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3rd Quarter

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## MONETARY REVIEW 3rd QUARTER 2009

The small picture on the front cover shows the "Banker's" clock, which was designed by Arne Jacobsen for the Danmarks Nationalbank building.

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# Recent Economic and Monetary Trends

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*This review covers the period from the beginning of June to mid-September*

## **SUMMARY**

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Global economic activity has declined strongly over the past year, but seems to have bottomed out, according to several indicators. Many countries pursue highly expansionary fiscal and monetary policies, and the financial markets, as well as consumers and business enterprises, are now more optimistic. Confidence indicators have improved since the spring, and industrial production has ceased to fall in a number of countries. In addition, world trade has begun to stabilise after the significant decrease at the end of 2008. The signs of improvement have led international organisations to make upward revisions of their estimates of growth in the gross domestic product, GDP, in the major economies in 2010. The reversal is fragile, and it is uncertain how the economies will perform once the effects of the expansionary economic policies start to fade.

Output in Denmark was more than 5 per cent lower in the 2nd quarter of 2009 than at end-2007. Confidence indicators have improved recently, retail sales increased from June to July, and output is showing signs of stabilising. The housing market remained weak in the 2nd quarter of 2009, and unemployment continued to rise, while wage inflation slowed down. Annual wage inflation was still higher than abroad, though.

The accommodative fiscal-policy stance in Denmark in 2009 and 2010 and the weak economic activity are expected to lead to considerable government deficits in the coming years. Owing to the size of the government debt, an even greater fiscal improvement is required for Denmark to be able to tackle the demographically induced increase in the structural budget deficit in future. Further easing of fiscal policy in 2010 will reinforce the need for consolidation due to rising interest costs. Revision of the government's 2015 plan with a view to improving public finances after 2011 would strengthen the credibility of fiscal policy and reduce the risk of higher interest rates in respect of financing of the larger government debt. Furthermore, such a plan would be a natural continuation of the medium-term orientation of the government budgets in the last 12 years.

Danmarks Nationalbank has purchased considerable amounts of foreign exchange in the market over the summer, and the foreign-exchange reserve rose to kr. 374 billion at end-August. Consequently, Danmarks Nationalbank has continued to lower its monetary-policy interest rates, and the lending rate was 1.35 per cent at the beginning of September. The banks have increased their interest-rate margins on corporate lending since the autumn of 2008, and credit standards have been tightened. Total lending by banks and mortgage-credit institutes in Denmark has slowed down, but this is by no means unusual given the very weak demand for credit as a result of the poor economic conditions.

## THE INTERNATIONAL ECONOMY

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The global economy is recovering from the strongest recession since World War II. After a period of deep recession in late 2008 and early 2009, there are signs that output has bottomed out. The sentiment in the financial markets has reversed as a result of extensive economic-policy stimulus, and consumer and business confidence is slowly recovering.

A common feature of the major economies is, however, that most of the emerging growth in demand can be attributed to the public sector or to government stimulus to demand in the private sector. Fiscal and monetary-policy accommodation is historically large, and there are no signs yet of the major economies entering a period of self-sustaining growth driven by private-sector demand. The reversal is fragile, and it is uncertain how the economies will perform once the economic-policy stimulus is withdrawn over the coming years. Determining the right time for this withdrawal alone represents a major economic-policy challenge.

The recession has hit most countries almost simultaneously due to the international division of labour and the interconnected financial markets, but there are differences between the countries in the current economic environment. China and India are again experiencing considerable economic growth, and in some industrialised countries, including Japan, Germany and France, output picked up a little in the 2nd quarter of 2009, while the decline in output slowed down in many other countries. In the USA, the housing market is showing the first signs of improvement since 2006. Housing prices have stabilised<sup>1</sup>, and the number of transactions has risen in recent months. Nevertheless, private consumption in the USA was still weak in the 2nd quarter of 2009. Japan

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<sup>1</sup> Based on recent statistics of month-to-month development in the Case-Schiller index and statistics from the Federal Housing Finance Agency.

and Germany, economies with a large export content, were hit extraordinarily hard by the marked decline in world trade at the end of 2008 and the beginning of 2009. Manufacturing and sales of cars especially have decreased but now appear to have stabilised *inter alia* as a result of the popular subsidies for "scrap and buy new" schemes for cars in many countries. The downturn in world trade has ceased since January, but clear signs of a reversal have not yet emerged.

In the major industrialised economies, business enterprises have cut their production to such an extent that inventories have been considerably diminished. If inventories are more or less exhausted, it may be necessary to increase production in the near future in order to meet demand. This could contribute to a temporary increase in growth in the coming quarters.

In light of the signs of a global economic recovery, market participants expect economic growth in e.g. the USA, Japan and China in 2010, cf. Table 1, while the outlook for Europe is perceived as weaker. Overall, the economy will pick up slowly and modestly.

Recent quarters have seen strong growth in household savings in many industrialised economies as a result of shrinking wealth and growing uncertainty about the economic outlook. In the USA, the household savings ratio has been 4-6 per cent of disposable income in recent months, compared with 1-2.5 per cent in 2005-07. A major share of the fiscal-policy loosening measures directly targeted at the households has resulted in increased savings. The tendency of rising savings is also observed in European countries, e.g. in the UK, where the savings ratio had fallen to a very low level, and in Germany, where the savings ratio was considerably higher to begin with.

MOST RECENT ESTIMATES OF DEVELOPMENT IN REAL GDP Table 1

	OECD		Consensus		Weights	
	2009	2010	2009	2010	Global economy	Denmark's exports
USA .....	-2.8	-	-2.6	2.3	23.5	5.5
Euro area .....	-3.9	-	-4.3	0.6	22.5	39.8
Germany .....	-4.8	-	-5.8	0.7	6.0	17.7
France .....	-2.1	-	-2.8	0.4	4.7	4.4
Italy .....	-5.1	-	-5.1	0.3	3.8	3.1
UK .....	-4.7	-	-4.3	0.9	4.4	8.3
Japan .....	-5.6	-	-6.1	1.3	8.1	2.0
China .....	-	-	8.3	9.3	7.3	1.9
India .....	-	-	6.2	7.2	2.0	0.5

Note: Weights in the global economy are 2008 figures at market exchange rates from the IMF's *Economic Outlook* database, April 2009. The weights for Danish exports are for 2008.

Source: IMF, *World Economic Outlook*, April 2009 database; OECD, interim estimates September 2009; Consensus Inc, consensus estimates August 2009; and Statistics Denmark.

A higher household savings ratio in countries where the ratio had been very low in recent years is a sound trend in structural terms. However, a rising household savings ratio reduces the impact of the current measure to ease fiscal policy. If this trend continues, it will lead to weak development in consumption and to slower economic improvement once public-sector demand normalises. In that case, the economies will have considerable spare capacity for a prolonged period, which will dampen business investment.

Recent lending surveys in the US and the euro area indicate continued tightening of the banks' credit standards, albeit at a slower pace than previously. Demand for credit is decreasing in step with the slowdown in the real economy. In the major economies, lending by the banks as a ratio of GDP does not seem to be falling more than observed in previous recessions.

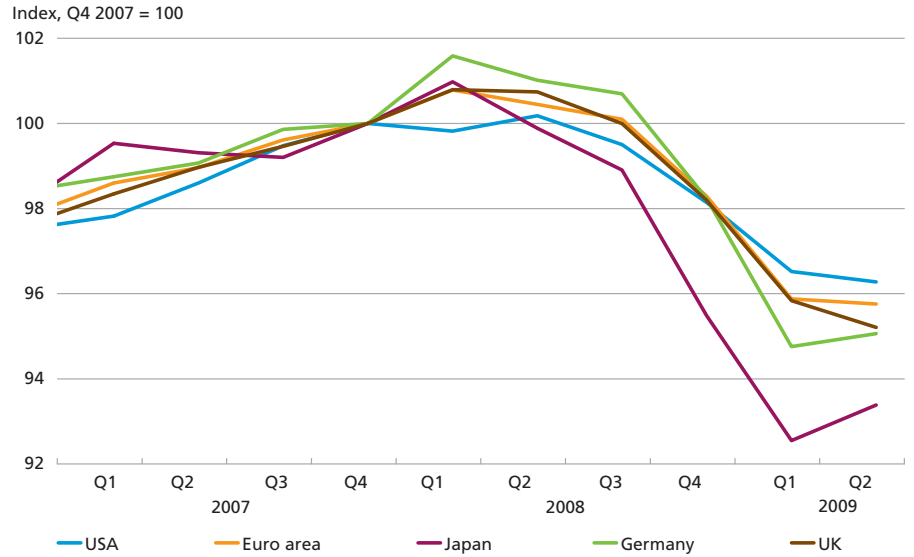
The labour market is still weak in most industrialised countries, and unemployment continues to rise. In view of the outlook for 2010 with lower-than-normal output, unemployment in many countries is expected to grow well into 2010. In the USA, growth in unemployment has slowed during the summer after having increased markedly since the end of 2007. The euro area has seen a substantially less pronounced increase than the USA. Germany in particular has seen only a limited increase in unemployment due to such factors as the widely used "*Kurzarbeit*" scheme, whereby the government steps in with temporary payroll subsidies for reduced working hours.

It is still too early to take stock of the economic effects of the financial crisis in a forward-looking perspective, but some factors already stand out. Firstly, all major economies have experienced a significant drop in output, which was 4-7 per cent lower in the 2nd quarter 2009 than at the onset of the crisis, cf. Chart 1. It will probably take the industrialised economies several years to return to the pre-recession output level. Secondly, the crisis has presumably reduced the potential output of the economies, cf. Box 1.

### **Price developments**

Inflationary pressures are continuing to ease in the industrialised countries. In the USA and the euro area, consumer prices were lower in July 2009 than in July 2008, primarily due to the high oil and food prices in 2008. Inflation excluding oil and food prices has shown a limited decrease despite the considerable degree of spare capacity in the economies. In the USA, consumer price inflation excluding energy and food was around 1.5 per cent year-on-year in the summer of 2009, compared with 2.5 per cent a year before, while the euro area shows a decline from almost 2 per cent in July 2008 to 1.3 per cent in July 2009.

OUTPUT LOSS IN MAJOR INDUSTRIALISED COUNTRIES Chart 1



Note: Development in GDP at constant prices. Seasonally adjusted data. 4th quarter of 2007=100 in the index as this has been determined as the beginning of the recession in the USA by the National Bureau of Economic Research, which determines dates for recessions. The most recent observations are from the 2nd quarter of 2009.  
 Source: Reuters EcoWin and own calculations.

The decreasing consumer prices seem to have affected only the short-term price expectations, while the medium-term and long-term expectations seem to be well anchored in most countries. The rate of wage increase is declining in the industrialised economies as a result of the weak labour markets. In the USA, wage inflation has dropped to the lowest level in 25 years, and nominal wages are falling in the manufacturing sector. The euro area has seen a relatively strong decrease in wage inflation, mainly attributable to reductions in working hours and flexible wage elements such as bonuses, etc., while declining growth in hourly wages played only a minor role.

Since the effects of the high commodity prices until mid-2008 will abate during the autumn, consumer price inflation is expected to be back in positive territory towards the end of the year. Moreover, commodity prices have surged again since the turn of the year, which will contribute to an upward trend in consumer prices from the autumn. Oil prices have risen from less than 40 dollars per barrel at the turn of the year to around 70 dollars per barrel at the beginning of September. Metal prices also showed considerable increases during the spring, while food prices have been more stable. The main driver of the growth in commodity prices has been strong demand for iron ore, coal and oil in China.

## POTENTIAL OUTPUT AND GROWTH

Box 1

Potential output is the output level that is compatible with stable development in wages and prices and normal capacity utilisation. Potential output is determined by the underlying levels of capital and labour and how efficiently capital and labour are used in production. Potential output is not observable, so it must be estimated. The level of and growth in potential output are thus subject to uncertainty.

The European Commission, the OECD and the IMF have all made significant downward adjustments to their estimates of potential output in the USA, the euro area and Denmark in 2009-10 as a result of the ongoing crisis, cf. Table 2.

ESTIMATES OF GROWTH IN POTENTIAL OUTPUT, AVERAGE 2009-10

Table 2

Per cent	OECD		IMF		European Commission	
	Pre-crisis	Most recent	Pre-crisis	Most recent	Pre-crisis	Most recent
Euro area .....	1.9	0.9	2.0*	0.2	1.5	0.7
Denmark .....	1.0	0.5	2.2	1.5	1.4	0.7
USA .....	2.3	1.6	2.5	1.2	1.6	1.3

Note: The OECD and the European Commission release estimates every six months, and the IMF releases estimates for the euro area and the USA on an annual basis, while the estimate for Denmark is released every two years. The most recent OECD estimate is from June 2009, while the most recent Commission estimate is from May 2009. The most recent IMF estimates of growth in potential output for the USA and the euro area are from July 2009, and from December 2008 concerning Denmark. \*The IMF's pre-crisis estimate of growth in potential output in the euro area covers 2009 only.

Source: OECD, IMF and European Commission.

The downward adjustments have been motivated by the following factors:

- Tighter credit standards and more limited access to financing reduce investment.
- Lower demand and output dampen investment, thereby limiting the size of the capital stock.
- Reduced research and development activity means lower efficiency gains from the use of capital and labour in production.
- Rising unemployment is reflected in higher structural unemployment due to the increased risk of long-term unemployment.

A reduction in growth in potential output has been observed in previous financial crises.

The European Commission and the OECD find it most likely that the growth in potential output will gradually return to pre-crisis levels as the economic conditions improve, cf. the broken yellow line in Chart 2. The faster growth returns to pre-crisis levels, the more limited the loss of welfare due to the crisis will be.

There is a risk that the period of low growth in potential output will be prolonged and that growth will not return to its pre-crisis levels, cf. the broken green line in Chart 2. This may be the case if reforms are implemented that are to mitigate the crisis-induced loss of welfare in the short term, but which will permanently reduce labour-market flexibility and dampen growth in the efficiency of capital and labour in production.



## COMPOSITE INDICATOR FOR FINANCIAL CONDITIONS IN THE USA

Chart 3



Note: Bloomberg's composite financial indicator – Bloomberg's Financial Conditions Index – summarises developments in the money, bond and stock markets, providing an overall picture of the conditions in the financial markets in the USA. The index summarises selected credit spreads in the money and bond markets and the situation in the stock market measured in terms of stock prices and volatility. The index is normalised and states the number of standard deviations from the average in the period January 1994 to June 2008. Deviations from zero thus express the distance to the average in the period measured as standard deviations; a negative deviation of -12 is a situation very far from "normal". See also Bloomberg Financial Conditions Watch, 20 July 2009. Daily observations; most recently from 4 September 2009.

Source: Bloomberg.

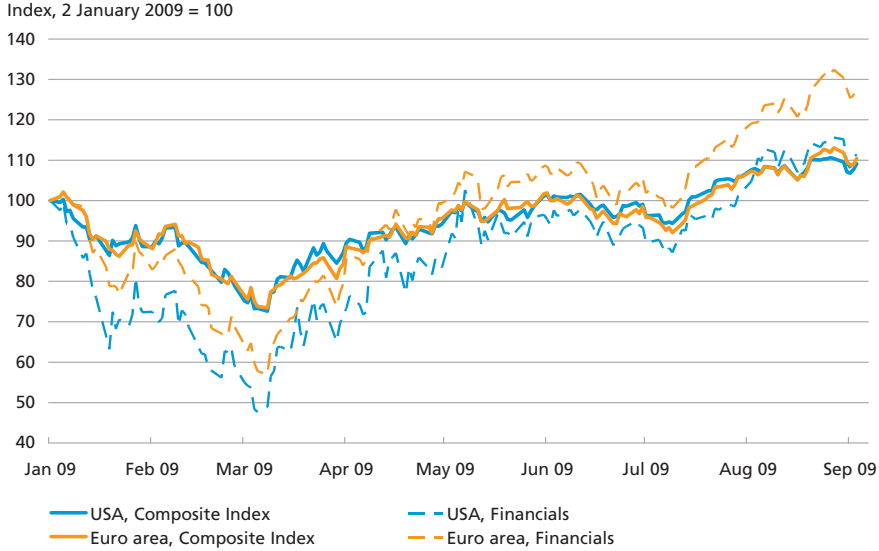
Stock prices worldwide have risen markedly since mid-July following falls throughout June. In mid-September, stock prices in the USA, the euro area and the UK had risen by 8-9 per cent compared with the beginning of June. The increases have been driven by the investors' more optimistic view on the economic growth outlook. The financial stock indices, which have increased by 14-18 per cent since the beginning of June, were boosted by better-than-expected interim financial statements from several financial institutions in the USA and Europe, cf. Chart 4. Stock prices in the emerging market economies taken as one have soared in the last six months, by approximately 80 per cent from March to September<sup>1</sup>. The corresponding figure was approximately 50 per cent in the USA and the euro area.

In June, eight major US banks were allowed by the US authorities to repay 68 billion dollars that they had received last autumn under the 700-billion-dollar Troubled Asset Relief Program, TARP. The repayments illustrate the return of a certain degree of stability in the financial sys-

<sup>1</sup> Measured in terms of the weighted MSCI index for emerging market economies in dollars.

## STOCK PRICES IN THE USA AND THE EURO AREA

Chart 4



Note: For the USA, the stock indices applied are Standard & Poor's 500 Composite Index and Standard & Poor's 500, Financials. For the euro area, the stock indices applied are Euro STOXX, Broad Index and Euro STOXX 600, Financials.

Source: Reuters EcoWin.

tem. However, according to the IMF<sup>1</sup>, banks and other financial institutions are still facing further write-downs as their losses on loans increase in the wake of the real-economic downturn. The IMF's assessment is that only about one third of the expected write-downs have been made. Up to September, the largest European banks underwent stress tests to measure their ability to weather the economic crisis. The overall objective of the European stress tests in the financial sector is to assess the sustainability of the financial sector as a whole.

Since June, 10-year government bond yields in the USA, the euro area and the UK have shown relatively pronounced volatility within a band of 3.2-4 per cent. At the beginning of September, 10-year government bond yields in the USA, the euro area and the UK were 3.4 per cent, 3.3 per cent and 3.6 per cent, respectively. The foreign-exchange markets have been relatively stable over the summer. The euro's exchange rates against the dollar, the yen, the Swiss franc and the pound sterling were almost the same in September as in June. In this period, the Swedish krona strengthened considerably vis-à-vis the euro from a weak level.

<sup>1</sup> IMF, *Global Financial Stability Report*, April 2009 and *Global Financial Stability Report*, update, July 2009.

## Economic policy

The monetary-policy stance continues to be highly expansionary in the major economies. The central banks of the USA, Japan and the euro area have maintained both the low monetary-policy interest rates and the extraordinary measures gradually introduced since September 2008 in order to boost the banks' liquidity and reduce credit spreads in specific markets. The Bank of England and Sveriges Riksbank announced further easing of monetary policy over the summer. On 6 August, the Bank of England announced that it would increase the size of its Asset Purchase Programme by 50 billion pounds, to 175 billion pounds. On 2 July, Sveriges Riksbank lowered the repo rate by 25 percentage points to 0.25 per cent, citing the weak economic development.

Central banks have eased their monetary-policy stance considerably during the crisis. First and foremost, monetary-policy interest rates have been lowered substantially to 0-1 per cent, and in their announcements the central banks have emphasised that the low levels of interest rates will be maintained for a relatively long period. This has pulled market rates further down. Moreover, the central banks have, to a varying degree, introduced unconventional instruments aimed at boosting credit growth by offering ample liquidity to the banks. In addition, the Federal Reserve, the Bank of England and the Bank of Japan and to a lesser extent the European Central Bank, ECB, have purchased bonds in order to ease the situation for specific segments in the financial market.

Overall, monetary-policy interest rates are historically low in the major economies, and the central banks' balance sheets are still strongly expanded in the late summer of 2009 as a result of extraordinary measures, cf. Chart 5. Consequently, the monetary-policy stance cannot be assessed solely on the basis of official interest rates. The central banks' unconventional instruments must also be taken into account. In a number of segments in the money and capital markets, interest rates are lower than they would otherwise have been, but this effect is very uncertain, and it is not clear to which extent the ample liquidity has boosted the credit supply.

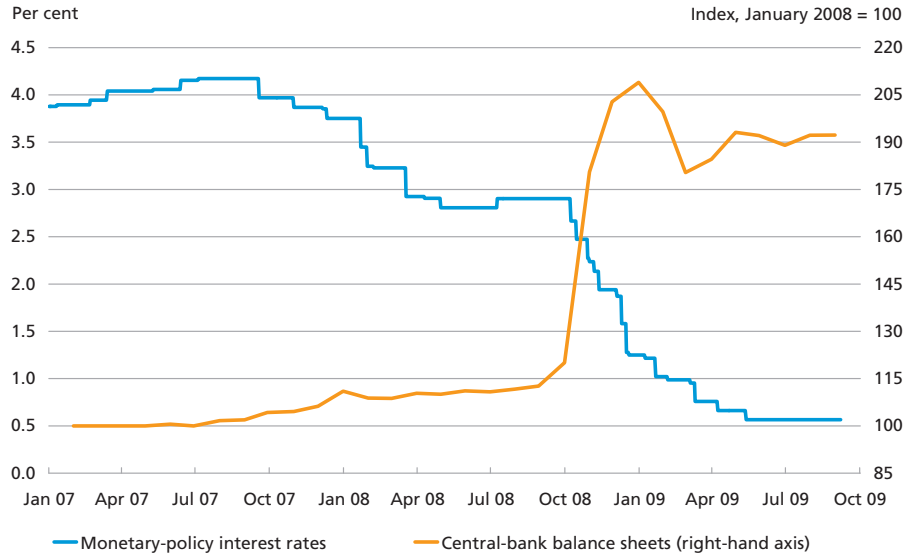
The global crisis has led to deterioration of public finances worldwide. For the G20 countries taken as one, the budget deficit in both 2009 and 2010 is expected to exceed that of 2007 by 5.5 per cent of GDP. Furthermore, the debt is expected to increase by approximately 40 per cent of GDP by 2014, an unprecedented increase since World War II.<sup>1</sup> The

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<sup>1</sup> Horton, Mark, Manmohan Kumar and Paolo Mauro, *The State of Public Finances: A cross-country Fiscal Monitor*, IMF, *Staff Position Note*, 30 July 2009.

**WEIGHTED MONETARY-POLICY INTEREST RATES AND CENTRAL-BANK BALANCE SHEETS IN MAJOR ECONOMIES**

Chart 5



Note: Weighted average of monetary-policy interest rates and central-bank balance sheets, respectively, in the USA, Japan, the euro area and the UK. GDP at 2008 market prices used as weights.  
 Source: Reuters EcoWin and own calculations.

fiscal policy pursued during the crisis is described in more detail in the article Impact of Fiscal Policy during the Crisis on p. 77.

**NORDIC GOVERNMENT LOANS AND IMF BORROWING PROGRAMMES**

In November 2008, the other Nordic countries provided government loan commitments to Iceland tied to Iceland's IMF programme. The loan agreement between Iceland and Denmark, Finland, Sweden and Norway was signed on 1 July 2009. It allows Iceland to borrow up to 1.775 billion euro from the other Nordic countries. The aim is to provide long-term financing for Iceland and to help Iceland strengthen its foreign-exchange reserves during its severe economic and financial crisis. The government loans are linked to the IMF programme for Iceland, and the Nordic loans are paid out in step with payments under the IMF programme. A condition under the IMF programme is Iceland's compliance with a number of economic-policy terms relating to e.g. fiscal policy, the financial sector and international capital flows. Denmark's share of the Nordic government loans amounts to 480 million euro. On 16 July, Iceland applied for EU membership.

In July, Latvia and the IMF's staff concluded an agreement on a revised economic-policy programme to pave the way for the conclusion of the

first programme review under Latvia's programme with the IMF and disbursement of 178 million Special Drawing Rights, SDRs. Under the IMF programme, Latvia has also received loans from the EU and the World Bank among others. Furthermore, the Nordic countries have decided to grant government loans along the same lines as the scheme for Iceland, subject to satisfactory stabilisation policy under the IMF programme. Simultaneously with the agreement on the revised IMF programme, the EU paid out the second tranche of 1.2 billion euro of its loan to Latvia. On 27 August, the IMF's Executive Board approved the conclusion of the first programme review.

As an element of the strategy to enhance global liquidity, on 7 August the IMF's Board of Governors approved the allotment of SDRs to the IMF's member countries for a total of 250 billion dollars. The background to the SDR allotment is the declaration of the G20 summit in London on 2 April 2009. The SDR allotment provides an extra buffer that allows countries needing "hard" currency to sell allotted SDRs against currency from a member country with a strong external position. Denmark belongs to the group of member countries with a sufficiently strong currency position that have concluded voluntary agreements with the IMF on trading SDRs for hard currency within agreed limits. SDRs are allotted according to the member countries' IMF quotas with 28 August as the value date.<sup>1</sup> Consequently, Denmark's SDR allotments have been increased from 178.9 million SDRs to 1.53 billion SDRs.

## **THE DANISH ECONOMY: MONETARY AND EXCHANGE-RATE CONDITIONS**

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In recent months, the krone has been stable vis-à-vis the euro at a level close to its central rate in ERM II.

With effect from 14 August 2009, Danmarks Nationalbank lowered the lending rate by 0.1 per cent to 1.45 per cent, the rate of interest on certificates of deposit by 0.1 per cent to 1.35 per cent and the discount rate and current-account rate by 0.1 per cent to 1.10 per cent. The spread between Danmarks Nationalbank's lending rate and the ECB's rate of interest on its main refinancing operations (the monetary-policy interest-rate spread) thus narrowed from 0.55 per cent to 0.45 per cent. The background to the interest-rate reduction was the development in

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<sup>1</sup> In addition, a special SDR allotment was adopted by the IMF's Executive Board in 1997, but an 85-per cent majority of the votes in the IMF was not secured until June 2009, when it was ratified by the USA. This allotment contributed a further 134.8 million SDRs to Denmark's SDR allotment with 9 September as the value date.

the foreign-exchange market, where Danmarks Nationalbank had been purchasing considerable amounts of foreign exchange for a period.

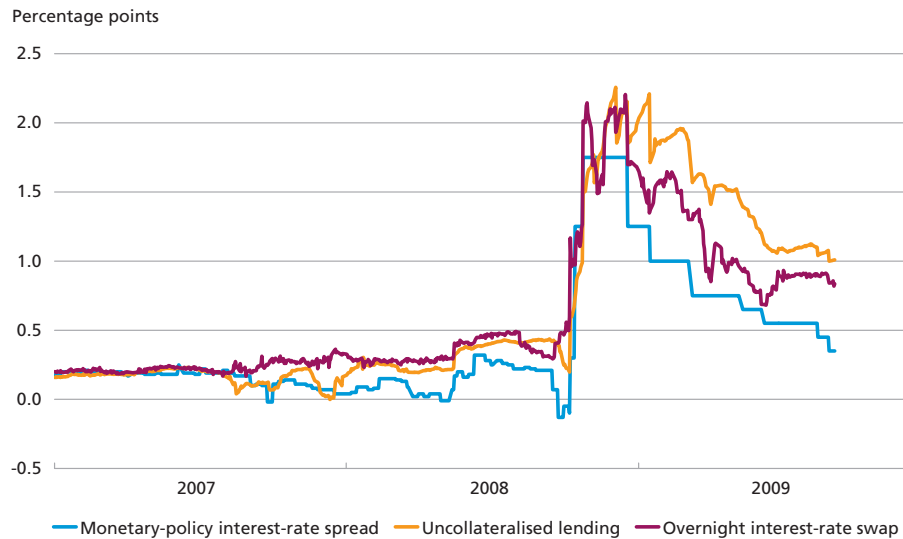
With effect from 28 August 2009, Danmarks Nationalbank lowered the lending rate by 0.1 per cent to 1.35 per cent. The rate of interest on certificates of deposit and the discount rate and the current-account rate were also lowered by 0.1 per cent to 1.25 per cent and 1 per cent, respectively. The monetary-policy interest-rate spread thus narrowed further to 0.35 per cent. This interest-rate reduction was motivated by continued purchases of foreign exchange in the market, and by end-August the foreign-exchange reserve had grown to kr. 374 billion. Around kr. 10 billion of the increase can be attributed to the SDR allotment.

The spread between money-market interest rates in Denmark and the euro area is somewhat wider than the monetary-policy interest-rate spread, cf. Chart 6. One underlying factor is the very low money-market interest rates in the euro area as a result of the ECB's provision of ample liquidity e.g. via 1-year loans.

In connection with an interest-rate adjustment at the beginning of June 2009, Danmarks Nationalbank introduced a margin of 0.1 per cent between the lending rate and the rate of interest on certificates of deposit. The aim was to give banks and mortgage-credit institutes an

MONETARY-POLICY INTEREST-RATE SPREAD AND 3-MONTH SPREAD BETWEEN DENMARK AND THE EURO AREA

Chart 6

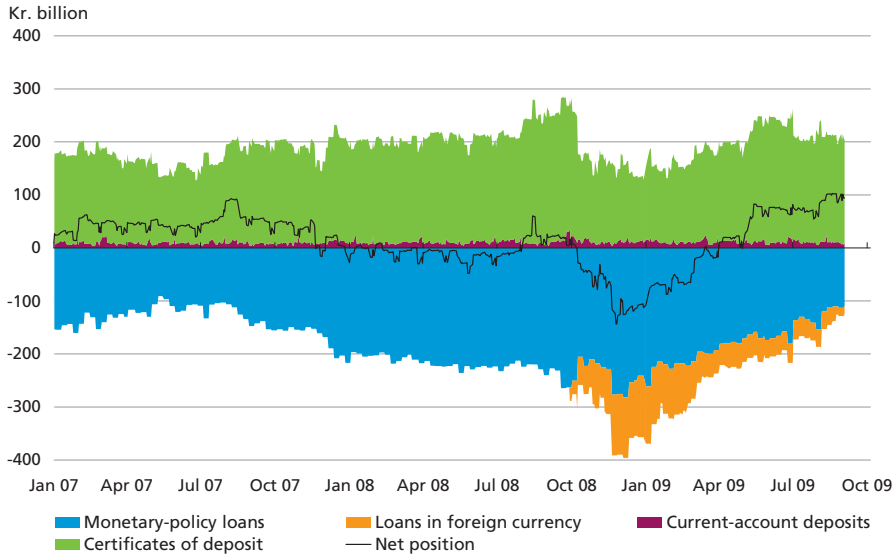


Note: The monetary-policy interest-rate spread is the spread between Danmarks Nationalbank's lending rate and the ECB's marginal rate on its main refinancing operations. In October 2008, the ECB switched from allotting a given amount of liquidity at a variable rate to full allotment at a fixed rate. The interest-rate spread for uncollateralised lending is the Cibur-Euribor spread. The spread for interest-rate swaps is the spread between the fixed 3-month interest rates in a swap (at the overnight interest rate) in Denmark and the euro area. The most recent observations are from 4 September 2009.

Source: Danmarks Nationalbank and Reuters EcoWin.

NET POSITION OF BANKS AND MORTGAGE-CREDIT INSTITUTES VIS-À-VIS  
DANMARKS NATIONALBANK

Chart 7



Note: Stocks. The banks' and mortgage-credit institutes' loans in foreign currency from Danmarks Nationalbank are not included in their net position vis-à-vis Danmarks Nationalbank. Loans in foreign currency are granted by Danmarks Nationalbank to banks and mortgage-credit institutes on the basis of swap lines with the Federal Reserve and the ECB. The most recent observations are from 4 September 2009.

Source: Danmarks Nationalbank.

incentive to even out mutual liquidity differences via the money market rather than using Danmarks Nationalbank's facilities. The first open market operation with this margin took place on 12 June 2009. From 11 June to the beginning of September, the net position of the banks and mortgage-credit institutes vis-à-vis Danmarks Nationalbank rose by kr. 20 billion, cf. Chart 7. In this period, the institutions reduced their borrowing by kr. 61 billion, while their current-account deposits and holdings of certificates of deposit were reduced by kr. 42 billion in total. The effect of the interest-rate margin is difficult to measure accurately, but since its introduction the banks and mortgage-credit institutes have overall reduced their gross utilisation of Danmarks Nationalbank's facilities.

At the beginning of September, the banks and mortgage-credit institutes had raised loans in foreign currency for kr. 16 billion from Danmarks Nationalbank in connection with the swap lines agreed with the Federal Reserve and the ECB. This is kr. 93 billion less than at the beginning of January. The temporary swap line agreed with the Federal Reserve has been extended until 1 February 2010. From the beginning of June to the beginning of September, Danmarks Nationalbank held three dollar auctions and two euro auctions. The dollar and euro auctions are described in more detail in the article on p. 47.

With effect from 17 July 2009, Danmarks Nationalbank has adjusted the temporary collateral base to include government-guaranteed unquoted bank bonds, etc. The rules for loans based on loan bills as collateral were also amended as of the same date, to include loan bills in the temporary collateral base. Consequently, loan bills can be pledged, without any interest premium, as collateral for all types of krone-denominated loans from Danmarks Nationalbank.

All other things being equal, government capital injections into banks and mortgage-credit institutes under Bank Rescue Package II increase the net position of the banks and mortgage-credit institutes vis-à-vis Danmarks Nationalbank. The deadline for application for government capital injections was 30 June 2009. On this date, 50 banks and mortgage-credit institutes had applied for a total of kr. 63 billion, of which kr. 35 billion had been disbursed. The remainder is planned to be disbursed before the end of the year to institutions that have applied and maintain their applications and also comply with the requirements in the Act on Government Capital Injections into Credit Institutions.

On 10 August, Roskilde Bank, which is being wound up, was transferred to the Financial Stability Company by Danmarks Nationalbank and the Danish Contingency Association. In addition to ownership of Roskilde Bank, the Financial Stability Company also took over a subordinated loan from Danmarks Nationalbank as well as the credit facility at Danmarks Nationalbank that had been made available to Roskilde Bank.

### **Bond yields and credit institution interest rates**

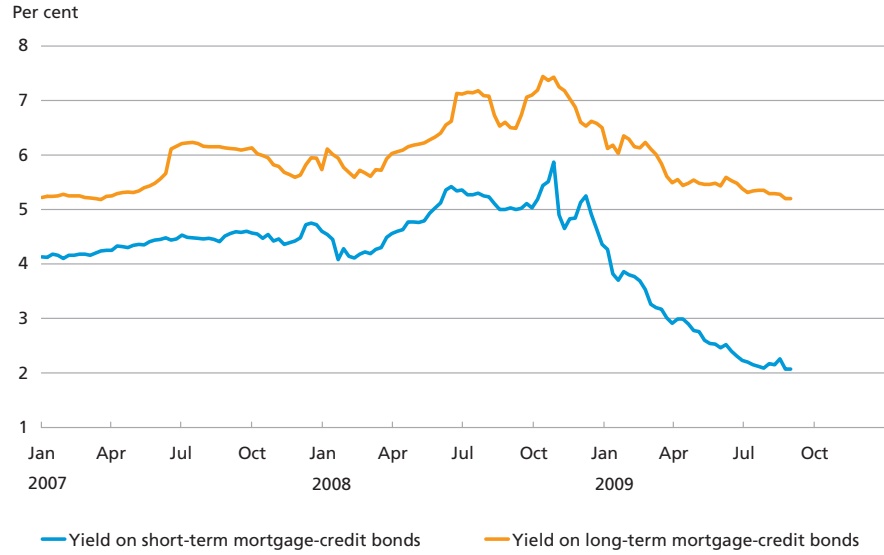
The 10-year Danish government bond yield was 3.7 per cent at the beginning of September, which is slightly lower than the level at the beginning of June. In the same period, the maturity-adjusted yield spread between Danish and German 10-year government bonds narrowed a little to 0.25 per cent.

Short-term and long-term Danish mortgage-credit bond yields have declined by 0.4 and 0.2 per cent, respectively, since the beginning of June and were 2.1 per cent and 5.2 per cent at the beginning of September, cf. chart 8. The low short-term yields and a steeper yield curve are the reasons why new issuance is mostly in non-callable fixed-rate bullet bonds ("fixed bullets"). As a result, the fixed-bullet auctions in December 2009 will involve large amounts, cf. the article Danish Mortgage-Credit Bonds during the Financial Turmoil on p. 51.

Retail interest rates have been reduced concurrently with Danmarks Nationalbank's reductions of the monetary-policy interest rates, although not on a one-to-one basis, cf. Chart 9. From November 2008,

MORTGAGE-CREDIT BOND YIELDS

Chart 8

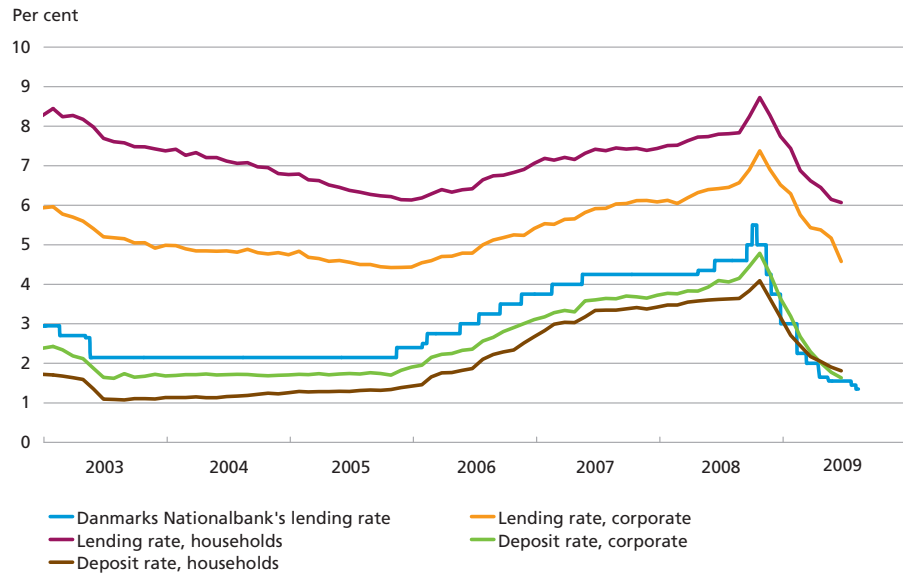


Note: Weekly data. Mortgage-credit bond yields are average yields to maturity, and the short-term yield is based on 1-year and 2-year non-callable mortgage-credit bonds, while the long-term yield is based on 30-year callable mortgage-credit bonds. The most recent observations are from calendar week 36, 2009.

Source: The Association of Danish Mortgage Banks.

THE LENDING RATE AND THE BANKS' AVERAGE INTEREST RATES

Chart 9



Note: Daily data for Danmarks Nationalbank's lending rate. Other interest rates are monthly averages for outstanding business. Corporate means non-financial corporations. The most recent observations are from 4 September for Danmarks Nationalbank's lending rate and July 2009 for the other interest rates.

Source: Danmarks Nationalbank.

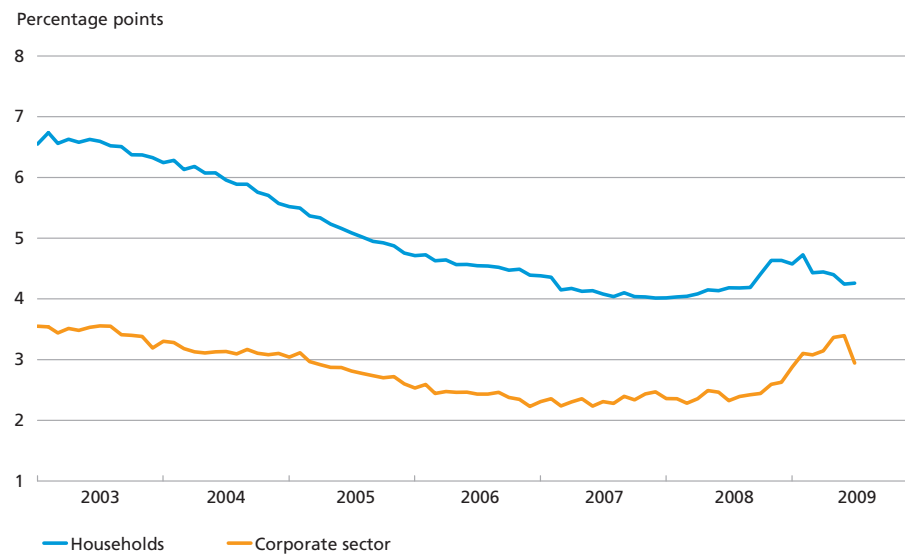
when Danmarks Nationalbank began to lower its monetary-policy interest rates, until July 2009, the banks' average lending rates to households and the corporate sector declined by 2.7 per cent and 2.8 per cent, respectively, while the deposit rates fell by 2.3 per cent and 3.1 per cent. A number of banks have announced their intention of reducing retail interest rates in September, citing Danmarks Nationalbank's most recent interest-rate reductions. However, Cibor is the yardstick for a large part of the banks' corporate lending.

Danish retail interest rates have largely mirrored retail rates in the euro area. In recent months, the main drivers of the development in the spread between lending rates to the corporate sector in Denmark and the euro area have been the monetary-policy interest-rate spread and the spread for uncollateralised money-market interest rates.

The interest-rate margin on corporate lending declined from June to July, cf. Chart 10, but is higher than in the autumn of 2008. The widening of the interest-rate margin can be attributed to several factors. The financial crisis has led to larger write-downs and losses, chiefly on corporate exposures. In addition, the risk premium on corporate lending has increased due to the weak economic development. Moreover, payment for the government guarantee under Bank Rescue Package I plays a role, and the financial crisis has generally made it more

THE BANKS' INTEREST-RATE MARGIN VIS-À-VIS HOUSEHOLDS AND THE CORPORATE SECTOR

Chart 10



Note: The interest-rate margin is calculated as the difference between the banks' average lending and deposit rates vis-à-vis households and the corporate sector, respectively. The corporate sector means non-financial corporations. The most recent observations are from July 2009.

Source: Danmarks Nationalbank.

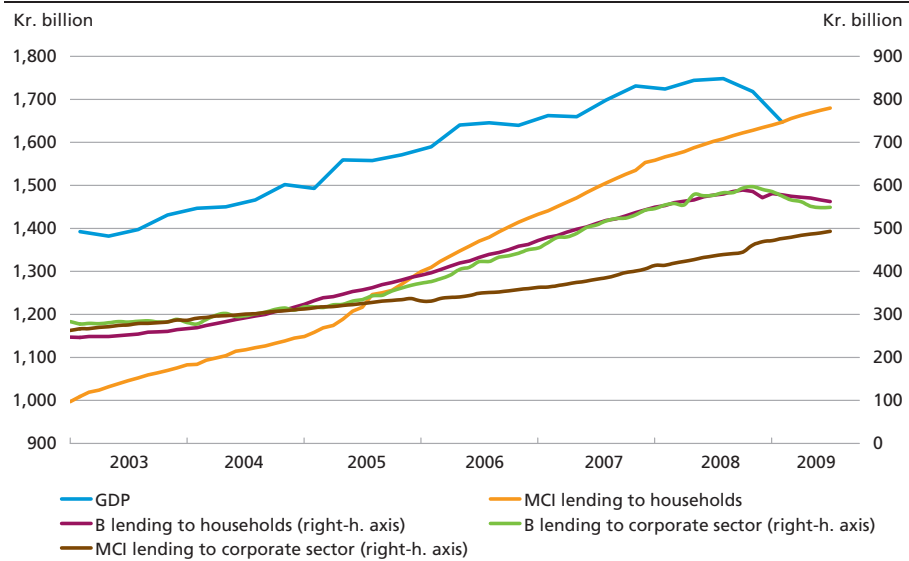
expensive for the banks to raise financing in the money and capital markets. According to Danmarks Nationalbank's lending survey, higher financing costs have been a contributing factor to the tightening of credit policies to the corporate sector since the 3rd quarter of 2008. The widening of the interest-rate margin should also be viewed against the backdrop of the need for consolidation in the banking sector with larger reserves and capital.

**Credit developments**

Total growth in lending to households and the corporate sector by banks and mortgage-credit institutes located in Denmark has continued its downward trend in recent months and was around 3 per cent year-on-year at the end of July. The banks' seasonally-adjusted lending to households has been decreasing since the end of 2008, whereas corporate lending has been relatively stable since May 2009 after having fallen in the preceding period, cf. Chart 11. Lending by the mortgage-credit institutes has continued to rise throughout the period. Consequently, a substitution is observed from bank credit to mortgage credit.

Lending patterns in Denmark have several features in common with patterns in a number of other European countries, which also showed

GDP AND LENDING BY BANKS AND MORTGAGE-CREDIT INSTITUTES TO HOUSEHOLDS AND THE CORPORATE SECTOR Chart 11

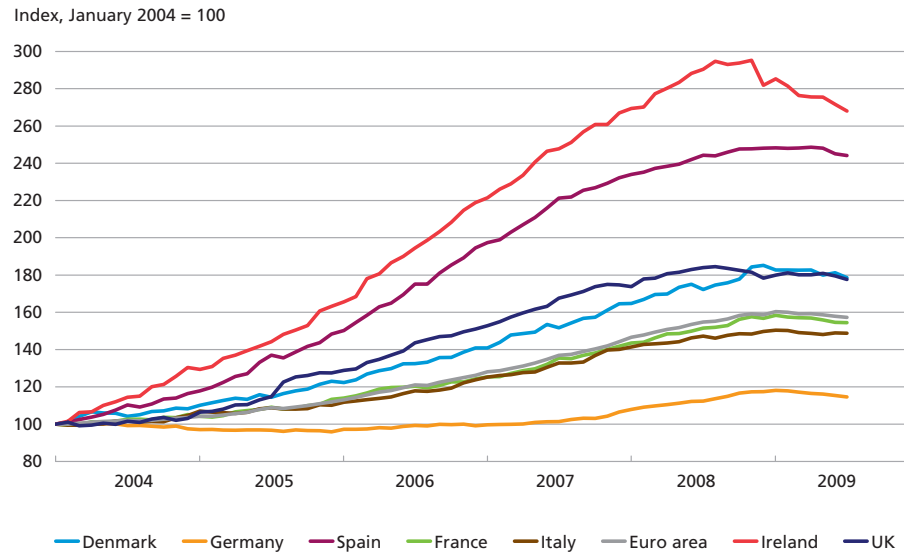


Note: MCI stands for mortgage-credit institutes. B stands for banks. Seasonally adjusted data. GDP at current prices adjusted to annual level. Monthly data for lending. Outstanding lending by banks and mortgage-credit institutes located in Denmark. The corporate sector is non-financial corporations. The most recent observations are from July 2009 for lending and the 1st quarter for GDP.

Source: Statistics Denmark and Danmarks Nationalbank.

CORPORATE LENDING IN SELECTED COUNTRIES

Chart 12



Note: Lending by Monetary Financial Institutions (MFIs) to non-financial corporations. The most recent observations are from July 2009.

Source: ECB Statistical Data Warehouse, Bank of England and Danmarks Nationalbank.

strong credit growth until 2008, followed by a slowdown, cf. Chart 12. The slowdown, particularly in corporate lending, has given rise to a discussion of whether the banks have reduced the supply of credit considerably more than the weak economic development would warrant, making it difficult for creditworthy borrowers to obtain financing. A credit crunch of this nature will as such have a dampening effect on economic development.

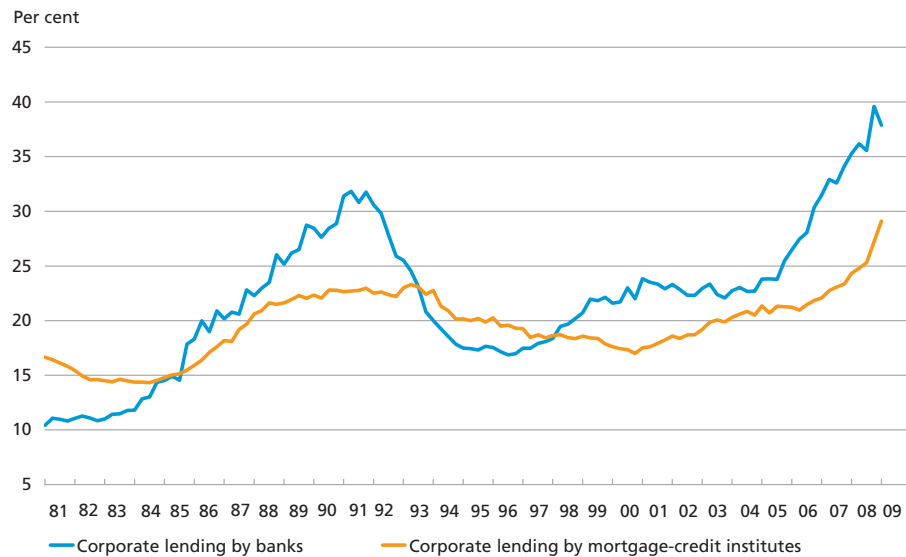
The assessment of whether a general credit crunch exists encompasses an analysis of various aspects of lending by banks and mortgage-credit institutes, including data on the actual development in credit and on how the banks and business enterprises assess the credit situation.

The decrease in the banks' corporate lending can be attributed primarily to drawings on overdrafts, which amount to around 40 per cent of outstanding corporate loans and have fallen by around kr. 48 billion since the turn of the year.<sup>1</sup> This is undoubtedly due to a combination of tighter credit standards and reduced demand. It should be borne in mind that, with effect from February, the deadlines for business enterprises' payment of VAT, income tax and labour-market contributions were extended. This is estimated to have had a liquidity effect of approximately kr. 50 billion. The gradual phasing-out of this scheme until the turn of the year will have a corresponding burdening effect on corporate liquidity.

<sup>1</sup> The figures cover the institutions reporting in full to Danmarks Nationalbank's MFI statistics.

CORPORATE LENDING AS A RATIO OF GDP SINCE 1981

Chart 13



Note: Corporate stands for non-financial corporations. Various corrections have been made for data breaks in the lending series back in time. Quarterly data. Seasonally adjusted GDP. The most recent observations are from the 1st quarter of 2009.

Source: Statistics Denmark and Danmarks Nationalbank.

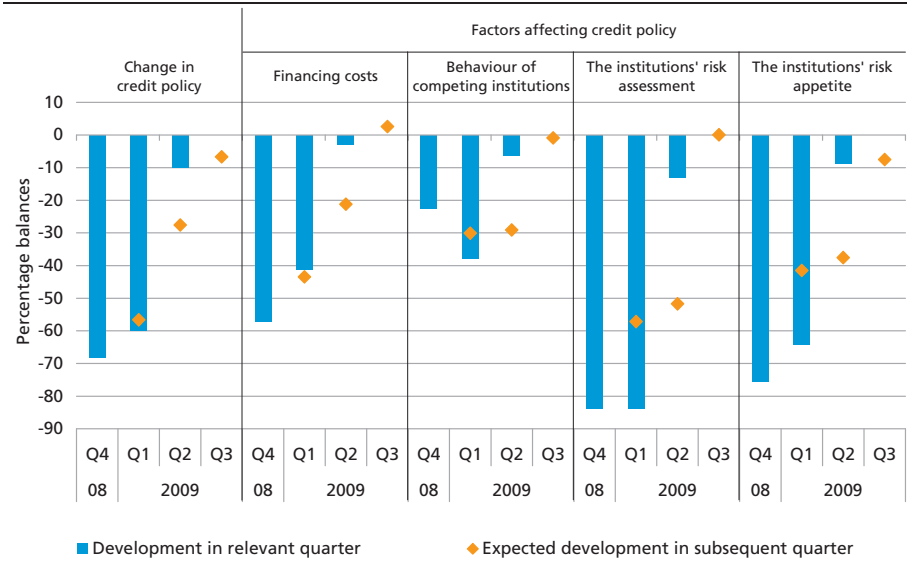
The development in GDP is an indicator of the transaction and financing requirements in the economy. The development in corporate credit has not been extraordinarily weak, given the economic trends. Viewed over a longer period, the recent weak development in credit has not been unusual, cf. Chart 13. Recent years have seen strong growth overall in lending as a ratio of GDP, which is currently at a high level. Decreases in lending as a ratio of GDP were also observed in previous periods, e.g. in the early 1990s, when the banks' earnings were also under pressure.

In addition to credit from banks and mortgage-credit institutes, other sources of financing for business enterprises include bond financing, loans from other enterprises, supplier and commercial credits as well as tax owed, etc. During 2008 and the 1st quarter of 2009, total credit to the corporate sector rose from 106 to 124 per cent of GDP. The relationship between total borrowing from banks and mortgage-credit institutes and other borrowing has been almost unchanged.

Danmarks Nationalbank's lending survey throws light on the development in the credit institutions' lending policies and thus on the extent to which lending is driven by supply factors. After significant tightening of credit standards to the corporate sector in two quarters, conditions in the 2nd quarter of 2009 were almost unchanged from the 1st quarter, cf. Chart 14.

CHANGE IN CREDIT INSTITUTIONS' CREDIT POLICIES FOR THE CORPORATE SECTOR AND THE UNDERLYING FACTORS

Chart 14



Source: Danmarks Nationalbank.

The lending survey shows quarter-on-quarter changes. In spite of the net response to the effect that credit standards were not tightened to any significant degree in the 2nd quarter of 2009, this should be viewed against the backdrop of the substantial tightening in the previous quarters, which is still in effect.

Given the economic slowdown, it is natural for the banks and mortgage-credit institutes to have tightened their credit standards to reduce the risk of losses on loans. The most significant underlying factor is the credit institutions' risk assessments, reflecting their assessments of the creditworthiness of borrowers, including the economic development. The risk appetite of the credit institutions has also played a role.

According to the lending survey, the tightening of credit standards by banks and mortgage-credit institutes has affected the conditions for corporate lending, resulting in e.g. higher prices and more stringent collateral requirements. The banks' total interest-rate margin has indeed widened since the autumn of 2008, after having narrowed over a relatively long period. An equivalent widening was seen in the early 1990s when the banks also suffered substantial losses. The collateral requirements are furthermore reflected in the substitution from bank loans to mortgage-credit loans.

Moreover, the lending survey provides information on the respondents' assessment of the development in the demand for loans. The insti-

tutions, particularly the banks, have reported falling demand for loans, which is consistent with the cyclical picture.

The business enterprises' assessment of the credit situation is another source of information on the supply and demand factors driving lending. On the basis of Statistics Denmark's confidence indicators, only a small share of the enterprises in the sectors of industry and building and construction state financial constraints as impediments to production, while insufficient demand is increasingly stated as a reason, cf. Charts 15 and 16.<sup>1</sup> This is consistent with Danmarks Nationalbank's lending survey.

Overall, the banks have tightened credit standards and increased their interest-rate margins, but this should be viewed in light of the too lenient credit standards before the crisis. In recent years, lending by banks and mortgage-credit institutes has risen strongly in relation to output and is now at a high level, viewed over a longer period. A downward adjustment would not be unusual and has been observed previously. At the same time, credit constraints have not been a significant impediment to production, and investment demand is very weak as a result of considerable spare capacity in terms of both the capital stock and the housing stock. These factors generally do not constitute sufficient evidence of a general credit crunch.

Previous business cycles in Denmark have shown that a credit squeeze does not to any significant degree impede an emerging upswing, since the business enterprises normally use retained earnings as a source of financing at the beginning of an upswing.<sup>2</sup> The demand for credit does not rise until late in the business cycle when the existing production capacity has been exploited and the business enterprises' own reserves are insufficient to finance expansion of the capital stock.

The Danish economy, including the financial system, is going through an adjustment process whereby unprofitable business enterprises will disappear. The process is accompanied by friction in the financial system. Some credit institutions may opt for consolidation in order to build up reserves to cover higher capital requirements in the future imposed by new international standards. The credit institutions are adjusting their credit standards and have expanded their margins vis-à-vis a number of business enterprises. At the same time, it has become more difficult to change banks. This has weakened competition in the financial system. As a result of the adjustment, both credit institutions and other business enterprises will have to reduce their leveraging. The situation and the

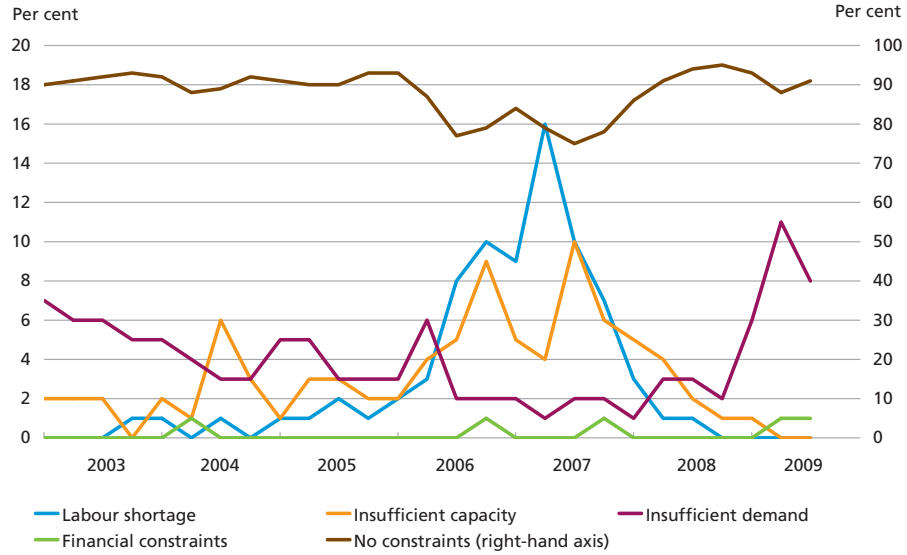
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<sup>1</sup> Statistics Denmark's confidence indicators for industry and for building and construction are both found to cover around 80 per cent of employees in the respective sectors.

<sup>2</sup> Cf. Kim Abildgren, *Credit Dynamics in Denmark since World War II*, *Nationaløkonomisk tidsskrift*, Vol. 147, No. 1, August 2009.

SHARE OF INDUSTRIAL ENTERPRISES WITH AND WITHOUT PRODUCTION CONSTRAINTS

Chart 15

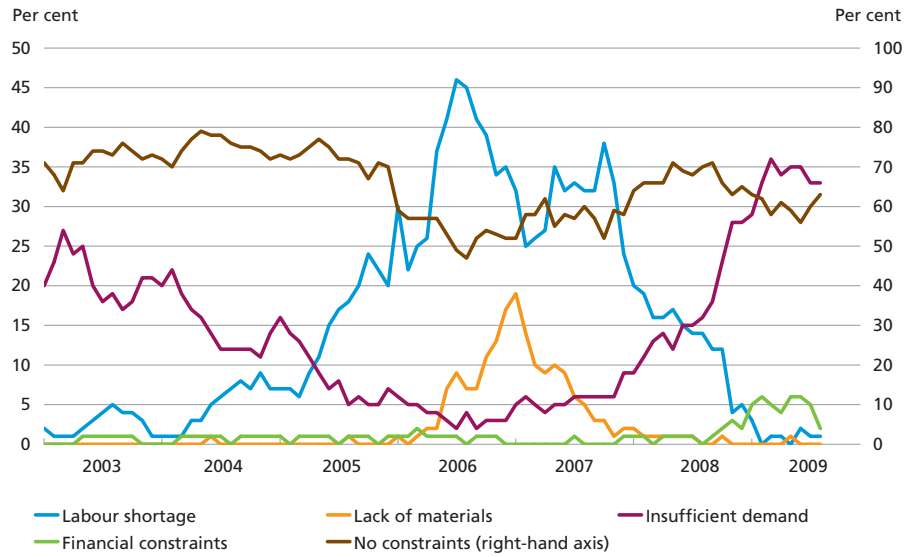


Note: The most recent observations are from the 3rd quarter of 2009.  
 Source: Statistics Denmark.

strength of the friction may differ, however, between credit institutions or segments. This warrants continued monitoring of the development in creditworthy business enterprises' access to financing.

SHARE OF BUILDING AND CONSTRUCTION ENTERPRISES WITH AND WITHOUT PRODUCTION CONSTRAINTS

Chart 16



Note: The most recent observations are from August 2009.  
 Source: Statistics Denmark.

## THE DANISH ECONOMY: REAL ECONOMY

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### **Economic activity**

Economic activity in Denmark has slowed down since the end of 2007. In the 1st quarter of 2009, GDP fell by 1.1 per cent, and confidence indicators point to a further drop in the 2nd quarter of 2009, when output is expected to be more than 5 per cent lower than the level at end-2007.<sup>1</sup> The output loss has thus been on a par with that of Denmark's major trading partners.

Although output started to decline a little earlier in Denmark than abroad, there are no signs that Denmark will experience a reversal sooner – on the contrary. Nevertheless, output seems to have bottomed out also in Denmark, as evidenced by the recent improvement or stabilisation of confidence indicators.

Industrial and service enterprises have become less pessimistic in recent months. In August, however, the number of enterprises expecting falling employment and sales in the near future was greater than the number of enterprises expecting growing employment and sales. Industrial production has declined by around one fifth over the last year and was at a 10-year low in the summer of 2009. Cyclical products such as electrical equipment, textiles and components for manufacturing transport equipment have shown the strongest drops, while less cyclical products such as pharmaceuticals and food have been more stable. Sales of industrial goods to the domestic market have stabilised in recent months, while export market sales have risen, cf. Chart 17. The latest rise in export market sales reflects an emerging stabilisation of the international economy, including growth in industrial production in some of Denmark's major trading partners in recent months.

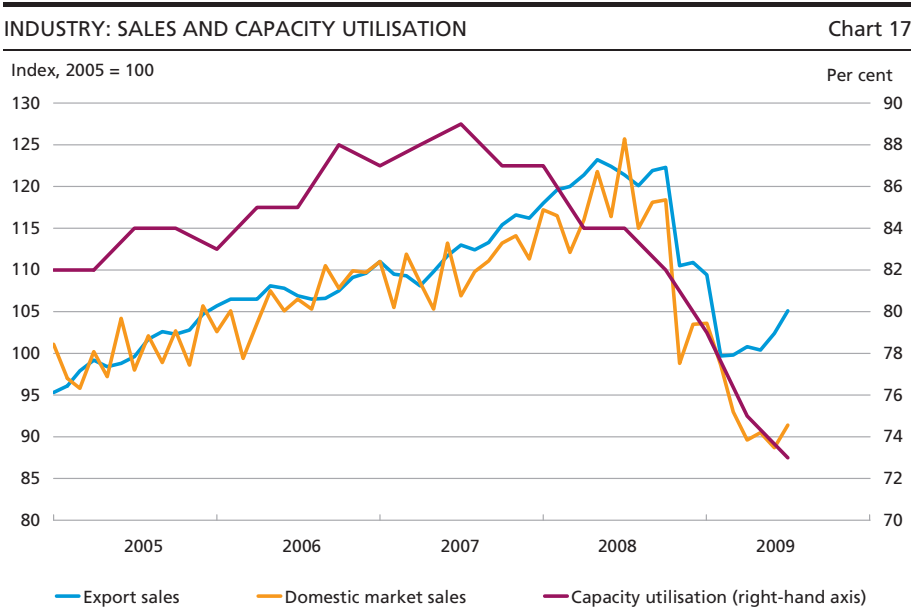
The decrease in industrial production is probably to some extent attributable to inventory reduction. This view is supported by the inventory reduction in industry and wholesale trade in the 2nd quarter of 2009, which was the largest since 1987, when Statistics Denmark began to compile inventory statistics.

The business enterprises' spare capacity has grown in step with the fall in industrial production, cf. Chart 17. This has reduced the need for investment in new machinery, buildings, etc., and business investment has decreased substantially since 2007.

The confidence indicator for the construction sector has stabilised in recent months at a considerably lower level than normal, indicating continued widespread pessimism. Employment in this sector declined in

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<sup>1</sup> The national accounts for the 2nd quarter of 2009 will be published after the time of going to press.



Note: Seasonally adjusted series. Sales at current prices. The most recent observations are from July 2009.  
 Source: Statistics Denmark.

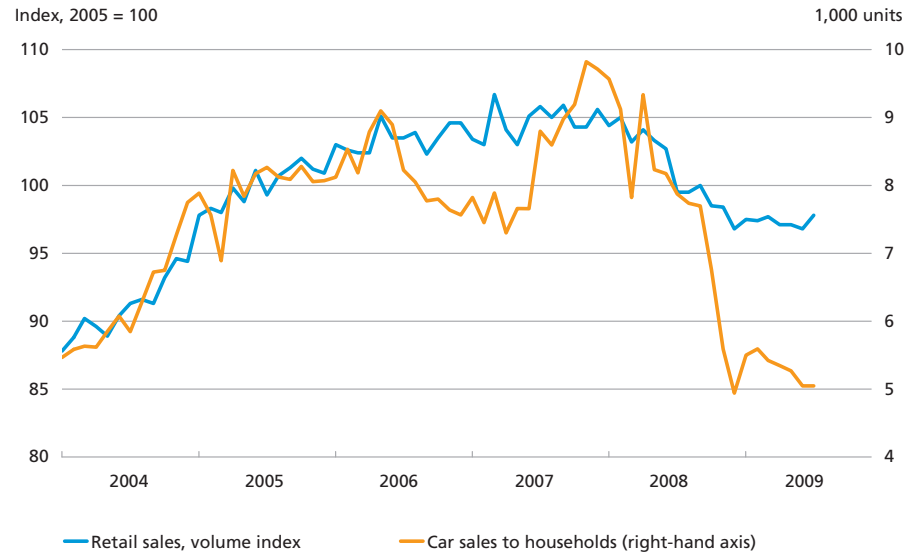
the 1st half of 2009, and unemployment rose fast to around 11 per cent of those with unemployment insurance in July. It has taken until recent months for the shortage of labour in construction to be completely outweighed. Public-sector investments and subsidies for renovation of owner-occupied homes have been initiated to boost activity in construction.

Consumer confidence has improved notably over the last six months, but was still negative in August. Consumer sentiment is reflected in retail sales, which continued to fall in the 1st half of 2009, albeit at a somewhat slower pace than in the 2nd half of 2008. Seasonally adjusted retail sales rose by 1.0 per cent from June to July 2009, which was the strongest growth month-on-month since December 2007. The disbursement of previously frozen Special Pension savings may have contributed to the increase.

Car sales to households also declined in the 2nd quarter of 2009, when they were no less than 40 per cent below the level in the 2nd quarter of 2008, cf. Chart 18. Seasonally adjusted car sales to households were unchanged from June to July 2009. The drop in retail sales and car sales in the 2nd quarter of 2009 indicates that private consumption also decreased compared with the previous quarter. If this holds true, the 2nd quarter of 2009 will be the fifth consecutive quarter with falling private consumption. The downward trend in private consumption has coincided with growing household disposable income as a result of wage

RETAIL SALES AND CAR SALES TO HOUSEHOLDS

Chart 18



Note: Seasonally adjusted series. The most recent observations are from July 2009.

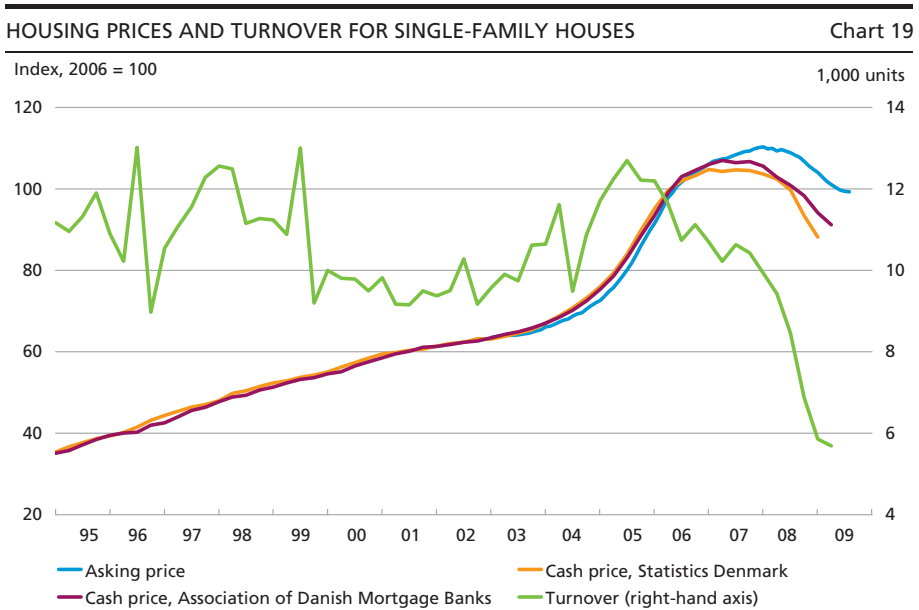
Source: Statistics Denmark.

growth and tax cuts, thereby increasing private savings to a high level. In August, the Danish Ministry of Finance estimated that household real disposable income will rise by 3.1 per cent in 2009 and 4.4 per cent in 2010. Add to this the Special Pension savings disbursements.

### The housing market

The housing market remained weak in the 1st half of 2009. The national average for house prices fell by 5.9 per cent in the 1st quarter of 2009 and was thus 15 per cent lower than in the same quarter of 2008, according to Statistics Denmark. The statistics of the Association of Danish Mortgage Banks indicate that the downward trend in housing prices continued in the 2nd quarter of 2009, but at a slower pace than in the 1st quarter. Prices of owner-occupied flats have declined even faster over the last year and had fallen by almost 19 per cent in the 1st quarter of 2009 compared with the 1st quarter of 2008, according to Statistics Denmark. The statistics of the Association of Danish Mortgage Banks also indicate a further fall in prices for owner-occupied flats in the 2nd quarter. Housing prices have declined in all regions in Denmark over the past year, but most markedly in the Copenhagen region, where prices declined by just over one fifth on average from the 1st quarter of 2008 to the 1st quarter of 2009.

Seasonally adjusted asking prices have been almost unchanged during the summer. However, normalisation of the housing market requires re-



Note: Seasonally adjusted series. The most recent observations are from the 2nd quarter of 2009 for cash prices and turnover and August 2009 for the asking price.

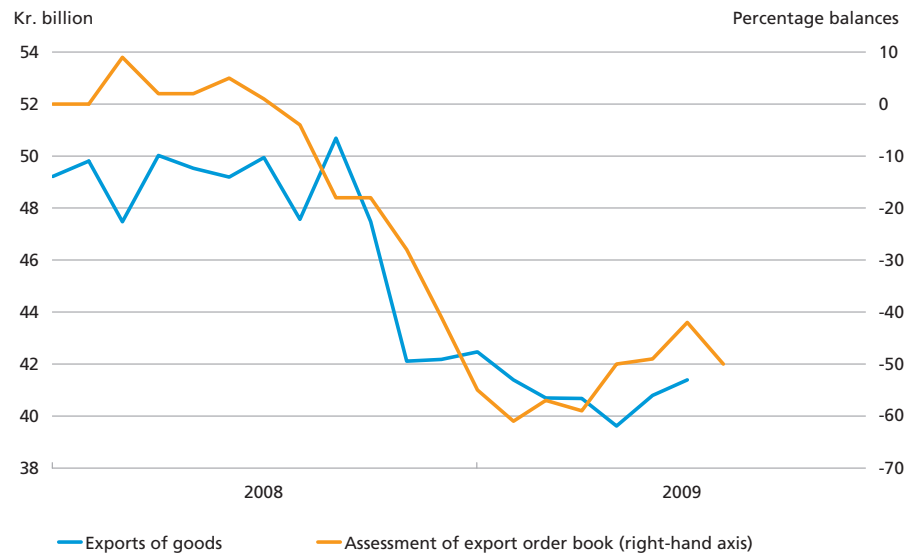
Source: Statistics Denmark, Association of Danish Mortgage Banks and RealView TNI.

newed growth in the number of transactions. In the 2nd quarter of 2009, seasonally adjusted turnover was still very low, cf. Chart 19.

### Foreign trade and balance of payments

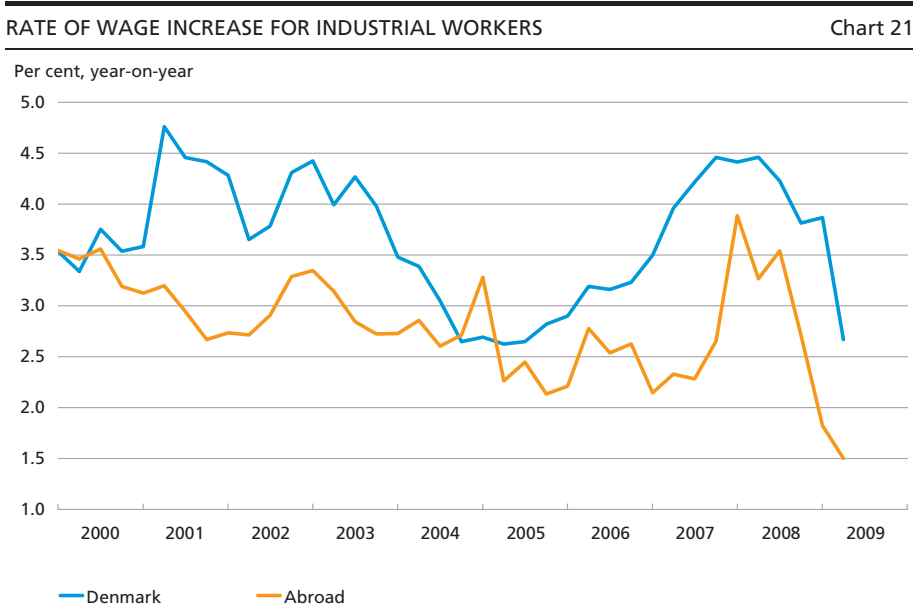
Foreign trade has begun to stabilise after the strong drop at the end of 2008. The decline in exports and imports of goods excluding ships and aircraft slowed down in the first five months of 2009, and the period May-July 2009 saw a weak increase in seasonally adjusted exports, cf. Chart 20. The improvement is also indicated by the industrial enterprises' outlook on the order intake from export markets, which has become slightly less pessimistic in recent months compared with the beginning of the year.

Imports of goods have declined a little faster than exports in 2009, implying a small increase in the monthly trade surplus from an average of just over kr. 3 billion in 2008 to just over kr. 4 billion in the first seven months of 2009. The surplus on trade in services, including sea freight, has fallen in 2009 as a result of the slowdown in world trade and lower freight rates. The lower surplus on the balance of services has been more than outweighed by higher net earnings on trade in goods and investment income, causing the current-account surplus to increase. In the first seven months of 2009, the surplus totalled kr. 21.6 billion, which is 3.8 billion more than in the same period of 2008.

GOODS EXPORTS AND EXPORT ORDER BOOK IN INDUSTRY Chart 20

The dampened pressure on the labour market has contributed to a lower rate of wage increase. According to Statistics Denmark, annual wage inflation in the private sector declined to 3.0 per cent in the 2nd quarter of 2009, compared with 4.6 per cent in the 2nd quarter of 2008. The relatively low wage inflation in the 2nd quarter of 2009 partly reflects the more prolonged local wage bargaining compared with previous years. Consequently, wages and salaries have remained unchanged in the statistics for the 2nd quarter for a relatively higher number of employees. Moreover, the local bargaining concluded has resulted in a very large number of zero adjustments this year. Finally, nuisance bonuses have declined relative to the 2nd quarter of 2008 due to the reduction in overtime, night and weekend shifts.

In the highly competitive manufacturing sector, wage inflation decreased to 2.7 per cent year-on-year in the 2nd quarter of 2009, according to Statistics Denmark. This is still higher than abroad, however, cf. Chart 21. In addition, the continued strong effective krone rate has weakened wage competitiveness further in the first part of 2009. The higher wage inflation in Denmark indicates that pressures on the labour market have remained stronger than in most of Denmark's competitor countries in export markets.



Note: Abroad comprises the 25 countries in Danmarks Nationalbank's real effective exchange rate index. The most recent observations are from the 2nd quarter of 2009.

Source: Confederation of Danish Employers and Statistics Denmark.

Annual wage inflation in the public sector has remained high in the first part of 2009. In the 2nd quarter of 2009, wage increases for local and regional government employees were 7.4 per cent compared with the 2nd quarter of 2008. Central government employees saw wage increases of 4.6 per cent year-on-year, against 6.7 per cent year-on-year in the 1st quarter of 2009. The strong wage increases reflect such factors as the 2008 collective agreements, under which most of the general wage increases were to be implemented within the first year. Moreover, the conflict in the healthcare sector meant that the wage increases in some of these areas were not implemented until the 3rd quarter of 2008. Wage inflation in the public sector is thus expected to decline in the remainder of the collective agreement period.

Consumer price inflation, measured as the annual increase in the HICP, was 0.7 per cent in August. The low inflation in August is chiefly attributable to lower energy and food prices compared with August 2008. The low inflation and simultaneous wage growth have resulted in a stronger increase in real wages in 2009 relative to 2008.

In the euro area, annual HICP inflation was -0.2 per cent in August 2009 according to preliminary statistics. The trend, observed since mid-2008, of higher consumer price inflation in Denmark than abroad thus continues. Core inflation, which excludes food and energy prices, has been relatively stable at around 2 per cent year-on-year over the last year, i.e. a higher rate than in the euro area. This also indicates stronger capacity pressures in Denmark than in our largest trading partner area. The continued price pressures in Denmark are underpinned by the notable increase in domestic market-determined inflation, IMI, over the past year, to more than 6 per cent year-on-year in July. IMI is a measure of the price increases attributable to payrolls and profits of Danish business enterprises.

The significant pressures on the Danish labour market during the last boom resulted in higher wage increases that were not accompanied by corresponding productivity increases. Consequently, corporate profits were squeezed, and the business enterprises' share of total income generation in the economy, i.e. the profit ratio, declined. 2007 and 2008 saw a decrease in productivity, according to the available national accounts. A dampening of productivity growth is normal in the last phase of a boom, but the recent dampening has been more pronounced than previously. Productivity growth is expected to rise again in the coming years, resulting in partial recovery of the profit ratio. Since the capacity utilisation in the economy is low at the outset, and since relatively weak productivity growth is expected in the coming years, this implies a continued fall in employment and rising unemployment this year and next year.

**Economic policy**

Output is expected to bottom out in 2009, followed by a slow increase. Annual output growth is expected to reach 1.7 per cent in 2011, cf. the article *The Danish Economy 2009-11*, p. 33. Fiscal policy contributes to increasing demand, both automatically and as a result of e.g. the increase in unemployment benefits in step with the rise in unemployment. Discretionary expansion of fiscal policy also plays a role. Income taxes will be lowered in both 2009 and 2010, while public investment is increased due to higher traffic investments and local government fixed investments. Local government investments were brought forward in 2009, and in connection with the agreement between the government and Danish Regions and Local Government Denmark on the 2010 budgets, local government investments were raised compared with the 2009 level. Other factors are renovation subsidies and extension of deadlines for corporate payments of VAT, income tax and labour-market contributions.

Denmark's relatively low government debt compared with other countries has given Denmark a good foundation for supporting economic activity in the current recession. However, loosening of fiscal policy puts public finances under pressure, resulting in a reversal of recent years' sound budget surpluses to considerable deficits. The government budget deficit is expected to be 2.2 per cent of GDP in 2009, 5.6 per cent in 2010 and 4.6 per cent in 2011.

Owing to the size of the government debt, an even greater fiscal improvement is required for Denmark to be able to tackle the demographically induced increase in the structural budget deficit in future. Further easing of fiscal policy in 2010 will reinforce the need for consolidation due to rising interest costs. Revision of the government's 2015 plan with a view to improving public finances after 2011 would strengthen the credibility of fiscal policy and reduce the risk of higher interest rates in respect of financing of the larger government debt. Furthermore, such a plan would be a natural continuation of the medium-term orientation of the government budgets in the last 12 years.



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# The Danish Economy 2009-11

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## INTRODUCTION AND SUMMARY

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This article reviews Danmarks Nationalbank's forecast for the Danish economy in the years 2009-11. The forecast has been produced using the macroeconomic model MONA<sup>1</sup> and is based on available economic statistics, including Statistics Denmark's quarterly national accounts for the 1st quarter of 2009.<sup>2</sup>

Like the international economy, the Danish economy has been hit by a severe downturn in the wake of the financial crisis. Correction of a very high capacity pressure in the pre-crisis years was already underway, and consequently the decrease in output is likely to be greater in Denmark than in many comparable countries. The slowdown has gradually intensified, and available indicators point to the gross domestic product, GDP, being more than 5 per cent lower in the 2nd quarter of 2009 than at the end of 2007. For 2009 as a whole, GDP will be 3.2 per cent lower than in 2008, cf. Table 1. Domestic demand has declined even more, and combined with a considerable reduction of the capacity pressure this has led to a pronounced fall in imports, exceeding the fall in exports.

In this half-year, output and domestic demand are expected to pick up somewhat following the substantial slowdown in recent quarters – this is supported by the first July indicators for retail turnover and business and consumer confidence. However, the weak economy dampens the recovery in domestic demand, which will not reach a normal growth rate until 2011, while the first signs of growth among Denmark's trading partners contribute to a small increase in exports. In spite of the earlier onset of the recession in Denmark, recovery is expected to be in line with that of the euro area and weaker than in the USA, cf. Chart 1.

Employment has shown a steady downward trend over the last year and, at 103,300 in July, unemployment has more than doubled since it bottomed out one year earlier. It is thus close to its structural level, i.e. the level that is compatible with stable development in wages and prices. In the light of the weak output growth, unemployment is expected to continue to rise – but at a slower pace – to a peak of around 180,000 in early 2011. Productivity, which grew by an average of 1.5 per

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<sup>1</sup> The model is described in *MONA – a quarterly model of the Danish economy*, Danmarks Nationalbank, 2003.

<sup>2</sup> The calculations are based on statistical information up to and including 10 September 2009.

## KEY ECONOMIC VARIABLES

Table 1

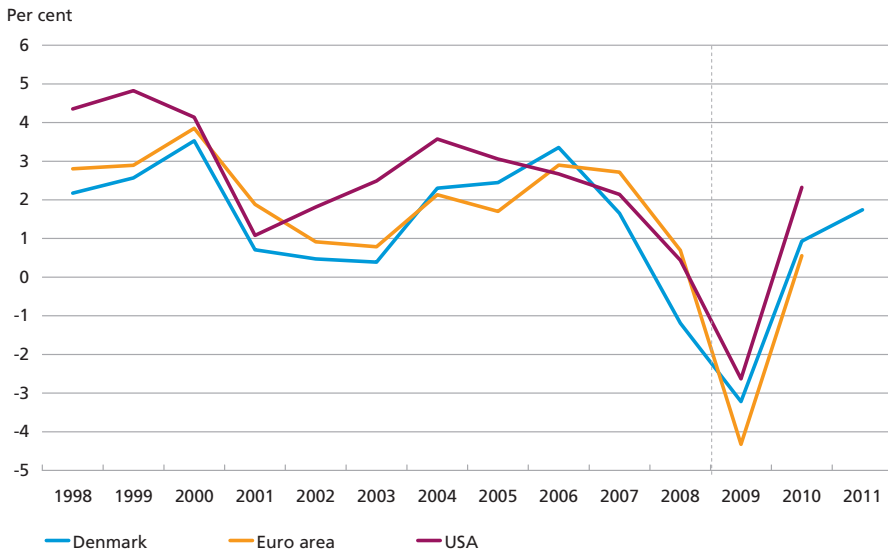
Real growth on previous year, per cent	2008	2009	2010	2011
GDP .....	-1.2	-3.2	0.9	1.7
Private consumption .....	-0.2	-4.2	2.3	1.5
Public consumption .....	1.5	1.8	1.5	1.5
Residential investments .....	-9.8	-11.0	-3.1	1.1
Public investments .....	4.5	14.9	15.3	3.6
Business investments .....	-3.9	-10.6	-5.3	3.5
Inventory investments <sup>1</sup> .....	0.2	-0.6	0.1	-0.1
Exports .....	2.2	-8.8	-2.2	2.9
Industrial exports .....	-0.8	-13.9	-0.7	3.6
Imports .....	3.4	-10.7	-1.4	2.8
Consumer prices, per cent year-on-year .....	3.6	1.1	1.4	1.5
Unemployment, 1,000 persons .....	52	103	163	178
Balance of payments, per cent of GDP .....	2.5	1.3	0.6	0.9
Government balance, per cent of GDP .....	3.4	-2.2	-5.6	-4.6
Hourly wages, per cent year-on-year .....	4.2	3.1	2.9	3.0

<sup>1</sup> Contribution to GDP growth.

cent p.a. from 1995 to 2006, fell by around 4 per cent in 2007-08. In the projection, productivity increases substantially, without returning to the trend, however. The short-term impact of productivity development on unemployment is elaborated on in Box 1.

## GDP GROWTH IN DENMARK, THE EURO AREA AND THE USA

Chart 1



Note: Estimates after the broken line.

Source: Statistics Denmark, Reuters EcoWin, Consensus Economics August 2009 and own forecast.

ALTERNATIVE SCENARIOS

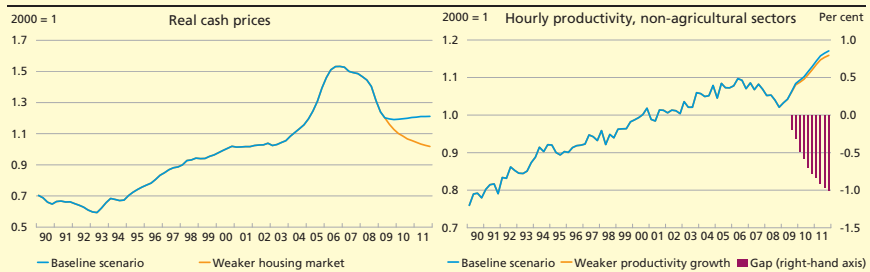
Box 1

The housing market has been weak since 2007, with falling prices and low turnover, and according to Statistics Denmark quarterly price falls for single-family houses were in the range of 6 per cent in the 4th quarter of 2008 and the 1st quarter of 2009. In the central forecast estimate, the trend reverses toward the end of this year and prices increase slightly. Exactly when the housing market will reverse is, however, subject to uncertainty, not least in a period of rising unemployment, and the following therefore considers an alternative scenario in which housing prices decrease further in the coming years. More specifically, a scenario is outlined in which housing prices fall throughout the forecast period, to a level 30 per cent below the peak in the 1st quarter of 2007 by the end of 2011, and in which residential investments are lower. This brings real cash prices, i.e. cash prices relative to construction costs, back to the level in early 2003, cf. the left-hand chart below.

Productivity development is key to welfare in the longer term. In recent years, productivity in Denmark has shown a very weak trend, and in the forecast productivity is assumed to recover in the coming years. It is uncertain how rapid the recovery will be, and another alternative scenario considers the impact of a slightly slower return to the normal productivity track. In this scenario, hourly non-agricultural productivity declines relative to the baseline scenario from the 3rd quarter of 2009 onwards, to stand 1 per cent below the central estimate by the end of 2011, cf. the right-hand chart below.

The drop in real cash prices in alternative scenario 1 reduces the households' housing wealth, thereby dampening consumption. Combined with lower residential investments, this will reduce GDP growth by around ½ percentage point in both 2010 and 2011, and unemployment will peak at around 190,000 in 2011, cf. the table. The lower growth in demand will boost the current-account surplus relative to the baseline scenario. Overall, the considerably weaker development in real cash prices causes unemployment to rise somewhat further. This reflects the lower residential investments, while the consumption effects of the lower wealth are moderate. Correspondingly, the surge in housing wealth in 2005-06 was only to a lesser extent converted into consumption.

ASSUMPTIONS OF ALTERNATIVE SCENARIOS



Note: Real cash prices are cash prices relative to the deflator for residential investments.

In alternative scenario 2, the negative shock to the supply side of the economy – the slightly weaker productivity development – has no major effect on GDP in the short term. Instead, employment rises by a good 15,000 in 2011, so that the percentage increase in employment more or less offsets the percentage decline in productivity. The

CONTINUED		Box 1	
<p>impact on unemployment of the slightly weaker increase in productivity is of the same magnitude, and the unemployment figure ends up at 163,000 in 2011, compared with 178,000 in the central estimate. The weaker productivity development in this scenario entails higher unit labour costs. This has a negative impact on competitiveness and leads to a further reduction in export market shares. Over the forecast horizon the effect is, however, modest. The reason is that output is demand-driven in the short run. The long-term effect is lower GDP and unchanged unemployment.</p>			
ALTERNATIVE SCENARIOS			
	Baseline scenario	1: Weaker housing market	2: Weaker productivity growth
<i>2009</i>			
GDP, per cent year-on-year .....	-3.2	-3.2	-3.2
Unemployment, 1,000 persons .....	103	103	100
Balance of payments, kr. billion ...	22	23	22
HICP, per cent year-on-year .....	1.1	1.1	1.1
<i>2010</i>			
GDP, per cent year-on-year .....	0.9	0.4	0.9
Unemployment, 1,000 persons .....	163	168	150
Balance of payments, kr. billion ...	11	17	10
HICP, per cent year-on-year .....	1.4	1.4	1.4
<i>2011</i>			
GDP, per cent year-on-year .....	1.7	1.2	1.6
Unemployment, 1,000 persons .....	178	191	163
Balance of payments, kr. billion ...	16	30	16
HICP, per cent year-on-year .....	1.5	1.5	1.6

Private-sector wage increases declined to 3 per cent year-on-year in the 2nd quarter. Particularly nuisance bonuses such as overtime payment have fallen, and if this item is eliminated the decline was considerably smaller. Real wages have risen substantially, and the rate of wage increase remains somewhat higher than abroad. This indicates that pressure on the labour market is still stronger in Denmark than in other countries, despite rising unemployment. The same pattern is seen for core inflation, i.e. the increase in consumer prices excluding energy and food, which in July was 2.3 per cent year-on-year compared to 1.3 per cent year-on-year in the euro area. Domestic market-determined inflation, IMI, has risen to around 6 per cent year-on-year, indicating that the fall in import prices has not been fully passed on to consumers.

Notwithstanding sound growth in the households' disposable real incomes, domestic demand – and private consumption in particular – has fallen significantly over the past year. The savings ratio has thus increased, and combined with low interest rates and release of SP savings

(special pension scheme) from June onwards this strengthens the consumption opportunities of the households. On the other hand, the weakening of the housing market and falling equity prices have reduced the households' wealth, and the weak labour market also makes many Danes more cautious. Housing prices have fallen considerably over the last year and in spite of low interest rates and higher disposable incomes for the households a reversal does not seem to be in sight. Housing prices are now estimated to be close to bottoming out, so in the projection the fall in cash prices makes way for a slight increase during 2010 and 2011. In view of the weak labour market, a further decline in housing prices does, however, pose a downside risk to the economy. This is also analysed in Box 1.

Given the current fiscal policy stance, the government budget balance is set to reverse from a surplus of approximately kr. 60 billion in 2008 to a deficit of up to kr. 100 billion in 2010, a weakening of approximately 9 per cent of GDP. This reflects a combination of strong automatic stabilisers and considerable easing of fiscal policy. Although fiscal policy is assumed to be almost neutral in 2011, a considerable deficit of almost 5 per cent of GDP is foreseen, entailing a significant increase in government debt.

Below, the changes in relation to the March 2009 forecast are outlined. This is followed by a more detailed review of the forecast, including the underlying assumptions.

## REVISIONS IN RELATION TO THE PREVIOUS FORECAST

In 2009 to date, output has shown a far weaker trend than forecast in March. For the year overall, GDP is now expected to decline by 3.2 per cent, cf. Table 2. The downward adjustment is to a large extent attributable to weaker development in the export markets, but private domestic

	Actual	This forecast			Previous forecast		
	2008	2009	2010	2011	2009	2010	2011
GDP, per cent year-on-year .....	-1.2	-3.2	0.9	1.7	-1.1	1.0	1.9
Unemployment, 1,000 persons .....	52	103	163	178	92	140	151
Balance of payments, kr. billion .....	44.1	22.4	10.9	15.9	25.0	24.5	33.0
HICP, per cent year-on-year .....	3.6	1.1	1.4	1.5	1.0	1.5	1.6

Note: The previous forecast was published in March 2009.

demand has also fallen more than expected. Due to the weaker output development, unemployment reaches a higher level in this forecast.

The current-account surplus has been reduced compared with the previous forecast, reflecting the strength of the international downturn, including a lower surplus on trade in services. Oil prices have risen more than expected and the estimate for consumer prices in 2009 has therefore been raised a little. The economic slowdown also means that inflation in 2010-11 has been adjusted downwards a little.

## ASSUMPTIONS IN THE PROJECTION

The projection is based on number of assumptions concerning the international economy, financial conditions and fiscal policy.

### The international economy

The international financial crisis has had a more severe impact on the real economy than expected by international organisations prior to the preparation of the March forecast. However, initial signs that the world economy is recovering have recently led the international organisations to adjust their GDP growth estimates for 2010 upwards for most countries, but compared with the March forecast the assessment of Danish export market growth in the current year has deteriorated substantially. The market for Danish exports is thus expected to shrink by 13.5 per cent from 2008 to 2009, cf. Table 3. This is by far the greatest annual reduc-

### OVERVIEW OF FORECAST ASSUMPTIONS

Table 3

	2008	2009	2010	2011
<b>International economy:</b>				
Export market growth, per cent year-on-year	2.4	-13.5	1.7	5.0
Export market price <sup>1</sup> , per cent year-on-year ...	2.3	1.5	0.2	1.8
Foreign price <sup>2</sup> , per cent year-on-year .....	2.3	1.4	0.3	2.0
Foreign hourly wages, per cent year-on-year .	3.3	1.8	1.8	1.9
<b>Financial conditions, etc.:</b>				
3-month money-market interest rate, per cent per annum .....	4.5	1.8	1.8	3.1
Average bond yield, per cent per annum .....	5.0	3.8	4.1	4.7
Effective krone rate, 1980 = 100 .....	105.8	107.6	107.6	107.6
Dollar exchange rate, DKK per USD .....	5.1	5.4	5.2	5.2
Oil price, Brent, USD per barrel .....	98.5	60.2	71.5	75.0
<b>Fiscal policy:</b>				
Public consumption, per cent year-on-year ....	1.5	1.8	1.5	1.5
Public investment, per cent year-on-year .....	4.5	14.9	15.3	3.6
Public-sector employment, 1,000 persons .....	813	826	831	833

<sup>1</sup> Weighted import price for all countries to which Denmark exports.

<sup>2</sup> Weighted export price for all countries from which Denmark imports.

tion since 1975 when the OECD statistics began. Looking ahead, export markets are expected to recover slowly as the international economy picks up.

Global price pressures have also eased in relation to the assumptions underlying the previous forecast. Consequently, expected price increases in the export market for industrial goods and for goods competing with Danish products in the domestic market have been adjusted downwards since the previous forecast. Foreign wage increases are expected to remain low over the projection period on account of the weak international economy.

### **Interest rates, exchange rates and oil prices**

In the forecast, the development in short-term and long-term interest rates is based on the expectations that can be derived from the yield curves in the financial markets. Short-term interest rates rose from 2005 until the autumn of 2008, and then fell until the beginning of September 2009. According to market expectations, short-term interest rates will rise by a good 2 percentage points until 2011.

Bond yields have also declined since the autumn of 2008. The short-term mortgage rate is now back at low level of 2005, while the longer-term rates are slightly above the 2005 level. Bond yields are predicted gradually to increase again, to 4.7 per cent by 2011.

The krone has strengthened against the currencies of Denmark's trading partners in recent years, and at end-2008 the nominal effective exchange rate of the krone reached the highest level since 1979. Subsequently it has weakened a little. Compared with the March forecast, the effective exchange rate of the krone remains more or less unchanged, masking a strengthening vis-à-vis the dollar, but a weakening against the Swedish krona and other currencies. In the projection, the dollar rate and the effective krone rate are assumed to be unchanged from the level at the beginning of September 2009.

The price of oil dived from a level of around 135 dollars per barrel in July 2008 to just over 40 dollars in early March 2009. Since then it has risen again, to around 70 dollars per barrel at the time of the forecast. In the projection, oil prices are expected to be in line with futures prices, i.e. to rise slightly from the current level. This forecast thus operates with considerably higher oil prices than the March forecast.

### **Fiscal assumptions**

The fiscal assumptions in the forecast reflect the fiscal-policy stance as presented in Economic Survey, August 2009. Growth in real public consumption is expected to be 1.8 per cent in 2009 and 1.5 per cent in both

2010 and 2011. The forecast assumes a strong increase in public investments due to factors such as the decision to bring forward fixed local-government investments and the political agreement on transport investments. Growth in public consumption is assessed to be higher than estimated in Economic Survey, reflecting the tendency to exceed the target. The accommodative fiscal policy is expected to boost economic activity, particularly in 2009 and 2010.

## FORECAST FOR THE DANISH ECONOMY 2009-11

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### Output and employment

Output has gradually declined since the end of 2007 and is estimated to be more than 5 per cent lower in the 2nd quarter of 2009 than at the end of 2007. It is assessed to have bottomed out, and growth is expected to turn from negative to positive in the 2nd half of 2009. Overall, output is down by 3.2 per cent in 2009 compared to 2008. Looking ahead, output will gradually rise, by 0.9 and 1.7 per cent in 2010 and 2011, respectively, cf. Table 2.

The drop in output means that there are many spare resources in the form of unutilised labour and production capacity. This is particularly evident in the industrial sector, where data for the current quarter indicates substantial spare capacity.

Economic growth slowed at the end of 2006, while employment rose by a further 3 per cent until the beginning of 2008. Productivity thus declined by around 1 per cent in 2007. It is not unusual for productivity growth to weaken towards the end of a boom, but this time the decline has been much greater than during recent downturns. The forecast operates with a gradual reversal of productivity, the pronounced weakening in 2007-08 being offset by strong growth in productivity, particularly in 2010-11 when productivity is expected to grow by 5.2 and 4.4 per cent, respectively. The reasons are that normal capacity utilisation is restored, and that employment typically reacts to output developments with a lag.

The lower productivity, together with rapidly rising wages, reduced the profit share considerably in 2007-08. In the projection, higher productivity and moderate wage developments bring the profit share a little closer to its normal level.

In the forecast, employment is expected to decrease strongly from its high 2008 level. In 2009-10 it will fall by around 80,000 persons annually, cf. Table 4. The decline should be seen against the backdrop of weak growth in the projection and the strong increase in employment in the years up to 2008.

THE LABOUR MARKET				Table 4
1,000 persons, annual averages	2008	2009	2010	2011
Total employment .....	2,875	2,795	2,718	2,689
Of which private sector .....	2,062	1,969	1,887	1,856
Unemployment .....	52	103	163	178
Labour force .....	2,927	2,898	2,881	2,867

Seasonally adjusted unemployment was 103,300 persons in July 2009 and is thus close to its structural level, which is estimated to be between 100,000 and 120,000. Unemployment is expected to peak at 180,000 in early 2011.

The forecast operates with a shrinking labour force. Demographics will reduce the labour force by around 5,000 a year. Moreover, the recession lowers the participation rate. The most pronounced fall will be in 2009, when the labour force is expected to decline by 30,000. In 2010 and 2011 further reductions of 16,000 and 14,000, respectively, are foreseen.

### Wages and prices

After a period of strong pressure on the labour market and high wage increases, wage inflation has declined as a result of the economic slow-down. Wage developments are expected to remain weak throughout the forecast period, with annual wage increases hovering around 3 per cent, cf. Table 5.

For some time, wage increases in Denmark have been high compared with those of Denmark's trading partners. Most recently, the global downturn has reduced the rate of wage increase among Denmark's trading partners seen as one. Notwithstanding the rise in unemployment, hourly wages in industry are thus still set to grow at a faster pace in Denmark than abroad. Wage competitiveness will therefore deteriorate further over the forecast period, resulting in a moderate fall in Danish export market shares.

Hourly wage costs are projected largely to mirror the development in wages in the absence of significant changes in business enterprises' other labour costs. Following a period of negative productivity growth,

WAGES, ETC. IN NON-AGRICULTURAL SECTORS				Table 5
Per cent, year-on-year	2008	2009	2010	2011
Hourly wages .....	4.2	3.1	2.9	3.0
Hourly wage costs .....	4.8	3.8	2.9	2.9
Hourly productivity .....	-3.2	1.3	5.2	4.4
Wage share, per cent of gross value added	69.9	71.9	69.2	67.6

the development in productivity is relatively strong in the projection. As a result, unit labour costs will fall in 2010-11 after having risen substantially in the preceding period. The wage share will decline as labour-market pressures abate. A wage share of 68 per cent, as foreseen for 2011, is, nevertheless, still rather high compared with recent decades.

Price inflation has declined further over the summer, and in August 2009 annual consumer price inflation was 0.7 per cent measured by the Harmonised Index of Consumer prices (HICP), cf. Table 6. The strong decline in inflation over the last year primarily reflects falling energy prices and slightly lower food prices than one year ago. Core inflation, which excludes energy and food prices, has been slightly above 2 per cent since March 2009 and was 1.9 per cent in August.

Domestic market-determined inflation, IMI, has risen considerably recently, to around 6 per cent year-on-year. This reflects the usual tendency for IMI to increase when import and energy prices fall because the lower prices are initially not fully passed on to consumers. In the coming months, IMI is expected to remain high on account of declining import prices. Subsequently, IMI is predicted to decline substantially, and in 2010 and 2011 weak demand and receding wage inflation will gradually push IMI down below 1 per cent.

Due to the drop in commodity prices in the 2nd half of 2008, annual energy price inflation will be negative until the end of 2009. However, recent oil-price increases mean that energy prices have begun to rise quarter-on-quarter, and by 2010 annual energy price inflation is expected to be positive. Food price inflation has been moderate over the last year, but is expected to rise slightly more towards the end of the forecast period. The development in energy and food prices, combined with

CONSUMER PRICES

Table 6

Per cent, year-on-year	Weight <sup>1</sup>	2008	2009	2010	2011	2009					
						Q2	Q3	Q4	Aug.	Sep.	Oct.
HICP .....		3.6	1.1	1.4	1.5	1.1	0.6	1.0	0.7	0.5	0.7
Index of net retail prices .....	100.0	3.7	2.2	1.7	1.6	2.1	2.0	2.2	1.9	1.9	2.1
Exogenous:											
Energy .....	7.1	11.5	-7.2	3.3	1.7	-8.7	-8.9	-2.7	-6.1	-8.3	-6.4
Food .....	14.4	8.0	0.9	0.9	3.0	0.8	-0.4	-0.4	-0.8	-0.5	-0.2
Adm. prices ...	4.7	3.5	5.0	3.3	2.5	5.0	5.2	5.4	5.2	5.4	5.3
Rent .....	24.3	2.9	4.6	2.4	1.7	4.7	4.8	4.9	4.9	4.7	4.8
Excl. exogenous	49.5	1.7	2.6	1.2	1.1	2.6	2.7	2.2	2.3	2.5	2.4
Imports .....	15.0	3.1	-3.7	-1.2	2.3	-3.0	-5.1	-5.8	-5.3	-5.7	-5.9
IMI .....	34.5	1.1	5.3	2.1	0.7	5.2	6.2	5.6	6.0	6.2	6.1

Note: The most recent actual data covers August 2009.

<sup>1</sup> Weight in the index of net retail prices, per cent.

the general slowdown, keeps consumer price inflation well below 2 per cent in the projection.

### Domestic demand

Private consumption has fallen every quarter since the 1st quarter of 2008. The downward trend is assessed to have abated in the 2nd quarter of 2009, and in the current half-year consumption is expected to pick up again, reflecting factors such as rising consumer confidence and widespread exercise of the option to withdraw SP savings. Nonetheless, consumption is developing at a slower pace than disposable incomes so that the consumption ratio will decrease further in 2009 and 2010, cf. Table 7. In the coming years, the increase in consumption will be curbed by lower household wealth and expectations of higher unemployment.

The level of activity in the housing market is low, and prices for single-family and terraced houses fell by more than 5 per cent in the 1st quarter of 2009. Over the last few months, the number of homes for sale has, however, decreased moderately, and the decline in asking prices is slowing down. In view of these trends and a sustained low level of interest rates, the housing market is expected gradually to stabilise during 2009 and 2010.

The decline in residential investments seen in 2008 has continued into 2009. In the projection, residential investments are expected to continue to fall in step with the lower real cash prices. In the current year they are, however, expected to be buoyed up by the agreed pool of funds for renovation of permanent residences.

The downward trend in business investments since the beginning of 2008 reflects lower investments in machinery, transport equipment and software, as well as a fall in non-residential construction. With many vacant commercial properties, more difficult financing conditions and weak prospects for output development, non-residential construction is expected to decline further in 2009 and into 2010. Machinery investments are now well below the level in 2006-08, when capacity pressure was strong. Towards the end of the forecast period business invest-

INCOME, WEALTH AND CONSUMPTION	Table 7			
	2008	2009	2010	2011
Cash prices, per cent year-on-year .....	-4.5	-14.1	-0.3	1.9
Real disposable income, private sector, per cent year-on-year .....	1.6	-1.9	4.1	0.8
Consumption ratio, per cent of private sector disposable income .....	91.8	89.6	88.1	88.6
Net lending, private sector, kr. billion .....	-15.2	59.0	107.5	98.1

ments are expected to rise a little as output grows, but the investment ratio is expected to remain at the current low level.

Total domestic demand, excluding inventory investments, fell by 0.8 per cent in the 1st quarter of 2009. Lower private investment and a decline in private consumption are expected to reduce demand in 2009 overall, while rising public consumption and investments will have the opposite effect. Subsequently, domestic demand will slowly pick up, driven by rising private consumption and public demand and, at a later stage, also by higher private investment.

### Foreign trade and the balance of payments

Exports have fallen since the 2nd quarter of 2008 as global economic activity and world trade have contracted. In the 2nd quarter of 2009, real exports are expected to have declined by 10 per cent relative to the same quarter of 2008. The forecast assumes that exports will continue to decrease until early 2010 and will then slowly grow as the international economy recovers, cf. Table 8.

The downward trend in exports over the last year has been most pronounced for goods. Exports of industrial goods are estimated to have fallen by 18 per cent in real terms since the 2nd quarter of 2008 against the backdrop of weaker foreign demand and loss of competitiveness. In the forecast, industrial exports stabilise towards the end of 2009 and gradually begin to rise from mid-2010. Industrial exports are estimated to develop more weakly than imports of industrial goods in the major recipient countries, implying a further loss of market shares.

Oil and gas production has decreased in recent years, and this tendency is expected to continue so that real energy exports decline in the projection. Agricultural exports are also predicted to fall in the near future due to lower exports of animal products.

Exports of services, primarily sea freight, have shown a weak trend in 2009, particularly in current prices. From the 2nd quarter of 2008 to the same quarter of 2009, exports of services are estimated to have de-

EXPORTS AND IMPORTS				Table 8
Per cent, year-on-year	2008	2009	2010	2011
Real exports .....	2.2	-8.8	-2.2	2.9
Real imports .....	3.4	-10.7	-1.4	2.8
Export prices .....	5.3	-11.2	2.4	4.2
Import prices .....	4.0	-8.0	1.0	3.9
Terms of trade .....	1.3	-3.5	1.4	0.4
Import ratio, non-energy goods, standard calculation, 2000 = 100 .....	113.4	105.5	105.0	106.1

BALANCE OF PAYMENTS				Table 9
Kr. billion	2008	2009	2010	2011
Trade in goods .....	-18.3	6.5	15.1	14.5
Trade in services .....	58.1	15.3	11.0	17.1
Interest, transfers, etc. ....	4.0	0.6	-15.2	-15.7
Current account, total .....	43.8	22.4	10.9	15.9

creased by a good 4 per cent in volume terms and approximately 23 per cent in current prices. The underlying factors are the weak development in world trade and considerable downward pressure on freight rates due to lower demand and increased freight capacity.

Import volumes have gone down since mid-2008 as domestic capacity pressure has eased and exports, which have a large import content, have weakened. In the 2nd quarter of 2009, real imports are estimated to have fallen by a good 12 per cent relative to the same quarter of 2008. Like exports, imports are expected slowly to pick up from mid-2010 onwards. Imports have declined at a faster rate than demand since the end of 2007, causing the import ratio to diminish. This indicates that pressure on production resources has eased. In the forecast, the propensity to import stabilises at the lower level and then rises slightly towards the end of the period.

According to the available national accounts, export prices fell considerably more than import prices in the 1st quarter of 2009, implying a deterioration of the terms of trade. This reflects factors such as lower prices for Danish energy exports, as well as a much sharper price drop for service exports than for service imports. In the projection the terms of trade are restored to some degree.

The current-account surplus totalled almost kr. 22 billion in the first seven months of 2009, which is nearly kr. 4 billion higher than in the corresponding period of 2008. The improvement reflects a higher net surplus on trade in goods and investment income, while the net profit on trade in services, including sea freight, has declined. In the projection, the balance of payments deteriorates until mid-2010, in line with the diminishing surplus on trade in services, cf. Table 9. Subsequently, the surplus slowly increases as the global economy begins to recover, and the surplus of the balance of goods and services grows.



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# Danmarks Nationalbank's Euro and Dollar Auctions

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## BACKGROUND

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The international money markets froze up to the collapse of Lehman Brothers in September 2008. The market players focused on securing their own liquidity and were reluctant to lend funds to counterparties and customers and assume counterparty risks. Consequently, Danish banks and mortgage-credit institutes found it extremely difficult to obtain the necessary foreign liquidity.

Danmarks Nationalbank supplied euro and dollars from the foreign-exchange reserve via the market for FX swaps<sup>1</sup> with Danish banks. Subsequently, Danmarks Nationalbank established swap facilities with the Federal Reserve, Fed, and the European Central Bank, ECB, under which Danmarks Nationalbank offers dollar and euro loans to its monetary-policy counterparties on behalf of the Fed and the ECB.

Danmarks Nationalbank's euro and dollar lending to monetary-policy counterparties is part of a globally coordinated initiative among a large number of central banks to boost the international exchange of liquidity. The use of the currency swap facilities is diminishing both in Denmark and abroad, which can be attributed to improvement of the conditions on the money markets<sup>2</sup>.

## DANMARKS NATIONALBANK PROVIDES EURO AND DOLLAR LOANS

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In the autumn of 2008, Danmarks Nationalbank established temporary currency swap facilities with the Fed and the ECB in order to improve Danish banks' and mortgage-credit institutes' access to liquidity in euro and dollars. Danmarks Nationalbank thus acts as an intermediary for euro- and dollar-denominated loans to Danmarks Nationalbank's monetary-policy counterparties on behalf of the ECB and the Fed. Lending takes place via auctions using the same collateral base as for Danmarks Nationalbank's monetary-policy lending denominated in kroner. Dan-

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<sup>1</sup> An FX swap is an agreement between two parties about swapping payments in one currency for payments in another currency over a specified period. FX swaps can be seen as loans based on currency as collateral.

<sup>2</sup> See Federal Reserve System Monthly Report on Credit and Liquidity Programs and the Balance Sheet, Board of Governors of the Federal Reserve System, June 2009.

marks Nationalbank has lent euro and dollars at maturities of up to three months.

In connection with an auction, Danmarks Nationalbank fixes the lending rate (marginal rate) and volume on the basis of the counterparty bids. The amount in euro or dollars allotted to the monetary-policy counterparties is received by Danmarks Nationalbank from the ECB or the Fed, respectively. In return, Danmarks Nationalbank pays a corresponding amount in kroner to the ECB or the Fed. When the loan matures, Danmarks Nationalbank forwards the counterparties' repayments and interest payments to the ECB or the Fed, which returns the amount in kroner to Danmarks Nationalbank. The risk of non-payment by the counterparties is countered by requiring that counterparties pledge collateral to Danmarks Nationalbank. The latter has no income from the swap facilities.

Danmarks Nationalbank's auctions are based on the Dutch auction principle. Participating counterparties submit a maximum of three bids stating amounts and bid rates. The bid rate must be higher than or equal to the minimum bid rate fixed by the ECB or the Fed. Bids with the highest bid rates are accepted first followed by bid rates in descending order until the full amount in euro or dollars has been allotted. All participants pay the marginal rate, which is the lowest among the accepted bid rates.

Euro and dollar lending boosts Danmarks Nationalbank's balance sheet. The currency forwarded by Danmarks Nationalbank to the monetary-policy counterparties is included on the asset side of Danmarks Nationalbank's balance sheet under "Other lending, banks in currency". Danmarks Nationalbank's outstanding amounts at the ECB and the Fed are included on the liabilities side of the balance sheet under "Deposits related to swap facilities".

Danmarks Nationalbank's swap facility with the ECB runs for as long as deemed necessary, while the swap facility with the Fed will expire on 1 February 2010 after having been extended twice.

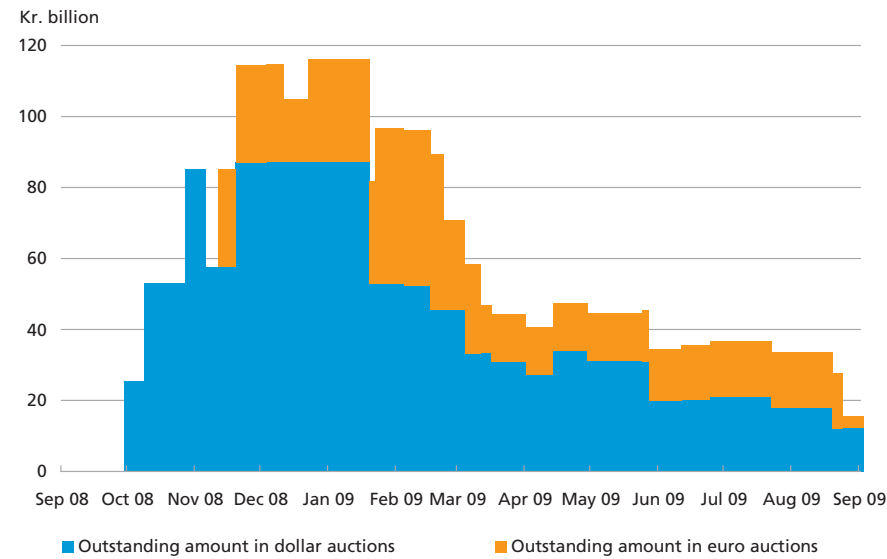
## **DEMAND IN DANMARKS NATIONALBANK'S AUCTIONS**

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Danmarks Nationalbank's euro and dollar lending peaked around the turn of the year, cf. Chart 1. In January, lending in foreign exchange totalled kr. 116 billion. The period since the turn of the year has seen a marked decline in demand for euro and dollars in Danmarks Nationalbank's auctions. Total lending now amounts to kr. 16 billion. By end-August 2009, 9 euro auctions and 17 dollar auctions had taken place.

DANMARKS NATIONALBANK'S TOTAL LENDING IN EURO AND DOLLARS

Chart 1



Demand for dollar liquidity in Danmarks Nationalbank's auctions was strong up to the turn of the year. Foreign counterparties closed credit lines, which caused liquidity prices to rise. In the first dollar auction on 26 September, Danmarks Nationalbank received bids for more than three times the amount supplied. Demand for euro has been less pronounced. In all euro auctions, supply has exceeded demand.

14 banks and mortgage-credit institutes have participated in Danmarks Nationalbank's euro auctions, while 13 have participated in the dollar auctions. In the autumn of 2008, the participants were predominantly large banks, but since the turn of the year more smaller banks have been interested, especially in the euro auctions.

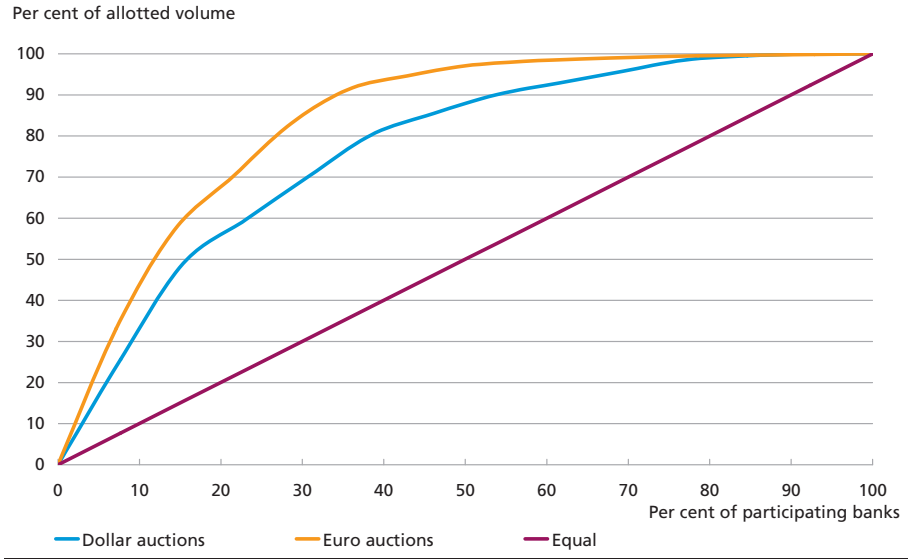
The allotment of liquidity in Danmarks Nationalbank's euro and dollar auctions has been concentrated on a few counterparties, cf. Chart 2. 50 per cent of the counterparties accounted for 97 per cent of the total allotment in the euro auctions and 88 per cent in the dollar auctions. The reason for the more uneven distribution in the euro auctions is that the number of smaller banks was higher in the euro auctions than in the dollar auctions, reflecting the greater need for euro liquidity among the smaller Danish banks.

In all the auctions, Danmarks Nationalbank's euro and dollar lending has been more expensive compared with a market rate based on collateralised lending<sup>1</sup>. On average, the marginal rate in the euro auctions

<sup>1</sup> The market rate based on collateralised lending refers to the interest rate for Overnight Index Swaps denominated in euro and dollars with corresponding maturities.

CONCENTRATION OF DANMARKS NATIONALBANK'S LENDING IN EURO AND DOLLARS BY COUNTERPARTY (LORENZ CURVE)

Chart 2



has been 75 basis points higher than the market rate based on collateralised lending, while the corresponding figure for the dollar auctions has been 84 basis points on average. This should be viewed in the light of the increased uncertainty about the creditworthiness of the counterparties. During and after the crisis small and medium-sized counterparties in particular have faced interest rates far higher than market rates in general.

Danmarks Nationalbank's auctions seek to remedy the situation for banks that have suffered under the difficult market conditions. The auctions have helped solve the banks' problems of raising euro and dollar loans. Interest in the auctions has diminished as the international money markets have improved. Given the continued normalisation of the money markets, Danmarks Nationalbank's auctions will only be held when an actual need is observed.

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# Danish Mortgage-Credit Bonds during the Financial Turmoil

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*Carsten Andersen, Market Operations, and Claus Johansen, Financial Markets*

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## INTRODUCTION AND SUMMARY

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In many European countries, the financial turmoil in the autumn of 2008 meant that liquidity dried up in the markets for covered bonds. Suddenly it was neither possible nor attractive to issue bonds of this type, and nor was it possible to trade in bonds already issued.

The Danish mortgage-credit market was a notable exception. Compared with most other European markets, it remained relatively liquid, and issuance still took place. One of the reasons is the large and stable domestic investor base. Moreover, in other countries covered bonds are merely one of a range of financing instruments.

As regards prices, Danish mortgage-credit bonds were, however, more severely hit by the financial turmoil than the corresponding German bonds. This is attributable to a combination of domestic sales pressures and foreign investors' sales of krone-denominated bonds because the Danish market was still liquid compared with other markets. The domestic sales pressures were addressed by way of the *Agreement on financial stability in the pension area* (the "Pension Package")<sup>1</sup> in late October, but foreign ownership of Danish mortgage-credit bonds remains lower than before the financial turmoil in the autumn of 2008.

The steeper yield curve resulting from the low policy interest rates means that the vast majority of newly issued bonds are non-callable fixed-rate bullet bonds ("fixed bullets") used for financing adjustable-rate loans. Consequently, an increasing share of the Danish mortgage-credit market is made up of fixed bullets with annual refinancing, and the upcoming fixed bullet auctions in November and December 2009 will be the largest auctions to date.

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<sup>1</sup> Danish Ministry of Economic and Business Affairs (2008).

## COMPARISON OF THE DANISH MORTGAGE-CREDIT MARKET AND THE EUROPEAN MARKET FOR COVERED BONDS

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In 2009, the increase in the outstanding volume in the Danish mortgage-credit market has come from fixed bullets. Since the introduction of adjustable-rate loans in 1996, these bonds have constituted an increasing share of the overall mortgage-credit market. In contrast, the outstanding volume of callable fixed-rate bonds has been relatively stable, thereby accounting for a falling share of the total market, cf. Chart 1.

The combination of falling interest rates since mid-2008 and a rising share of fixed bullets in the Danish mortgage-credit market has reduced the average fixed-interest period, expressed as the duration in the mortgage-credit market, cf. Chart 2.

The European market for covered bonds has evolved from comprising only Germany (*Pfandbriefe*) and Denmark (mortgage-credit bonds) to now comprising more than 20 European countries.<sup>1</sup> Issuance in Europe is, however, concentrated on a few countries. Covered bonds in Germany, Denmark, Spain and France thus accounted for around 81 per cent of the total outstanding volume in the EU at end-2008, cf. Chart 3.

At the end of 2008, the outstanding volume in Denmark constituted 160 per cent of the gross domestic product, GDP, while the equivalent figures for Germany and Spain were 32 and 30 per cent of GDP, respectively.

### Issuance volume during the financial turmoil

In the euro area, the financial turmoil reduced issuance of covered bonds in the form of jumbo issues<sup>2</sup> substantially. In the 4th quarter of 2008, practically no bonds of this type were issued in the euro area. Conversely, mortgage-credit bonds were still issued in Denmark in the 4th quarter of 2008, and total issuance of Danish mortgage-credit bonds in the 2nd half of 2008 was only slightly lower than in the 2nd half of 2007, cf. Chart 4.

Since the 4th quarter of 2008, issuance of Danish mortgage-credit bonds has been concentrated on callable fixed-rate bonds and fixed bullets, cf. Chart 5.

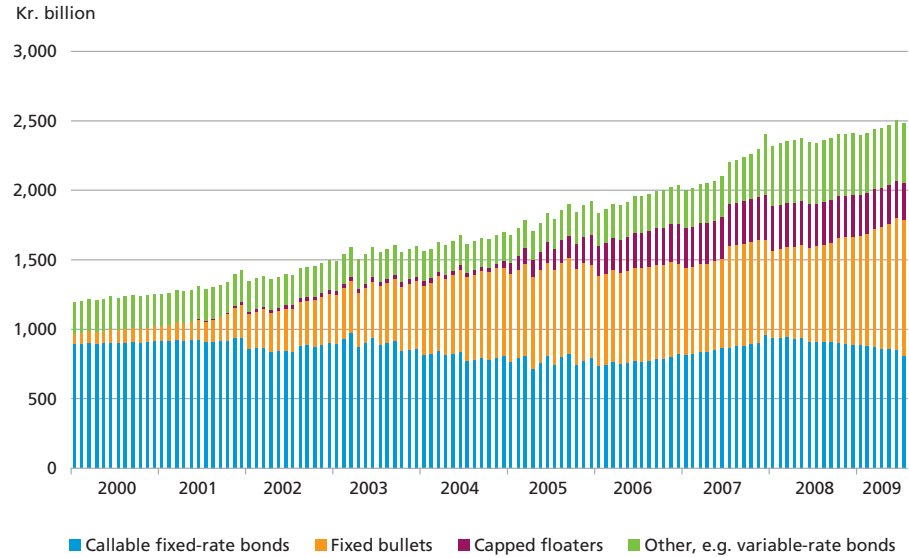
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<sup>1</sup> BIS (2007). See Box 1 for a definition of covered bonds.

<sup>2</sup> Jumbo issues typically have a minimum outstanding volume of 1 billion euro, with market making in the bond by at least five participants. For a more detailed description, see European Covered Bond Council (2008).

THE DANISH MORTGAGE-CREDIT MARKET

Chart 1

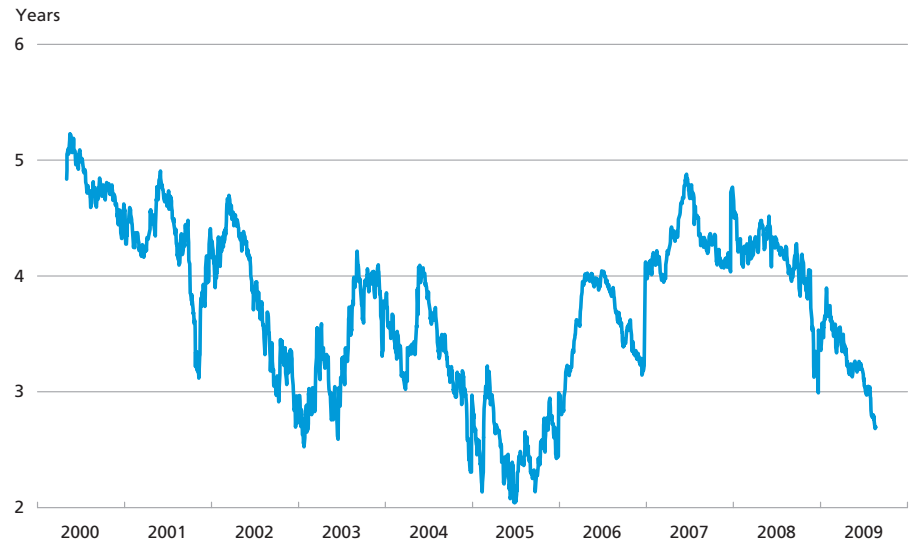


Note: Adjusted for higher outstanding volumes in December of every year. The mortgage-credit institutes' portfolios of own bonds are not included.

Source: Danmarks Nationalbank's securities statistics.

AVERAGE DURATION IN THE DANISH MORTGAGE-CREDIT MARKET

Chart 2

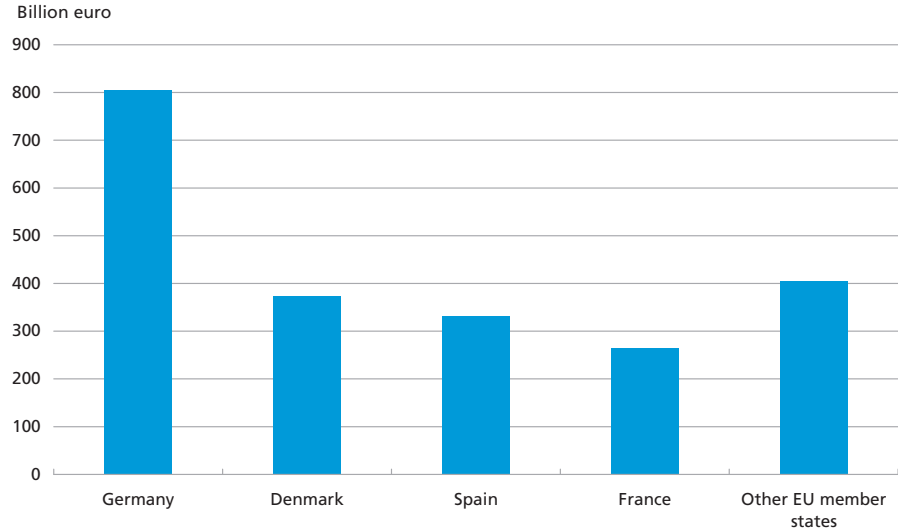


Note: Duration is calculated as the weighted average option-adjusted duration of outstanding Danish mortgage-credit bonds.

Source: Scanrate Financial Systems A/S.

OUTSTANDING VOLUMES OF COVERED BONDS, END-2008

Chart 3

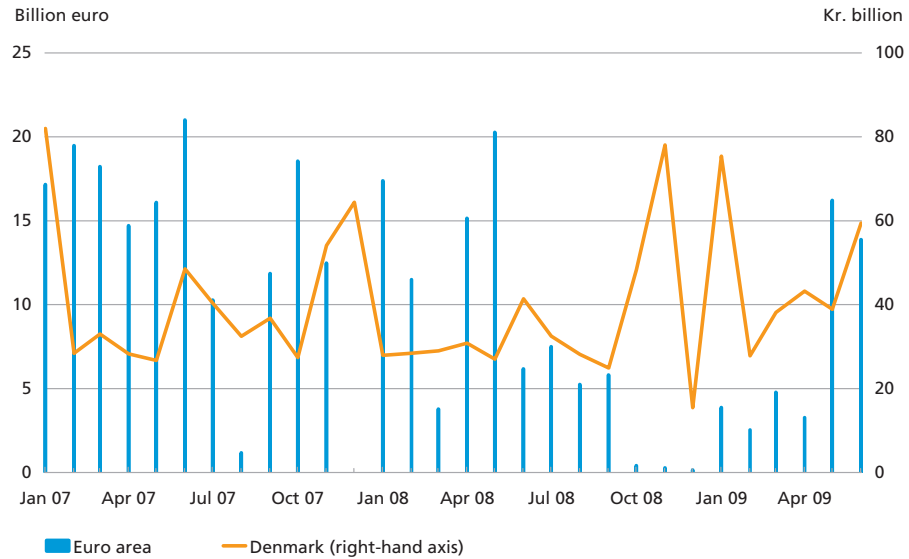


Note: For Denmark, both newly issued and matured bonds are included in connection with refinancing of adjustable-rate loans. Without this effect, the outstanding volume is 48 billion euro lower.

Source: European Covered Bond Council, Provisional statistics for 2008.

ISSUANCE OF COVERED BONDS IN THE EURO AREA AND IN DENMARK

Chart 4



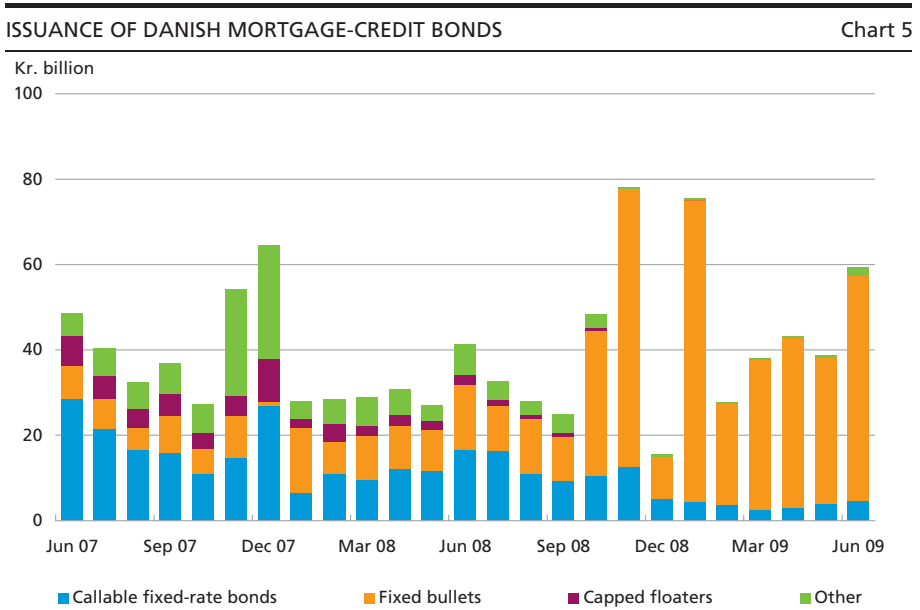
Note: For the euro area, jumbo issues have been included. For Denmark, refinancing auctions in December of every year have not been included.

Source: Dresdner Kleinwort Research and Nykredit Markets.

<b>DEFINITION OF COVERED BONDS</b>	<b>Box 1</b>
<p>There is no universally adopted definition of <i>covered bonds</i>. The European Central Bank, ECB (2008), has, however, listed a number of essential features of covered bonds:</p> <ul style="list-style-type: none"> <li>• The bond is issued by – or bondholders otherwise have full recourse to – a credit institution which is subject to public supervision and regulation.</li> <li>• Bondholders have a claim against a cover pool of financial assets.</li> <li>• The credit institution has the ongoing obligation to maintain sufficient assets in the cover pool to satisfy the claims of covered bondholders at all times.</li> <li>• The obligations of the credit institution in respect of the cover pool are supervised by public or other independent bodies.</li> </ul> <p>Investors in covered bonds thus have recourse to both the issuer and the underlying cover pool.</p>	

<sup>1</sup> Source: ECB (2008).

There are several reasons why issuance continued in Denmark. Issuers did not switch to other types of issuance, such as government-guaranteed bank issuance or private placements, as was the case in other Euro-

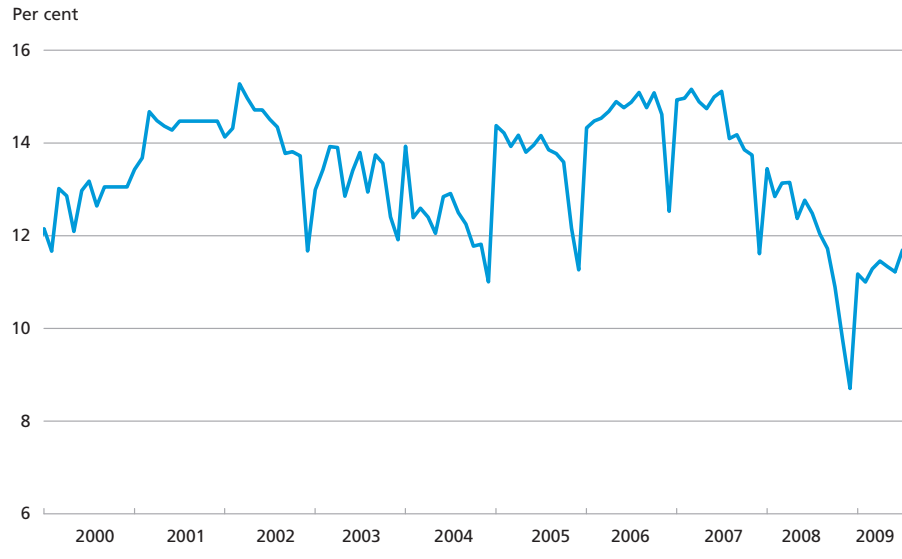


Note: The financing auctions in December 2007 and 2008 have not been included. They amounted to kr. 345 billion in 2007 and kr. 359 billion in 2008.

Source: Nykredit Markets.

## FOREIGN OWNERSHIP OF DANISH MORTGAGE-CREDIT BONDS

Chart 6



Source: Danmarks Nationalbank's securities statistics.

pean countries.<sup>1</sup> Moreover, non-residents own only a small share of Danish mortgage-credit bonds, cf. Chart 6, and consequently the impact on demand was fairly limited when foreign investors withdrew from the Danish mortgage-credit market.

As in other countries, monetary-policy counterparties in Denmark have unlimited access to pledging mortgage-credit bonds as collateral for liquidity in Danmarks Nationalbank's open market operations, cf. below.

Members of the Danish Securities Dealers Association have established a voluntary market maker arrangement for trading among themselves in a number of mortgage-credit bonds. This arrangement has been suspended since the 4th quarter of 2008, but nevertheless mortgage-credit bonds have still been traded, although the bid-ask spread has been higher than before the financial turmoil.

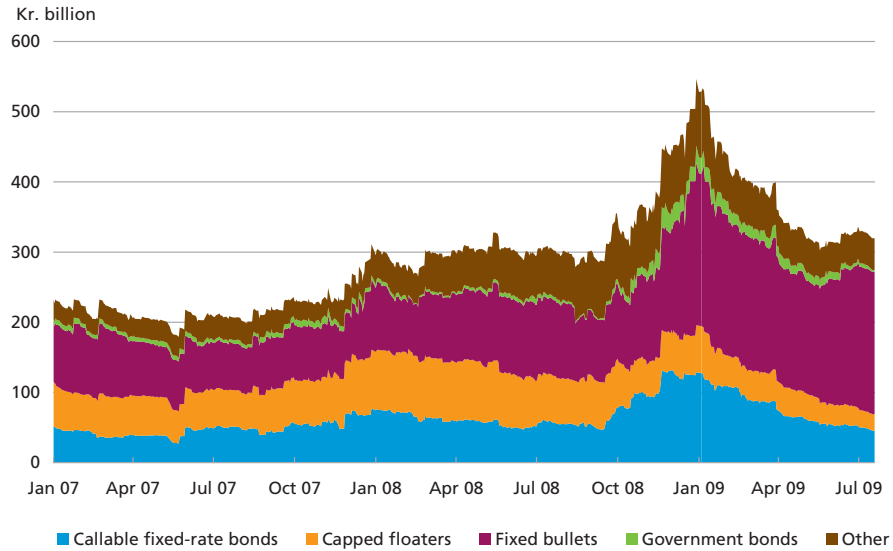
### PLEDGING OF COLLATERAL TO DANMARKS NATIONALBANK

The financial turmoil in the autumn of 2008 led the monetary-policy counterparties to borrow substantial amounts from Danmarks Nationalbank. Such lending is collateralised. Until early December 2008,

<sup>1</sup> See Jobst et al. (2009). Private placements are issues aimed at a single investor or a small group of investors.

BONDS PLEDGED TO DANMARKS NATIONALBANK

Chart 7



Note: Nominal values.

more than half of the increase in collateral pledged was in the form of callable fixed-rate bonds and fixed bullets, cf. Chart 7.

Collateralised lending continued to rise throughout December 2008. The increase mainly reflected Danmarks Nationalbank's provision of loans in foreign currency, cf. the article Danmarks Nationalbank's Euro and Dollar Auctions, p. 47. The monetary-policy counterparties to a large extent chose to pledge fixed bullets as collateral.

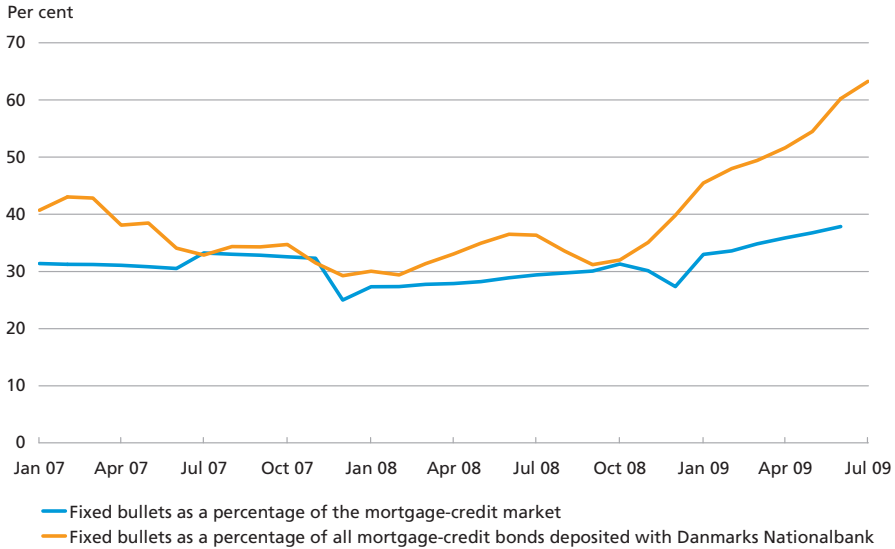
Even though mortgage-credit bonds account for the vast majority of the collateral pledged to Danmarks Nationalbank, the bonds pledged constituted only some 13 per cent of the total volume in the market as at mid-2009. In 2009, fixed bullets have accounted for a still growing share of the collateral pledged to Danmarks Nationalbank. This increase exceeds the general increase in bonds of this type in the mortgage-credit market, cf. Chart 8.

The rising share of fixed bullets in the collateral pledged is presumably ascribable to various factors. Firstly, many monetary-policy counterparties place some of their short-term funds in these bonds, and secondly, financing such bonds by way of monetary-policy loans entails limited interest-rate risk.

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**SHARE OF FIXED BULLETS IN THE MORTGAGE-CREDIT MARKET AND IN THE COLLATERAL PLEDGED TO DANMARKS NATIONALBANK**

Chart 8



Note: Nominal values.

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**THE FIXED BULLET AUCTIONS IN NOVEMBER AND DECEMBER 2009**

The large issuance volume in fixed bullets in 2009 means that the upcoming fixed bullet auctions in November and December will be the largest to date. At end-August indications were that they would exceed the auctions in December 2008 by up to kr. 300 billion, cf. Chart 9.

The exact auction volumes will depend on the degree to which borrowers will continue to ask for adjustable-rate loans and the extent to which they decide to lock the rate of interest prior to the auctions.

In any case, bond sales will be highly concentrated and will potentially involve a considerable element of variation in the borrowers' interest costs.

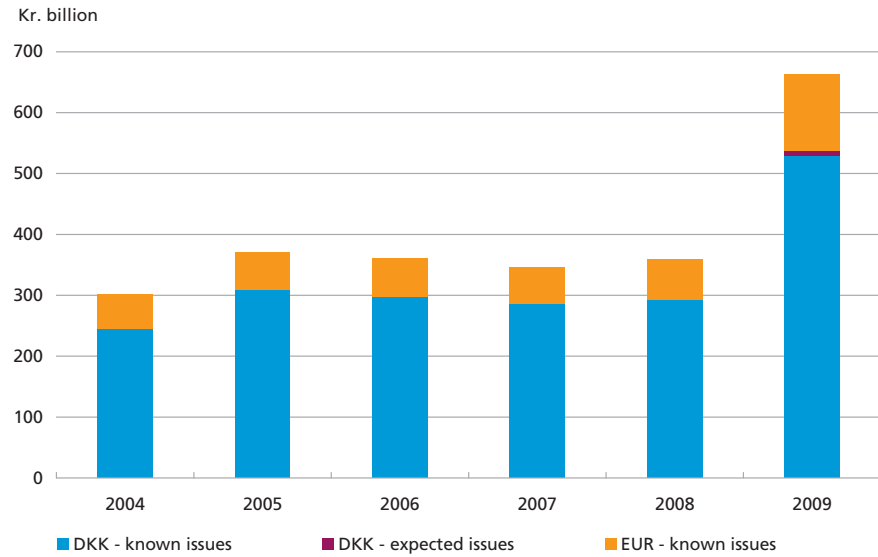
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**DEVELOPMENT IN CREDIT SPREADS DURING THE FINANCIAL TURMOIL**

The yield spread between mortgage-credit and government bonds in Denmark has typically mirrored the equivalent German spread closely, cf. Chart 10. To illustrate this, a Danish 5-per-cent callable mortgage-credit bond maturing in 2038 has been compared with a German jumbo issue with more or less the same duration as the Danish bond. For the Danish mortgage-credit bond, the option-adjusted yield spread is ap-

SIZE OF FIXED BULLET AUCTIONS

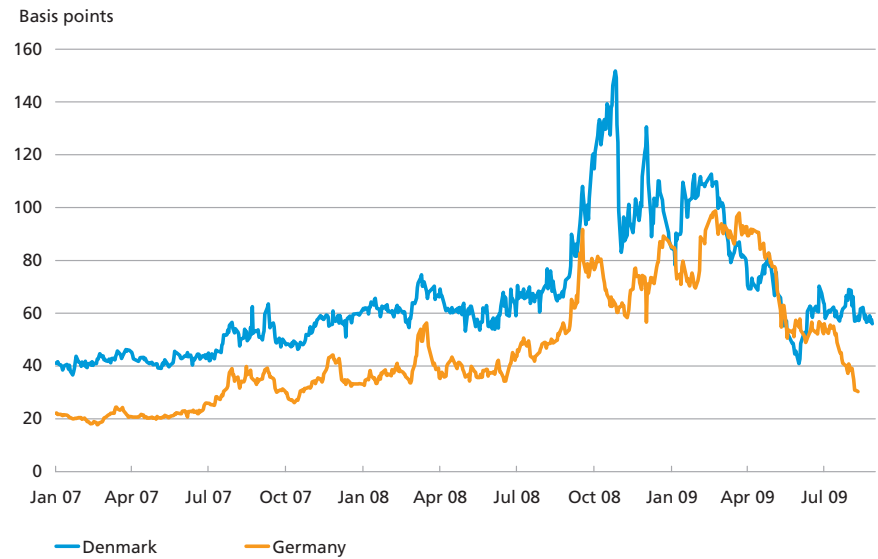
Chart 9



Note: Data for 2009 is from end-August. For 2004-08 the size has been calculated as the volumes issued, while the calculation for 2009 is based on outstanding bonds maturing at the beginning of January 2010.  
 Source: Stock-exchange announcements and Nykredit Markets.

OPTION-ADJUSTED YIELD SPREAD BETWEEN MORTGAGE-CREDIT AND GOVERNMENT BONDS

Chart 10



Note: Denmark: 5 per cent 2038; Germany: DGHYP 4 10/16.  
 Source: Bloomberg and Nordea Analytics.

plied, thereby adjusting for the option element contained in the Danish bond, but not in the German bond. The excess yield on investment in a mortgage-credit bond compared with a government bond reflects the higher liquidity, credit and possible volatility risk linked to the former.

In the period from January 2007 to the end of September 2008, the correlation between the two yield spreads was 0.96. In October 2008 a decoupling of the two markets took place, and the correlation measured over the seven months from October 2008 to April 2009 became negative as the Danish yield spread widened substantially. This is attributable to a multitude of factors. Generally, the period in question saw sales pressure on Danish mortgage-credit bonds because investors sought to reduce their balance sheets and limit their credit risk. In addition, the financial turmoil meant that some investors were compelled to divest Danish mortgage-credit bonds.

The widening of the yield spread to government bonds was not a purely Danish phenomenon. It was seen, to a greater or lesser extent, in all European markets. In many markets, liquidity dried up following the widening of the spread. It was no longer possible to obtain keen prices or make large transactions in those markets. As previously stated, the Danish market maker arrangement for mortgage-credit bonds was suspended. The same applied to equivalent market maker arrangements for covered bonds elsewhere in Europe.

In the same period, decoupling also took place between the mortgage-credit yield and the rate of interest applied for calculating the value of the future commitments of insurance and pension companies. As a consequence of the decoupling, mortgage-credit bonds could no longer hedge the commitments of insurance and pension companies to the same extent. This reduced the demand for mortgage-credit bonds and led to a risk that the insurance and pension sector would divest substantial volumes of mortgage-credit bonds.

At the end of October 2008, the Pension Package was concluded. Among other things, this agreement entails that the yield on mortgage-credit bonds is temporarily included in the yield curve used by pension companies to calculate their commitments. This had a very clear and immediate effect on the Danish mortgage-credit market. The spread between government and mortgage-credit bonds narrowed considerably in the wake of the agreement.

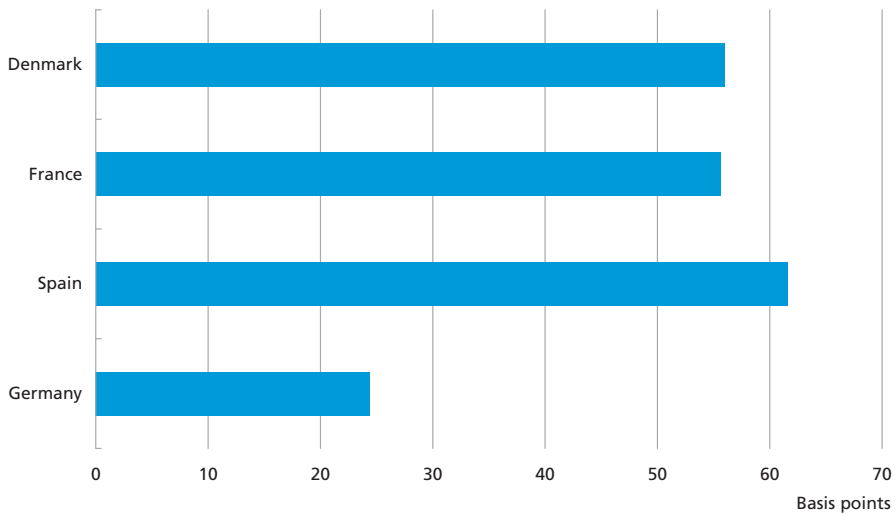
At end-August 2009, the Danish credit spread was still on the wide side relative to the equivalent German spread, but it was in line with the French and Spanish credit spreads, cf. Chart 11. The particularly strong effect of the financial turmoil on Danish mortgage-credit prices thus seems to have abated.

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**SPREAD BETWEEN COVERED BONDS AND GOVERNMENT BONDS,  
END-AUGUST 2009**


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Chart 11



Note: Denmark: 5 per cent 2038; Germany: DGHYP 4 10/16; France: CFF 3.75 01/17; Spain: CAIXAB 4.25 01/17.  
Spread to estimated government yield curve.

Source: Nordea Analytics.

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# Credit Institutions and Procyclicality

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*Borka Babic, Financial Markets*

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## INTRODUCTION

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Lenders have a tendency to amplify cyclical fluctuations, i.e. to have a procyclical effect. This has also been the case in recent years. Due to the crisis and the economic downturn, credit institutions have suffered large losses, which has weakened their capital structures. Many have reacted by tightening their credit standards, e.g. by reducing lending.

A number of factors, including financial regulation, may affect the lending capacity of credit institutions over a business cycle. Accounting standards and capital adequacy rules are of paramount importance. Among other things, accounting standards determine when losses on loans can be booked. The capital adequacy rules lay down capital requirements and influence the buffers set aside by the credit institutions in good times, which may be used against losses in bad times. The size of these reserves affects not only the robustness of the sector, but also the ability of credit institutions to provide credit in a recession.

Several of the initiatives launched as a result of the financial crisis are aimed at reducing procyclicality. Internationally there is agreement that it is necessary to adjust both accounting standards and capital adequacy rules with a view to reducing procyclicality in the financial sector. Other initiatives include new remuneration rules in the sector and restraints on expanding the credit institutions' balance sheets in relation to their equity (leveraging).

This article describes the relationship between procyclicality and regulation in the various areas and provides an updated status of the work currently underway in the fields of accounting and capital adequacy. Initiatives relating to remuneration and leverage in the financial sector will also be touched upon.

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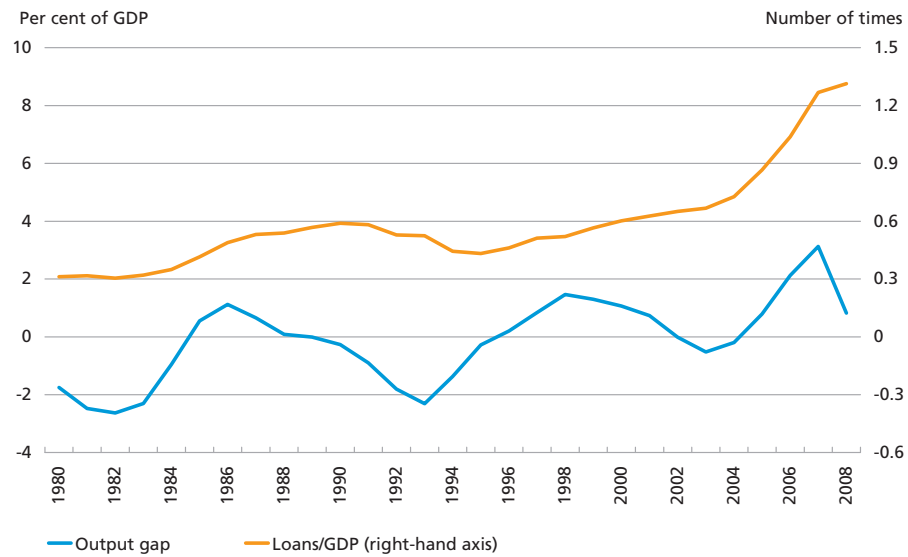
## PROCYCLICALITY: CAUSES AND EFFECTS

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As a general rule, growth in lending by credit institutions is strong during booms, while credit standards are tightened in recessions. The boom in

LENDING BY BANKS AND ECONOMIC DEVELOPMENTS IN DENMARK

Chart 1



Source: Ministry of Finance, Statistics Denmark and banks' financial statements.

the years up to the crisis was thus characterised by a surge in loans relative to the gross domestic product, GDP, cf. Chart 1.<sup>1</sup>

In good times, when unemployment is low and corporate earnings high, it is natural that credit institutions are more willing to lend. Conversely, in recessions, when the value of any collateral pledged declines, the risk associated with lending to households and the corporate sector is, all other things being equal, greater. Consequently, the credit institutions become less willing to lend. High lending growth contributes to higher GDP growth during booms, while tighter credit standards dampen economic activity in recessions. Credit institutions thus have a tendency to amplify cyclical fluctuations.

A number of factors may add to the inherent procyclicality of the credit institutions. One of them is their *risk appetite*. This changes over time, and – like other market participants – credit institutions have a tendency to assume greater risks during a boom than during a recession.<sup>2</sup> This affects their lending and thus also the economy in general.

*Risk management practices* in the financial sector have often been mentioned as a contributory factor behind procyclicality.<sup>3</sup> Risk management models tend to attach most importance to recent data for developments in the economy and the financial markets. Short-term-oriented

<sup>1</sup> See Andersen et al. (1999).

<sup>2</sup> See Joint FSF-BCBS Working Group on Bank Capital Issues (2009) and Berger and Gregory (2003).

<sup>3</sup> Cf. e.g. Andritzky et al. (2009) and Financial Stability Board (2009).

or overly simple risk management systems may lead to underestimation of risk in good times, which in turn leads to too easy credit conditions during booms. And vice versa in recessions. A prerequisite for stable risk management systems is that they are based on data and experience from at least one full business cycle.

*Information asymmetry* between borrowers and lenders is another basic condition for financial business, but may also be part of the explanation to inexpedient procyclicality. Information asymmetry arises because the credit institution naturally has a less complete picture of the borrower than the borrower has. Consequently, it cannot fully take into account the difference between a creditworthy and a less creditworthy borrower. In recessions, when credit institutions become more cautious in their lending behaviour and the value of collateral decreases, borrowers with profitable projects may also find it more difficult to obtain loans. This is a further impediment to economic activity.<sup>1</sup>

*Financial regulation* may also provide incentives for credit institutions and financial markets so that economic fluctuations are amplified. In this respect accounting standards, including rules on write-downs on loans and valuation of financial assets, and capital adequacy rules are key in relation to procyclicality. These issues will be elaborated on in the following two sections.

The credit institutions' tendency to expand their activities considerably during a boom and reduce them correspondingly during a recession has a major impact on financial stability. The substantial increase in activities – including lending – during a boom may result in the credit institutions taking on excessive risk and thus becoming vulnerable to an economic downturn. Therefore, eliminating the conditions that may lead to inexpedient and excessive fluctuations in financial activity is also important from a financial stability perspective.

## ACCOUNTING

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Two types of accounting standards are particularly relevant in relation to procyclicality: those concerning provisions for/write-downs on loans, and those concerning valuation of financial assets.

### **Provisions for/write-downs on loans**

Under the International Financial Reporting Standards, IFRS, impairment charges on loans must be made on the basis of objective indication of

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<sup>1</sup> Borio et al. (2001).

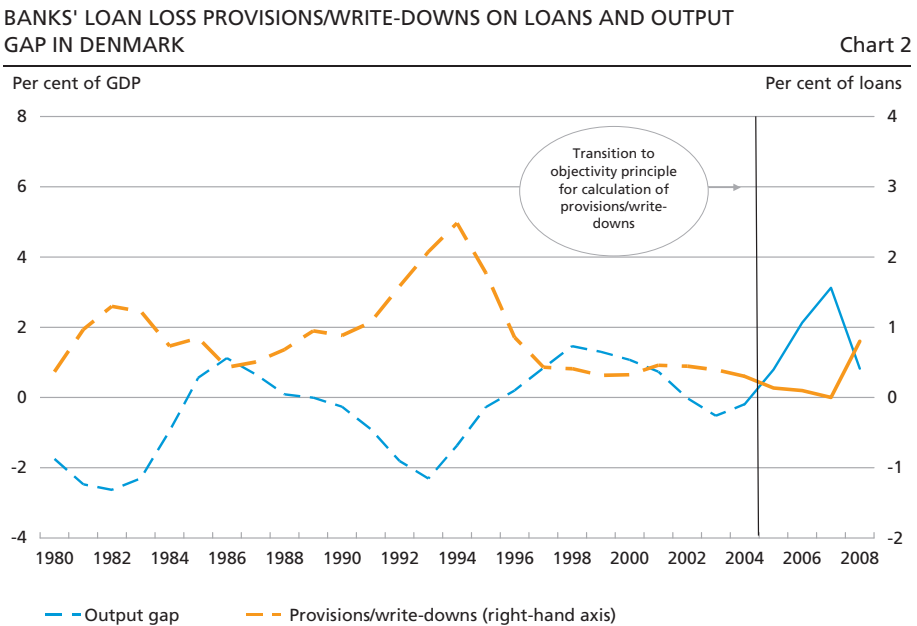
loss. In other words, an event must occur that results in an identifiable loss, for example that the borrower fails to make the agreed payments.

The principle of objective indication of loss was introduced in the EU in 2005. In Denmark, it replaced the prudential principle, whereby credit institutions had to make provisions for expected future losses. In other words, provisions were replaced by write-downs, and combined with cyclical developments, the new rules contributed to reducing this balance-sheet item, cf. Chart 2.

The principle of objective indication entails small write-downs and high earnings during booms. All other things being equal, this boosts the credit institutions' capacity to lend and thus to amplify the economic upswing. On the other hand, an economic downturn may result in a pronounced increase in write-downs, which reduces the credit institutions' earnings and contributes to reducing their capitalisation. This has been evident in the current downturn. Losses may compel credit institutions to reduce lending and thus to accelerate the slowdown.

Internationally it is agreed that the rules need to be adjusted so as to better reflect expected losses on loans. The first proposals in this respect were published over the summer.

The IFRS are laid down by the International Accounting Standards Board, IASB, which is an independent organisation. The IASB is looking at the possibilities of adjusting the existing write-down rules, and in this



Source: Banks' financial statements and Ministry of Finance.

connection it has published a Request for Information on the feasibility of an expected loss model for the impairment of financial assets. The IASB plans to publish proposals for amendment of the rules in October 2009.<sup>1</sup> Unlike the existing rules, this model takes expected credit losses into account, from the loan is booked until it expires. Throughout the term of the loan, calculations are based on the expected cash flows from the loan (adjusted for expected credit losses). If the discounted value of these flows is lower than the book value of the loan, it is written down. Both positive and negative developments in the expected credit losses are to be entered to the income statement on an ongoing basis.

### **The European Commission's proposal on dynamic provisioning**

In July 2009, the European Commission submitted its proposal for implementing dynamic provisioning for public consultation.<sup>2</sup> According to the Commission, these provisions are to supplement the IFRS impairment charges on loans. They are expected to be implemented in the proposal to amend the EU Capital Requirements Directive that the Commission is expected to table in October 2009.<sup>3</sup>

Under the Commission's proposal, dynamic provisions are to serve as a kind of buffer. This buffer is built up in good times with a view to covering expected losses – in excess of the IFRS impairment charges – in a recession. The purpose of implementing dynamic provisions is to ensure that credit institutions have the necessary buffers to cover losses over the entire business cycle. The Commission therefore proposes that the supervisory authorities calculate the expected losses on and provisions for various asset classes on the basis of historical data over a business cycle. The resulting parameters must then be used by the credit institutions to calculate the required buffers. In its proposal, the Commission assumes that these provisions will be accepted under international accounting standards and that they will have an impact on accounting profit like the ordinary impairment charges. The proposed model is based on the "Spanish model" for dynamic provisions, cf. Box 1.

The Commission's proposal has raised considerable debate internationally and nationally, one of the issues being whether the proposal for dynamic provisions will affect the accounting standards. Furthermore, a number of technical issues relating to the model have yet to be clarified. The Spanish model has been developed to comply with the existing provision model, which is based on the principle of objective indication, and

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<sup>1</sup> For further information, see IASB, Request for information: ("Expected Loss Model") Impairment of Financial Assets: Expected Cash Flow Approach, June 2009.

<sup>2</sup> Dynamic provisions have also been proposed by the High-Level Group on Financial Supervision in the EU (the de Larosière Group) (2009).

<sup>3</sup> For further information, see the European Commission (2009a).

## DYNAMIC PROVISIONS

Box 1

Since the onset of the crisis, much attention has focused on the "Spanish model" for dynamic provisions. Under this model, Spanish credit institutions not only make write-downs in accordance with the principle of objective indication of loss on loans (specific provisions), they also make provisions for expected losses on loans. So far, Spain has been the only EU member state to operate with provisions of this type.

The Spanish model is a statistical model. Dynamic provisions are calculated on the basis of average historical loss and provision ratios over a business cycle relative to the credit institution's specific provisions at the time. Loans are grouped according to six risk categories on the basis of asset credit risk, and historical loss ratios and provisions are based on sector averages for each of these categories. The Spanish supervisory authorities calculate average credit losses and provision ratios, which credit institutions apply to their portfolios of loans.

Buffers are built up on the basis of the following formula:

$$\Delta \text{Dynamic provisions}_t = \sum_j \alpha_j \Delta C_{jt} + \sum_j \beta_j C_{jt} - \Delta SP_t$$

where:

- $j$  indicates the risk category
- $\alpha_j$  is historical average estimate of credit loss for risk category  $j$
- $C_{jt}$  is the aggregate portfolio of assets in risk category  $j$  for which no specific provisions have been made
- $\beta_j$  are historical average Specific Provisions for risk category  $j$
- $SP$  are specific provisions.

At times when specific provisions for losses are low, dynamic provisions increase, and vice versa. In this way, the credit institution's total provisions for losses in any given period become less cyclical.

The model does not take institution-specific circumstances into account, including differences in the various credit institutions' management and pricing of risk. Combined with the model's dependence on historical data, this is seen as one of its weaknesses. The model is based on the assumption that the data required to calculate historical loss and provision ratios is available. In many EU member states, including Denmark, this is not the case.

In its proposal for implementation of dynamic provisions, the European Commission presents two alternative formulae for calculation of dynamic provisions. The first one is a copy of the Spanish model. The other one is an adapted version of the model in which the first term of the above formula is omitted. According to the Commission, the second model can be applied if the IASB replaces the existing provision model with the "expected loss model".

it is therefore uncertain how the Commission's proposal ties in with the IASB's "expected loss model". Moreover, the proposal has the same weaknesses as the Spanish model, cf. Box 1.

Under the Commission's proposal, provisions are to be calculated on the basis of experience with developments in realised losses over a full business cycle. However, no two business cycles are identical, and unpre-

dicted events can and will occur. Resultant unexpected losses to the credit institutions should, so the Commission envisages, be provided for by building up sufficient capital buffers. This applies to larger-than-expected losses on e.g. loans, as well as depreciation in the market value of assets, including assets booked at fair value, cf. below.<sup>1</sup>

## Valuation

The IFRS provide credit institutions with a choice of valuation methods, including fair value. This method is used for valuation of assets, such as equities and bonds, held by the credit institution for trading purposes. The fair value method entails that assets are always valued at market price when a market price is available (mark-to-market), while model calculations are applied in the absence of a market price.

Unlike valuation methods which are based on historical cost, the fair value method can have a procyclical effect. Market prices vary over the business cycle. Rising market prices during a boom have a positive impact on the profits and capitalisation of credit institutions and may thus induce them to expand their activities. Conversely, falling market prices may trigger a reduction in activities. As the current crisis has shown, market values may drop sharply, and a fall tends to be self-reinforcing, cf. Box 2.

The fair value method also has many advantages. It contributes to more true and fair, and also more transparent, financial statements. At their April summit, the G20 countries agreed to retain the principle of fair value. At the same time, they agreed that it is necessary to reduce the complexity of accounting standards<sup>2</sup> for financial instruments and to improve the valuation standards based on instrument liquidity.

When the markets are illiquid, valuation may be subject to considerable uncertainty. One way of addressing uncertainty in the valuation of instruments and to help investors assess the risk associated with a given financial instrument is to tighten the disclosure requirements. The IASB therefore suggests a strengthening of the requirements concerning disclosure of the assumptions and valuation models applied, and in certain cases also the requirements for stating how the choice of valuation method impacts on earnings.<sup>3</sup>

Another way of addressing the uncertainty concerning valuation of financial instruments is to establish valuation reserves.<sup>4</sup> The Financial Stability Board, FSB, recommends that standard setters and supervisors

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<sup>1</sup> All balance-sheet items are comprised by the European Commission's proposal for dynamic provisions, except the trading book.

<sup>2</sup> IASB (2009b).

<sup>3</sup> IASB (2009a).

<sup>4</sup> EFC (2009).

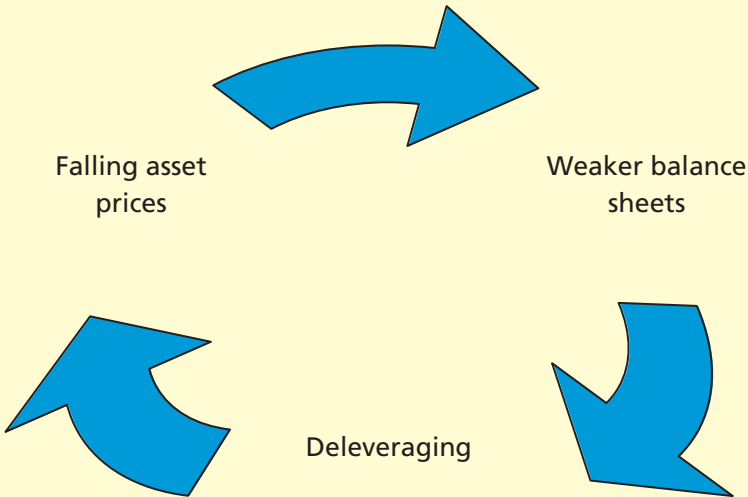
DOWNWARD SPIRAL IN ASSET PRICES

Box 2

Falling market prices for assets valued according to the fair value method have a negative impact on the credit institutions' earnings and capitalisation. Consequently, they may have to reduce their balance sheets and sell some of these assets, i.e. deleverage. This can amplify the downward trend in prices, thereby leading to further losses for the credit institutions. This self-fuelling effect of the decline in asset prices is illustrated in Chart 3. Market illiquidity may accelerate the downward price spiral. This is one of the reasons why the fair value method has been criticised for not working when markets are under stress or characterised by low liquidity.

DOWNWARD SPIRAL IN ASSET PRICES

Chart 3



should explore whether firms should be required to hold valuation reserves to avoid overstatement of income when financial instruments are illiquid and valuation is based on data that is difficult to verify.<sup>1</sup> When an increase in the value of an asset is subject to uncertainty, the added value will thus not be booked, but will be set aside as a reserve.

**CAPITAL REQUIREMENTS**

In the wake of the financial crisis, several measures have been launched to strengthen the capital structure of credit institutions and to reduce procyclicality. Key initiatives include building up larger capital buffers. In good times, credit institutions should build up buffers so as to ensure that they are also sufficiently capitalised to withstand a recession.

<sup>1</sup> Financial Stability Board (2009).

### **The existing capital adequacy rules, Basel II**

Credit institutions play a special role in the economy, and unlike other business enterprises they are therefore subject to extensive regulation, including capital requirements as a major element. Capital requirements imposed by the authorities are, *inter alia*, aimed at preventing financial problems within one credit institution from spreading and thus threatening financial stability. This is the case if an event in one credit institution triggers substantial financial losses and/or lack of confidence in other parts of the financial system. Capital requirements ultimately reduce the risk of ending up in a situation where the government may have to consider injecting capital into credit institutions.

In terms of capital adequacy, Denmark, like other EU member states, complies with the Basel II Accord, which is integrated into the EU capital adequacy rules. In Denmark, implementation of these rules began in 2007, when they replaced Basel I. The new rules are far more institution-specific than the old rules. Under Basel II, credit institutions have a choice of several approaches to calculation of capital requirements, and the requirements to a large extent reflect the risk incurred by the individual institution.

As early as in the Basel II preparation phase it was pointed out that the risk-based approach to capital requirements could be procyclical. In connection with the implementation of the new rules an analysis was therefore initiated to further identify their procyclical effects, and regular monitoring of this area was introduced.<sup>1</sup> The financial crisis has highlighted the issue.

The risk-based approach means that the minimum capital requirement tends to fall during upswings, when risk is perceived to be limited. This leaves scope for credit institutions to expand their lending activities. Conversely, the capital requirement increases, and lending is reduced, in downturns, when risk is perceived to be high. Thus the capital adequacy rules may reinforce the cyclical trend.

Within the framework of the Basel II Accord, the credit institutions may, however, adopt a more conservative approach to risk assessment. For example, they must reserve more capital to cover risks on the basis of internal stress testing. Within the regulatory framework, supervisory authorities may also impose extra capital requirements on a credit institution if they find that the capital calculated by the credit institution is insufficient to cover the risks incurred. How these options can be exploited better is also being considered in connection with the ongoing review of the capital adequacy rules in relation to procyclicality, cf. Box 3.

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<sup>1</sup> Cf. e.g. article 156 of Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006.

## CEBS' PROPOSAL FOR COUNTERCYCLICAL CAPITAL BUFFERS

Box 3

In July, the Committee of European Banking Supervisors, CEBS, published its proposal for reducing the procyclical element in the capital requirements – i.e. the tendency for requirements to decrease during booms and increase during recessions. The CEBS proposal solely concerns credit risk on the credit institutions' banking activities, including ordinary lending activities.<sup>1</sup>

The proposal is aimed at supervisory authorities and is intended to help them to assess the adequacy of the credit institutions' buffers. The CEBS proposes that supervisory authorities adjust the probabilities of default, PDs, estimated by the credit institution, which are key to the development in the credit institution's minimum capital requirement under Basel II. The current PDs are to be adjusted by a factor reflecting the gap between the PDs in a recession and the current PDs. The credit institution's capital need is calculated on the basis of these adjusted probabilities. In their assessment of the robustness of credit institutions, the supervisory authorities must compare this capital need with the capital need calculated on the basis of the current PDs.

The proposal contributes to the build-up of larger capital buffers in good times. The buffers are expected to increase during booms and to decrease during recessions.

<sup>1</sup> CEBS (2009). Moreover, the CEBS paper concerns only the credit institutions applying their own credit-risk models for calculating the minimum capital requirement for credit risks (IRB, internal ratings based approach).

### Larger capital buffers and better capital quality

The Basel II Accord is only just being implemented<sup>1</sup> and is therefore not believed to be the root cause of the crisis. Nevertheless, the crisis has demonstrated that the credit institutions are insufficiently capitalised, and that the incentives to build up capital buffers in good times are too weak. Consequently, there is international agreement on the fundamental principle that credit institutions must build up larger capital buffers in good times as provision for bad times. This is important both in terms of their robustness to shocks and in order to reduce procyclicality. Low capital buffers could mean that losses compel credit institutions to reduce their activities, including lending, in order to observe the statutory capital requirements.

The specific design of such capital buffers remains an outstanding issue. The European Commission and the Basel Committee on Banking Supervision, BCBS, are both expected to publish their thoughts on and proposals for capital adequacy rules and procyclicality by the end of 2009.<sup>2</sup>

In connection with the financial crisis, not only the capital level of the credit institutions has come into focus. The crisis has clearly demonstrated that the capital structure is also significant when the sector comes under pressure. The crisis has disclosed a shortage of high-quality

<sup>1</sup> The USA is expected to implement the Basel II capital requirements in 2010.

<sup>2</sup> BCBS, Comprehensive response to the global banking crisis, press release, September 2009.

capital, such as share capital, in parts of the banking sector.<sup>1</sup> In April 2009 the G20 countries therefore agreed on the need to strengthen the credit institutions' capital base, not only by increasing their capital buffers, but also by improving the capital quality. The BCBS is considering various options for strengthening the quality of the credit institutions' capital, but primarily emphasises that common shares and retained earnings should constitute the predominant part of the credit institutions' Tier 1 capital.

## **OTHER MEASURES TO REDUCE PROCYCLICALITY**

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In addition to the above, a number of other measures have been proposed to reduce procyclicality. It is thus agreed that restrictions should be introduced on the credit institutions' expansion of their balance sheets in relation to their capital (leverage) that characterised both the global and the Danish financial sector in the years leading up to the onset of the crisis, cf. Chart 4. The European Commission is expected soon to present a proposal for implementation of a simple leverage ratio. This measure is expected to supplement the other capital requirements, either as an indicator to be used by supervisory authorities to assess the sustainability of the credit institutions' expansion of activities, or as a binding requirement.

Other factors that may have a procyclical effect include remuneration policies in the financial sector. In some credit institutions, remuneration schemes for management and employees have had excessive focus on short-term performance. Moreover, remuneration has frequently been independent of risk-taking. Such schemes therefore provided incentives to expand activities, e.g. in the financial markets, where short-term gains could be reaped by assuming large risks.

In its recommendation of April 2009, the European Commission calls for alignment of pay incentives with the long-term profitability of the credit institutions and for risk adjustment of performance criteria.<sup>2</sup> Moreover, the Commission has proposed binding obligations for credit institutions to pursue remuneration policies that support efficient risk management. Under the proposal, supervisory authorities should be empowered to impose financial and non-financial sanctions on a credit institution if it fails to observe this principle. Such sanctions include additional capital requirements.<sup>3</sup>

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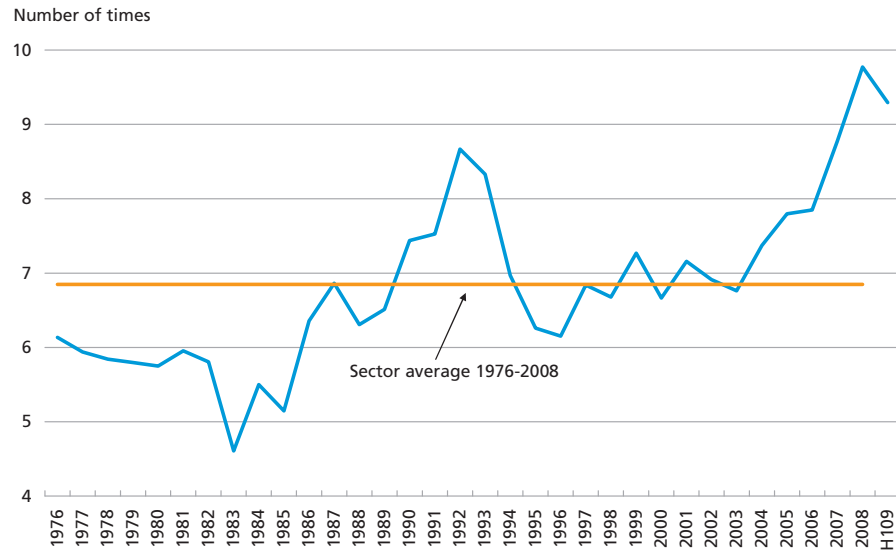
<sup>1</sup> For an illustration of the impact of the banks' capital structure, see Box 17 in Denmark's National bank, *Financial stability*, 1st half 2009.

<sup>2</sup> European Commission (2009c).

<sup>3</sup> European Commission (2009b).

## LENDING LEVERAGE IN THE DANISH BANKING SECTOR

Chart 4



Note: Lending leverage is defined as loans relative to equity capital. The Danish banking sector comprises banks in the Danish Financial Supervisory Authority's groups 1-3.

Source: Banks' financial statements.

## CONCLUDING SUMMARY

In the wake of the financial crisis, a number of initiatives have been launched with a view to reducing the procyclicality of the financial sector. Larger loan loss provisions and build-up of larger capital buffers in good times are key elements of these measures.

Work within the various areas is at different stages. As regards provisions, possible solutions are beginning to emerge, although it is still somewhat uncertain how the European Commission's proposed dynamic provisions will tie in with the IASB's "expected loss model". The issue of designing new capital adequacy rules remains open, however, and specific proposals are expected to be tabled in the coming months.

Developments have shown that both larger loan loss provisions and larger capital buffers are necessary. At the same time, it is important to maintain transparency in the financial statements of the credit institutions when implementing the new rules.

The initiatives are not aimed at resolving the existing crisis, but at increasing the robustness of the sector to future shocks and to dampen the tendency for credit institutions to amplify cyclical fluctuations in future. The initiatives undertaken, and the crisis itself, have probably already had an effect on the behaviour of credit institutions. Moreover, many credit institutions have received government capital injections. In other words there is time to consider the possible solutions carefully.

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# Impact of Fiscal Policy during the Crisis

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*Ann-Louise Winther, Economics*

## **INTRODUCTION AND SUMMARY**

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In order to dampen the impact of the financial and economic crisis, including large increases in unemployment, many countries have implemented fiscal stimulus packages during the past year, and some countries are planning further measures in 2010. The fiscal policy responses of individual countries to the crisis reflect the extent of the economic slowdown in the country concerned, the fiscal room for manoeuvre and the size of the automatic stabilisers. Furthermore, monetary policy has been eased with interest rates close to zero, and many countries have used unconventional monetary-policy instruments to facilitate credit intermediation. Consequently, the increased focus on easing fiscal policy should also be viewed in light of the restrictions to further monetary-policy relaxation.

This article takes a closer look at the fiscal policy pursued during the crisis and its macroeconomic effects. First it describes the fiscal stimulus measures that have been implemented and planned across OECD countries and how they have affected public finances in the respective countries. In general, the degree of fiscal loosening varies considerably from country to country. In most countries expansionary discretionary fiscal policy combined with the effect of the automatic stabilisers will lead to substantial deterioration of public finances in 2009 and 2010.

The second half of the article explores the potential impacts of expansionary fiscal policy given by the so-called fiscal multipliers. In both theoretical and empirical literature the multipliers range widely in size. They are dependent on the saving behaviour of households and business enterprises, fiscal sustainability and the extent of foreign trade, among other things. It is also important whether fiscal policy is relaxed on the revenue or expenditure side. In the short term there is empirical evidence that increased public investment and increased public consumption have a greater impact than tax cuts, but the impact of tax cuts may increase in the longer term as the larger savings are channelled into private consumption. The last part of the article discusses why the effects of fiscal policy during the current crisis may deviate from the estimated effects in more "normal" times. If households and business enter-

prises have limited access to credit, the impact of expansionary fiscal policy may be relatively large. On the other hand, the private sector may choose savings over consumption due to growing uncertainty about future income and employment as a result of the current economic crisis, which would weaken the stabilising effect of fiscal policy. Fiscal sustainability also influences the impact of active fiscal policy on economic activity. Large government deficits and growing government debt may increase uncertainty about the economic outlook, which may in turn increase the private sector's propensity to save. In addition, growing government debt may lead to higher interest rates – in the form of increases in the general level of interest rates or in the yield spreads of individual countries – thereby countering the fiscal stimulation.

In order to achieve the greatest possible impact of fiscal policy during the crisis it is crucial that the fiscal measures are timely and targeted. Sustainability also determines whether there is scope for further relaxation in individual countries. Public finances will deteriorate substantially in many countries up to 2010, and near-term consolidation is therefore needed in many cases, particularly since a number of countries are facing demographic challenges in the coming years. The measures should therefore be temporary to avoid permanent deterioration of public finances.

## **FISCAL POLICY IN LIGHT OF THE CRISIS**

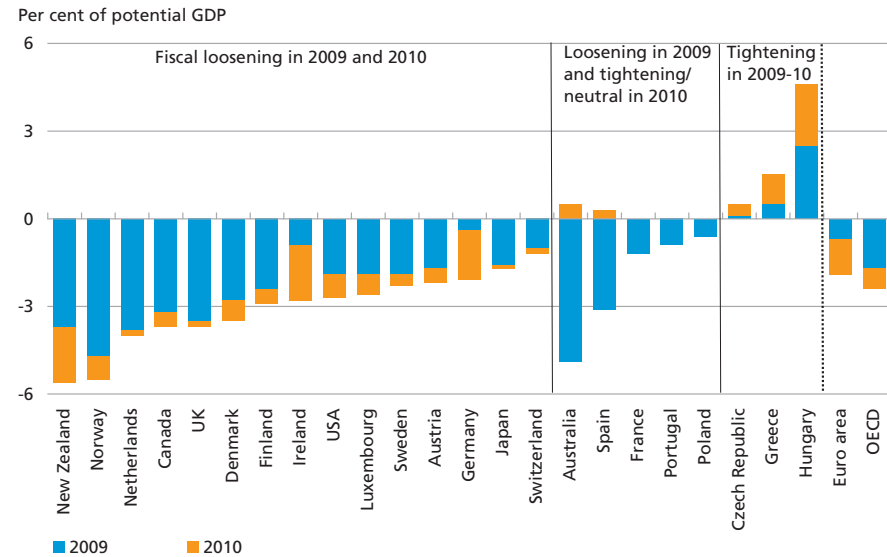
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### **Size of fiscal stimulus measures across countries**

As a result of the financial and economic crisis, countries worldwide have implemented fiscal stimulus measures to mitigate the steep decline in demand and curb the rise in unemployment. The possibility of further monetary-policy stimulation is limited, and this has led to growing interest in active fiscal policy. The extent of the fiscal stimulus packages varies from country to country. Measured by the annual change in the structural government budget balance, the OECD countries are loosening fiscal policy by just under 2 per cent of the gross domestic product, GDP, in 2009, and further measures in the order of 1 per cent of GDP are expected in 2010, cf. Chart 1. In the euro area the stimulus measures total almost 2 per cent of GDP in 2009-10, while the US measures amount to almost 3 per cent of GDP during the same period. There are also great variations in the fiscal policies pursued within the EU during the crisis. Germany, Finland, Sweden and Denmark are among the EU member states that have eased their fiscal policies in 2009 and plan further measures in 2010. Denmark is one of the member states where fiscal policy has been eased the most. Measured by direct revenue

ACTIVE FISCAL POLICIES IN OECD COUNTRIES IN 2009 AND 2010

Chart 1



Note.: Discretionary fiscal policy is approximated as the year-on-year change in the structural budget balance. For the structural balance, the OECD's estimate for the underlying balance has been applied, which is adjusted for the cycle and one-offs. A negative (positive) change in the underlying balance indicates loosening (tightening) of fiscal policy. Italy, which according to the OECD is tightening fiscal policy in 2009 and loosening it 2010, and Belgium, which conducts neutral fiscal policy in 2009 and loosens it a bit in 2010, have not been included.

Source: OECD, *Economic Outlook*, No. 85, June 2009.

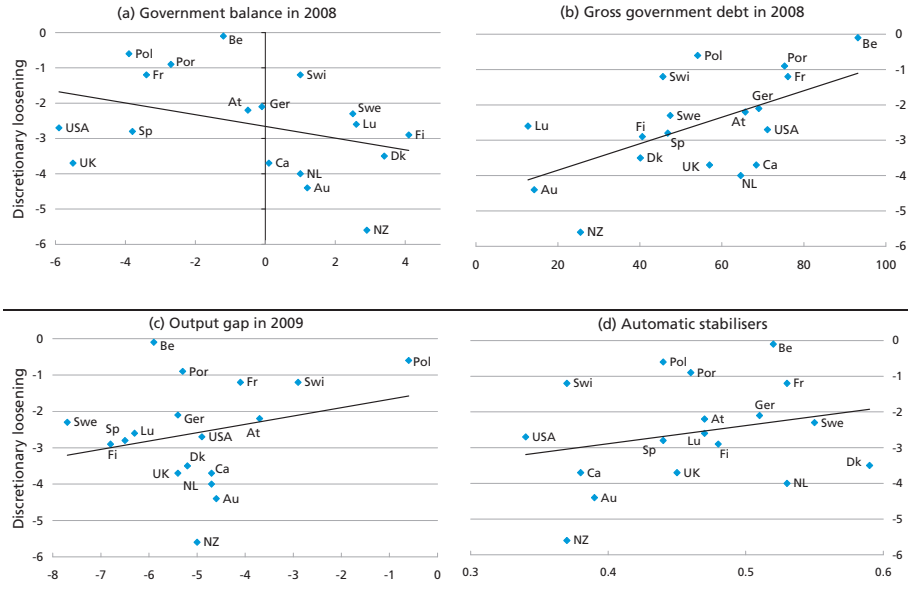
impacts, Denmark's fiscal policy is eased by 1.9 per cent of GDP in 2009, according to Economic Survey, August 2009, and further measures corresponding to 1.3 per cent of GDP in 2010 have been decided so far.

Other EU member states, including France and Spain, have implemented stimulus packages in 2009, but are expected to consolidate their public finances as early as 2010. Finally, some EU member states already had substantial government budget deficits at the onset of the crisis, and despite the economic downturn they have therefore had to pursue a neutral or tight fiscal policy throughout 2009. Greece and Hungary are among the member states that are tightening their fiscal policies in 2009.

Fiscal policy should be viewed in light of the degree to which the individual countries' economies are affected by the crisis and their fiscal scope as expressed by the government budget balance and debt at the onset of the crisis. Chart 2a-b illustrates the relation between the size of the fiscal measures and the fiscal scope at the onset of the crisis across OECD countries. The Charts show that the countries with large government deficits and debt in 2008 have generally eased their fiscal policies less than countries with greater fiscal room for manoeuvre. In this way countries that consolidated their public finances during the "good

EXPANSIONARY FISCAL POLICY IN 2008-10

Chart 2



Note.: At: Austria, Au: Australia, Be: Belgium, Ca: Canada, Dk: Denmark, Fi: Finland, Fr: France, Ger: Germany, Lu: Luxembourg, NL: Netherlands, NZ: New Zealand, Pol: Polen, Por: Portugal, Sp: Spain, Swe: Sweden, Swi: Switzerland, United Kingdom: UK.  
 Discretionary fiscal loosening in the individual countries is stated as the negative change in the structural government balance (OECD estimates of the underlying balance) in the period 2008-10. The Chart only shows countries that have, on aggregate, eased their fiscal policies from 2008 to 2010. Automatic stabilisers are OECD calculations of budget elasticity and indicate the change in the government budget balance as a percentage of GDP on a change in the output gap of 1 per cent of potential GDP. The lines indicate the estimated linear relationship between observations.  
 Source: OECD, *Economic Outlook*, No. 85, June 2009 and Girouard and André, *Measuring cyclically-adjusted budget balances for OECD countries*, OECD, *Working Paper*, No. 34, 2005.

times" have been able to use fiscal policy more actively to stabilise the economy. Chart 2c shows the relation between the scope of fiscal measures and the extent of the economic downturn in individual countries, measured by the size of the output gap. The countries with the lowest output compared to the potential output level generally ease their fiscal policies more.

In addition, there is a slight negative relation between the scope of the fiscal loosening and the size of the automatic stabilisers, cf. Chart 2d. The automatic stabilisers are a measure of the degree to which government revenue and expenditure respond to cyclical fluctuations<sup>1</sup>. Fiscal relaxation has generally been substantial in countries with small automatic stabilisers, such as the USA, Canada and Australia, and relatively less substantial in most EU member states. Among the exceptions are Denmark, Sweden and the Netherlands, where the automatic sta-

<sup>1</sup> Jan Overgaard Olesen and Ann-Louise Winther, *Automatic Stabilisers*, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2009.

bilisers are relatively large, but where the expansion of fiscal policy has nevertheless been substantial. According to OECD calculations, Denmark has the largest automatic stabilisers of all the OECD countries. The strength of the automatic stabilisers depends, among other factors, on the size of the public sector, the structure of the tax system and the replacement ratio for transfer payments. In the present slump, the strength of the automatic stabilisers in Denmark means that government expenditure for transfer payments, etc. increases relatively much, and that tax revenue falls significantly due to falling output and rising unemployment. This automatically eases public finances, thereby dampening the slowdown in economic activity and employment and reducing the need for actual discretionary relaxation of fiscal policy. The effect of the automatic stabilisers depends on the type of shock causing the present economic downturn. However, it is difficult to identify the underlying shock to the economy, which may arise both on the demand and the supply side. If it is assumed that about half of the economic setback in Denmark is driven by a decline in private consumption, and that the other half is driven by a decline in exports, automatic stabilisation means that the decline in unemployment will be reduced by about 30,000 persons in 2009, cf. multiplier calculations in Olesen and Winther (2009)<sup>1</sup>. The effect is thus about twice the 16,000 persons that constitute the estimated employment effect of the discretionary relaxation in 2009, cf. Economic Survey, August 2009. The numbers are in line with the estimate that about two thirds of the deterioration of the government budget balance from 2008 to 2009 is cyclical and the result of automatic stabilisation, while about one third is attributed to discretionary relaxation<sup>2</sup>. The automatic stabilisation of employment should also be seen in light of the expected fall in total employment of about 80,000 persons from 2008 to 2009.

### **Outlook for public finances**

Together with the effect of the automatic stabilisers, the expansionary fiscal policy results in a weakening of the government budget balance in most countries. A significant deterioration of public finances in the OECD countries is expected up to 2010, cf. Chart 3. The deficit in 2010 is expected to be just under 9 per cent of GDP in the OECD countries taken as one, and 7 per cent of GDP in the euro area, according to OECD,

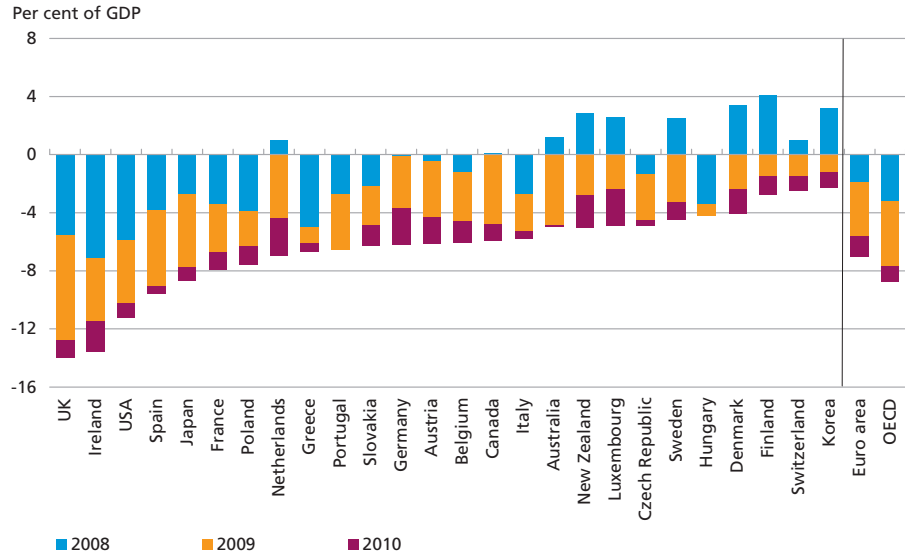
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<sup>1</sup> The calculations are based on the estimated activity multipliers. The greater the share of the underlying shock that is attributable to private consumption, the greater the activity effect of the automatic stabilisers will be, while a larger share that is attributable to exports reduces the effect.

<sup>2</sup> The distribution indicates the relation between the change in the structural balance, cf. Economic Survey, August 2009, and the change in the government budget balance, cf. the article The Danish Economy 2009-11, p. 33.

GOVERNMENT BUDGET BALANCES OF OECD COUNTRIES IN 2008-10

Chart 3



Note: The balance in a given year is stated as the sum of the coloured bars, except for countries with a surplus in 2008. In the latter, the deficit in 2010 is stated as the sum of the yellow and red bars. Norway, with a government budget surplus of 18.8 per cent of GDP, and Iceland, with a deficit of 14.3 per cent of BNP in 2008, have been omitted.

Source: OECD, *Economic Outlook*, No. 85, June 2009.

Economic Outlook No. 85, June 2009. In both cases this is a weakening of the balance of just over 5 per cent of GDP since 2008. Even countries with relatively large government surpluses in 2008, such as Denmark, Sweden and Finland, will have deficits in both 2009 and 2010. To some extent this reflects that it is politically difficult to implement fiscal tightening during an upswing that matches the discretionary fiscal easing during a slump. The asymmetric trend of active fiscal policy contributes to increasing government budget deficits in an economic downturn.

According to the OECD, just under half of the deterioration of public finances from 2008 to 2010 can be attributed to a drop in the structural budget balance, while a little more than half of the deterioration is ascribable to the effect of the automatic stabilisers. In Denmark a slightly larger share of the deterioration of the government budget balance is cyclical due to the large automatic stabilisers. As a result of the fiscal measures implemented and planned, combined with the effect of the automatic stabilisers, the Danish government budget balance will change from a surplus of 3.4 per cent of GDP to a deficit of 5.6 per cent of GDP in 2010, cf. the article *The Danish Economy 2009-11*, p. 33. This is a deterioration of the government budget balance of 9 per cent or almost kr. 160 billion. Denmark has not experienced such a rapid deterioration of public

finances since World War II, and the budget balance weakening is significantly greater than in most other countries. The significant deterioration of public finances in most OECD countries leads to a rapid increase in government debt. An increase of almost 16 per cent of GDP is expected in the euro area from 2008 to 2010, after which the average government debt will be almost 90 per cent of GDP, while the US debt burden will increase from just over 70 per cent of GDP in 2008 to almost 100 per cent of GDP in 2010, cf. the latest OECD estimates. In Denmark gross government debt will increase from just over 33 per cent of GDP in 2008 to just over 42 per cent of GDP in 2010, according to Economic Survey, August 2009.

## EFFECTS OF FISCAL POLICY

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### **Fiscal policy as a means of stabilisation**

The object of fiscal relaxation is to dampen the impact of the crisis on economic activity and employment through increased demand. Considerable interest in fiscal stimulation has arisen following an extended period of economic policy focusing more on structural reforms to strengthen the labour supply and the long-term sustainability of public finances. In light of the financial crisis and the weakened opportunity to stabilise the economy through monetary policy, the degree to which fiscal policy may help to stabilise the economy without jeopardising long-term fiscal sustainability has become a central issue. The application of fiscal policy as a means to stabilise the economy was developed after the Great Depression in the 1930s based on the famous economist John Keynes' *General Theory*. According to traditional Keynesian theory, increased government spending will stimulate aggregate demand, either directly in the form of increased public consumption and investment, or indirectly by increasing private incomes through tax cuts or higher transfers. The degree to which expansionary fiscal policy affects economic activity can be expressed by fiscal multipliers. The uncertainty as to the effect of active fiscal policy is attributable to the wide range in the size of the multipliers in theoretic and empirical literature, cf. Box 1. The reasons for the great variation are that the multipliers are difficult to estimate and that their size depends on a large number of economic factors. For an expansionary fiscal policy to have an effect, it is crucial that there is spare capacity in the economy. If the economy operates with high capacity utilisation and a low unemployment rate, expansionary fiscal policy will lead to higher price inflation and higher imports. In addition, the multipliers also depend on the private sector's propensity to save and the level of foreign

## FISCAL MULTIPLIERS

Box 1

Fiscal multipliers measure the effect of discretionary fiscal policy on GDP and are given as the change in GDP in the event of a change in the government budget balance that is attributable to active fiscal policy. In economic literature, the fiscal multipliers range widely in size. According to the original Keynesian theory, they are relatively high and above 1, which means that a given fiscal relaxation will increase output by more than the magnitude of the original relaxation. Numerous economic arguments are also put forward for the multipliers being smaller or even assuming negative values. Expansions of the simple Keynesian theory allow for increased public investment resulting in higher interest rates or strengthening a floating exchange rate, thus reducing private investment or weakening net exports. This effect may be amplified if expansionary fiscal policy leads to government debt that increases the uncertainty about fiscal sustainability or the risk of higher inflation. Such impacts may raise the risk premium and thus interest rates. If the economy is running at almost full capacity and unemployment is low, expansionary fiscal policy may also lead to price and wage inflation, which may reduce the impact of fiscal policy on private demand. The crowding-out of fiscal stimulation may also be direct if part of the increase in private demand is met by imports. As a result, the multipliers are generally smaller in small, open economies than in larger economies, because part of the stimulation benefits the trading partners.

There are also arguments claiming that active fiscal policy has no effect at all on private demand. Prudent consumers foresee the need for the public sector to finance current fiscal relaxation by raising taxes in the future. If consumers want to smooth their consumption over life, they will save up an amount corresponding to the fiscal relaxation. In this way private savings increase by the amount by which public savings decline. This is called Ricardian equivalence and implies that fiscal policy has no effect at all on demand. Ricardian equivalence in its strictest form is not very likely as it is based on relatively strong assumptions. Factors such as credit restrictions, imperfect financial markets and the fact that consumers are not always prudent may lead to increased propensity to consume.

Whether temporary or permanent changes in fiscal policy involve the largest multipliers depends on the type of fiscal measures. Measures that affect private incomes, such as tax cuts, generally have the greatest impact if they are permanent and do not lead to uncertainty about fiscal sustainability. On the other hand, measures that affect the price level, such as reductions of indirect taxes, have the greatest impact if they are temporary, as temporarily lower prices are likely to have a positive effect on consumption. The effect of a temporary reduction of indirect taxes depends on the degree to which the tax cut ultimately affects consumer prices.

Empirical literature contains a large number of studies estimating the size of fiscal multipliers<sup>1</sup>. The results vary considerably across studies, one reason being the use of different multiplier estimation methods.

The multipliers are typically estimated by means of simulations of macroeconomic models or by empirical studies such as structural VAR models or case studies. A considerable challenge in relation to the empirical studies is to separate discretionary fiscal policy from the cyclical development of public finances. It may be particularly

<sup>1</sup> Overviews of fiscal multipliers in empirical literature are found in Spilimbergo, Symansky and Schindler, *Fiscal Multipliers*, IMF, 2009 and Hemming, Kell and Mahfouz, *The Effectiveness of Fiscal Policy in Stimulating Economic Activity – A Review of the Literature*, IMF, *Working Paper*, No. 2, 2008.

CONTINUED

Box 1

difficult to measure the multipliers in an economic downturn, as many different factors affect the economic development. Most studies focus on the USA, Japan and the large European countries.

The estimates vary across countries, yet it is possible to draw a few general conclusions from the empirical studies. First of all, though small, the multiplier estimates are generally positive. The estimates show that in the short term increased public consumption or investment generally has a greater impact than tax cuts or transfers. While increased public consumption or investment affects demand directly, relaxation measures that increase private disposable income are dependent on the extent to which consumers choose to save up the extra income. The effect is not necessarily smaller in the long term, as consumers may gradually choose to spend the extra income. A greater impact can be achieved by targeting the relaxation measures at consumers who have limited access to credit and at low-income groups, which often have the greatest propensity to consume.

Despite considerable variation in empiric results, there is generally not much empirical evidence that the impact of fiscal policy is crowded out by interest-rate increases or appreciation of the currency. Equally, the empirical studies support Ricardian equivalence only to a minor degree.

trade. In a small, open economy, economic activity is therefore not only influenced by domestic fiscal policy, but also by the fiscal policy of its trading partners.

Furthermore, the effect is not just dependent on the size, but also on the composition of the fiscal stimulus measures. Most empirical studies show that increased public investment and increased public consumption have a greater short-term effect on economic activity than tax cuts, while in the longer term, tax cuts may well have a greater impact.

The assessment of the potential impact of fiscal policy during the current economic and financial crisis should take into account the possibility that the size of the fiscal multipliers may have changed in relation to the multipliers estimated in more "normal" times when the financial markets in particular functioned better. On the one hand, the financial crisis may have limited access to credit for households and the corporate sector, which may cause them to spend a higher share of their income. The prospect of low inflation and large negative output gaps may also create an expectation of low interest rates for an extended period<sup>1</sup> causing long-term interest rates to rise relatively less under an expansionary fiscal policy. This may reduce the crowding out of private investments. On the other hand, the heightened uncertainty about employment and income may cause households to reduce their debts or

<sup>1</sup> Cf. a speech by Donald L. Kohn at the Conference on Monetary-Fiscal Policy Interactions, Expectations, and Dynamics in the Current Economic Crisis, Princeton University, May 2009.

increase their savings, meaning that the expansionary fiscal policy has a lower impact on economic activity than indicated by previously estimated multipliers. The same may apply to business enterprises that choose to postpone investment decisions due to increased uncertainty about the economic outlook.

The stabilising effect of fiscal policy during the crisis also depends on the fiscal scope of individual countries. In countries with rapidly increasing government debt and where fiscal sustainability is under pressure, the private sector may tend to save up more, which will dampen the stimulating effect of fiscal policy on the economy. In the same way, a higher level of government debt may lead to higher interest rates or a wider interest-rate spread in individual countries through a higher risk premium. This could also dampen overall demand.

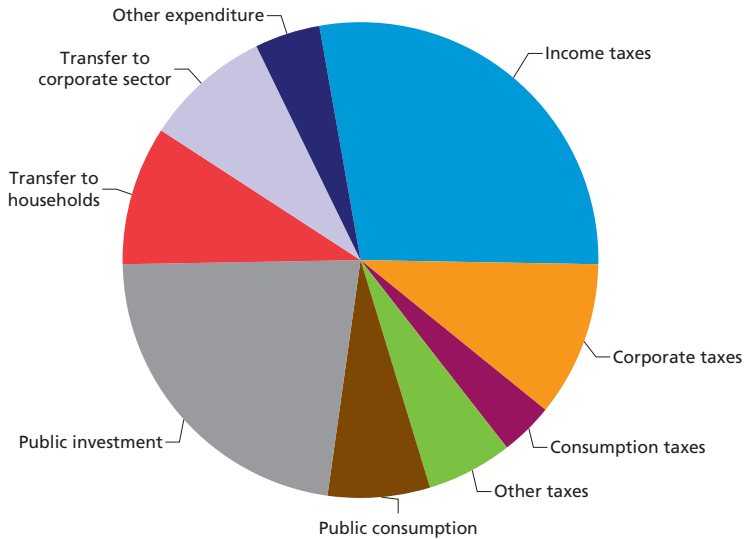
### **Composition of fiscal policy during the crisis**

To ensure the greatest possible effect of fiscal measures during the crisis, these measures should be timely and targeted. It is crucial that the fiscal measures are implemented in time to ensure that they dampen the crisis while it is at its worst. If they are not implemented until the economy has begun to pick up, they may have a destabilising effect. In addition, such measures are most effective if aimed directly at economic problems that have arisen during the crisis. In order to reduce the deterioration of fiscal sustainability, the measures should also be of a temporary nature so as to allow fiscal policy to be tightened again once the crisis is over. While timely, targeted and temporary fiscal measures have the most beneficial effect on the economy, their composition may be restricted by both political and practical considerations. Most of the fiscal measures implemented by OECD countries during the crisis have been in the form of tax cuts, cf. Chart 4 showing the composition of fiscal policy from 2008 to 2010, even though the impact of tax cuts is highly dependent on the propensity to consume, which may have declined during the crisis. The reason may very well be that it is easier to implement tax cuts than to increase public investment, for example. The tax cuts have generally been aimed at the entire population. Such tax cuts are typically easier to implement politically than tax cuts aimed at specific population groups. The economic impact would probably have been greater if they had been aimed at low-income groups with a higher propensity to consume. Another drawback of tax cuts may be that it is politically difficult to raise taxes again once the crisis is over. Permanent tax cuts may thus have a negative impact on the long-term sustainability of public finances.

In addition to substantial tax cuts, many countries have announced increased public investments. The advantage of bringing forward public

COMPOSITION OF FISCAL POLICY 2008-10

Chart 4

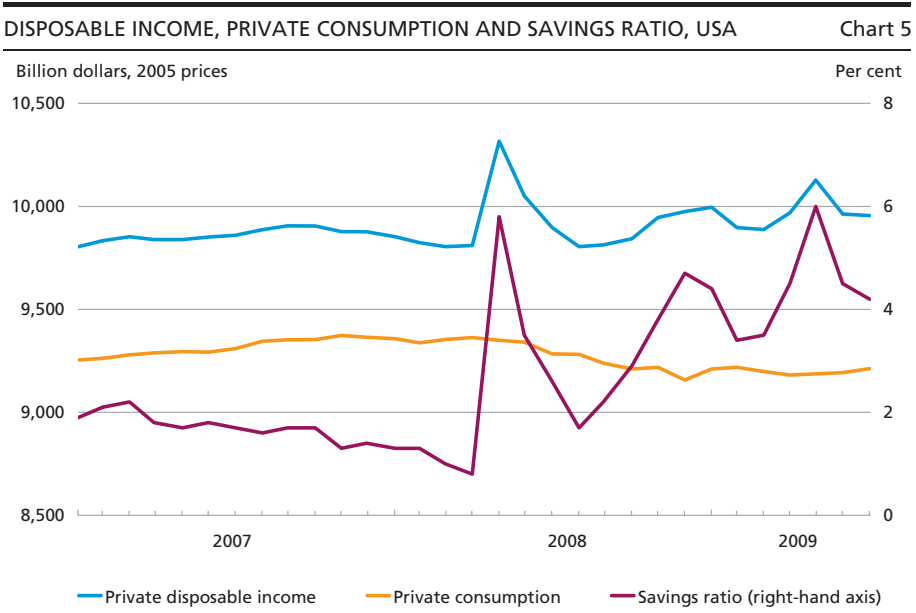


Note: OECD calculation of the composition of the fiscal measures across countries. The shares indicate how much a given fiscal relaxation measure constitutes of the total relaxation. Relaxation measures have been summed across countries. Only countries easing their fiscal policies in 2008-10 have been included.

Source: OECD, *Economic Outlook*, No. 85, June 2009.

investments is that they stimulate demand directly, and that they are of a temporary nature and therefore will not have a permanent negative impact on fiscal sustainability. As public investments often stimulate individual subsectors of the economy, investments that distort competition or lead to bottlenecks in the economy should be avoided. One drawback of increasing public investments is that such measures cannot be introduced as fast as e.g. tax cuts. While politicians may quickly decide to increase e.g. infrastructure investments, it takes some time to implement the decision. The stimulation of the economy may thus come too late.

It is still too early to see the effects of the many fiscal measures taken during the current crisis. Many of the measures taken in the EU will not be implemented until the 2nd half of 2009, one exception being the attempt to boost car sales in Germany by giving owners of older cars subsidies to buy a new car. Car sales have increased substantially since the initiative was launched, but presumably the effect is only temporary. On the other hand, the temporary tax cuts and one-off transfer payments implemented in the USA in 2008 and 2009 have had no significant effect on household consumption, cf. Chart 5. Instead, a clear impact can be seen on the private savings ratio. These measures aimed at private disposable incomes in the USA were implemented quickly and might



Source: Reuters EcoWin.

potentially have increased private demand at a time when the economy was the most severely affected. The prioritisation of savings over higher consumption may have to do with the fact that the measures only temporarily increase private disposable incomes. Furthermore, the higher unemployment rate may very well lead to uncertainty about future income, thereby increasing the savings ratio.

In Denmark the fiscal relaxation will be more or less equally distributed on the revenue and expenditure side in 2009 and 2010. Income taxes will be eased in both 2009 and 2010, while local-government investments that have been brought forward and increased transport investments also increase public investments. It should be noted that the tax cuts were implemented with a view to increasing the labour supply and thus may also have a structurally beneficial effect. As the tax cuts are underfinanced in the short term, but fully financed in the longer term, they may have a positive impact on economic activity during the crisis without jeopardising long-term sustainability, but the impact of the tax cuts is determined by whether households choose to save up or to consume the extra disposable income. Public investments in 2009 and 2010 will have a more direct impact on economic activity than tax cuts. Bringing forward public investments that would have been implemented in any case within the next few years eases fiscal policy temporarily without having a permanent negative impact on public finances. The impact of the increase in investments depends on the local govern-

ments' implementation of the increased fixed investments, however, including how soon the initiatives can be launched. The pool of kr. 1.5 billion earmarked for renovation of private housing is aimed at strengthening employment in the building and construction sector. According to a questionnaire survey conducted by the Danish Enterprise and Construction Authority<sup>1</sup> the pool has only to a limited extent caused Danish homeowners to carry out improvements they would not otherwise have carried out. On the other hand, the pool did accelerate the projects of the majority of applicants.

The special pension savings disbursement option does not really constitute active fiscal policy as it just gives Danes the option of premature withdrawal of special pension funds. Unlike the other measures, the scheme improves public finances in the short term by bringing forward tax revenue. The scheme runs from June to December 2009, and in early August more than 80 per cent of the total special pension funds had already been disbursed. Retail sales, which had fallen in the 1st quarter of 2009, showed an increase of 1 per cent from June to July, possibly facilitated by the disbursement of the special pension funds.

### **Future fiscal policy**

The need and scope for further fiscal loosening vary considerably from country to country. First of all there is uncertainty about the economic development, which leads to a risk of easing fiscal policy when the economy has reversed. Furthermore, the substantial deterioration of public finances and the growing debt burden limit the fiscal room for manoeuvre in many countries. It is important not to jeopardise fiscal sustainability and to consolidate public finances in the medium term. Speedy consolidation is especially important in countries where public finances will come under pressure in the coming years as a result of growing demographic challenges. According to the European Commission's latest estimate<sup>2</sup>, in 2010 only four out of 27 EU member states are expected to observe the Stability and Growth Pact's limit for general-government deficits, i.e. 3 per cent of GDP. In addition, many member states are far from meeting their medium-term objectives for the structural balance. Substantial consolidation is therefore needed in the near future within the EU.

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<sup>1</sup> Effect of the renovation pool – results of an interview survey (in Danish only), June 2009.

<sup>2</sup> Public Finances in EMU, the European Commission 2009.



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# Status of the Faroese Economy, Mid-2009

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*Niels Bartholdy, Economics*

## SUMMARY

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In the wake of the global financial crisis, the economic slowdown that started in 2008 and was initially limited to the fisheries sector has developed into a recession in the Faroese economy overall. This is reflected in falling employment in all sectors except the public sector. Unemployment is therefore rising rapidly.

Fisheries and the fish-processing industry have been severely affected by lower catches and prices. On the other hand, volumes of farmed salmon and trout are increasing, and combined with a favourable development in salmon prices this is buoying up export revenue. A drop in imports means that the trade deficit is likely to be more or less eliminated in 2009.

After having posted large profits in 2007, the Faroese banks taken as one made a loss in 2008, but the impact of the financial crisis on the sector has varied considerably.

The economic downturn has led to increasing deficits, and the government has begun to acquire debt.

## ECONOMIC ACTIVITY<sup>1</sup>

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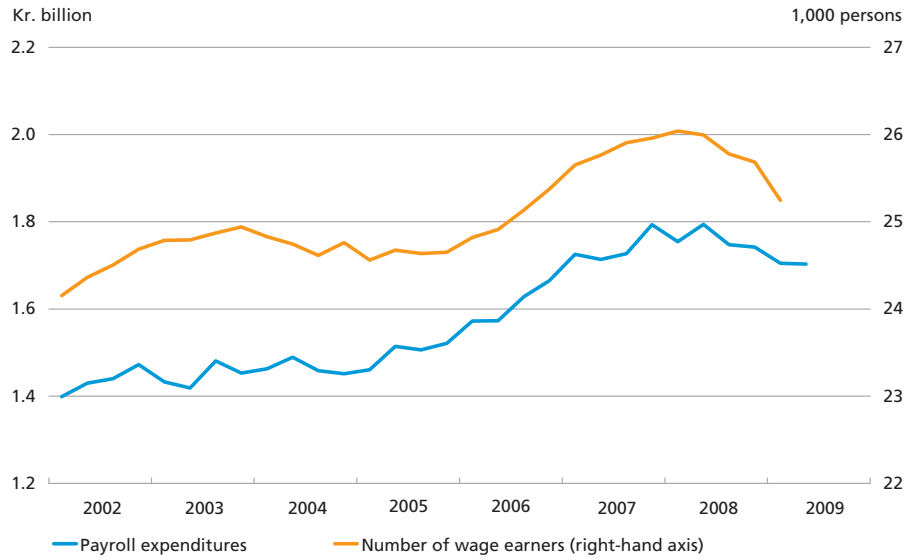
Even before the international financial crisis escalated in the autumn of 2008 and seriously affected economic growth worldwide, the Faroese economy was slowing down after some boom years. Since mid-2008, as the global recession has developed, the slowdown has evolved into a decline in economic activity, as reflected in both employment and total payroll expenditures, cf. Chart 1.

Overall payroll expenditures grew by 1 per cent in 2008. Since inflation, measured by the increase in the consumer price index, was 6.3 per cent in 2008, activity at constant prices dropped considerably. In the first seven months of 2009, payroll expenditures were 5 per cent lower

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<sup>1</sup> The national accounts for the Faroe Islands are published with a lag and in current prices only. Consequently, the assessment of the current activity in the Faroese economy must be based on other indicators such as wage and employment statistics. According to the Faroese bureau of statistics, Hagstova Føroya, the gross domestic product, GDP, grew by nominally 0.5 per cent in 2008 compared to 2007. This is close to the rise in payroll expenditures, which was 1.1 per cent.

PAYROLL EXPENDITURES AND EMPLOYMENT Chart 1

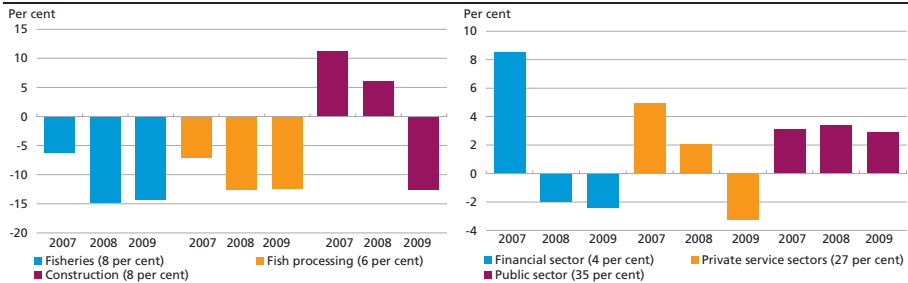


Note: Seasonally adjusted quarterly data.  
 Source: Hagstova Føroya and own calculations.

than in the corresponding period of 2008. Employment has reacted with a lag to the economic downturn, and growth was zero in 2008. In the first five months of 2009, total employment was 3 per cent lower than in the corresponding period of 2008.

Employment in both fisheries and the fish-processing industry has fallen substantially in 2009 so far, continuing the strong declining trend seen in 2008, cf. Chart 2. This development reflects the ongoing issue of low stocks of cod and haddock, as well as a clear downward trend in fish prices. Although lower oil prices since the summer of 2008 have reduced costs, profitability has been undermined by the fall in catch prices. The latter is primarily attributable to a general decline in global demand.

WAGED EMPLOYMENT IN SELECTED SECTORS Chart 2



Note: Data for 2009 shows the change in the period January-May 2009 in relation to the same period of 2008. Figures in brackets indicate the sector's share of total waged employment in 2008.

Source: Hagstova Føroya.

Payroll expenditures in the fisheries sector fell by 24 per cent in 2008 and were a full 27 per cent lower in the first seven months of 2009 than in the corresponding period of 2008. For the fish-processing industry, payroll expenditures were 10 per cent lower in 2008 than in 2007 and 5 per cent lower in the first seven months of 2009 than in the corresponding period of 2008.

While employment in fisheries still seems to be going down, the last six months or so have seen some degree of stabilisation in the fish-processing industry. From 2005 to 2008, employment in these two sectors declined from 19 to 14 per cent of total employment in the Faroe Islands.

On the other hand, fish farming has gained considerable ground over the last few years. In 2008, employment in this sector accounted for just over 2 per cent of total employment, having more than doubled since 2005.

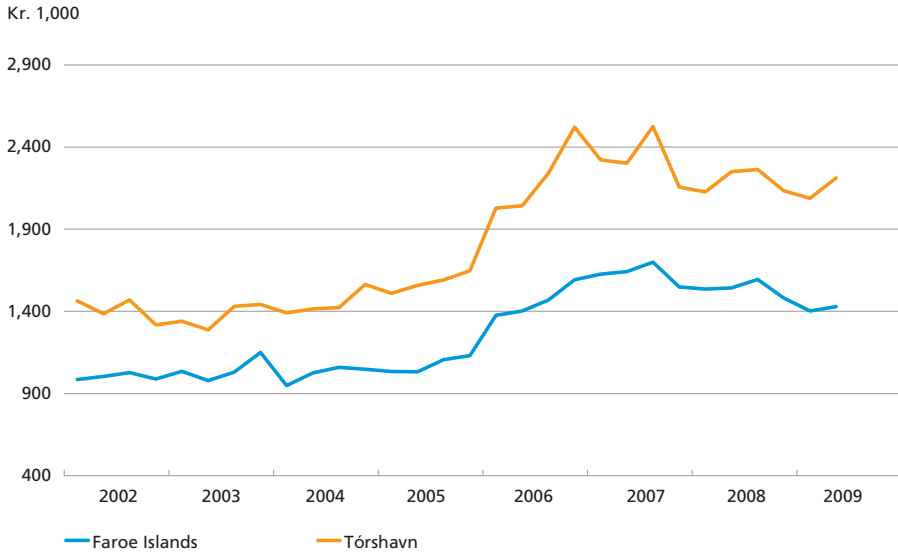
All over the world, the building and construction sector has been particularly severely hit by the financial crisis. This is also the case in the Faroe Islands. Employment in the building and construction sector has been declining since the 3rd quarter of 2008. In the first five months of 2009, it was almost 13 per cent lower than in the corresponding period of 2008, although it remained somewhat higher than in early 2006 when the boom started in the Faroe Islands and housing prices soared. New public-sector building projects have to some extent made up for the slowdown in private housing construction in the wake of the financial crisis from the autumn of 2008.

Housing prices have been falling since mid-2007, and turnover in the housing market has been very low in 2009 to date. Nevertheless, prices in the Tórshavn area rose slightly in the 2nd quarter of 2009, cf. Chart 3. For the Faroe Islands overall, housing prices are back at the level from the 1st half of 2006, i.e. just after the introduction of new loan types with longer maturities and deferred amortisation had led to a pronounced upward adjustment of prices.

Following a couple of years with strong expansion, the growth rates of the Faroese banks have slowed since 2008, and both employment and payroll expenditures in this sector have declined recently. The dampened growth in the banking sector was initially attributable to an economic slowdown and falling house prices, but from the autumn of 2008 the trend was exacerbated by the global financial crisis. In the first five months of 2009, employment was a good 2 per cent lower than in the corresponding period of 2008. Payroll expenditures were 5 per cent lower in the period January-July 2009 than in the same period of 2008.

## HOUSING PRICES

Chart 3



Note: Quarterly averages, most recently from the 2nd quarter of 2009. Housing prices for the Faroe Islands overall are calculated by weighing prices for small settlements, large settlements and Tórshavn, respectively. Population weights have been applied.

Source: Eik Bank, Hagstova Føroya and own calculations.

In the other private service sectors, employment was growing up until the end of 2008. From early 2009, however, a decline has also been seen in this sector, and in January-May 2009 employment was 3 per cent lower than in the same period of 2008, while payroll expenditures in the first seven months of 2009 were 6 per cent lower than in the corresponding period of 2008.

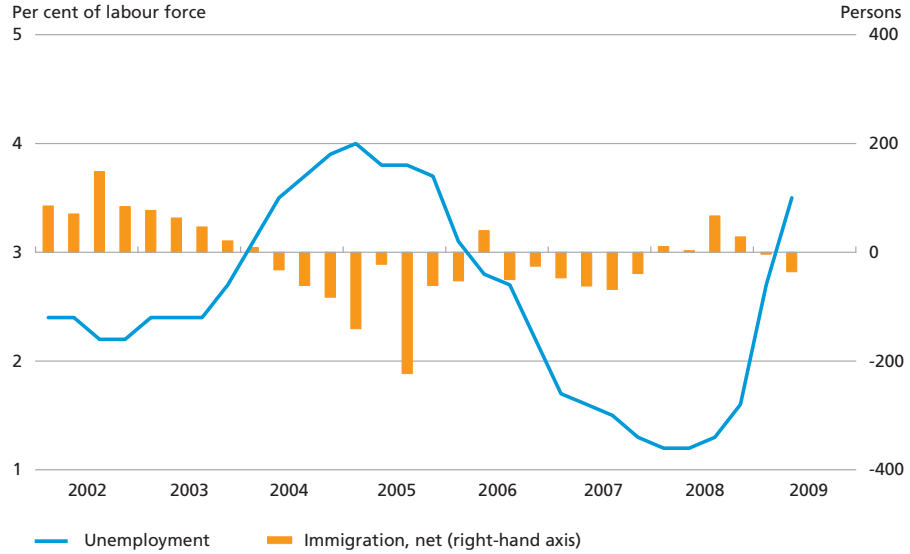
The slowdown has been particularly pronounced in the hotels and restaurants sector. Retail trade has been affected by a moderation in consumption, which is reflected in import statistics. Employment and payroll expenditures in retail trade have been 3 and 5 per cent, respectively, lower in 2009 to date than in the corresponding period of 2008.

The public sector is unique in that it is the only subsector to register stable positive growth in employment and payroll expenditures in both 2008 and 2009 so far. While there was a widespread shortage of labour in the upswing up to 2008, it has now become much easier to fill vacancies. Presumably this is one of the reasons why public-sector employment is growing.

The decline in employment in all sectors except the public sector has led to a surge in unemployment, cf. Chart 4, but from a very low starting point. In July 2009, unemployment was 3.9 per cent. As unemployment has risen, the immigration pattern gradually seems to be changing from net immigration in 2008 to net emigration in 2009. This is in accordance

UNEMPLOYMENT AND IMMIGRATION

Chart 4



Note: Quarterly observations. Both unemployment and immigration have been seasonally adjusted.  
 Source: Hagstova Føroya and own calculations.

with the pattern usually seen in such situations. Nevertheless, the global economic recession in the wake of the financial crisis, with rapidly rising unemployment worldwide, can make it more difficult to find or retain a job outside the Faroe Islands, and this may dampen net emigration.

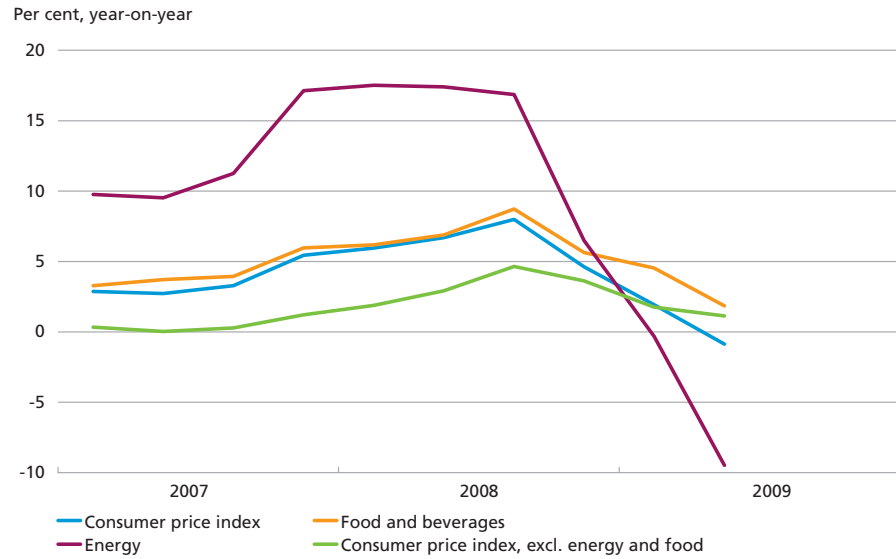
Another typical – and positive – consequence of the financial crisis, which also applies to the Faroe Islands, is the strong fall in inflation, cf. Chart 5. The consumer price index rose sharply in 2007 and the 1st half of 2008, primarily reflecting higher oil and food prices, which gradually filtered through to other subcomponents of the index. Conversely, the subsequent fall in oil and food prices has led to lower – in the spring of 2009 even negative – inflation. In the 2nd quarter of 2009, prices were 1 per cent lower than in the 2nd quarter of 2008. The decline in inflation boosts the purchasing power of the households and can be expected to stimulate consumption to a certain extent.

**Fisheries**

In 2008 and 2009 to date, fishing in waters close to the Faroe Islands, predominantly demersal fishing for cod, haddock and saithe, has been severely affected by problems relating to low stocks and low prices. This is particularly evident for haddock, which is used for traditional British "fish & chips", among other things. Haddock catches dropped by 42 per cent from 2007 to 2008 and the trend is set to continue throughout 2009. At

CONSUMER PRICE INDEX BROKEN DOWN BY SUBCOMPONENTS

Chart 5



Source: Hagstova Føroya and own calculations. The most recent observations are from the 2nd quarter of 2009.

the same time, prices declined from the autumn of 2008 to the spring of 2009 as global demand contracted, reflecting the financial crisis.

For cod, catches were 9 per cent lower in 2008 than in 2007. The average price was also a little lower in 2008 than in 2007 and fell sharply from the end of 2008 and into 2009. By the spring of 2009, cod prices had halved compared to the autumn of 2008. Since catches have also decreased in 2009 to date, the value of cod catches will fall considerably in 2009.

Catches of the low-value fish saithe also declined in volume terms from 2007 to 2008, by 9 per cent, but prices were stable and have remained so in 2009, while catches have been rising.

The total value of fish caught in Faroese waters fell by 22 per cent from 2007 to 2008 and the outlook for 2009 is a substantial further decline.

In June 2009, the International Council for Exploration of the Seas, ICES, reiterating its 2008 recommendation, proposed a complete ban on all cod and haddock fishing for some time in order for stocks to recover. In August 2009, the Løgting (parliament) opted for a general reduction in the number of fishing days by 5 per cent.

Salmon and trout farming, on the other hand, has grown significantly in recent years following the trough in 2006, when the sector was affected by epidemic diseases. The sector now rests on a healthier foundation, and output has increased from 18,000 tonnes in 2006 to 47,000 tonnes in 2008. The fish farming association expects output to be slightly lower in 2009. The price of salmon rose strongly from late 2008 until the summer

of 2009, primarily as a market reaction to epidemics in the large Chilean salmon farming sector that caused output to plummet. In July 2009, the price increase to a large extent reversed.

## FOREIGN TRADE

The deficit on the trade balance, excluding ships, grew until 2008, cf. Table 1. In the 1st half of 2009, however, foreign trade almost balanced, since increased earnings from salmon exports buoyed up export revenue while imports fell considerably.

Salmon has now overtaken cod as the most important source of export revenue, cf. Chart 6. Salmon accounted for 22 per cent of total export revenue (excluding ships) in 2008 and nearly one third in the 1st half of 2009. Pelagic fishing for herring, mackerel and blue whiting has also yielded higher export revenue in recent years, although catches of blue whiting have decreased in 2008 and 2009 as the Faroese share of the international quotas has diminished.

Excluding ships, exports in the 1st half of 2009 were 4 per cent lower than in the corresponding period of 2008.

Imports fell slightly in 2008, reflecting an accelerating fall from the autumn of 2008, which has continued into 2009 so far. The decline is most pronounced for cars, energy – following a drop in oil prices – and construction materials, cf. Chart 7. Imports of consumer goods and other imports have also declined, but less sharply.

Excluding ships, imports in the 1st half of 2009 were a full 30 per cent lower than in the 1st half of 2008.

The fall in imports and the relatively stable exports entail that in the 1st half of 2009 the trade balance showed only a modest deficit of kr. 93 million (excluding ships, and seasonally adjusted) compared with kr. 804 million in the 1st half of 2008.

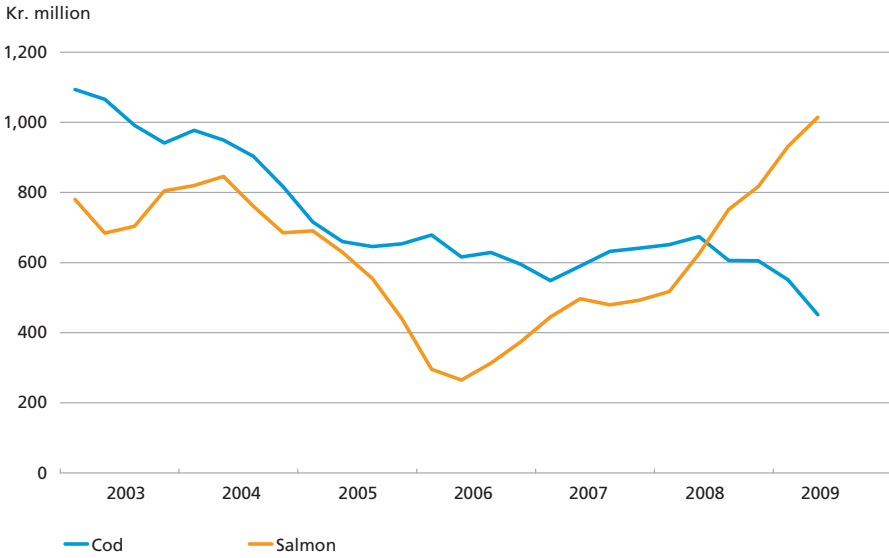
If this trend continues throughout 2009, it is likely that there will be a surplus on the current account, which – in addition to the trade balance

TRADE BALANCE		Table 1		
Kr. billion	2006	2007	2008	
Exports .....	3,869	4,057	4,323	
Exports, excluding ships .....	3,793	3,963	3,718	
Imports .....	4,692	5,522	5,013	
Imports, excluding ships .....	4,559	5,032	4,922	
Trade balance .....	-823	-1,466	-690	
Trade balance, excluding ships .....	-766	-1,069	-1,204	
Memo: Balance of payments, current account	142			

Source: Hagstova Føroya.

EXPORT VALUES OF COD AND SALMON

Chart 6

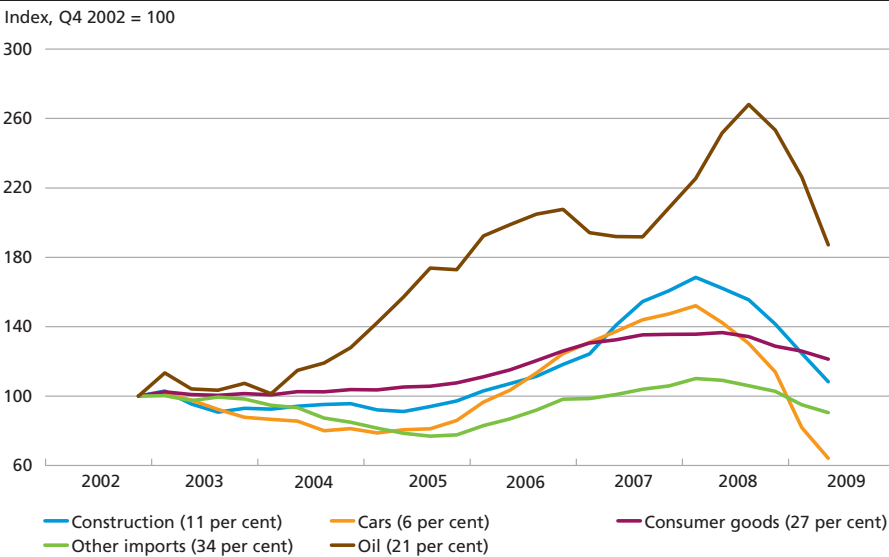


Note: 4-quarter sums. The most recent observations are sums for the period 3rd quarter 2008 – 2nd quarter 2009.  
Source: Hagstova Føroya and own calculations.

– also comprises trade in services and transfers to and from abroad. The final figures for 2007 and 2008 are not yet available. At end-2006, the Faroe Islands had accumulated net external assets of kr. 3.7 billion.

IMPORT VALUE BROKEN DOWN BY SUBCOMPONENTS

Chart 7



Note: 4-quarter sums converted into indices. "Other imports" are total imports excluding materials for construction, cars, consumer goods, energy and ships. Figures in brackets indicate percentages of total imports in 2008.  
Source: Hagstova Føroya and own calculations.

THE BANKS' FINANCIAL STATEMENTS					Table 2
Kr. million	2004	2005	2006	2007	2008
Net interest and fee income .....	553	550	632	830	1,006
Value adjustments, etc. ....	95	47	49	181	-213
Profit from financial items .....	648	597	682	1,011	793
Operating expenses .....	290	313	371	483	490
Net losses and provisions .....	119	-15	-74	25	324
Profit from subsidiaries, etc. ....	13	41	123	149	-194
Ordinary operating result before tax ....	252	341	507	652	-216
Solvency ratio .....	31.4	20.6	18.4	18.7	18.9

Note: Eik Bank Danmark is a wholly owned subsidiary of Eik Bank and is included under "Profit from subsidiaries, etc.". Source: Financial statements of Eik Bank, Føroya Banki, Norðoya Sparikassi and Suðuroyar Sparikassi.

## THE FINANCIAL SECTOR

In 2008, the Faroese banks realised a total loss before tax of kr. 216 million, compared with a profit of kr. 652 million in 2007. The reversal from a large profit to an aggregate loss is attributable to capital losses on securities, a strong increase in impairment charges and losses in subsidiaries, cf. Table 2.

The impact of the global financial crisis on the financial statements of the Faroese banks does not differ from the pattern seen elsewhere, but the degree of impact varied widely, due to factors such as differences in their expansion outside the Faroe Islands in the preceding years. In 2008, Føroya Banki posted a profit before tax of kr. 200 million, while Eik Bank and Norðoya Sparikassi posted losses before tax of kr. 353 and 63 million, respectively.

Since the financial crisis escalated in September 2008, lending to the corporate sector has shown a slight upward trend, while lending to households has been decreasing. The preceding years had seen very strong growth in lending, culminating at the end of 2007.

## PUBLIC FINANCES

After a couple of years with surpluses, the Faroese government had a deficit of kr. 330 million, equivalent to 2.6 per cent of GDP, in 2008, cf. Table 3. This was attributable to the economic slowdown and higher interest rates.

Originally the Finance Act for 2008 operated with a small surplus. Revenue from direct and indirect taxes, including VAT on imports, was approximately kr. 200 million lower than budgeted, while expenses were a good kr. 100 million higher. The latter reflects factors such as in-

GOVERNMENT FINANCES					Table 3
Kr. million	2005	2006	2007	2008	Budget 2009
Taxes and duties, etc. ....	2,897	3,349	3,558	3,502	3,407
Block grants .....	631	632	632	635	635
<b>Total income .....</b>	<b>3,528</b>	<b>3,981</b>	<b>4,190</b>	<b>4,137</b>	<b>4,042</b>
Operating costs .....	3,467	3,578	3,766	4,251	4,313
Capital investments .....	201	268	292	232	227
Net interest costs .....	71	-7	-14	-16	4
<b>Total expenses .....</b>	<b>3,739</b>	<b>3,839</b>	<b>4,044</b>	<b>4,467</b>	<b>4,544</b>
Balance .....	-211	142	146	-330	-502
<b>Net government debt, year-end .....</b>	<b>2,088</b>	<b>1,405</b>	<b>-48</b>	<b>61</b>	

Note: Income and balance are exclusive of extraordinary income of kr. 535 million from distribution of extraordinary dividend by Føroya Banki in 2006, and of kr. 1,212 million and kr. 87 million from the respective sales of 2/3 of the shares in Føroya Banki and 1/3 of the shares in Atlantic Airways in 2007. Net government debt is exclusive of financial assets, which amounted to kr. 1,217 million in 2008.

Source: Figgjarmálaráðið (Faroese Ministry of Finance) and Landsbanki Føroya.

creased interest subsidies for housing and student loans as the financial crisis caused interest rates to rise throughout 2008.

In the 2009 Finance Act, the deficit is expected to increase to approximately kr. 500 million, primarily on account of a further decline in revenue. However, the figure will presumably end up being even higher, particularly since imports, and thus revenue from VAT and other indirect taxes on imports, are set to fall considerably more than predicted when the Act was passed towards the end of 2008. In July 2009, the Faroese government proposed a number of measures, the "Ólav Package", aimed at curbing growth in the government deficit while also stimulating economic activity. In that connection, the deficit was estimated at kr. 730 million in 2009 and kr. 810 million in 2010.

Even with the 2008 deficit, the government was practically debt-free, but the large deficits in 2009 and 2010 will increase the debt burden.

Local authorities are also saddled with a rapidly increasing debt burden. According to the latest figures, their aggregate net debt at end-2008 was kr. 394 million. For 2009, the budgeted deficit is kr. 124 million, but in view of the economic slowdown and the decline in tax revenue, the deficit must be expected to end up being larger.

## ECONOMIC OUTLOOK

An economic slowdown that was initially limited to the fisheries sector has now developed into a recession in the Faroese economy overall.

The slowdown and the subsequent downturn has alleviated two of the most urgent problems within the Faroese economy in the preceding two years: shortage of labour and a rapidly growing trade deficit. On the other hand, unemployment is now rising, albeit from a very low level, and the government and local authorities are facing strongly increasing deficits and mounting debts.

A major short-term challenge will be to bring the accumulation of government and local-government debt under control.

An important contribution to reducing the trade deficit comes from the successful re-establishment of salmon and trout farming. However, these farms have now reached their capacity limit, and considerable trade deficits are therefore to be expected when the economy picks up again and imports begin rise from the extraordinarily low level in 2009 so far.



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# Economic Mechanisms in Global Climate Policy

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## INTRODUCTION

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The climate change problem is basically a scientific phenomenon, but taking steps to curb global warming also makes good sense economically and in terms of energy. Its solution represents a unique economic-policy and global coordination task. It involves elements of disciplines as diverse as taxes, subsidies, financial markets, development aid, research, structural policy in a wide range of sectors, including industry, transport, construction, agriculture and forestry as well as global governance. The essence of the CO<sub>2</sub> problem is that it is global and that emissions have the same effect no matter what countries or sectors they come from. Real global climate policy has been insufficiently examined; so far it has had no major effect and it has indisputably been inefficient. There are no existing global cooperation systems that are capable of handling solutions to the climate problem of the necessary nature and scale. But with a combination of political will, major reforms and international cooperation it is possible to perform the task at reasonable cost and with quite a few additional bonuses.

## 1. MAGNITUDE OF THE TASK

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Given the great scientific uncertainty, global warming as such cannot be controlled. The increase in greenhouse gas concentrations that has already taken place and is certain to continue is bound to result in substantial global warming. Visions expressed in global discussions therefore revolve around reducing future emissions to an extent that may stem the risk of substantial or unchecked increases in temperature. Many seek to translate this into a vision where annual greenhouse gas emissions should be reduced to 50 per cent of the 1990 level.

The size of the task can best be illustrated by the following perspectives:

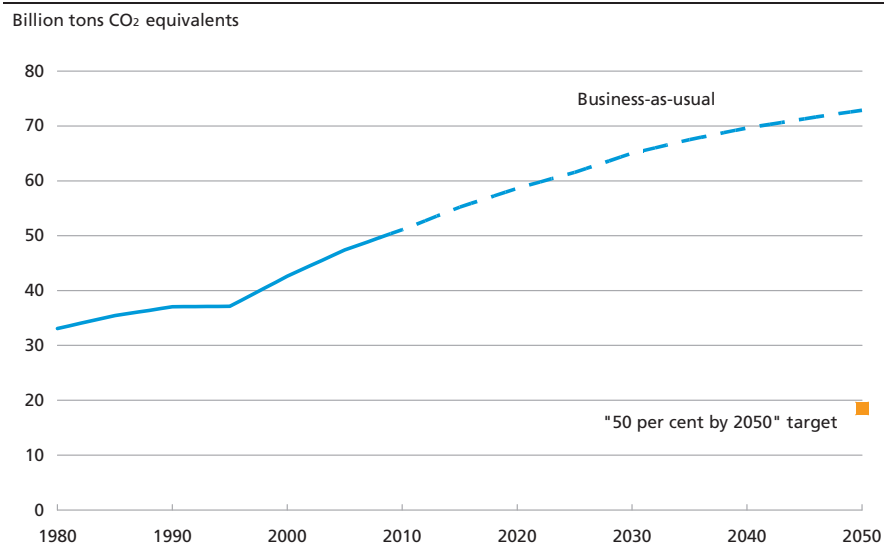
- From 1990 and up to the present time, global annual emissions have been steadily increasing without slowing down, cf. Chart 1. In 2009,

emissions are 30-40 per cent higher than in 1990. Any positive effects of the global discussions and political initiatives over the last two decades have been dominated and outweighed by higher living standards, population growth and emission-increasing policies in other areas.

- Global population will grow by 50 per cent up to 2050, and the global vision implies that emissions must be reduced from 6-7 tons to about 2 tons per capita per year, cf. Chart 2. In comparison, the current level is 6 tons in China, 10 tons in Europe and more than 20 tons in the USA. In India emissions amount to approximately 2 tons per capita, but they are rapidly increasing.
- At the same time continued strong economic growth must be expected in countries which accounted for limited CO<sub>2</sub> emissions up to 1990, but which contain 80-90 per cent of the global population. Even if CO<sub>2</sub> emissions in the OECD countries were to cease completely – which is quite unrealistic – expected growth in a business-as-usual reference scenario for the rest of the world would make it impossible to solve the problem.

Development of new technology is imperative, but it is not enough. Existing technology, often simple measures such as insulation and automation, is only implemented to a limited extent at the global level. Nor is it enough to increase the efficiency of known, typical production and

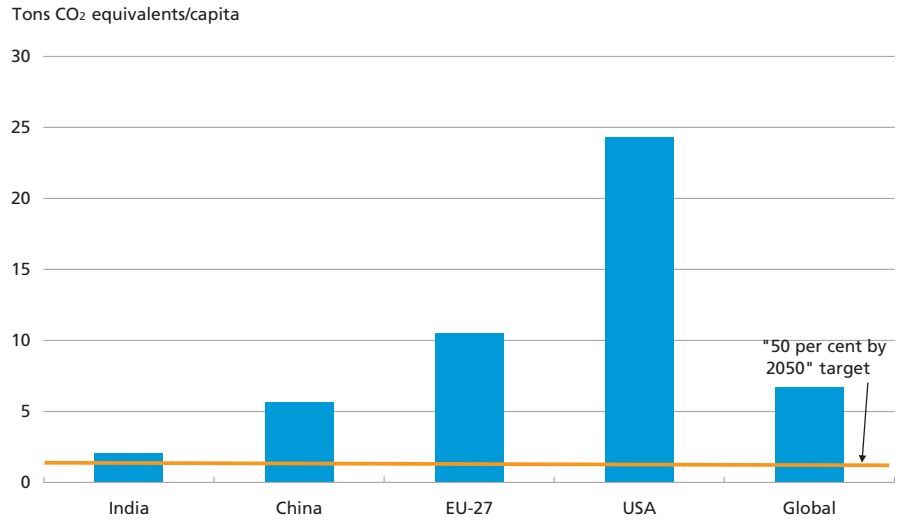
GLOBAL CO<sub>2</sub> EMISSIONS Chart 1



Source: OECD, *Environmental Outlook*, 2008.

CO<sub>2</sub> EMISSIONS PER CAPITA IN SELECTED COUNTRIES

Chart 2



Source: OECD, CO<sub>2</sub> Emissions from Fuel Combustion, 2008.

consumption as there is no limit to potential additional energy consumption for air conditioning, helicopter flights, desalination of sea water, etc. The problem can only be solved by a combination of adequate pricing and regulation and closely coordinated participation of all countries.

## 2. COSTS

Many engineers and economists have tried to estimate the economic costs of meeting the global vision described. These exercises have been useful, although there are major limitations to the theoretical assumptions. For example, on the one hand, the economically favourable potential of abolishing existing inefficient policies is often disregarded. On the other hand it is assumed that reduction initiatives will be cost effective, but historically policies have proved to be rather inefficient.

Estimates typically indicate an isolated output loss from cost-efficient measures to limit climate change in accordance with the global vision of 1-4 per cent of the gross domestic product, GDP. In a macroeconomic context this may be considered as a moderate loss compared with other economic events (such as financial crises) and measures (such as pension reforms) and the expected global increase in prosperity of many hundred per cent between 1990 and 2050 in particular. The magnitude may best be demystified by translating the expected politically deter-

mined CO<sub>2</sub> price of 40-80 dollars/ton over the next 10 years into the corresponding increase in fuel and electricity prices of 8-16 eurocents/litre and 4-8 eurocents/kWh, respectively. In terms of oil prices this corresponds to just over 15-30 dollars per barrel. The GDP effect, a growth slowdown of about 0.1 percentage point per year, will be the consequence of the additional structural adjustment caused by a revenue-neutral tax reorganisation at such CO<sub>2</sub> prices. Europeans will hardly find CO<sub>2</sub> prices at this level disturbing, but the situation is rather different in the rest of the world, cf. section 3, and higher CO<sub>2</sub> prices will be necessary in the longer term.

The effect is partial because the economic gains from preventing global warming that exceeds the risk limit have not been taken into account. According to many estimates, those gains exceed the costs of the CO<sub>2</sub> reduction. As such gains are global, they involve a free-rider problem – as some countries may speculate in others making the effort. Furthermore, the gains are not likely to be sufficiently compelling politically in some countries, e.g. because gains and losses are unevenly distributed between countries and sectors.

Another factor that has not been taken into account is the potential gains for oil-importing countries as a result of the dampening effect on prices in the world market caused by reduced demand for oil. In other words, the oil-importing countries have never succeeded in counterbalancing supply-side cartelisation. A coordinated increase in carbon taxes in the largest importing regions would to a large extent have a modest effect on the final price paid by energy consumers, but it would shift a large import bill into revenues for domestic Treasuries, providing corresponding relief to taxpayers as a whole.

Climate action is predominantly discussed as a cost challenge, which is of course neither surprising nor irrelevant, but such discussions also exaggerate the problems and disregard the economic gains that many countries would achieve by reducing their CO<sub>2</sub> emissions. A few examples:

- *The parallel to the trade negotiations in the World Trade Organization, WTO.* They are, with only some exaggerations, conducted along the following lines: "I won't stop using tariff rates and subsidies (in a climate context: too much CO<sub>2</sub>) that are bad for my own economy unless you do the same".
- *The focus of the developed countries on carbon leakage,* i.e. the possible relocation of carbon-intensive industries. These industries only account for 1-2 per cent of the developed economies, but subjecting them to CO<sub>2</sub> regulation is often construed as a macroeconomic problem of competitiveness. However, the costs of action will be higher if

carbon-intensive production is exempted as regulation of relatively less carbon-intensive production will have to be tightened accordingly<sup>1</sup>.

- *The poor countries' right to growth.* The right to growth is indisputable, but it should not be exaggerated as a CO<sub>2</sub> issue. The rich countries did not get rich by using a lot of fossil fuel. Rather, consumption of fossil fuels has been driven by increases in prosperity – in combination with inappropriate regulation and pricing.
- *The energy exporters' demand for compensation.* Exporters have been quicker than importers to see (and complain about) how increased CO<sub>2</sub> efficiency may affect their export prices and volumes. But before concerns about burdening energy exporters arise, it should be kept in mind that action against climate change will most likely imply a more modest increase rather than a reduction in expected additional income as the global economy grows.

Obviously, the necessary restructuring of the global economy will no doubt require unprecedented political action and willingness to invest. But the barriers to an effective CO<sub>2</sub> policy seem to be political rather than macroeconomic. Good explanations and information may remedy this to some extent, and there is a need for a paradigm shift from seeing CO<sub>2</sub> as a particularly dynamic production factor to seeing it as a cost that typically swallows up 5-10 per cent of a country's GDP – expenditure that could be better spent on other purposes. So necessary restructuring is possible without jeopardising growth and welfare. But international solutions on such a scale are unprecedented, and conversely there are many examples showing that structural policy is difficult to implement due to established interests and in spite of general economic gains.

### 3. THE POLICY PURSUED SO FAR

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Surprisingly little international information is available about actual climate policies being pursued. Good technical information on CO<sub>2</sub> consumption and intensity, etc. is available, but there is no global overview of national prices and energy and CO<sub>2</sub> regulation or the private and public funds spent on energy and CO<sub>2</sub> policy, let alone the development of these factors over time. Nor has global cooperation been examined to a significant extent. For example, no price statistics of the purchase of

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<sup>1</sup> Furthermore, the OECD has calculated that the CO<sub>2</sub>-related leakage effect would amount to 12 per cent of the CO<sub>2</sub> reduction in the event of a general CO<sub>2</sub> tax in the EU and only 2 per cent of the reduction in the event of a coordinated tax in all OECD countries.

CO<sub>2</sub> credits from developing countries are available. This information gap is a major unsolved problem for international organisations.

Consequently, an assessment of current climate policies can only be based on fragmentary and anecdotal information with the addition of information provided by the Ministry of Foreign Affairs and the Danish embassies. These fragments are interesting, but nevertheless the entertainment value of the following examples may make up for concerns about the effects only in the short term:

- By all accounts the global implicit CO<sub>2</sub> price is negative. Only Europe and Japan have introduced substantial indirect taxes and allowance prices. The revenue from European energy taxes amounts to approximately 210 billion dollars, cf. Table 1. On the other hand, there are estimates of global subsidies and grants for the use of fossil fuels of up to 600 billion dollars, of which 75 per cent in developing countries (including the Middle East). Several South East Asian countries spend 5-10 per cent of their GDP on public subsidies to keep down the prices of petrol, etc. In comparison, global development aid amounts to about 120 billion dollars.
- A "snapshot" of petrol prices measured in euro per litre a few years back shows a variation of 1.07-1.2 euro in Europe, 0.5 euro in the USA, 0.4 euro in China, 0.2 euro in Indonesia and about 0.07 euro in oil countries such as Iran and Venezuela. Similar variation is seen for electricity prices.
- In large parts of the world, rather than paying for their actual heating consumption, consumers pay an amount per square metre. In reality this means zero pricing (no marginal price) of consumption. The consumption-increasing effect is aggravated in the many cases where

ECONOMIC INDICATORS, 2006

Table 1

	Billion dollars	Per cent of global GDP
Subsidies for fossil fuels (energy consumption) ....	600	1.2
Energy taxation, total income, EU .....	210	0.5
Development aid (ODA) .....	105	0.22
Subsidies for renewable energy .....	(25)	(0.05)
OPEC oil exports .....	605	1.3
Total oil market at 100 dollars/barrel .....	3000	6.2
OPEC current-account surplus .....	340	0.7
USA current-account deficit .....	810	1.7
CO <sub>2</sub> allowance trading, offsets, etc. global .....	31	0.05
CDM projects, etc. ....	7	0.02
Sub-Saharan Africa, fuel imports (2005) .....	23	0.05

Source: Global Subsidies Initiative, IMF, IEA, The World Bank State and Trends of the Carbon Market, 2008.

- consumers' only access to heat regulation during cold winters is to open and close the windows while the radiator is on.
- In rich countries individual regulation of heating and air-conditioning consumption is often not possible in office buildings; the marginal price of petrol for users of company cars is zero; the marginal price of electricity and heating is kept down by connection fees; and until recently the EU imposed high punitive tariffs on cheap energy-saving light bulbs.
  - Domestic biofuels with an efficiency level (the share of the final fuel that is not set off by the energy consumption related to its production) of a few per cent are subsidised, but duties are imposed on imported biofuels with high levels of efficiency.
  - In tropical areas palm oil is widely produced for fuel purposes in a production process which, including the clearing of rainforest for cultivation, causes emissions of up to 30 times the amount of CO<sub>2</sub> displaced in ultimate consumption.

The effects of such policies, involving both economic and environmental losses, are not trivial. Estimates have shown that 5-10 per cent of global CO<sub>2</sub> emissions could be avoided by phasing out fossil fuel subsidies only, implying environmental as well as economic gains. And while only about 20 per cent of the developing countries' current energy consumption is attributable to households, the growth potential in this sector is very large, and pricing and regulating practices are therefore automatically widening to include an increasing share of total consumption.

There is no doubt that markets and price signals (also) affect energy and CO<sub>2</sub> consumption substantially. It is no coincidence that CO<sub>2</sub> consumption per capita is about twice as high in Australia, Canada and the USA as in Europe and Japan. Nor is it a coincidence that electricity consumption in Norway is four to six times higher than in Denmark (the price of electricity is about a fourth of the Danish price). While it is often difficult to demonstrate high price elasticities in energy consumption through estimation on time series, a simple cross-section analysis shows an elasticity between price indicators and CO<sub>2</sub> intensity of 0.6-0.7.

Presumably, international cooperation in this area has had a historical effect, including the Kyoto Protocol and related trade mechanisms, etc., in the sense that without such cooperation, CO<sub>2</sub> emissions might have been even higher. But this cooperation has included, and been ratified by, too few countries, and targets have been fulfilled only to a modest degree. Furthermore, considerable scepticism of the effects so far of cooperation on measures to reduce CO<sub>2</sub> emissions in developing countries is justified.

The overall conclusion is that in terms of its scope and nature neither the action taken by the rich countries nor international cooperation has efficiently prevented or reduced CO<sub>2</sub> emissions. This does not mean that it has been a waste of effort. It is now possible to base the design of the new systems that are needed on both good and bad historical experience.

#### 4. FUTURE POLICIES

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International climate cooperation revolves around two main elements: setting binding reduction targets – i.e. putting a cap on total national CO<sub>2</sub> emissions – for the rich countries and a coherent system with a framework of reduction initiatives in the developing countries based on their own policies combined with support for further action.

##### **Reduction targets in rich countries**

The advantage of reduction targets is simplicity, comparability and that, in principle, other countries and the world community need not be interested in whether the reduction initiatives are efficient or whether they incur substantial costs, as long as the target is met. In that case the principle of subsidiarity (as defined in the EU) may be applied in full with a view to the reduction initiatives.

In practice the rich countries' reduction initiatives are likely to be based mainly on allowance systems with plans to link trade in such allowances between systems and to purchase offset credits in the developing countries. This places new and much heavier demands on international coordination.

On the face of it, CO<sub>2</sub> allowance trading among rich countries appears to be simple and useful. Once their reduction commitments have been determined, trading will always reduce the costs of total action because the market will direct the reductions to wherever they are cheapest. *Before* the reduction commitments are determined, the situation is much more complex. If a country with unambitious targets can persuade another country (or region) with tight targets to link their allowance trading, it would create a cash cow for itself and its enterprises. The net direction of CO<sub>2</sub> allowance trading is thus determined by the reduction commitments undertaken.

This is complicated by the fact that certain interest groups in countries with ambitious targets may still be expected to aim for linkage. Those (i.e. finance ministries) who are charged with meeting a specific target set by others (i.e. climate ministries) will want to keep the economic costs as low as possible, and on the surface it appears to be almost an

advantage to trade with countries with unambitious targets, because it means that the price of purchasing reductions is correspondingly low. This is a very partial view, however, disregarding the global context. The global reduction initiatives should sum up to a whole. The more lenient the targets set by other countries, the tighter a country's own targets will be within the framework of the global vision.

Similarly, it is important not to give other countries incentives to set lenient targets. So it is positive that the EU and the USA have both emphasised that linkage of allowance trading should be between systems with comparable levels of ambition.

Many professionals ask why at least the developed countries do not use carbon taxes instead of an allowance system with a complexity and potentially unintended side-incentives at par with that of financial regulation. The answer may presumably be found in the political logic that prefers visible effects with less visible prices and incidence to visible prices and more invisible effects.

Both carbon taxes and allowance systems work by ensuring a CO<sub>2</sub> price that encourages savings (achieving the same output and comfort by other means), substitution to renewables, and development of less carbon-intensive technology. The higher price is paid by end-users. The immediate difference is that in the allowance system the price is created by a separate market creating a price at a level that displaces CO<sub>2</sub> to such an extent as to meet the reduction target.

In principle, the effects of allowance systems may be made to almost resemble the effect of carbon taxes, but this requires in particular that three assumptions are met: a) the system must cover the entire economy (this is technically very difficult – the EU allowance trading system covers only about half of EU emissions); b) the allowances must be determined once and for all to prevent speculation (in systems where allowances are free or partially free of charge) in pumping up emissions in period 1 to earn more allowances in period 2 (this is unrealistic); and c) the allowances must be fully auctioned and not allocated freely or "grandfathered" (this has proven very difficult politically).

If the allowances are grandfathered – typically to established enterprises with historically high emissions – revenue from the intended higher CO<sub>2</sub> price for ultimate users will go to the enterprises that are subject to allowances rather than to the Treasury. This will have the effect of a subsidy on corporate earnings, and the subsidy will replace the reversal of revenues to the ultimate users in the form of lower taxes and levies in other areas. It can be argued – and this happens much more than the argument can bear – that energy-intensive enterprises cannot pass on the CO<sub>2</sub> price to the ultimate users if they are subject to

intense competition from third countries without a CO<sub>2</sub> price. On the other hand, in favour of granting allowances to enterprises it is emphasised that this would make an otherwise sceptical group interested in maintaining and developing CO<sub>2</sub> regulation.

In many developed countries there is a preference for regulation, even including in areas such as energy efficiency standards for cars where the price mechanism is suitable, and subsidies for renewable energies. This involves higher costs than the use of indirect taxes. A simple explanation is that unlike indirect taxes, energy efficiency standards for cars do not affect the way we drive or the size of car we choose. Contrary to carbon taxes, subsidies for renewable energy do not raise the price of using energy. Consequently, the result is only a change of energy source and not a concurrent reduction of energy consumption or an incentive to create production and comfort in other ways. By subsidising renewable energies rather than introducing a tax on fossil fuels, governments can be said to choose technology rather than providing a choice between energy savings and renewable energy on market terms. The preference for subsidies presumably has to do with the fact that the expenditure is distributed on all taxpayers and not on visible major energy consumers.

Finally, there has been a lot of international debate during the current economic slowdown on the use of fiscal expansion for climate-friendly purposes. This may have the desired effect in the short term, but it is hardly wise to base a strategy for climate action on expenditure and economic-policy measures. On the contrary, a 5-10 year period of significant fiscal policy tightening is likely to be required when the economy picks up again in order to restore public finances in almost all countries. On the other hand it is quite conceivable that such tightening may include taxes on CO<sub>2</sub>, etc.

### **Measures in developing countries**

The discussion of reduction initiatives in the developing countries focuses on establishing and presenting low carbon development strategies (LCDS) and specific action. As a result, the initiatives do not focus on reduction targets. They may include a country's own unsupported measures, internationally supported measures and measures financed by the sale of offset credits (the carbon market).

For such a system to be politically sustainable there is a need for, on the one hand, the developing countries' guarantee of financing for specific measures and, on the other hand, the developed countries' guarantee that specific financing contributions will lead to the intended reductions and not be set-off by a lenient CO<sub>2</sub> policy elsewhere in the economy.

The absence of national reduction targets makes it difficult to measure whether additional action is taken. Nor will the scope and distribution of global reduction initiatives be guaranteed in advance in the absence of targets for all countries. But the developing countries, depending on their stage of development, have good reason to show reluctance in setting national targets. While it is relatively simple for developed countries to predict longer term economic growth and energy efficiency trends, this is very difficult for the developing countries. Will the growth rate be 5 or 10 per cent per year, and for how long will it remain at that level? A national target may thus turn out to be much too tight or loose. If it is too tight, it will cost the developing country money. If it is too lenient, the developed countries' support schemes may inadvertently become cash cows subsidising reduction targets that could easily be met.

One of the consequences is that within the framework of an overall global vision a developing country will in effect pass on an otherwise assumed reduction contribution to other countries if it has a higher growth rate than anticipated. But if this is due to economic growth alone, it is not unreasonable either as the mutual scope of the challenges thus turns out to be different than anticipated.

Box 1 describes possible compositions of the global reduction initiatives. Obviously, the figures are only examples. Firstly, the reference scenario is uncertain. Secondly, it is not possible to predict the extent to which a reduction target can be met by purchasing credits, as this is dependent on the choices made by private enterprises. Thirdly, the effect of credits and international public support to developing countries need not necessarily deliver on a ton by ton basis, but may to some extent be based on the developing countries' own efforts – as many of them get richer – and mechanisms may be designed to encourage the countries to make an extra own effort.

Finally, it is not possible to establish good operational estimates for the developing countries' need for international public finance. Such estimates involve technical and time-related uncertainties, and the costs depend on the efficiency of the action. If need be, estimates should be calculated as additional expenditure in relation to revenue-neutral investment calculations and not as disbursement of capital costs, which is a different, though often very important, financial question of lending. Estimates are often presented in aggregate form. This is equivalent to additional costs of increasing the efficiency of Chinese power plants being partially offset by the investments in oil-producing countries saved due to lower oil consumption. The safest conclusion seems to be that it would be useful to scale up and develop support over time in step with

REDUCTION NEED AND DISTRIBUTION

Box 1

In its project catalyst work McKinsey has provided an instructional example of requirements in respect of global reduction efforts. Significant caveats apply with regard to the overall challenge and the mutual magnitude of the possible contributions. In 2020, global emissions measured in gigatons, Gt CO<sub>2</sub>, are to be reduced from 61 Gt in a reference scenario (business as usual, BAU) to 44 Gt, i.e. by 17 Gt, cf. Table 2.

EXAMPLE OF REDUCTION NEED IN 2020

Table 2

	2005	BAU, 2020	Reduction scenario, 2020
Developed countries .....	18	21	16
Developing countries .....	27	40	28
<b>Total, reference scenario .....</b>	<b>45</b>	<b>61</b>	<b>44</b>

Source: Project Catalyst (www.project-catalyst.info).

McKinsey estimates that a reduction of 5 Gt in the developed countries is feasible at a cost of less than 60 dollars/ton, and that the developing countries themselves can carry out a reduction of 3 Gt at no cost or with economic gains. The estimates are based on cost curves ranking specific initiatives according to their additional (negative or positive) technical costs.

EXAMPLE OF DISTRIBUTION OF REDUCTION EFFORTS IN 2020

Table 3

	1. Limited offset	2. Considerable offset
Developed countries' commitment in relation to the reference scenario .....	8	11
<b>Reduced in developed countries (own reductions) .....</b>	<b>5</b>	<b>5</b>
Covered by offset credit purchases .....	3	6
Offset credits in developing countries .....	3	6
Reduced in developing countries at economic cost .....	6	3
Reduced in developing countries at economic gain .....	3	3
<b>Initiatives in developing countries, total .....</b>	<b>12</b>	<b>12</b>
Global reductions in relation to reference scenario .....	17 (17)	17 (17)

Source: Project Catalyst (www.project-catalyst.info).

In the first example developed countries undertake a reduction commitment of 8 Gt in relation to the reference scenario, of which 3 Gt is purchased as credits. The last 6 Gt is to be achieved through the developing countries' own efforts, including with support from international public finance. In the other example the reduction commitment of developed countries is increased to 11 Gt in relation to the reference scenario with 6 Gt purchased as credits. This leaves 3 Gt to be achieved by means of the developing countries' own efforts and support from international public finance.

capacity building and the development of absorption capacity and opportunities for efficient action. The design of efficient support schemes is a central question of far-reaching significance to the climate negotiations that is beyond the framework of this article.

## **5. ISSUES IN RELATION TO OFFSET-BASED PURCHASES OF CO<sub>2</sub> CREDITS IN DEVELOPING COUNTRIES**

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The offset system may become a central element in the international financing system for climate action. The system works by enterprises or governments in developed countries paying for a CO<sub>2</sub> emission reduction in a developing country; this reduction can then be deducted from ("credited against" or "offset against") the developed countries' own reduction commitments. It is generally expected that offsets will be the main driver of financial flows among the countries.

The purpose of purchasing CO<sub>2</sub> credits in developing countries is not to reduce CO<sub>2</sub> emissions, but to ensure that reduction commitments in the developed countries can be met more cheaply by picking the low-hanging fruit in the developing countries rather than undertaking more costly measures in the developed countries themselves. The offset system will only contribute to global reductions if it allows tighter reduction commitments in the developed countries or if it provides an incentive for the developing countries to make an extra own effort.

On the face of it, the offset system does seem to be a cheaper way for a developed country with certain reduction commitments to meet those commitments. Within the framework of a coherent global reduction effort the question of whether the method actually provides cost efficiency is much more complex. The offset system implies that the developed countries deduct the purchase of credits from their domestic efforts. The real question regarding efficiency is whether developed countries may best support reductions in the developing countries by direct public support or by undertaking more substantial reduction commitments than they would otherwise have done, thereby encouraging private enterprises to purchase credits. For example, the same contribution to the global reduction effort is achieved if a developed country undertakes a reduction commitment of 20 per cent with access to purchase credits for 10 percentage points or if it sets a reduction target of 10 per cent and then supplements it with international public support that may purchase extra reductions in the developing countries corresponding to an additional 10 percentage points. Which of the options is cheaper is not obvious in advance.

Basically, the offset system involves three major challenges:

- *Double counting.* As credits cover part of the developed countries' own commitments and are purchased in the developing countries, there is an incentive to take ownership of the same reduction twice. The developed countries claim with some justice that credit purchases can also be seen as a form of support to the developing countries. But since offsets have so far been explained as part of the developed countries' own reductions, wanting credit purchases to be recognised as support is a significant political challenge. It only makes sense if the reduction targets are sufficiently tight. However, it is not possible to assess how tight the developed countries' reduction commitments would have been if there was no offset option. So the only possible way to control for the risk of double counting is to ensure that total global reduction commitments are ambitious enough. The commitments announced by the developed countries so far are not sufficient to meet that challenge, even though a number of developed countries expect it to be easier to set tighter targets – with access to purchasing offsets – than to obtain ongoing parliamentary approval of public support for the developing countries.
- *Environmental integrity.* The question is whether single actions actually lead to larger reductions in the developing countries. This is very difficult – or impossible – to establish in the existing project-based CDM (Clean Development Mechanism) system in countries with no overall objectives. The problem is that the products traded in this part of the carbon market are unobservable. The credit is granted, often on a company basis, for the difference between the actual scenario and a baseline scenario that cannot be observed, only estimated. At the same time the incentive for a real effect is inconsistent with the joint interest of the purchaser and the seller in establishing a CO<sub>2</sub>-intensive baseline scenario creating a figure indicating the largest "reduction" possible. The purchaser and the seller choose their own agents to make this assessment from among a number of enterprises approved by the UN to make such verification. In addition, restructuring towards less CO<sub>2</sub> intensity in an individual enterprise does not prevent any of the following: that the problem is passed on to other enterprises in the same sector; that the country concerned uses the fuel released for additional emissions in other sectors; or that the CO<sub>2</sub> intensity increases again at a later time.
- *Rents or overnormal earnings by middlemen or in the developing countries.* Rents occur if the price paid for the credit (e.g. measured in dollars per ton) is significantly higher than the actual reduction costs. For example, China has considered it necessary in several cases to impose a special tax on enterprises that have sold CO<sub>2</sub> credits in order to

prevent overnormal earnings. The system gives reason to expect such rents. The incentive for the credit purchase is thus driven by the marginal reduction costs in developed countries that are much higher than the costs of the reduction paid for. Although enterprises in developed countries have a strong incentive to get approval for as many tons of "reduction" as possible in connection with the project, they have no incentive to pay a higher price per ton than necessary. But rents occur in combination with considerable excess demand for credits. Excess demand is caused by a combination of bottleneck problems in the verification units, problems with capacity to offer projects in the developing countries and an opaque market without effective competition between projects.

It is not likely that these problems can be completely solved, but large improvements may be made by moving towards sector-based and programme-based systems (e.g. policy initiatives in a broader area of the economy) where credit is granted for reductions in relation to a baseline scenario that is more ambitious than just business as usual. The baseline scenario can be analysed on the basis of historical data and benchmarks in other countries, etc. Furthermore, the development of markets with real competition between programmes and projects would be an advantage. Transition to sector level would also be necessary if the offset-based market is to be scaled up to the expected extent. As is the case with CDM projects, it is of vital importance to establish a reliable international body to verify "additionality" and prevent adverse effects from a coalition of joint interests between enterprises and authorities in the two countries concerned benefiting from counting towards CO<sub>2</sub>-intensive reference scenarios.

Public finance for reduction initiatives in the developing countries – support that cannot be offset against the developed countries' own commitments – involve a number of similar issues. One drawback is that the know-how of private enterprises cannot be included. On the other hand, it may be easier to avoid rents as they are driven by the political desire for reductions in tons rather than savings driven by their own reduction costs. Moreover, the impact of public finance would have to be subjected to direct parliamentary control.



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## Press Releases

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### **26 JUNE 2009: EXTENSION OF SWAP FACILITY WITH THE FEDERAL RESERVE**

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The temporary reciprocal currency arrangements (swap lines) of 15 billion US dollars between the Federal Reserve and other central banks including Danmarks Nationalbank, have been extended to 1 February 2010.

Danmarks Nationalbank continuously monitors the need for dollar auctions. Planned auctions are published on [www.nationalbanken.dk](http://www.nationalbanken.dk), where further information on the dollar auctions can be found.

### **10 AUGUST 2009: NEW 50-KRONE BANKNOTE - 11 AUGUST**

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Tomorrow, 11 August, a 50-krone banknote will be issued as the first in a new Danish series. The banknote will be presented today during a press conference at Danmarks Nationalbank.

The new banknote series has Danish bridges and prehistoric finds as its theme. The new 50-krone banknote depicts the Sallingsund Bridge and the Skarpsalling Vessel. The series has been designed by the artist Karin Birgitte Lund in collaboration with Danmarks Nationalbank's Banknote Printing Works. Karin Birgitte Lund has chosen to interpret bridges as links between various parts of Denmark and the banknotes as links between the past and the present. The present is represented by the bridges, and the past by five distinctive prehistoric objects found near the bridges.

The new banknote series is introduced with a view to enhancing security. Technological advances mean that counterfeiters constantly gain access to improved tools for copying genuine banknotes. To remain one step ahead, Danmarks Nationalbank is incorporating new security features in the new banknotes. These new features include a window thread with a moving wave pattern and a new, sophisticated hologram that reflects light in different colours. The new banknotes will also have the traditional security features such as the watermark and the hidden security thread.

**13 AUGUST 2009: INTEREST-RATE REDUCTION**

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Danmarks Nationalbank's lending rate is lowered by 0.1 percentage point to 1.45 per cent with effect as from 14 August 2009. The reduction is a consequence of purchases of foreign exchange in the market. At the same time, the rate of interest on certificates of deposits is lowered by 0.1 percentage point to 1.35 per cent, while the discount rate and the interest rate on the banks' current accounts are lowered by 0.1 percentage point to 1.10 per cent.

**27. AUGUST 2009: INTEREST-RATE REDUCTION**

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Danmarks Nationalbank's lending rate is lowered by 0.1 percentage point to 1.35 per cent with effect as from 28 August 2009. The reduction is a consequence of purchases of foreign exchange in the market. The rate of interest on certificates of deposits is lowered by 0.1 percentage point to 1.25 per cent, while the discount rate and the interest rate on the banks' current accounts are lowered by 0.1 percentage point to 1.0 per cent.

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## **Symbols and Sources**

0 Magnitude nil or less than one half of unit employed.

... Data not available or of negligible interest.

Some of the most recent statistics may be provisional. Due to rounding-off there may be small differences between the sum of the individual figures and the totals stated.

The Tables section of this publication is closed on 9 October 2009 and thus based on more recent information than the equivalent section of the Danish edition.

Danmarks Nationalbank is the source for Tables 1-14, 16-18 and 23-24, while the OMX Nordic Exchange is the source for series of bond yields and the share-price index in Table 1. Statistics Denmark is the source for Tables 15 and 19-22. The calculations in Tables 20 and 24 have been made by Danmarks Nationalbank on the basis of data from Statistics Denmark and OECD.

INTEREST RATES AND SHARE-PRICE INDEX

Table 1

Effective end-of-year/ from	Danmarks Nationalbank's interest rates				The ECB's interest rate	End of period	Inter-bank interest rate, 3-months uncollateralized	Bond yields		Share-price index OMXC20 (prev.KFX)	
	Discount rate	Lending	Certificates of deposit	Main refinancing operations, fixed rate <sup>1</sup>	Per cent per annum			Per cent per annum	10-year central-government bond		30-year mortgage-credit bond
2004 .....	2.00	2.15	2.15	2.00	2004 .....	2.16	3.87	5.07	286.66		
2005 .....	2.25	2.40	2.40	2.25	2005 .....	2.46	3.30	4.39	393.52		
2006 .....	3.50	3.75	3.75	3.50	2006 .....	3.81	3.95	5.24	441.48		
2007 .....	4.00	4.25	4.25	4.00	2007 .....	4.65	4.48	5.61	464.14		
2008 .....	3.50	3.75	3.75	2.50	2008 .....	4.20	3.31	6.21	247.72		
2009 8 Jun	1.20	1.55	1.45	1.00	Mar 09 .....	2.50	3.40	6.05	228.36		
14 Aug	1.10	1.45	1.35	1.00	Apr 09 .....	1.85	3.46	5.46	274.79		
28 Aug	1.00	1.35	1.25	1.00	May 09 .....	1.65	3.77	5.50	290.83		
25 Sep	1.00	1.25	1.15	1.00	Jun 09 .....	1.50	3.62	5.42	290.70		
29 Sep	1.00	1.25	1.00	1.00	Jul 09 .....	1.35	3.66	5.28	311.23		
					Aug 09 .....	1.40	3.54	5.18	335.03		
9 Oct	1.00	1.25	1.00	1.00	Sep 09 .....	1.15	3.53	5.19	335.03		

<sup>1</sup> Until 7 October 2008 minimum bid rate.

## SELECTED ITEMS FROM DANMARKS NATIONALBANK'S BALANCE SHEET

Table 2

End of period	The foreign-exchange reserve (net)	Notes and coin in circulation	The central government's account with Danmarks Nationalbank	The banks' and the mortgage-credit institutes' net position with Danmarks Nationalbank			
				Certificates of deposit	Deposits (current account)	Loans	Total net position
	Kr. billion						
2004 .....	217.6	52.0	60.8	160.4	6.9	72.6	94.6
2005 .....	212.3	56.2	56.4	207.6	12.8	135.3	85.1
2006 .....	171.7	59.8	73.8	163.2	8.8	153.7	18.2
2007 .....	168.8	61.6	89.9	200.5	9.4	216.8	-6.9
2008 .....	211.7	61.3	262.8	118.5	9.7	240.9	-112.7
Apr 09 .....	286.4	59.0	210.3	173.0	19.3	180.4	11.9
May 09 .....	325.3	59.9	188.7	239.8	5.9	173.8	71.8
Jun 09 .....	330.3	60.0	190.8	238.0	18.0	180.5	75.5
Jul 09 .....	336.4	60.2	204.1	216.6	6.5	153.3	69.9
Aug 09 .....	374.1	59.4	177.7	206.9	8.1	113.2	101.9
Sep 09 .....	393.8	59.1	210.0	187.6	15.7	114.5	88.7

FACTORS AFFECTING THE BANKS' AND THE MORTGAGE-CREDIT  
 INSTITUTES' NET POSITION WITH DANMARKS NATIONALBANK

Table 3

	Central-government finance			Net purchase of foreign exchange by Danmarks Nationalbank			Net purchase of bonds by Danmarks Nationalbank	Other factors	The banks' and the mortgage-credit institutes' net position with Danmarks Nationalbank	
	Domestic gross financing requirement	Sales of domestic central-government securities, etc.	Liquidity effect	Interventions to purchase foreign exchange, net	Other	Total			Change in net position	End of period
2004 .....	75.5	92.6	-17.1	-12.5	6.1	-6.4	-2.6	-1.2	-27.3	94.6
2005 .....	39.5	30.9	8.6	-18.4	3.0	-15.4	-2.2	-0.5	-9.5	85.1
2006 .....	-14.5	16.2	-30.6	-34.3	4.3	-30.0	-4.9	-1.2	-66.7	18.2
2007 .....	-26.1	2.9	-29.1	-1.7	7.2	5.5	-0.4	-1.4	-25.3	-6.9
2008 .....	-11.9	99.6	-111.5	-19.9	0.1	-19.8	0.6	24.9	-105.8	-112.7
Apr 09 .....	17.1	8.9	8.2	8.9	0.9	9.8	0.5	0.1	18.6	11.9
May 09 .....	35.4	4.1	31.3	28.5	0.8	29.3	0.7	-1.4	59.9	71.8
Jun 09 .....	1.9	7.2	-5.3	6.7	1.5	8.2	3.1	-2.3	3.6	75.5
Jul 09 .....	4.6	18.6	-14.0	6.6	0.5	7.1	3.7	-2.3	-5.6	69.9
Aug 09 .....	30.8	4.5	26.3	26.9	10.8	37.7	-7.1	-25.0	32.0	101.9
Sep 09 .....	-19.8	13.0	-32.8	19.1	1.3	20.4	-0.1	-0.6	-13.1	88.7

SELECTED ITEMS FROM THE CONSOLIDATED  
BALANCE SHEET OF THE MFI SECTOR

Table 4

End of period	Total balance	Assets				Liabilities		Foreign assets, net <sup>1</sup>
		Domestic lending		Domestic securities		Domestic deposits	Bonds, etc. issued	
		Public sector	Private sector	Bonds, etc.	Shares, etc.			
Kr. billion								
2004 .....	3,684.5	97.5	2,246.2	100.8	46.3	848.9	1,222.1	-65.7
2005 .....	4,228.2	107.8	2,584.2	75.9	53.5	971.3	1,318.2	-172.9
2006 .....	4,672.7	116.8	2,953.6	51.8	60.3	1,077.0	1,433.4	-224.2
2007 .....	5,497.4	117.5	3,356.1	43.3	63.5	1,219.7	1,505.2	-304.5
2008 .....	6,286.4	131.6	3,721.8	40.6	56.7	1,487.5	1,508.4	-407.9
Mar 09 .....	6,180.7	130.5	3,724.8	50.0	54.9	1,429.3	1,561.6	-454.1
Apr 09 .....	6,186.9	131.6	3,705.6	56.1	56.4	1,438.8	1,569.5	-450.1
May 09 .....	6,153.7	130.7	3,670.4	59.7	57.8	1,432.0	1,580.1	-419.5
Jun 09 .....	6,079.0	133.5	3,710.4	60.3	59.3	1,405.8	1,619.9	-409.1
Jul 09 .....	6,046.7	135.6	3,677.4	63.5	58.4	1,444.1	1,623.6	-370.3
Aug 09 .....	6,056.2	130.4	3,653.3	67.2	58.9	1,423.7	1,615.8	-380.8
Change compared with previous year, per cent								
2004 .....	...	8.8	8.9	-18.2	7.0	12.5	5.5	...
2005 .....	...	10.6	15.0	-24.7	15.4	14.4	7.9	...
2006 .....	...	8.3	14.3	-31.8	12.8	10.9	8.7	...
2007 .....	...	0.6	13.6	-16.4	5.2	13.3	5.0	...
2008 .....	...	12.0	10.9	-6.2	-10.7	22.0	0.2	...
Mar 09 .....	...	10.0	8.2	17.8	-19.6	11.5	3.3	...
Apr 09 .....	...	9.7	7.3	19.0	-29.6	11.2	3.6	...
May 09 .....	...	8.3	5.3	25.5	-27.4	8.9	6.2	...
Jun 09 .....	...	8.3	5.0	51.2	-23.5	10.3	7.9	...
Jul 09 .....	...	7.8	4.4	50.5	-25.7	12.9	7.0	...
Aug 09 .....	...	7.5	3.1	143.9	-25.3	13.4	5.3	...

Note: The MFI sector includes Danish monetary financial institutions, i.e. banks and mortgage-credit institutes, other credit institutions, money-market funds and Danmarks Nationalbank.

<sup>1</sup> The net foreign assets of the MFI sector has been compiled as the difference between all assets and liabilities vis-a-vis non-residents.

## MONEY STOCK

Table 5

End of period	Bank- notes and coin in circula- tion <sup>1</sup>	Deposits on demand	M1	Time deposits with original maturity =<2 years	Deposits at notice with original maturity =< 3 months	M2	Repur- chase agree- ments	Bonds, etc. issued with original maturity =< 2 years	M3
	Kr. billion								
2004 .....	43.7	492.8	536.5	119.2	21.0	676.7	2.0	20.2	699.0
2005 .....	47.3	596.3	643.5	114.1	18.4	776.0	14.2	8.4	798.7
2006 .....	50.7	648.6	699.3	143.0	17.9	860.2	8.0	21.3	889.5
2007 .....	51.9	703.2	755.1	199.7	18.0	972.8	6.2	61.5	1,040.6
2008 .....	50.4	704.8	755.2	286.4	18.4	1,060.0	4.0	57.0	1,121.1
Mar 09 .....	48.8	720.4	769.1	266.1	19.9	1,055.2	4.3	124.5	1,184.1
Apr 09 .....	49.3	737.0	786.3	250.7	20.1	1,057.1	3.8	129.2	1,190.2
May 09 .....	49.9	749.9	799.8	251.8	19.5	1,071.1	6.3	133.9	1,211.4
Jun 09 .....	50.1	750.5	800.5	225.3	20.0	1,045.9	3.1	144.8	1,193.8
Jul 09 .....	50.0	761.8	811.8	235.2	19.7	1,066.7	7.9	160.0	1,234.7
Aug 09 .....	49.6	782.6	832.1	216.9	20.1	1,069.1	8.5	143.2	1,220.9
Change compared with previous year, per cent									
2004 .....	...	...	14.4	...	...	12.7	...	...	2.7
2005 .....	...	...	19.9	...	...	14.7	...	...	14.3
2006 .....	...	...	8.7	...	...	10.8	...	...	11.4
2007 .....	...	...	8.0	...	...	13.1	...	...	17.0
2008 .....	...	...	0.0	...	...	9.0	...	...	7.7
Mar 09 .....	...	...	-1.6	...	...	5.0	...	...	6.2
Apr 09 .....	...	...	-0.2	...	...	4.7	...	...	6.2
May 09 .....	...	...	1.0	...	...	4.2	...	...	6.4
Jun 09 .....	...	...	3.8	...	...	4.5	...	...	6.8
Jul 09 .....	...	...	4.4	...	...	3.4	...	...	7.4
Aug 09 .....	...	...	7.8	...	...	5.1	...	...	7.9

<sup>1</sup> Notes and coin in circulation, excluding the banks' holdings.

SELECTED ITEMS FROM THE BALANCE SHEET OF THE BANKS

Table 6

End of period	Total balance	Assets					Liabilities		
		Lending to MFIs	Domestic lending			Holdings of securities	Loans from MFIs	Deposits	
			Total	of which:					
				Households, etc.	Non-financial companies				
Kr. billion									
2004 .....	2,418.4	495.6	754.8	324.8	309.6	780.3	823.1	908.0	
2005 .....	2,867.3	652.0	920.1	396.6	370.0	862.1	975.7	1,065.6	
2006 .....	3,242.0	715.0	1,124.3	475.0	458.0	889.6	1,133.8	1,148.3	
2007 .....	3,991.1	924.3	1,333.6	557.4	551.8	1,065.8	1,441.8	1,345.6	
2008 .....	4,568.5	974.6	1,546.3	586.8	603.3	1,092.1	1,444.2	1,424.2	
Mar 09 .....	4,467.3	941.8	1,507.0	578.2	573.5	1,185.5	1,415.5	1,407.6	
Apr 09 .....	4,467.5	970.2	1,474.3	568.9	567.5	1,215.1	1,446.8	1,422.2	
May 09 .....	4,459.0	877.7	1,430.0	563.5	550.8	1,331.6	1,373.6	1,448.7	
Jun 09 .....	4,403.8	835.3	1,462.1	569.9	556.3	1,339.1	1,380.0	1,408.9	
Jul 09 .....	4,290.1	828.8	1,419.4	560.3	535.9	1,293.1	1,230.6	1,441.8	
Aug 09 .....	4,240.6	802.6	1,378.6	556.5	530.6	1,286.5	1,123.1	1,455.8	
Change compared with previous year, per cent									
2004 .....	...	5.6	13.8	19.6	8.4	2.1	-0.1	14.2	
2005 .....	...	31.7	21.9	22.1	19.5	10.5	18.5	17.3	
2006 .....	...	9.7	22.2	19.8	23.8	3.2	16.2	7.8	
2007 .....	...	29.9	18.9	17.4	21.0	20.1	27.8	17.2	
2008 .....	...	5.4	15.9	5.3	9.3	2.5	0.2	5.8	
Mar 09 .....	...	-0.7	9.7	2.6	1.3	6.7	-1.5	-0.6	
Apr 09 .....	...	0.9	7.5	1.6	1.1	4.5	-4.2	-0.1	
May 09 .....	...	-3.5	3.2	0.7	-4.9	13.0	-5.3	1.3	
Jun 09 .....	...	-14.4	2.7	-1.4	-4.9	17.7	-8.8	-1.1	
Jul 09 .....	...	-13.7	1.5	-2.5	-4.9	10.5	-17.9	0.9	
Aug 09 .....	...	-13.3	-1.7	-3.0	-7.5	3.7	-27.5	4.8	

Note: Excluding Danish banks' units abroad.

SELECTED ITEMS FROM THE BALANCE SHEET OF  
 THE MORTGAGE-CREDIT INSTITUTES

Table 7

End of period	Assets						Liabilities	
	Total balance	Lending to MFIs	Domestic lending			Holdings of securities	Loans from MFIs	Bonds, etc. issued
			Total	of which:				
				Households, etc.	Non-financial companies			
Kr. billion								
2004 .....	2,097.4	91.2	1,489.9	1,141.3	307.9	481.2	26.1	1,952.5
2005 .....	2,519.9	101.4	1,664.4	1,281.5	334.2	645.0	151.7	2,237.0
2006 .....	2,699.9	245.1	1,834.8	1,420.2	358.2	574.1	226.5	2,297.9
2007 .....	3,088.2	362.8	2,015.5	1,549.2	404.0	649.2	344.2	2,495.2
2008 .....	3,322.7	428.5	2,164.6	1,629.6	467.4	633.5	474.4	2,582.3
Mar 09 .....	2,908.9	367.7	2,202.7	1,653.6	479.5	260.9	417.7	2,284.3
Apr 09 .....	2,918.7	377.4	2,216.2	1,661.3	485.0	239.7	425.4	2,296.0
May 09 .....	2,949.0	389.9	2,226.1	1,669.6	486.9	238.0	421.7	2,321.9
Jun 09 .....	3,032.0	449.4	2,236.8	1,676.5	489.8	262.7	441.0	2,376.5
Jul 09 .....	2,995.0	390.6	2,248.0	1,684.3	493.9	265.8	427.2	2,369.3
Aug 09 .....	3,064.3	402.2	2,259.6	1,691.0	498.8	300.6	447.9	2,414.1
Change compared with previous year, per cent								
2004 .....	...	-9.6	6.8	6.5	8.3	40.4	-19.9	12.9
2005 .....	...	11.1	11.7	12.3	8.5	34.0	481.5	14.6
2006 .....	...	141.7	10.2	10.8	7.2	-11.0	49.3	2.7
2007 .....	...	48.0	9.9	9.1	12.8	13.1	52.0	8.6
2008 .....	...	18.1	7.4	5.2	15.7	-2.4	37.8	3.5
Mar 09 .....	...	9.0	7.0	5.3	14.3	18.2	43.6	6.2
Apr 09 .....	...	22.2	7.0	5.3	14.4	7.1	48.1	6.7
May 09 .....	...	22.9	6.7	5.1	13.9	5.4	43.6	8.1
Jun 09 .....	...	27.7	6.4	5.0	13.2	54.5	51.2	13.7
Jul 09 .....	...	16.3	6.2	4.9	13.2	51.1	36.9	11.8
Aug 09 .....	...	16.6	6.3	4.9	13.4	76.6	42.6	12.3

LENDING TO RESIDENTS BY THE BANKS AND THE MORTGAGE-CREDIT INSTITUTES Table 8

End of period	Total lending			The banks' lending			The mortgage-credit institutes' lending		
	Total	Households, etc.	Business	Total	Households, etc.	Business	Total	Households, etc.	Business
	Kr. billion								
2004 .....	2,276.0	1,466.1	741.0	786.0	324.8	426.8	1,489.9	1,141.3	314.2
2005 .....	2,614.5	1,678.0	852.2	950.2	396.6	510.4	1,664.4	1,281.5	341.7
2006 .....	3,000.8	1,895.2	1,002.6	1,166.0	475.0	636.9	1,834.8	1,420.2	365.7
2007 .....	3,387.8	2,106.7	1,173.0	1,372.3	557.4	760.5	2,015.5	1,549.2	412.4
2008 .....	3,787.5	2,216.4	1,457.1	1,622.9	586.8	978.3	2,164.6	1,629.6	478.8
Mar 09 .....	3,759.8	2,231.8	1,414.9	1,557.2	578.2	923.4	2,202.7	1,653.6	491.5
Apr 09 .....	3,746.7	2,230.3	1,404.6	1,530.5	568.9	905.4	2,216.2	1,661.3	499.2
May 09 .....	3,712.4	2,233.1	1,369.8	1,486.2	563.5	868.6	2,226.1	1,669.6	501.2
Jun 09 .....	3,755.2	2,246.5	1,394.3	1,518.3	569.9	889.7	2,236.8	1,676.5	504.7
Jul 09 .....	3,723.7	2,244.6	1,365.1	1,475.6	560.3	856.4	2,248.0	1,684.3	508.7
Aug 09 .....	3,694.4	2,247.5	1,339.2	1,434.7	556.5	825.6	2,259.6	1,691.0	513.6
Change compared with previous year, per cent									
2004 .....	9.0	9.1	8.5	13.4	19.6	8.8	6.8	6.5	8.0
2005 .....	14.9	14.5	15.0	20.9	22.1	19.6	11.7	12.3	8.8
2006 .....	14.8	12.9	17.7	22.7	19.8	24.8	10.2	10.8	7.0
2007 .....	12.9	11.2	17.0	17.7	17.4	19.4	9.9	9.1	12.8
2008 .....	11.8	5.2	24.2	18.3	5.3	28.6	7.4	5.2	16.1
Mar 09 .....	8.2	4.6	14.9	9.9	2.6	15.3	7.0	5.3	14.3
Apr 09 .....	7.4	4.3	13.3	8.0	1.6	12.5	7.0	5.3	14.8
May 09 .....	5.5	4.0	8.9	3.8	0.7	6.1	6.7	5.1	14.3
Jun 09 .....	5.1	3.3	9.1	3.3	-1.4	6.5	6.4	5.0	13.8
Jul 09 .....	4.7	2.9	8.7	2.3	-2.5	5.9	6.2	4.9	13.8
Aug 09 .....	3.4	2.8	5.6	-0.8	-3.0	0.9	6.3	4.9	14.0

Note: Including lending in Danish banks' units abroad.

THE MORTGAGE-CREDIT INSTITUTES' LENDING BROKEN DOWN BY TYPE Table 9

End of period	Index-linked lending	Fixed-rate lending	Adjustable-rate lending		Total	of which:		
			Total	of which =<1 year		Total	Lending in foreign currency	Instalment-free lending <sup>1</sup>
2004 .....	94.6	733.9	659.8	382.2	1,488.4	84.9	170.5	
2005 .....	88.6	720.3	853.9	616.0	1,662.8	80.5	315.5	
2006 .....	83.5	797.5	951.7	720.5	1,832.7	85.7	432.2	
2007 .....	77.9	889.2	1,045.6	796.6	2,012.7	123.8	547.3	
2008 .....	72.4	903.9	1,189.1	900.3	2,165.4	155.3	626.4	
Mar 09 .....	73.3	883.3	1,245.3	996.7	2,201.9	172.8	642.1	
Apr 09 .....	73.6	870.4	1,270.6	1,016.8	2,214.6	178.3	649.4	
May 09 .....	73.5	860.7	1,290.6	1,032.4	2,224.7	182.5	655.2	
Jun 09 .....	71.3	832.4	1,332.0	1,067.4	2,235.7	189.1	662.3	
Jul 09 .....	71.2	824.9	1,351.1	1,080.7	2,247.2	192.8	668.0	
Aug 09 .....	71.2	820.7	1,367.2	1,090.1	2,259.2	196.3	672.8	

Note: The Table includes the mortgage-credit lending to residents only, whereas Tables 7 and 8 include the institutes' total lending to residents.

<sup>1</sup> The mortgage-credit institutes' instalment-free lending to owner-occupied dwellings.

 THE BANKS' EFFECTIVE INTEREST RATES Table 10

	Lending				Deposits			
	All sectors	Households, etc.	Non-financial companies	Financial companies	All sectors	Households, etc.	Non-financial companies	Financial companies
Q2 07 .....	5.9	7.2	5.7	4.0	3.4	3.1	3.4	3.8
Q3 07 .....	6.1	7.4	6.0	4.1	3.6	3.3	3.6	4.0
Q4 07 .....	6.2	7.4	6.1	4.3	3.7	3.4	3.7	4.1
Q1 08 .....	6.2	7.5	6.1	4.5	3.7	3.5	3.8	4.2
Q2 08 .....	6.5	7.7	6.3	4.6	3.8	3.6	3.9	4.2
Q3 08 .....	6.6	7.8	6.5	4.9	4.0	3.6	4.1	4.5
Q4 08 .....	7.0	8.4	7.1	5.2	4.4	3.9	4.5	5.0
Q1 09 .....	6.0	7.4	6.2	4.0	3.3	2.8	3.2	4.1
Q2 09 .....	5.1	6.4	5.3	2.7	2.2	2.0	2.0	2.6
Mar 09 .....	5.5	6.9	5.8	3.4	2.9	2.4	2.7	3.7
Apr 09 .....	5.3	6.6	5.4	3.0	2.5	2.2	2.3	3.2
May 09 .....	5.1	6.4	5.4	2.6	2.2	2.0	2.0	2.6
Jun 09 .....	4.8	6.1	5.2	2.4	2.0	1.9	1.8	2.2
Jul 09 .....	4.6	6.1	5.1	2.2	1.8	1.8	1.6	2.0
Aug 09 .....	4.6	6.0	5.1	2.1	1.8	1.8	1.5	2.0

SELECTED ITEMS FROM THE BALANCE SHEET OF  
 THE INVESTMENT ASSOCIATIONS

Table 11

End of period	Total balance	Assets		Liabilities			
		Holdings of securities		Certificates issued by investment associations by owner			
		Bonds, etc.	Shares, etc.	House- holds, etc.	Insurance compa- nies and pension funds	Other residents	Abroad
Kr. billion							
2004 .....	574.2	326.5	164.6	213.1	163.4	180.1	15.3
2005 .....	794.7	412.1	286.4	265.7	236.5	263.0	24.4
2006 .....	924.7	431.8	385.4	294.3	289.4	305.3	28.8
2007 .....	1,020.7	477.9	411.6	295.2	336.8	322.1	29.2
2008 .....	772.2	424.4	222.5	211.4	265.9	238.2	14.6
Q2 08 .....	951.4	467.2	352.0	256.5	324.1	310.9	23.0
Q3 08 .....	889.3	458.5	302.0	238.0	310.6	275.6	19.0
Q4 08 .....	772.2	424.4	222.5	211.4	265.9	238.2	14.6
Q1 09 .....	751.0	429.1	197.4	204.8	261.1	221.4	13.7
Q2 09 .....	765.1	448.1	233.5	222.2	296.5	174.1	16.1
Quarterly transactions, kr. billion							
Q2 08 .....	...	12.7	9.0	1.2	2.8	20.9	-0.8
Q3 08 .....	...	-11.1	-11.8	-3.3	3.7	-20.5	-2.0
Q4 08 .....	...	-18.2	-8.2	-4.6	-9.3	-7.3	-2.2
Q1 09 .....	...	0.7	-8.6	-1.8	-2.8	-9.4	-0.1
Q2 09 .....	...	8.1	0.5	3.3	10.5	-65.1	0.5

## SECURITIES ISSUED BY RESIDENTS BY OWNER'S HOME COUNTRY

Table 12

End of period	Bonds, etc.						Shares	
	Total		of which:					
			Central-government securities		Mortgage-credit bonds			
	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad
	Market value, kr. billion							
2004 .....	2,379.2	434.4	498.8	213.6	1,768.7	218.4	604.3	245.2
2005 .....	2,559.7	461.2	434.9	205.1	2,002.9	252.5	845.2	300.5
2006 .....	2,541.3	464.7	380.1	172.6	2,034.9	285.9	989.4	361.8
2007 .....	2,701.2	475.8	301.9	176.2	2,247.1	287.7	996.1	445.4
2008 .....	2,981.5	405.0	363.1	158.5	2,419.2	227.4	529.9	244.4
Mar 09 .....	2,580.6	429.1	363.3	159.8	2,023.9	250.7	474.8	228.0
Apr 09 .....	2,601.6	429.1	372.0	158.2	2,030.4	252.5	548.2	266.2
May 09 .....	2,648.7	421.6	370.6	152.7	2,058.0	250.3	585.7	289.0
Jun 09 .....	2,705.5	425.3	374.4	158.8	2,108.5	247.8	564.9	294.3
Jul 09 .....	2,685.4	448.4	377.6	172.3	2,090.6	256.5	594.2	310.7
Aug 09 .....	2,734.1	454.2	386.6	168.7	2,129.6	265.8	638.1	329.0

Note: Comprise quoted and unquoted securities registered with the VP Securities Services (VP).

HOUSEHOLDS' FINANCIAL ASSETS AND LIABILITIES

Table 13

End of period	Assets					Liabilities		
	Currency and bank deposits, etc.	Bonds, etc.	Shares and certificates issued by investment associations, etc.	Life-insurance and pension-scheme savings, etc.	Total	Loans, etc.	Net financial assets	Total
2004 .....	674	174	475	1,403	2,726	1,637	1,090	2,727
2005 .....	755	172	620	1,617	3,163	1,832	1,331	3,163
2006 .....	804	180	713	1,681	3,378	2,054	1,324	3,378
2007 .....	869	191	702	1,724	3,487	2,238	1,249	3,487
2008 .....	885	184	446	1,782	3,297	2,382	914	3,297
Q1 08 .....	875	188	629	1,728	3,420	2,294	1,126	3,420
Q2 08 .....	897	186	609	1,707	3,398	2,295	1,103	3,398
Q3 08 .....	894	194	540	1,729	3,355	2,304	1,051	3,355
Q4 08 .....	885	184	446	1,782	3,297	2,383	914	3,297
Q1 09 .....	898	167	424	1,797	3,286	2,389	897	3,286

COMPANIES' FINANCIAL ASSETS AND LIABILITIES

Table 14

End of period	Assets				Liabilities				
	Currency, bank deposits and granted credits, etc.	Bonds, etc.	Shares and certificates issued by investment associations, etc.	Total	Debt			Net financial assets	Total
					Loans, etc.	Bonds, etc. issued	Shares, etc. issued		
Kr. billion									
2004 .....	641	164	746	1,551	1,220	142	1,253	-1,063	1,551
2005 .....	734	168	970	1,871	1,353	143	1,491	-1,117	1,871
2006 .....	769	151	1,066	1,985	1,582	140	1,563	-1,301	1,985
2007 .....	838	132	1,113	2,083	1,716	119	1,746	-1,498	2,083
2008 .....	1,001	135	901	2,036	1,921	109	1,336	-1,330	2,036
Q1 08 .....	816	131	1,062	2,008	1,769	117	1,663	-1,540	2,009
Q2 08 .....	913	123	1,129	2,166	1,824	116	1,713	-1,487	2,165
Q3 08 .....	975	129	1,036	2,140	1,849	114	1,551	-1,373	2,141
Q4 08 .....	1,001	135	901	2,036	1,921	109	1,336	-1,330	2,036
Q1 09 .....	973	134	895	2,002	1,925	109	1,288	-1,320	2,002

Note: Companies are defined as non-financial companies.

## CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS (NET REVENUES)

Table 15

	Goods (fob)	Services	Goods and services	Wages and property income	Current transfers	Total current account
	Kr. billion					
2004 .....	54.5	19.8	74.4	-2.4	-27.7	44.2
2005 .....	43.9	38.3	82.2	9.9	-25.0	67.1
2006 .....	18.2	42.0	60.2	16.8	-28.4	48.6
2007 .....	2.0	43.0	45.0	9.2	-29.3	25.0
2008 .....	-3.7	51.0	47.3	19.8	-29.2	38.0
Sep 07 - Aug 08 .....	0.4	48.2	48.6	13.6	-26.2	35.9
Sep 08 - Aug 09 .....	13.5	34.4	47.9	35.4	-33.8	49.6
Mar 09 .....	3.2	0.7	3.9	1.2	-3.2	1.8
Apr 09 .....	1.3	1.7	3.0	4.6	-2.8	4.8
May 09 .....	3.2	1.5	4.8	4.5	-2.5	6.8
Jun 09 .....	4.6	0.4	5.0	4.0	-2.5	6.5
Jul 09 .....	5.3	0.4	5.7	3.3	-2.8	6.3
Aug 09 .....	0.5	3.7	4.1	3.3	-2.4	5.0

Note: As of 2005 the compilation is based on new sources and methodologies resulting in breaks in data.

**FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS  
(NET PAYMENTS FROM ABROAD)**

Table 16

	Current account and capital account, etc., total	Capital import				Other <sup>2</sup>	Denmarks Nationalbank's transactions with abroad <sup>3</sup>
		Direct investments		Portfolio investments <sup>1</sup>	Other capital import		
		Danish abroad	Foreign in Denmark				
Kr. billion							
2004 .....	44.4	62.1	-62.6	-87.1	-22.5	59.4	-6.2
2005 .....	70.0	-97.1	77.2	-68.8	23.2	-16.2	-11.8
2006 .....	48.6	-50.2	16.1	-103.3	83.4	-33.0	-38.3
2007 .....	25.2	-112.3	64.3	-32.2	56.5	-2.7	-1.2
2008 .....	38.3	-70.9	13.9	60.9	-64.3	-49.2	-71.4
Sep 07 - Aug 08 .....	36.3	-80.5	44.7	-83.0	106.9	-50.1	-25.7
Sep 08 - Aug 09 .....	50.0	-62.0	22.4	199.7	-2.9	-21.2	186.1
Mar 09 .....	1.9	-8.7	5.8	17.9	46.5	-10.9	52.5
Apr 09 .....	4.8	-7.9	-0.6	2.8	26.4	0.5	26.1
May 09 .....	6.8	-3.7	-0.3	25.9	40.5	-19.2	50.1
Jun 09 .....	6.5	-14.8	7.3	13.8	5.4	-15.6	2.7
Jul 09 .....	6.3	-1.1	2.9	51.8	-69.5	20.0	10.5
Aug 09 .....	5.0	-6.6	2.7	4.2	35.7	4.5	45.5

<sup>1</sup> This item may differ from the total of the below Table 17, as portfolio investments are published 1-2 weeks earlier than the rest of the balance of payments.

<sup>2</sup> Including errors and omissions and until end-December 2004 unrecorded trade credits.

<sup>3</sup> As from 2005 transactions on all Danmarks Nationalbank's accounts with abroad. Until end-2004 only transactions on accounts included by compilation of the foreign-exchange reserve, published by press release on the 2nd banking day of each month and included in Table 2 of this section.

**PORTFOLIO INVESTMENTS OF THE BALANCE OF PAYMENTS  
(NET PAYMENTS FROM ABROAD)**

Table 17

	Danish securities			Foreign securities		Total <sup>1</sup>
	Krone-denominated bonds, etc.	Foreign currency denominated bonds, etc.	Shares	Bonds, etc.	Shares	
				Kr. billion		
2004 .....	-6.2	56.9	9.7	-104.4	-43.0	-87.1
2005 .....	20.8	122.5	-18.9	-108.2	-85.0	-68.8
2006 .....	16.3	70.0	-34.4	-21.5	-133.8	-103.3
2007 .....	26.2	73.4	15.0	-96.7	-50.0	-32.2
2008 .....	-59.1	141.2	11.4	-86.7	54.1	60.9
Mar 09 .....	10.6	18.8	2.3	-18.6	4.8	17.9
Apr 09 .....	-5.4	6.0	2.9	-0.5	-0.2	2.8
May 09 .....	-8.3	42.7	10.6	-12.0	-7.1	25.9
Jun 09 .....	11.1	3.1	4.7	-9.5	4.5	13.8
Jul 09 .....	10.4	43.5	5.4	6.3	-13.8	51.8
Aug 09 .....	2.5	14.1	5.1	-8.9	-8.7	4.2

Note: A negative sign (-) indicates residents' net purchase of foreign securities, or non-residents' net sale of Danish securities.

<sup>1</sup> This item may differ from "Portfolio investments" in the above Table 16, as the rest of the balance of payments is published 1-2 weeks later.

DENMARK'S EXTERNAL ASSETS AND LIABILITIES

Table 18

End of period	Direct investments		Portfolio investments		Financial derivatives, net	Other investments			Danmarks Nationalbank	Total
	Equity	Inter-company debt, etc.	Shares, etc.	Bonds, etc.		Trade credits	Loans and deposits	Other		
	Kr. billion									
<b>Assets</b>										
2004 .....	471	220	369	547	48	34	584	20	223	2,515
2005 .....	564	253	556	684	85	37	720	19	217	3,136
2006 .....	575	258	741	674	47	41	823	30	178	3,366
2007 .....	635	285	793	733	1	47	1,034	32	176	3,735
2008 .....	621	375	445	777	83	45	1,097	37	226	3,704
Q2 08 .....	670	325	663	740	9	49	1,162	33	169	3,819
Q3 08 .....	643	399	587	758	33	49	1,132	32	165	3,796
Q4 08 .....	621	375	445	777	83	45	1,097	37	226	3,704
Q1 09 .....	665	394	430	833	54	46	1,088	36	269	3,815
Q2 09 .....	734	361	477	865	41	43	991	36	336	3,884
<b>Liabilities</b>										
2004 .....	429	208	241	857	...	20	816	20	2	2,593
2005 .....	506	231	311	1,019	...	27	967	21	3	3,084
2006 .....	485	272	358	1,067	...	32	1,144	35	4	3,397
2007 .....	543	277	425	1,124	...	36	1,407	37	5	3,854
2008 .....	502	296	245	1,199	...	43	1,409	41	121	3,857
Q2 08 .....	510	298	415	1,143	...	39	1,536	38	2	3,982
Q3 08 .....	517	299	343	1,137	...	42	1,545	37	27	3,948
Q4 08 .....	502	296	245	1,199	...	43	1,409	41	121	3,857
Q1 09 .....	507	309	232	1,314	...	40	1,483	39	46	3,971
Q2 09 .....	513	299	298	1,345	...	42	1,437	38	38	4,010
<b>Net assets</b>										
2004 .....	42	12	128	-310	48	14	-233	0	221	-78
2005 .....	59	22	245	-335	85	10	-247	-2	214	51
2006 .....	90	-15	382	-393	47	9	-321	-5	174	-31
2007 .....	92	8	368	-392	1	10	-372	-5	171	-119
2008 .....	119	79	199	-422	83	1	-312	-4	105	-153
Q2 08 .....	159	28	248	-404	9	10	-374	-5	167	-163
Q3 08 .....	126	100	243	-379	33	7	-414	-5	138	-151
Q4 08 .....	119	79	199	-422	83	1	-312	-4	105	-153
Q1 09 .....	158	86	198	-482	54	6	-395	-3	223	-156
Q2 09 .....	221	61	179	-480	41	1	-446	-3	298	-126

Note: As a key principle, the market value has been used for the compilation.

## GDP BY TYPE OF EXPENDITURE

Table 19

	Final domestic demand						Exports of goods and services	Imports of goods and services
	GDP	Private consumption	General-government consumption	Gross fixed capital formation	Change in inventories	Total		
2004 .....	1,466.2	707.2	389.0	285.0	13.5	1,394.8	665.0	593.6
2005 .....	1,545.3	745.1	402.5	303.9	17.9	1,469.5	757.0	681.2
2006 .....	1,628.6	792.8	422.5	349.5	14.4	1,579.2	846.5	797.0
2007 .....	1,687.9	826.7	438.8	376.7	9.5	1,651.7	882.8	846.6
2008 .....	1,733.5	851.2	463.0	366.3	13.1	1,693.6	950.9	911.1
Q2 08 .....	441.7	217.5	114.5	94.5	3.8	430.3	245.3	233.9
Q3 08 .....	434.7	207.8	116.5	90.9	3.0	418.3	247.3	230.9
Q4 08 .....	440.3	215.8	121.7	93.0	1.1	431.7	232.2	223.6
Q1 09 .....	404.2	200.5	118.0	81.6	-2.9	397.2	194.4	187.4
Q2 09 .....	408.3	205.1	122.0	77.1	-5.8	398.4	190.7	180.7
Real growth compared with previous year, per cent								
2004 .....	2.3	4.7	1.8	3.9	...	4.4	2.8	7.7
2005 .....	2.4	3.8	1.3	4.7	...	3.5	8.0	11.1
2006 .....	3.3	4.4	2.1	13.3	...	5.3	9.1	13.9
2007 .....	1.6	2.4	1.3	3.1	...	2.0	2.2	2.8
2008 .....	-1.2	-0.2	1.5	-5.1	...	-0.7	2.2	3.4
Q2 08 .....	0.8	2.7	1.4	-2.6	...	1.0	6.7	7.2
Q3 08 .....	-1.5	-0.7	2.3	-3.6	...	-1.0	2.4	3.7
Q4 08 .....	-3.8	-4.9	2.0	-10.7	...	-3.6	-1.5	-0.5
Q1 09 .....	-3.4	-6.6	3.0	-4.4	...	-5.6	-6.9	-11.4
Q2 09 .....	-7.2	-7.2	2.4	-16.3	...	-8.5	-13.6	-16.4
Real growth compared with previous quarter (seasonally adjusted), per cent								
Q2 08 .....	1.0	-0.6	1.0	0.4	...	0.0	2.8	1.7
Q3 08 .....	-1.4	-2.4	0.8	-0.8	...	-1.2	-2.4	-2.3
Q4 08 .....	-2.0	-2.3	0.9	-7.0	...	-2.5	-3.1	-3.2
Q1 09 .....	-1.3	-2.0	0.2	2.1	...	-0.5	-4.2	-7.9
Q2 09 .....	-2.6	-0.3	0.5	-10.3	...	-2.3	-4.5	-3.9

EU-HARMONIZED INDEX OF CONSUMER PRICES (HICP) AND  
 UNDERLYING INFLATION (IMI)

Table 20

	HICP							Index of net retail prices <sup>1</sup>		
	Total	Subcomponents:						Index of net retail prices excl. energy, food and administered prices <sup>3</sup>	Split into <sup>4</sup> :	
		Energy	Food	Core inflation <sup>2</sup>	Administered prices		HICP excl. energy, food and administered prices <sup>3</sup>		Import content <sup>5</sup>	IMI <sup>6</sup>
					Rent	Public services				
		Weights, per cent								
100	10.4	17.4	72.2	7.4	3.9	60.9	53.2	16.8	36.4	
Year-on-year growth, per cent										
2004 .....	0.9	2.6	-2.1	1.5	2.8	4.8	1.1	0.8	1.1	0.6
2005 .....	1.7	7.6	1.0	1.0	2.4	3.2	0.6	0.7	3.4	-0.6
2006 .....	1.9	5.3	2.2	1.2	2.1	0.9	1.1	1.3	3.1	0.4
2007 .....	1.7	0.3	3.7	1.3	2.1	0.6	1.2	1.4	1.4	1.4
2008 .....	3.6	7.7	6.7	2.1	2.8	3.5	1.9	2.1	4.0	1.1
Q1 06 .....	2.0	8.9	0.9	1.2	2.2	2.6	1.0	1.1	3.7	-0.1
Q2 06 .....	2.0	8.3	1.9	1.0	2.0	0.4	1.0	1.1	3.8	-0.2
Q3 06 .....	1.8	3.9	2.6	1.3	2.0	0.2	1.2	1.6	3.2	0.8
Q4 06 .....	1.6	0.4	3.5	1.3	2.0	0.4	1.3	1.3	1.9	1.0
Q1 07 .....	1.9	1.1	4.1	1.3	2.0	0.3	1.3	1.3	1.7	1.1
Q2 07 .....	1.5	-1.7	3.6	1.5	2.1	0.2	1.5	1.4	0.9	1.7
Q3 07 .....	1.0	-1.4	2.0	1.2	2.2	0.8	1.0	1.2	0.9	1.4
Q4 07 .....	2.2	3.3	5.2	1.2	2.0	1.0	1.2	1.6	2.0	1.4
Q1 08 .....	3.2	7.5	6.0	1.7	2.2	2.4	1.6	2.0	3.6	1.2
Q2 08 .....	3.7	9.7	7.4	1.7	2.6	4.0	1.4	1.8	4.2	0.6
Q3 08 .....	4.6	10.4	8.6	2.5	3.9	3.7	2.2	2.2	5.0	0.9
Q4 08 .....	3.0	3.1	5.0	2.4	2.4	3.8	2.3	2.3	3.2	1.8
Q1 09 .....	1.7	-4.6	3.2	2.2	2.7	4.2	2.0	2.3	-1.9	4.4
Q2 09 .....	1.1	-5.5	0.7	2.2	3.1	5.0	1.9	2.1	-4.2	5.2

Note: The weights reflect the weighting basis as of January 2009.

<sup>1</sup> Prices in the index of net retail prices are compiled excluding indirect taxes and subsidies.

<sup>2</sup> Core inflation is defined as the increase in HICP excluding energy and food.

<sup>3</sup> Goods and services excluding energy, food and administered prices constitute 57.4 per cent of HICP's weight basis and 50.7 per cent of the index of net retail prices. The difference reflects that the same goods and services do not count equally in the two indices, and does not express the indirect taxation content of the consumer prices.

<sup>4</sup> The division of the index of net retail prices into import and IMI is based on Statistics Denmark's input-output table.

<sup>5</sup> The indirect energy content is included in the import content.

<sup>6</sup> IMI expresses the domestic market-determined inflation. For a detailed presentation of IMI, see Bo William Hansen and Dan Knudsen, Domestic Market-Determined Inflation, Danmarks Nationalbank, *Monetary Review*, 4th Quarter 2005.

## SELECTED MONTHLY ECONOMIC INDICATORS

Table 21

	Unemployment Per cent of labour force	Quantity index		Forced sales of real property	New passen- ger car registra- tions	Con- sumer confi- dence indicator	Composite cyclical indicator for		
		Manu- facturing industry 2005=100	Retail trade 2005=100				Manu- facturing industry	Building and construc- tion	Service
2004 .....	5.8	97.2	91.4	2,640	122,543	7	3	-5	13
2005 .....	5.1	100.0	100.0	1,874	148,578	9	0	7	20
2006 .....	3.9	105.7	103.2	1,231	156,719	10	9	21	24
2007 .....	2.8	107.0	104.5	1,392	162,481	7	5	9	20
2008 .....	1.8	106.7	101.3	2,840	150,664	-8	-7	-16	3
Seasonally adjusted									
Apr 09 .....	3.3	90.4	97.1	283	8,812	-5	-34	-44	-16
May 09 .....	3.4	89.3	97.0	366	8,910	-6	-20	-43	-14
Jun 09 .....	3.7	89.3	96.7	296	9,320	-6	-15	-42	-12
Jul 09 .....	3.7	89.6	97.3	323	8,936	-3	-12	-45	-11
Aug 09 .....	3.7	88.8	96.2	374	9,051	-2	-9	-46	-12
Sep 09 .....	...	...	...	351	...	-1	-8	-49	-13

<sup>1</sup> Excluding shipbuilding.

## SELECTED QUARTERLY ECONOMIC INDICATORS

Table 22

	Employment		Hourly earnings			Property prices (purchase sum, one-family dwellings)  As a percentage of property value 2006
	Total	Private	All sectors in Denmark, total	Manufacturing industry in Denmark	Manufacturing industry abroad	
	1,000 persons		1996=100			
2004 .....	2,739	1,898	137.4	138.0	127.5	70.1
2005 .....	2,767	1,924	141.4	141.7	130.7	82.5
2006 .....	2,822	1,978	145.7	146.1	134.0	100.0
2007 .....	2,898	2,056	151.3	152.0	137.1	104.8
2008 .....	2,922	2,084	158.0	158.4	141.7	100.1
Seasonally adjusted						
Q2 08 .....	2,925	2,088	157.4	158.1	141.2	103.7
Q3 08 .....	2,930	2,091	158.9	159.5	142.3	100.9
Q4 08 .....	2,911	2,071	160.3	160.5	142.6	92.9
Q1 09 .....	2,866	2,018	161.8	162.2	143.3	87.4
Q2 09 .....	2,852	1,997	162.1	161.7	143.3	...
Change compared with previous year, per cent						
2004 .....	-0.6	-0.8	3.1	3.1	2.7	8.9
2005 .....	1.0	1.4	2.9	2.7	2.5	17.6
2006 .....	2.0	2.8	3.1	3.1	2.5	21.6
2007 .....	2.7	4.0	3.8	4.0	2.3	4.6
2008 .....	0.9	1.4	4.4	4.2	3.3	-4.5
Q2 08 .....	1.2	1.9	4.6	4.4	3.3	-1.7
Q3 08 .....	0.9	1.3	4.5	4.2	3.5	-4.6
Q4 08 .....	-0.1	-0.1	4.2	3.7	2.7	-10.6
Q1 09 .....	-2.0	-3.4	4.1	3.8	1.8	-15.0
Q2 09 .....	-2.5	-4.4	3.0	2.3	1.5	...

## EXCHANGE RATES

Table 23

	EUR	USD	GBP	SEK	NOK	CHF	JPY
	Kroner per 100 units						
	Average						
2004 .....	743.98	598.93	1,096.69	81.54	88.90	481.96	5.5366
2005 .....	745.19	600.34	1,090.02	80.29	93.11	481.30	5.4473
2006 .....	745.91	594.70	1,094.32	80.62	92.71	474.22	5.1123
2007 .....	745.06	544.56	1,089.81	80.57	92.99	453.66	4.6247
2008 .....	745.60	509.86	939.73	77.73	91.02	469.90	4.9494
Apr 09 .....	744.91	565.01	830.37	68.47	84.78	492.00	5.7284
May 09 .....	744.69	546.99	841.44	70.23	84.73	492.97	5.6487
Jun 09 .....	744.56	531.93	870.89	68.43	83.26	491.59	5.5032
Jul 09 .....	744.58	528.56	864.88	68.80	83.21	489.79	5.5959
Aug 09 .....	744.40	521.75	863.04	72.83	85.96	488.58	5.5020
Sep 09 .....	744.28	511.19	835.29	72.99	86.59	491.35	5.5906

## EFFECTIVE KRONE RATE

Table 24

	Nominal effective krone rate	Consumer-price indices		Real effective krone rate based on consumer prices	Real effective krone rate based on hourly earnings	Consumer-price index in the euro area
		Denmark	Abroad			
Average		1980=100				2005=100
2004 .....	102.2	237.4	224.0	108.3	109.8	97.9
2005 .....	101.6	241.7	228.4	107.6	109.6	100.0
2006 .....	101.6	246.2	233.0	107.5	110.3	102.2
2007 .....	103.2	250.5	238.2	108.5	113.7	104.4
2008 .....	105.8	259.0	245.8	111.5	117.7	107.8
Apr 09 .....	107.4	262.2	245.9	115.4	...	108.2
May 09 .....	107.5	262.9	246.2	115.4	...	108.3
Jun 09 .....	108.0	263.6	246.7	115.8	121.3	108.5
Jul 09 .....	107.9	262.2	246.2	115.4	...	107.8
Aug 09 .....	107.4	262.9	246.7	114.8	...	108.1
Sep 09 .....	108.0	...	...	...	...	...
Change compared with previous year, per cent						
2004 .....	1.0	1.2	1.7	0.4	1.3	2.1
2005 .....	-0.6	1.8	1.9	-0.7	-0.2	2.2
2006 .....	0.0	1.9	2.0	0.0	0.7	2.2
2007 .....	1.6	1.7	2.2	0.9	3.1	2.2
2008 .....	2.5	3.4	3.2	2.8	3.5	3.3
Apr 09 .....	0.8	1.4	0.4	2.8	...	0.6
May 09 .....	1.1	1.3	0.0	3.2	...	0.0
Jun 09 .....	1.4	1.2	-0.2	3.5	2.7	-0.1
Jul 09 .....	1.2	1.0	-0.7	3.5	...	-0.7
Aug 09 .....	1.6	1.1	-0.4	3.4	...	-0.2
Sep 09 .....	2.5	...	...	...	...	...

Note: The nominal effective krone rate index is a geometric weighting of the development in the Danish krone rate against currencies of Denmark's 27 most important trading partners. However, only 25 countries are included in the calculation of consumer prices abroad and the real effective krone rate based on consumer prices and hourly earnings, respectively.

The weights are based on trade in manufactured goods in 2002.

An increase in the index reflects a nominal or a real appreciation of the krone.

# Danmarks Nationalbank's Statistical Publications

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Danmarks Nationalbank releases new financial statistics to the public in electronic publications composed of 2 elements:

- **"Nyt" (News)** describing the key development trends.
- **Tabeltillæg (Tables Supplement)** containing tables with as detailed specifications as possible.

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