													
August	72.6	2.3	0.09	1.6	16.6	31.0	10.7	101.9	1.2	10.6	9.7	28.6	10.8
September	71.3	2.3	0.10	1.4	25.4	32.7	10.2	103.4	1.0	10.8	11.9	35.8	10.5
October	70.9	2.3	0.10	1.5	20.0	29.1	11.1	106.8	1.0	11.0	15.5	35.1	7.2
November	92.4	2.9	0.11	1.6	20.2	36.0	11.7	103.7	1.1	10.5	12.8	21.0	4.8
December	167.9	4.8	0.20	1.2	20.1	41.0	11.2	101.1	1.1	9.8	22.1	15.8	5.0
2007													
January	160.4	4.9	0.17	1.9	25.9	28.7	30.6	102.3	1.3	10.1	29.7	12.3	6.9
February	160.1	4.8	0.16	1.6	23.9	28.9	22.5	105.6	1.3	9.8	29.5	10.8	5.0
March	154.6	4.8	0.14	1.6	30.6	33.9	12.9	104.8	1.3	9.7	29.1	27.1	5.8
April	151.1	4.7	0.12	1.8	21.8	32.8	1.5	105.9	1.1	9.8	23.2	39.1	5.3
May	144.5	4.7	0.11	1.5	24.2	33.7	-3.0	109.9	1.1	9.6	9.0	43.1	9.3
June	143.7	4.7	0.10	1.5	23.1	32.6	-7.0	111.5	1.0	9.8	4.2	51.6	9.2
July	145.0	4.8	0.08	1.6	21.7	32.7	-6.8	113.6	0.9	8.3	5.9	63.7	12.7
August	151.9	4.8	0.07	1.4	17.8	30.9	2.2	106.4	0.9	8.0	4.0	37.8	10.8
September	154.9	4.9	0.07	1.5	21.0	30.6	4.7	107.9	0.8	8.1	7.3	26.9	11.0
October	156.7	4.9	0.08	1.8	33.5	42.0	5.0	111.2	0.8	8.1	11.4	28.4	16.7
November	162.7	4.9	0.06	1.5	36.0	33.4	4.8	108.6	0.8	8.3	9.6	13.1	14.1
December	162.8	4.9	0.08	1.7	25.5	34.8	3.5	107.5	0.8	8.6	15.1	-1.4	15.0
2008													
January	174.8	4.9	0.08	1.5	24.2	33.7	5.6	103.9	1.0	6.2	24.5	-22.2	14.0
February	182.8	5.0	0.08	1.6	19.5	31.9	13.2	101.1	1.0	6.8	26.0	-33.2	12.7
March	220.0	5.1	0.06	1.3	34.3	37.1	27.7	91.0	1.0	7.8	23.4	-32.6	9.6
April	206.8	5.0	0.06	...	33.4	40.7	30.1	89.8	1.0	8.2	21.1	-32.8	7.0
May	190.1	...	...	...	...	...	...	90.1	1.0	7.9	...	-41.9	3.8

8. Gross foreign exchange reserves at end of period as a ratio of the average monthly value of merchandise imports. Calculated at fixed exchange rates. 9. The denominator is foreign short-term liabilities of credit institutions and investment banks and includes derivatives as of July 2007. 10. Prices in SDR. Annual figures are % changes between annual averages. Since January 2007, the 12-month percentage change in marine product prices denominated in the króna. 11. Real effective exchange rate of the Icelandic króna based on relative consumer prices (a trade-weighted average of 17 trading partner countries' consumer prices is used), 2000 = 100. Average over periods. 12. Annual figures show change in annual averages. 13. Cash basis. Without privatisation revenues. Adjusted for changed timing of expenditure charges in Jan.-Nov. 2004. 14. OMXI15 index. Annual figures are % changes over year. 15. Residential housing in the greater Reykjavik area. Annual figures are % changes over year.

Sources: Directorate of Labour, Iceland Stock Exchange (OMX Iceland), Land Registry of Iceland, State Accounting Office, Statistics Iceland, Central Bank of Iceland.

Table 2 Historical economic indicators

	Consumer prices <sup>1</sup>		Króna effective exchange rate		Interest rates (%)		Money and credit		Ratio of		Growth of real GDP (%)	
	Consumer price index <sup>1</sup>	CPI inflation (%)	Nominal exchange rate <sup>2</sup>	Real exchange rate <sup>3</sup>	Gov. bonds average yield <sup>4</sup>	Banks' secured lending (real yield)	% change over year	Credit system lending	gr. reserves to merch. imports <sup>5</sup>	Net external debt <sup>6</sup>		
			Relative CPI	Relative ULC		Non-indexed	M3 lending					
1978	3.5	44.0	107.1	117.7	3.3	-13.4	48.7	47.3	62.8	2.6	39.2	6.0
1979	5.0	44.5	101.7	111.2	3.5	-15.4	55.9	58.1	46.4	2.5	39.7	4.9
1980	8.1	61.8	101.8	110.4	3.5	-8.3	65.4	66.4	71.1	2.4	35.9	5.8
1981	12.2	50.8	106.2	115.5	3.2	-1.7	70.5	72.2	54.1	3.0	36.5	4.3
1982	18.4	51.0	97.7	113.2	3.5	-9.4	58.0	92.0	100.2	2.1	46.4	2.1
1983	33.9	84.2	91.8	94.5	3.8	-14.2	78.7	85.6	82.9	2.5	57.2	-2.2
1984	43.7	29.2	96.3	91.6	7.0	3.4	33.4	43.0	40.2	2.1	60.2	4.1
1985	57.9	32.4	94.8	91.5	6.9	-2.3	47.6	29.7	35.2	2.8	63.6	3.3
1986	70.2	21.3	97.1	92.4	8.5	4.3	35.0	19.1	20.1	3.6	56.5	6.3
1987	83.4	18.8	106.0	117.6	8.7	4.7	35.2	42.1	31.4	2.4	49.4	8.5
1988	104.6	25.4	111.4	127.1	8.7	11.8	24.0	37.2	34.0	2.4	51.3	-0.1
1989	126.7	21.1	102.4	110.7	7.4	6.5	27.2	25.2	33.8	3.0	56.8	0.3
1990	145.5	14.8	99.1	98.8	7.0	9.3	14.9	11.0	12.5	3.3	43.8	1.2
1991	155.4	6.8	283.6	101.7	8.1	10.0	14.4	11.6	15.4	3.2	44.9	-0.2
1992	161.2	3.7	285.0	101.7	7.4	11.8	3.8	5.3	11.8	4.0	53.0	-3.4
1993	167.8	4.1	308.8	96.2	6.7	11.5	6.5	5.0	11.1	4.3	58.9	1.3
1994	170.3	1.5	324.8	91.0	5.0	9.5	2.3	-1.3	4.5	2.6	53.3	3.6
1995	173.2	1.7	322.3	91.1	5.6	10.1	2.2	-8.5	5.9	2.4	52.0	0.1
1996	177.1	2.3	322.9	91.3	5.5	10.5	6.8	11.8	9.3	3.0	49.8	4.8
1997	180.3	1.8	318.7	92.2	5.3	11.1	11.5	12.7	11.8	2.6	51.3	4.9
1998	183.3	1.7	313.6	93.8	4.7	11.8	12.3	30.3	15.1	2.2	57.6	6.3
1999	189.6	3.4	313.1	96.3	4.4	8.0	19.0	26.3	17.3	2.6	67.1	4.1
2000	199.1	5.0	313.3	100.0	5.1	12.7	11.3	26.1	17.2	2.1	94.0	4.3
2001	212.4	6.7	376.3	87.3	5.1	9.4	16.7	12.6	19.2	2.1	102.0	3.9
2002	222.5	4.8	365.2	91.7	5.2	13.7	12.9	0.9	3.2	2.5	89.8	0.1
2003	227.3	2.2	343.3	96.0	4.4	9.4	21.3	14.8	11.4	3.5	93.3	2.4
2004	234.6	3.2	336.3	98.1	3.9	8.3	17.1	39.5	19.9	3.6	113.5	7.7
2005	244.1	4.0	301.8	111.4	3.7	10.7	17.7	51.5	31.1	2.9	152.4	7.5
2006	260.6	6.8	337.2	104.2	4.6	10.9	15.4	41.4	33.6	2.8	204.2	4.4
2007	273.7	5.0	328.9	108.6	6.0	14.3	63.3	30.7	21.9	2.9	246.4	3.8

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

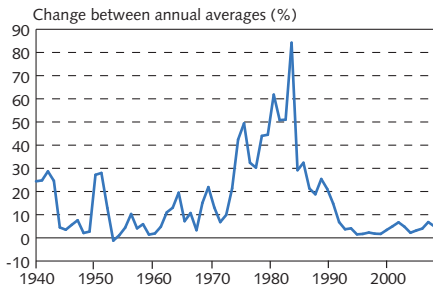
Table 2 (continued) Historical economic indicators

	Components of GDP				External trade				General government (% of GDP) <sup>7</sup>				Labour market (% of labour force)		Wages (% change from previous year)							
	(% change from previous year)		National expenditure		(% change from previous year)		Terms of trade		Curr. acc. balance (% of GDP)		Financial balance		Revenues		Expenditures		Unemployment		Labour particip. <sup>8</sup>		Real income per capita	
	Private consumption	Gross fixed cap. formation	Private consumption	National expenditure	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
1978	9.0	-5.5	2.1	2.1	15.2	3.7	0.2	1.2	0.0	33.8	33.8	0.3	73.6	8.5	8.5							
1979	2.8	-1.8	3.4	3.4	6.3	2.5	-8.6	-0.7	0.9	35.1	34.2	0.4	73.0	2.0	2.0							
1980	3.4	13.9	5.9	5.9	2.7	3.0	-2.8	-1.9	1.4	35.4	34.1	0.3	74.1	1.1	1.1							
1981	6.2	1.2	5.6	5.6	3.2	7.1	-0.4	-4.0	1.3	36.8	35.5	0.4	76.8	0.7	5.4							
1982	5.0	0.1	5.0	5.0	-8.9	-0.6	-0.7	-7.9	1.7	37.9	36.2	0.8	77.6	1.7	2.2							
1983	-5.6	-12.7	-8.6	-8.6	11.0	-9.7	-1.4	-1.9	-2.0	35.8	37.8	1.0	77.4	-16.7	-12.5							
1984	3.7	9.4	6.4	6.4	2.4	9.2	0.7	-4.6	2.2	36.9	34.7	1.3	77.6	-3.1	-2.5							
1985	4.2	1.0	2.7	2.7	11.1	9.4	-0.9	-3.9	-1.6	35.4	37.0	0.9	79.3	1.2	10.8							
1986	6.9	-1.6	4.5	4.5	5.9	1.0	5.4	0.5	-4.0	35.4	39.4	0.7	80.9	5.7	9.5							
1987	16.2	18.8	15.7	15.7	3.3	23.3	4.3	-3.4	-0.8	35.6	36.5	0.4	84.1	9.0	25.8							
1988	-3.8	-0.2	-0.6	-0.6	-3.6	-4.6	-0.8	-3.5	-2.0	39.5	41.5	0.6	80.1	2.2	-2.7							
1989	-4.2	-7.9	-4.4	-4.4	2.9	-10.3	-3.9	-1.3	-4.4	38.5	43.0	1.7	78.7	-9.1	-9.4							
1990	0.5	3.0	1.5	1.5	0.0	1.0	-3.2	-2.1	-3.3	38.1	41.4	1.8	77.5	-4.9	-4.6							
1991	3.0	2.6	3.5	3.5	-5.9	5.3	3.5	-4.0	-2.9	39.8	42.7	1.5	81.0	1.4	2.1							
1992	-3.2	-10.4	-4.6	-4.6	-2.0	-6.0	-0.5	-2.4	-2.8	40.8	43.6	3.1	81.8	-0.8	-2.7							
1993	-4.6	-9.8	-2.9	-2.9	6.5	-7.5	-3.7	0.7	-4.5	39.0	43.4	4.4	81.1	-2.6	-7.6							
1994	2.9	-0.2	1.8	1.8	9.3	3.8	0.2	1.9	-4.7	38.6	43.2	4.8	81.3	-0.3	0.0							
1995	2.2	-1.7	2.2	2.2	-2.3	3.6	1.1	0.7	-3.0	39.6	42.5	5.0	82.9	2.8	3.8							
1996	5.7	25.0	6.8	6.8	9.9	16.5	-3.2	-1.8	-1.6	40.5	42.0	4.4	81.6	4.0	3.9							
1997	6.3	9.3	5.8	5.8	5.6	8.0	2.1	-1.8	0.0	40.5	40.5	3.9	81.0	3.6	5.9							
1998	10.2	34.4	13.8	13.8	2.5	23.4	5.1	-6.8	-0.4	40.8	41.2	2.8	82.3	7.6	7.0							
1999	7.9	-4.1	4.2	4.2	4.0	4.4	-0.6	-6.8	1.1	43.1	41.9	1.9	83.2	3.3	4.7							
2000	4.2	11.8	5.9	5.9	4.2	8.6	-2.4	-1.7	1.7	43.5	41.8	1.3	83.5	1.6	5.2							
2001	-2.8	-4.3	-2.1	-2.1	7.4	-9.1	0.3	-0.2	-0.7	41.8	42.5	1.4	83.6	2.0	-1.2							
2002	-1.5	-14.0	-2.3	-2.3	3.8	-2.5	0.6	1.5	-2.5	41.6	44.1	2.5	82.8	2.3	0.2							
2003	6.1	11.1	5.7	5.7	1.6	10.8	-4.1	-4.8	-2.8	42.7	45.5	3.4	82.1	3.4	4.2							
2004	6.9	28.1	9.9	9.9	8.4	14.5	-1.3	-9.8	0.0	44.1	44.0	3.1	80.7	1.4	5.3							
2005	13.0	35.7	15.8	15.8	7.2	29.4	1.0	-16.1	4.9	47.0	42.1	2.1	81.9	2.6	8.0							
2006	4.4	20.4	9.3	9.3	-5.0	10.2	3.6	-25.4	6.3	48.0	41.6	1.3	83.1	2.6	8.0							
2007	4.2	-14.9	-2.3	-2.3	18.1	-1.4	0.1	-15.6	5.2	48.3	43.1	1.0	83.0	3.8	3.8							

7. Central and local governments and the social security system. 8. Participation rate as per National Economic Institute definition until 1990, but based on Statistics Iceland labour market survey from 1991. 9. Statistics Iceland wage index. Deflated by consumer prices. Since January 2007, the 12-month percentage change in marine product prices denominated in the króna.

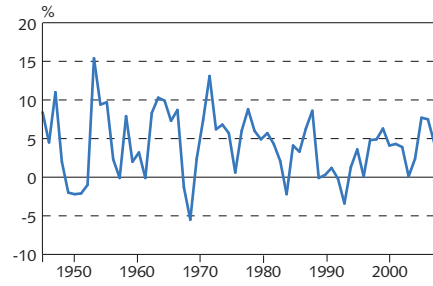
Sources: Directorate of Labour, Iceland Stock Exchange (OMX Iceland), Ministry of Finance, Statistics Iceland, Central Bank of Iceland.

Chart 1  
Consumer price inflation 1940-2007



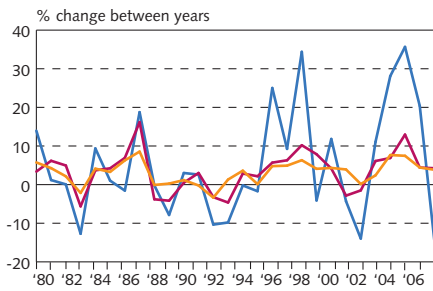
Source: Statistics Iceland.

Chart 2  
Economic growth 1945-2007<sup>1</sup>  
Change in real GDP between years



1. Preliminary 2007.  
Source: Statistics Iceland.

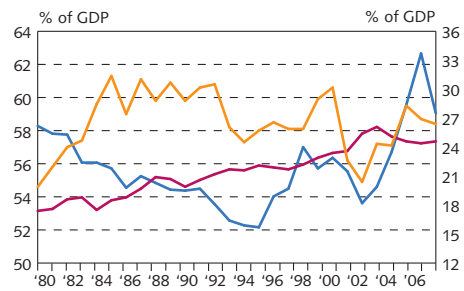
Chart 3  
Growth of GDP, private consumption and gross fixed capital formation 1980-2007<sup>1</sup>



— Gross fixed capital formation  
— Private consumption  
— GDP

1. Preliminary 2007.  
Source: Statistics Iceland.

Chart 4  
Private consumption, public consumption and gross fixed capital formation 1980-2007<sup>1</sup>

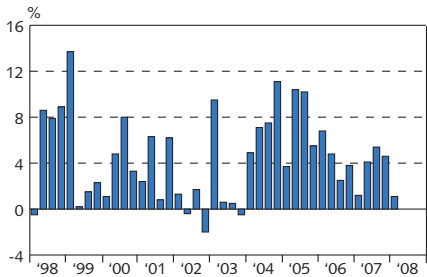


— Gross fixed capital formation (right)  
— Public consumption (right)  
— Private consumption (left)

1. Preliminary 2007.  
Source: Statistics Iceland.

Chart 5  
Quarterly economic growth  
Q1/1998 - Q1/2008<sup>1</sup>

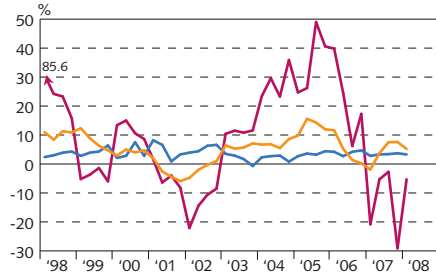
Volume change in GDP on a year earlier (%)



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

Chart 6  
Components of economic growth  
Q1/1998 - Q1/2008<sup>1</sup>

Volume change on a year earlier (%)



— Public consumption  
— Gross fixed capital formation  
— Private consumption

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

Chart 7  
Gross national saving and fixed capital formation 1960-2007<sup>1</sup>

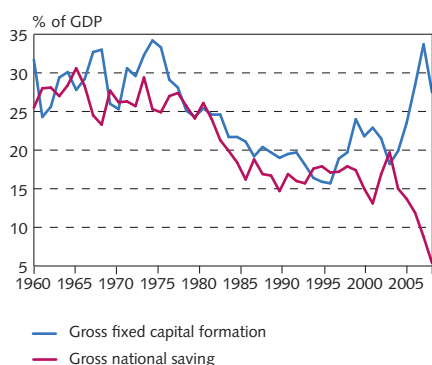


Chart 8  
Current account balance 1945-2007<sup>1</sup>

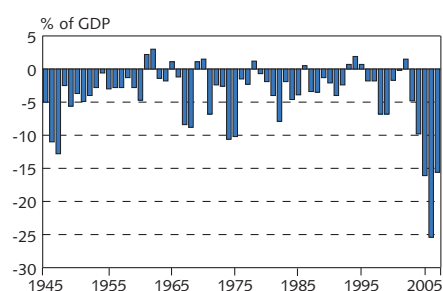


Chart 9  
Merchandise trade  
January 1996 - April 2008<sup>1</sup>  
3-month moving averages at fixed exchange rates

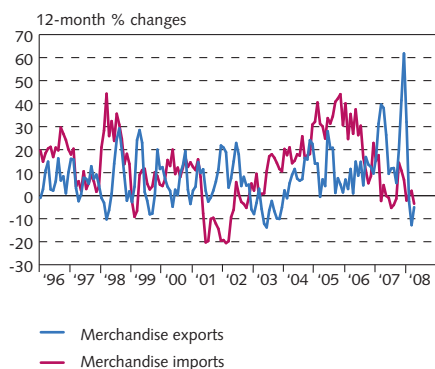


Chart 10  
Exports and imports of services  
Q1/1996 - Q1/2008<sup>1</sup>  
At constant exchange rate

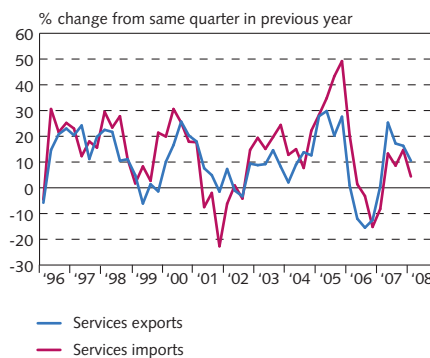


Chart 11  
External debt and assets  
Q1/1998 - Q1/2008<sup>1</sup>

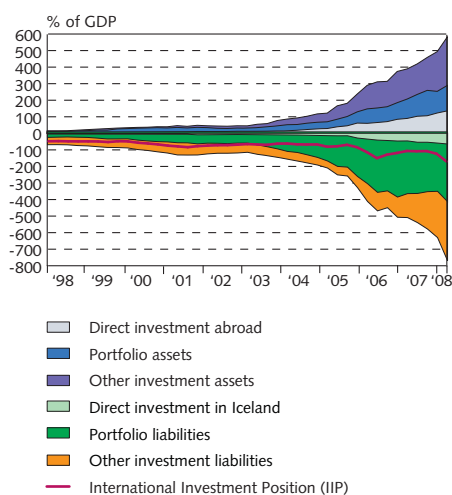


Chart 12  
External debt position 1980-2007<sup>1</sup>  
At end of year and latest quarter

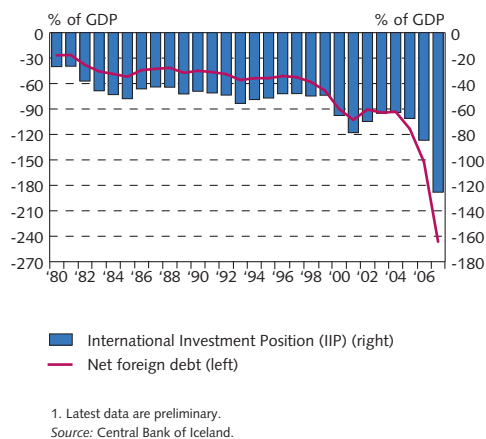
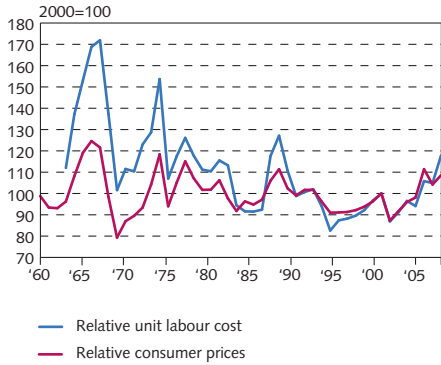
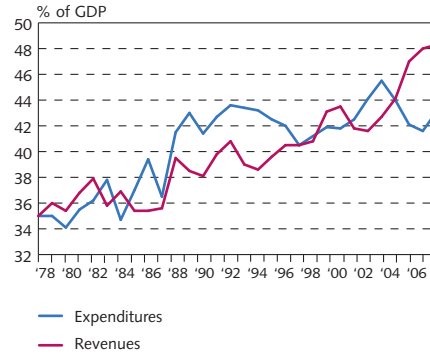


Chart 13  
Real effective exchange rate  
of the Icelandic króna 1960-2007<sup>1</sup>



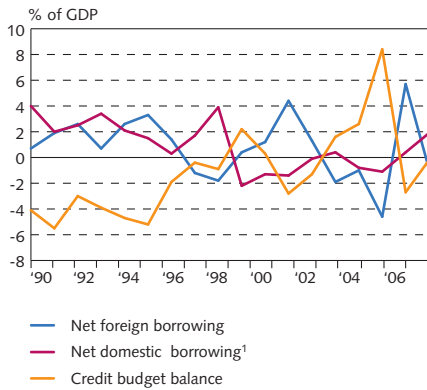
1. Preliminary 2007.  
Source: Central Bank of Iceland.

Chart 14  
General government revenues and expenditures  
1978-2007



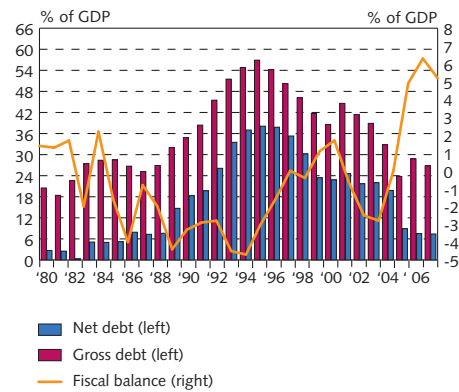
Source: Statistics Iceland.

Chart 15  
Treasury borrowing 1990-2007



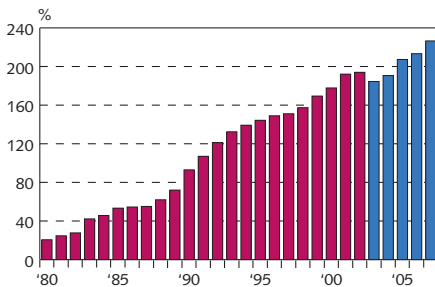
1. Including reduction in pension fund commitments and outstanding long-term interest.  
Source: Treasury accounts.

Chart 16  
General government balance and debt  
1980-2007



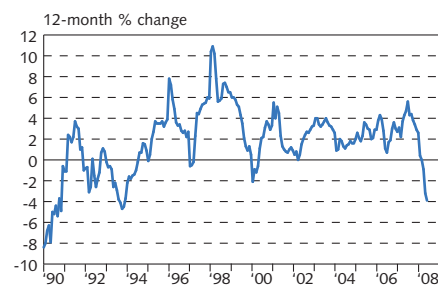
Sources: Statistics Iceland, Central Bank projections.

Chart 17  
Household debt as percentage  
of disposable income 1980-2007<sup>1</sup>



1. New classification from 2003 (blue columns). Estimate for 2007.  
Source: Central Bank of Iceland.

Chart 18  
Real wages January 1990 - May 2008



Source: Statistics Iceland.

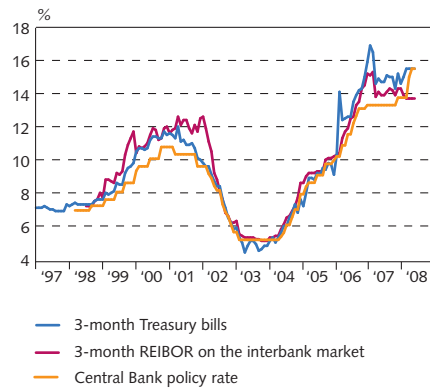


Chart 19  
Unemployment and labour participation<sup>1</sup>  
January 1996 - May 2008



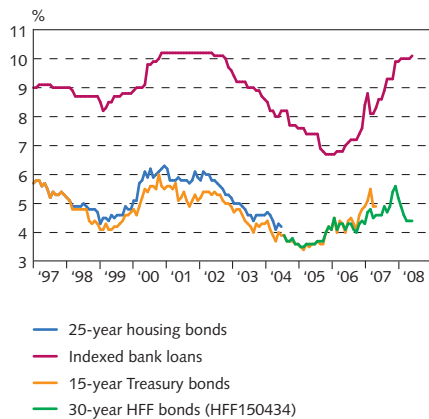
1. Statistics Iceland labour market survey 1996-2007.  
Sources: Directorate of Labour, Statistics Iceland, Central Bank of Iceland.

Chart 20  
Short-term interest rates  
January 1997 - May 2008  
At month-end



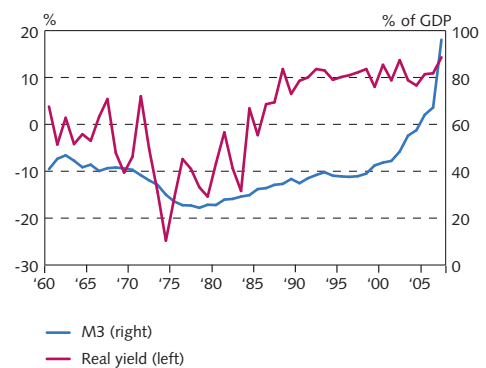
Source: Central Bank of Iceland.

Chart 21  
Long-term interest rates  
January 1997 - May 2008  
At month-end



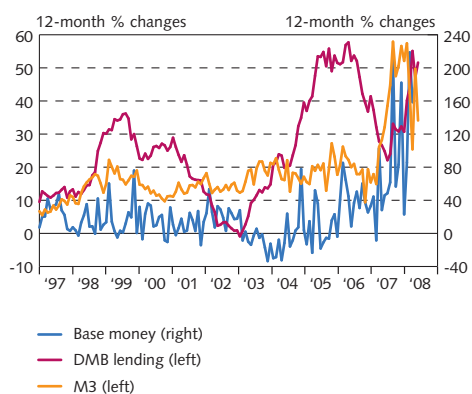
Source: Central Bank of Iceland.

Chart 22  
Real yield and broad money 1960-2007<sup>1</sup>  
Real yield on non-indexed bank loans and M3 as percent of GDP



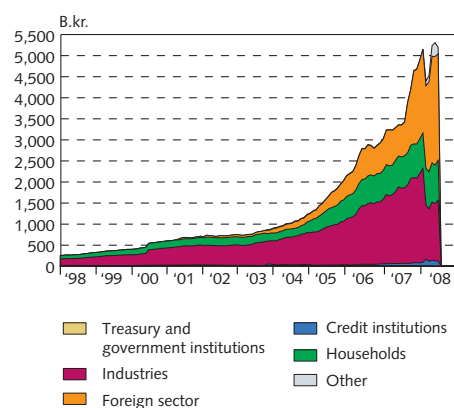
1. Latest data are preliminary.  
Source: Central Bank of Iceland.

Chart 23  
M3, DMB lending and base money  
January 1997 - May 2008<sup>1</sup>



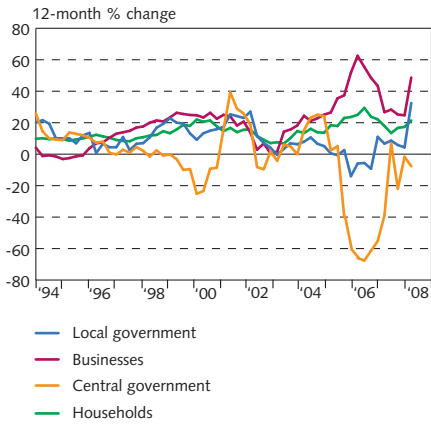
1. Latest figures are preliminary.  
Source: Central Bank of Iceland.

Chart 24  
Deposit money bank lending by sector  
January 1998 - May 2008<sup>1</sup>



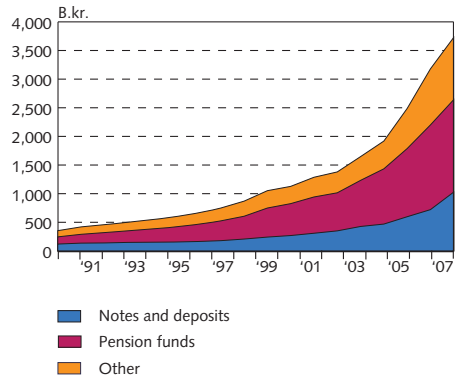
1. Reclassification of lending in September 2003 based on the [SAT-95 standard led to a reduction in household debt figures and an increase in business and municipalities' debt figures. Latest figures are preliminary.  
Source: Central Bank of Iceland.

Chart 25  
Growth of credit system lending  
Q1/1994 - Q1/2008  
Lending by sector<sup>1</sup>



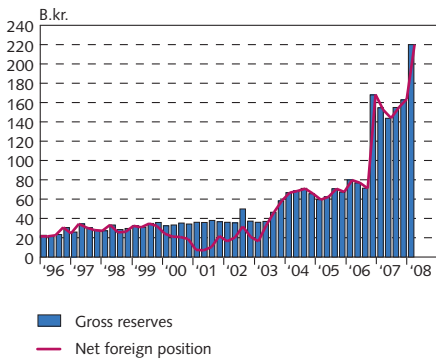
1. Reclassification of lending in September 2003 based on the ÍSAT-95 standard led to a reduction in household debt figures and an increase in business and municipalities' debt figures. Latest figures are preliminary. Source: Central Bank of Iceland.

Chart 26  
Credit system liabilities at year-end  
1990-2007<sup>1</sup>  
At current prices



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

Chart 27  
Reserve assets and Central Bank net foreign position  
Q1/1996 - Q1/2008<sup>1</sup>  
Quarterly, at current exchange rates



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

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