Danmarks Nationalbank

Monetary Review 1st Quarter 2010

DANMARKS NATIONAL BANK 2010

MONETARY REVIEW 1st QUARTER 2010

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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Contents

Recent Economic and Monetary Trends

This review covers the period from mid-December 2009 to early March 2010

SUMMARY

The global economic recession has come to an end, and most countries are once again experiencing positive growth. In the industrialised economies, the recovery is fragile and is expected to be slow and modest. In the emerging and developing economies, the upswing is more firmly rooted, and in many cases growth is almost back at the pre-crisis level.

Particularly in the industrialised world the recovery is attributable to strongly expansionary economic policies that are inherently temporary. The extraordinary measures to ease monetary policy implemented with a view to mitigating the crisis are to some extent being rolled back. Curves for money-market interest rates and bond yields indicate that market participants expect the European Central Bank, ECB, and the Federal Reserve to keep interest rates stable for a while to come, whereas a number of smaller countries have raised their interest rates.

Government budget deficits are substantial in most countries, entailing rapid accumulation of debt. Many countries already have very large government debts relative to output. The International Monetary Fund, IMF, expects debt as a ratio of the gross domestic product, GDP, to reach 110 per cent by 2014 for the industrialised world taken as one. The need for fiscal consolidation is considerable. There is no longer any policy scope for choosing between consolidation and further fiscal stimulus to the economy. In most EU member states, the budget deficit will exceed 3 per cent this year, which means that these member states will be subject to the Stability and Growth Pact's excessive deficit procedure and will have to implement tightening measures – in many cases starting this year. In Greece, pronounced budget deficits and uncertainty about future fiscal policy have led to considerable widening of the government yield spreads to other euro area member states.

After a fall in GDP in volume terms of more than 7 per cent, the Danish economy saw moderately positive growth in the 2nd half of 2009. Private consumption is beginning to pick up, and sentiment in the housing market is improving, but remains fragile. Lending by banks to households increased in January. As in other countries, growth is expect-

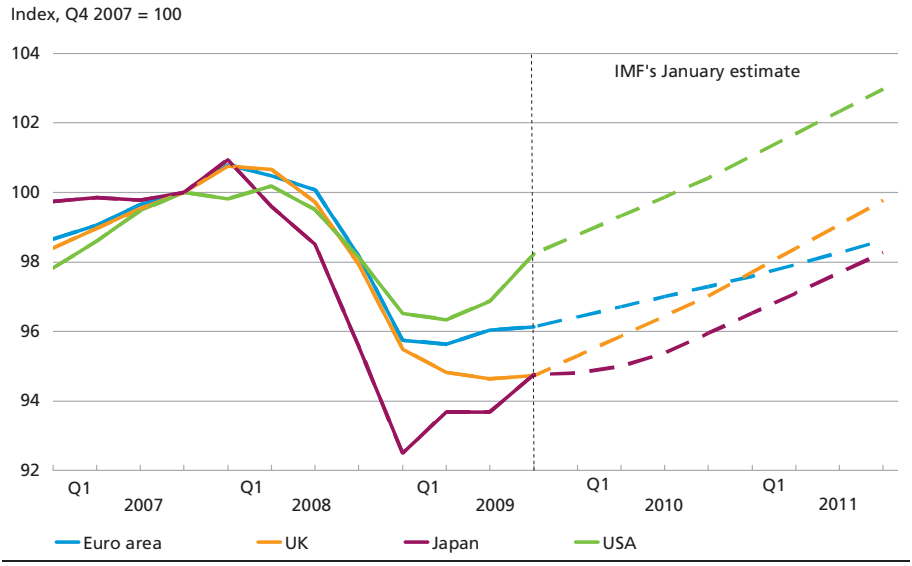
ed to be weak in the coming years. Considerable spare capacity in the business sector points to a further increase in unemployment, which is not expected to peak until around a year from now.

In Denmark, too, the crisis has had a significant negative impact on public finances. This year, a deficit of just over 5.5 per cent of GDP is expected. The deficit is not purely cyclical; there is also a structural deficit – in the range of 1.7 per cent of GDP according to the Ministry of Finance. The economic crisis has increased the structural deficit. The Danish government's Convergence Programme for 2009, published in February 2010, describes Denmark's fiscal challenges, but it remains to be seen precisely how they will be addressed in the coming years.

THE INTERNATIONAL ECONOMY

The recession in the world economy has made way for rising output. The recovery is slightly stronger than anticipated in the autumn. The turnaround is most pronounced in the emerging and developing economies, while the upswing in the industrialised countries is more moderate and still fragile. According to the latest IMF estimates, a continued, but tentative upswing is expected, with output not returning to the pre-crisis level until 2011, cf. Chart 1.

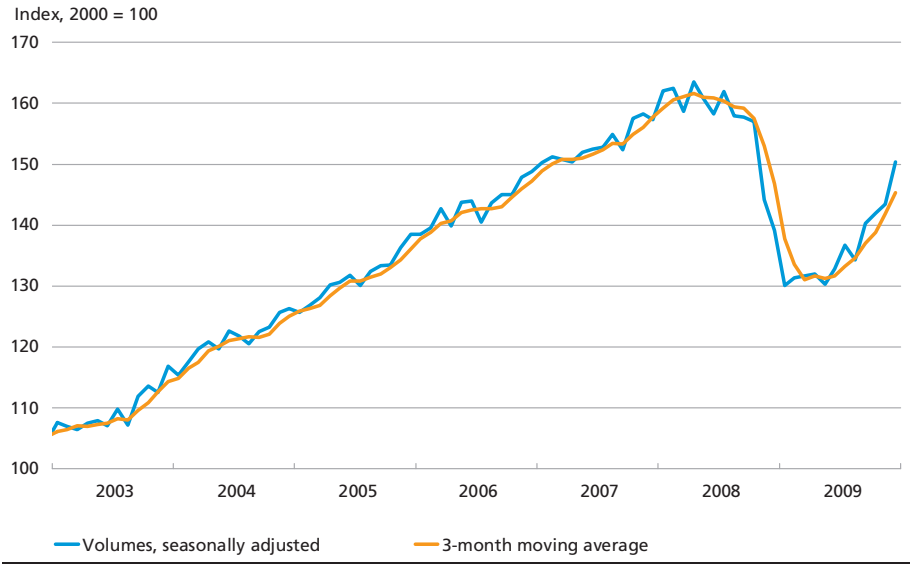
DEVELOPMENT IN GROSS DOMESTIC PRODUCT, GDP, IN VOLUME TERMS Chart 1



Note: GDP in volume terms, actual data up to and including the 4th quarter of 2009, projected on the basis of estimates from the IMF, *World Economic Outlook,* Update, January 2010. The 4th quarter of 2007 was the cyclical peak in the USA.

Source: Reuters EcoWin and IMF.

WORLD TRADE Chart 2



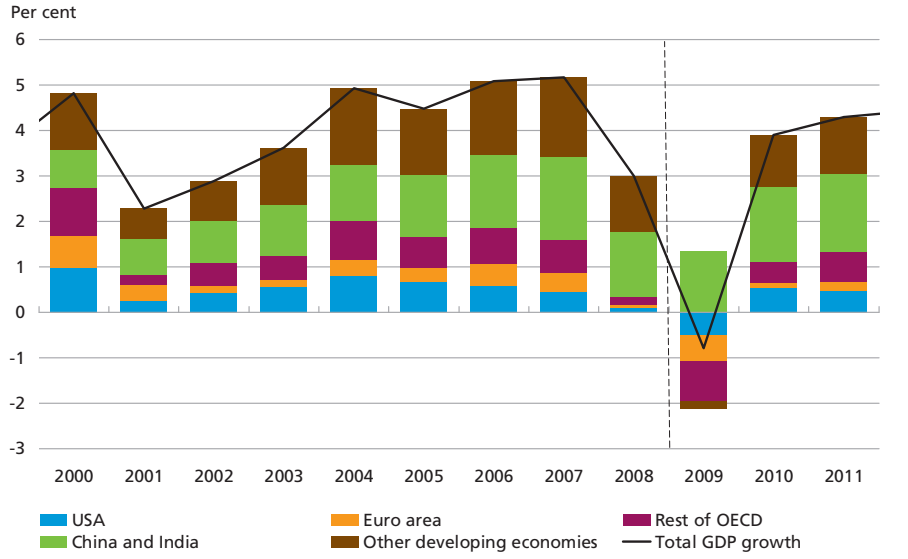
Note: Mean value of total imports and exports in volumes. The most recent observations are from December 2009.
Source: Netherlands Bureau for Economic Policy Analysis.

Towards the end of 2009, private consumption in several major industrialised countries had more or less returned to the level seen before the crisis. Fixed investments, including residential investments, had also picked up. Global trade increased after the sharp drop at the end of 2008, but remains well below the pre-crisis peak, cf. Chart 2.

Business confidence generally showed signs of improvement in both the industrialised world and the emerging economies in early 2010. In January, the US confidence index for the manufacturing sector rose to the highest level observed since 2004, and euro area confidence was back at the level seen in August 2007. Consumer confidence indices were also higher at the beginning of 2010 than they had been 12 months earlier.

The IMF estimates that global GDP fell by 0.8 per cent in 2009, compared with an increase of 3.0 per cent in 2008. China and India were the primary drivers of growth, while the industrialised world and the rest of the emerging and developing economies made negative contributions. The upswing in the world economy is expected chiefly to be fuelled by higher growth in the emerging and developing economies, which will contribute three quarters of the increase in global GDP in 2010-11. To this should be added more moderate growth in the industrialised world. The IMF expects global GDP to rise by 3.9 per cent in 2010 and by 4.3 per cent in 2011, cf. Chart 3.

CONTRIBUTIONS TO GROWTH IN GLOBAL GDP Chart 3



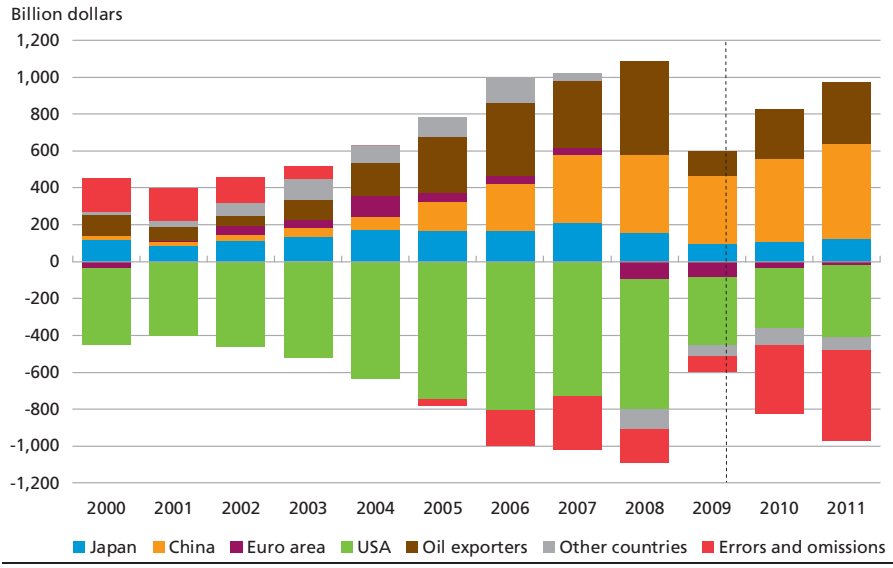
Since early 2008, employment has dropped in the industrialised world. In the USA, 8.4 million jobs have been lost, while the corresponding figures are 3.4 million for the euro area, 1.3 million for Japan and 0.6 million for the UK. The expected growth in output in the coming years is not sufficiently strong to seriously boost employment.

Larger savings and falling domestic demand in 2009 led to a substantial reduction of the US current-account deficit. The US deficit has chiefly been offset by surpluses in China, Japan and oil-exporting countries. The global economic imbalances accumulated prior to the crisis have thus been reduced considerably, but according to the IMF this is primarily a short-term cyclical effect. The imbalances are expected to become more pronounced in the coming years as the economic environment improves, cf. Chart 4.

Price developments

Consumer price inflation began to rise in the industrialised economies towards the end of 2009, mainly because the large energy price falls in 2008 dropped out of the year-on-year rate of increase. In January, consumer prices were 1.0 per cent higher in the euro area and 2.6 per cent higher in the USA than in the same month of 2009, while Japanese consumer prices continued to fall. Consumer prices excluding food and energy, i.e. core inflation, rose by 1.6 per cent in the USA and 0.9 per cent in the euro area in January. Following a decline, core inflation has stabilised at this level since the end of 2009, cf. Box 1, Chart 5.

GLOBAL IMBALANCES Chart 4



Note: Current balances of payment, broken down by countries and regions. Estimates for 2010-11.
Source: IMF, *World Economic Outlook*, database.

Financial markets

The international money markets have come far in terms of normalisation. Market participants in the capital markets have turned their attention to the large government budget deficits and the risks associated with higher government debt.

The spread between collateralised and uncollateralised interest rates, which reflects the credit risk in the money markets, has been back at the pre-crisis level since the autumn of 2009, cf. Chart 6. In the USA, Europe and Japan, benchmark stock indices have been falling slightly since January, but in early March prices were up to 65 per cent above the trough in the spring of 2009. Long-term bond yields have been rising as growth prospects have improved since the beginning of 2009, particularly in the USA, and in March the yield on a 10-year US government bond was 3.6 per cent, corresponding to an increase of just over 30 basis points since early December.

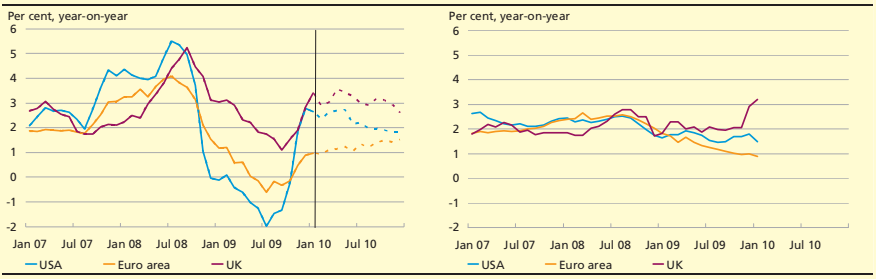
The euro depreciated by just over 10 per cent relative to the dollar from early December to early March. The underlying cause was that the yield spread between the USA and Germany developed to the advantage of the USA, cf. Chart 7, reflecting relatively better growth prospects in the USA. From mid-January to mid-February, the weakening of the euro vis-à-vis the dollar intensified, reflecting uncertainty about the Greek economy and concerns about a spill-over effect on other euro area

INFLATION IN THE EURO AREA, THE USA AND THE UK — Box 1

The economic and financial crisis has led to considerable easing of fiscal and monetary policies. This has generated concerns about rising inflation as the real economy improves. However, a number of factors point to inflation remaining dampened.

Consumer price inflation, measured by the year-on-year increase, has risen strongly since the autumn after having been negative or low during most of 2009. The fluctuations are mainly attributable to base effects of the massive fluctuations in energy prices throughout 2008. Inflation is stated relative to the corresponding month of the preceding year, and hence part of the inflation "calculation" is known beforehand. In November 2009, price levels from December 2008 to November 2009 are known, so in order to calculate inflation in December, only information about price developments from November to December 2009 is lacking. Assuming either unchanged prices or a given average monthly inflation rate, it is thus possible to calculate annual inflation by means of the "base effects". Chart 5 (left) shows that these effects subside from early 2010.

INFLATION AND BASE EFFECTS (LEFT) AND CORE INFLATION (RIGHT) — Chart 5



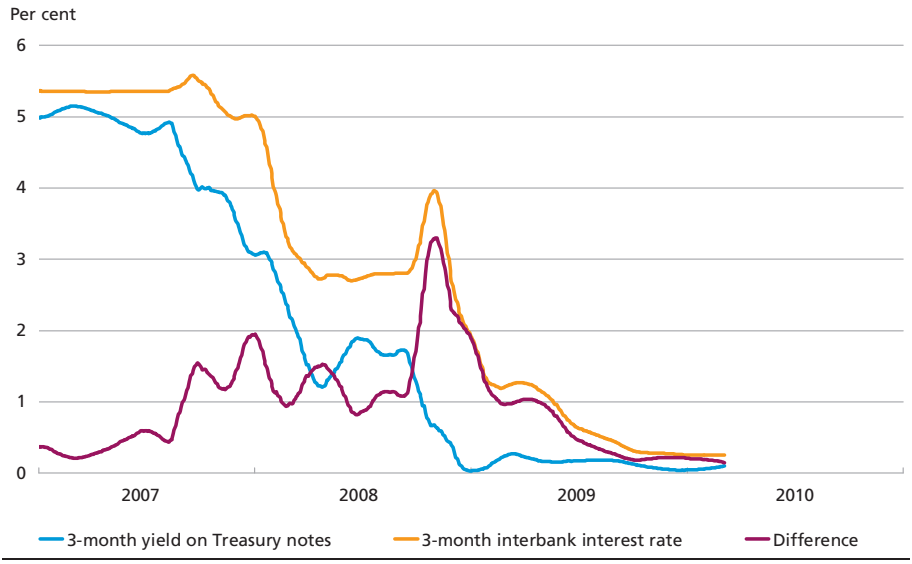
Note: The left-hand chart is a projection of inflation based on the average monthly core inflation rate over the last two years. Own seasonal adjustment for the UK.
Source: Reuters EcoWin and own calculations.

Core inflation (changes in consumer prices less energy and food prices) has fallen in the wake of the crisis in the last two years, except in the UK, cf. Chart 5 (right). There are several indications that it will remain low.

The strong decline in output since 2008 has widened the output gap and reduced capacity utilisation, which will dampen inflationary pressures in the coming years. There is also plenty of spare labour. Traditionally there has been a negative correlation between inflation and spare capacity in the labour market, but this trend has become weak since the mid-1990s. All sectors except the public sector have considerable spare capacity, but notably so industry and construction. This points to relatively low inflationary pressures from the labour markets by way of modest wage pressure.

member states, cf. below. The Danish krone traded at 5.49 dollars in early March, compared with 4.93 dollars in early December. The current exchange rate of the euro against the dollar is more or less the same as at the onset of the financial crisis in the summer of 2007. During the same period, the yen has appreciated by around 30 per cent vis-à-vis the dollar.

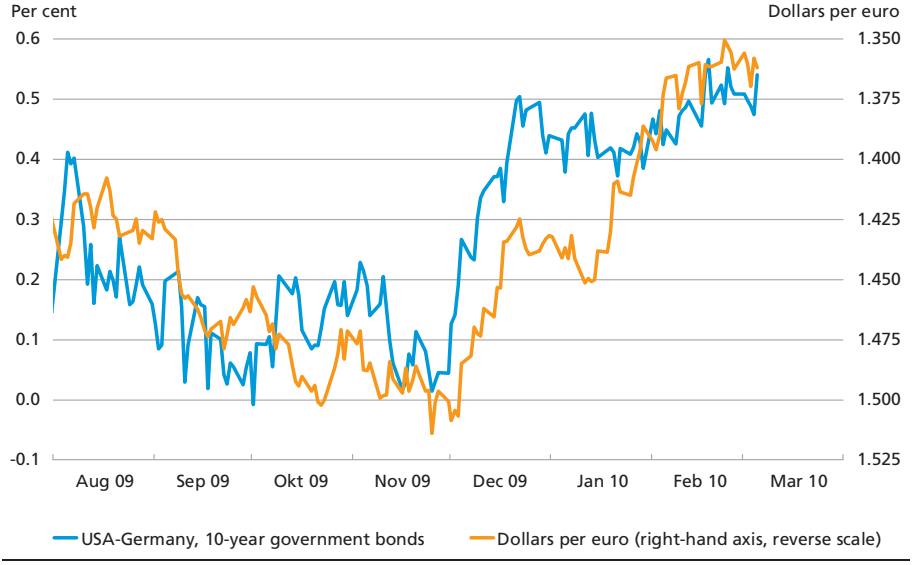
US MONEY-MARKET SPREAD Chart 6



Note: 30-day moving averages.
Source: Reuters EcoWin.

The Swedish krona and the Swiss franc have both strengthened against the euro since early December, while the pound sterling has remained unchanged. By early March, the Swedish krona had appreciated by 7.5 per cent.

YIELD SPREAD, USA-GERMANY, AND DOLLARS PER EURO Chart 7



Note: An increase in the exchange-rate curve indicates an appreciation of the dollar.
Source: Reuters EcoWin.

In January, Danmarks Nationalbank decided to provide a government-guaranteed loan to the IMF's Poverty Reduction and Growth Trust, PRGF. On 28 January 2010, Danmarks Nationalbank concluded an agreement for 200 million SDR with the IMF.

Economic policy

Massive easing of fiscal policy and substantial automatic budget deterioration as a result of the recession led to a pronounced increase in government budget deficits in the industrialised countries in 2009. The IMF expects these budget deficits to be reduced only slightly in 2010. Government debt will continue to rise in the coming years and will, in the assessment of the IMF, constitute almost 110 per cent of GDP by 2014.[1] For all practical purposes, the sizeable debt prevents any further fiscal easing and increases the risk of rising real interest rates and lower growth.

In the EU, the budget deficits of most member states are expected to exceed 3 per cent of GDP in 2010, which means that these member states will be subject to the Stability and Growth Pact's excessive deficit procedure. The EU's fiscal-policy recommendations will have to be implemented by most member states already this year, cf. Box 2. Greece's budget deficit increased to 12.7 per cent of GDP in 2009. The substantial fiscal problems have led to a pronounced widening of the yield spread between Greek and German government bonds since October 2009, cf. Chart 8. Increasing market focus on government debt also caused the yield spread for, among others, Portugal to widen. Unlike Greece, Ireland has implemented extensive fiscal consolidation measures, and hence the Irish yield spread to Germany has not been affected by the inadequate fiscal policy of Greece.

The notice of the Ecofin Council and the Eurogroup given on 16 February requires Greece to reduce its budget deficit by 4 per cent of GDP annually in the period 2010-12. Greece was given until 16 March to present a plan for implementing this fiscal objective and must have taken the necessary decisions by 15 May. The steps to be taken include reducing nominal wages and salaries, bonuses and pensions and introducing a hiring freeze in the public sector; freezing public transfer benefits and cutting down on the public-sector investment programme; introducing progressive taxation of investment income; abolishing exemptions in the tax system; taxing the incomes of the self-employed; raising property taxes; raising indirect taxes on alcohol, tobacco and energy; and raising VAT. By the end of 2010, Greece must, among other things, have reformed its healthcare and pension sectors in order to

[1] IMF, Strategies for Fiscal Consolidation in the Post Crisis World, February 2010.

EXCESSIVE DEFICIT PROCEDURE, EU STATUS Box 2

The Stability and Growth Pact is at the core of the EU's monitoring of public finances in member states. A key element in this context is Article 126 of the Lisbon Treaty on excessive government deficits.

Under Article 126, EU member states must avoid excessive government deficits. In normal economic conditions, this means that the government deficit must not exceed 3.0 per cent of GDP and the government debt must not exceed 60 per cent of GDP.

The excessive deficit procedure was used extensively in 2009. 18 EU member states were subjected to the procedure, in addition to the two that had already been so, cf. Table 1. Another five member states (Estonia and Bulgaria will presumably be excepted) are likely to be subjected to the procedure in 2010 according to the most recent forecast from the European Commission (November 2009).

EU MEMBER STATES SUBJECT TO THE EXCESSIVE DEFICIT PROCEDURE Table 1

	Instrument applied (article of the Treaty)	Total and structural budget balance 2009*	Annual consolidation**	Start/time limit for remedial action
Euro area				
Greece	Notice (126.9)	-12.7 (-11.3)	≥3.5	10/12
Ireland	Recommendation (126.7)	-12.5 (-10.1)	2.0	10/14
Spain	Recommendation (126.7)	-11.2 (-9.3)	>1.5	10/13
Portugal.....	Recommendation (126.7)	-8.0 (-6.6)	1.25	10/13
France	Recommendation (126.7)	-8.3 (-7.0)	>1.0	10/13
Slovakia	Recommendation (126.7)	-6.3 (-6.2)	1.0	10/13
Malta	Recommendation (126.7)	-4.5 (-4.3)	0.75	09/11
Belgium	Recommendation (126.7)	-5.9 (-4.2)	0.75	10/12
Slovenia	Recommendation (126.7)	-6.3 (-4.7)	0.75	10/12
Netherlands	Recommendation (126.7)	-4.7 (-3.6)	0.75	11/13
Austria	Recommendation (126.7)	-4.3 (-3.3)	0.75	11/13
Italy	Recommendation (126.7)	-5.3 (-3.7)	≥0.5	10/12
Germany	Recommendation (126.7)	-3.4 (-1.9)	≥0.5	11/13
Non-euro area				
Latvia	Recommendation (104.7+)	-9.0 (-7.0)	≥ 2.75	10/12
Lithuania	Recommendation (126.7)	-9.8 (-8.0)	≥ 2.25	09/12
Romania	Recommendation (126.7)	-7.8 (-7.1)	1.75	10/12
UK	Recommendation (126.7)	-12.1 (-10.3)	1.75	10/14-15
Poland	Recommendation (104.7+)	-6.4 (-6.4)	≥ 1.25	10/12
Czech Republic	Recommendation (126.7)	-6.6 (-6.3)	1.0	10/13
Hungary	Recommendation (104.7+)	-4.1 (-2.1)	Total 0.5	10/11

Note: * Percentage of GDP, structural balance in brackets. ** Required annual adjustment of structural balance. + Article 104.7 of the Treaty of Nice corresponds to Article 126.7 of the Treaty of Lisbon. The structural balance is the deficit remaining when the economic situation normalises.

Source: Decisions of the Ecofin Council, European Commission's autumn forecast, November 2009, and Danish Ministry of Finance.

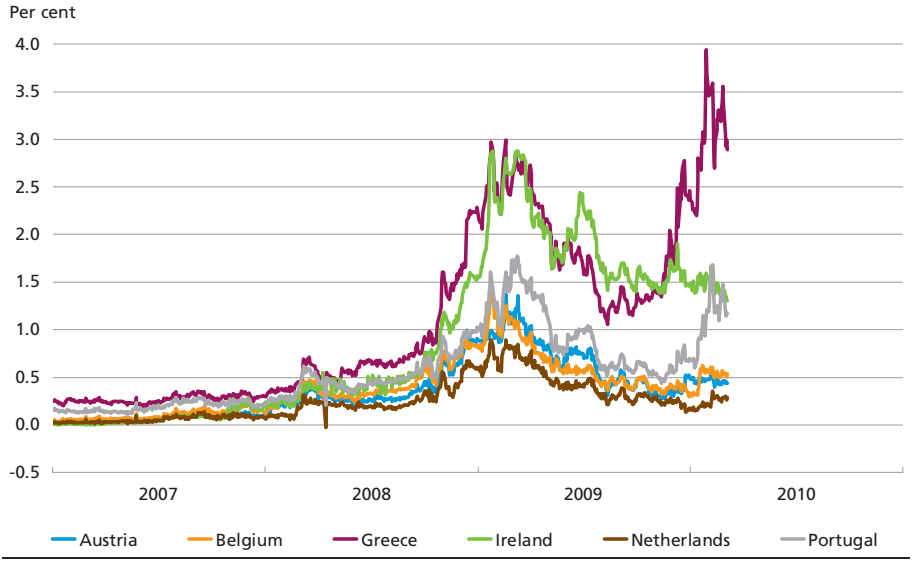
These member states have been subjected to the excessive deficit procedure in that the Ecofin Council, on a proposal from the Commission, has adopted a *recommendation* or *notice* to take measures to reduce the government deficit at a certain rate of annual structural consolidation within a specified time limit. The annual rates of structural consolidation vary from at least 3.5 per cent of GDP for Greece to a total of 0.5 per cent of GDP for Hungary. Most member states must already start their consolidation effort in 2010, and the deadlines for observing the reference value of 3 per cent vary from 2011 for Hungary and Malta to the fiscal year 2014/15 for the UK.

CONTINUED Box 2

Under Article 126 of the Lisbon Treaty, the Council may – on a proposal from the Commission – escalate the procedure if a member state fails to take the necessary steps to reduce its government deficit within a specified time limit. Under Article 126.6 the Council decides that an excessive deficit exists. At the same time a *recommendation* (Article 126.7) is typically issued to the member state in question to remedy its deficit within a specified time limit. If a member state fails to observe the recommendation, the Council (applying Article 126.9) may give *notice* to the relevant member state to remedy its deficit within a specified time limit. Unlike a *recommendation*, such *notice* is legally binding in all respects for the relevant member state(s). Only euro area member states can be given notice by the Council to remedy their budget deficits. If the notice given under Article 126.9 is not observed, sanctions (Article 126.11) may be imposed on the member state in question, e.g. to make a non-interest-bearing deposit with the EU or to pay a fine.

Most recently, on 16 February 2010, the Council gave *notice* to Greece to bring its government deficit below the reference value of 3.0 per cent of GDP by the end of 2012. The background was that the Council decided that Greece had not taken the necessary steps to reduce the government deficit in accordance with the recommendation previously issued (Article 126.7). The procedure relating to Greece has thus been seriously escalated and this is the first step towards possibly imposing sanctions under Article 126.11 if Greece fails to take the necessary steps to reduce its government deficit.

YIELD SPREADS BETWEEN SMALL EURO AREA MEMBER STATES AND GERMANY Chart 8



Note: 10-year government bonds.
Source: Reuters EcoWin.

reduce future deterioration of government finances as a result of population ageing; limited employment in and reformed the remuneration system of the public sector; and strengthened and modernised tax collection and administration. In addition, fiscal-policy planning must be reformed in the longer term.

Monetary policy has remained expansionary in the major industrialised countries. Central banks in the USA, the euro area, the UK and Japan have kept their interest rates at a level of 0-1 per cent since the end of 2008. On the other hand, a number of the extraordinary monetary-policy measures introduced to supply liquidity and temporarily expand the range of securities eligible as collateral are being phased out in the USA and the euro area. In late January, the Federal Reserve decided to let the dollar swap lines made available to central banks worldwide during the financial crisis expire as these facilities were no longer required.

MONETARY AND EXCHANGE-RATE CONDITIONS

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

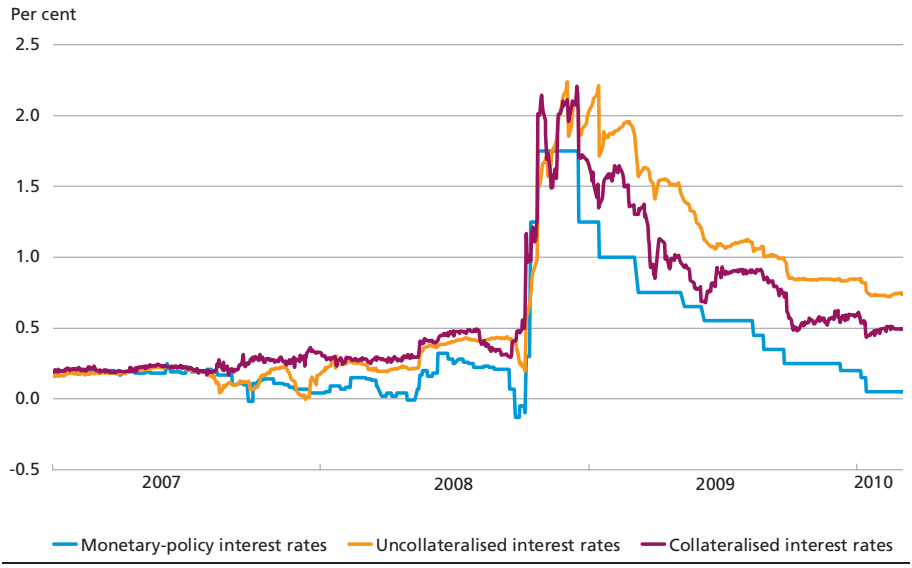
Danmarks Nationalbank lowered the lending rate, the rate of interest on certificates of deposit and the current-account rate by 0.05 percentage point on 11 December 2009 and 8 January 2010. Effective 15 January 2010, the lending rate, the rate of interest on certificates of deposit and the current-account rate were reduced by a further 0.10 percentage point to 1.05 per cent, 0.80 per cent and 0.70 per cent, respectively. The discount rate was reduced by 0.25 percentage point to 0.75 per cent on the same occasion.

The interest-rate reductions took place against the background of purchases of foreign exchange in the market. In total, Danmarks Nationalbank made intervention purchases for kr. 27 billion in the period from December 2009 to February 2010. At end-February, the foreign-exchange reserve was kr. 416 billion.

The spread between money-market interest rates in Denmark and in the euro area is somewhat wider than the spread between Danmarks Nationalbank's lending rate and the ECB's rate of interest on its main refinancing operations, which is 0.05 percentage point, cf. Chart 9. This reflects the ECB's extensive supply of liquidity to euro area banks, which has brought short-term money-market interest rates in the euro area substantially below the ECB's main refinancing rate, while money-market interest rates in Denmark are closer to Danmarks Nationalbank's lending rate. Normalisation of the liquidity situation could cause money-

SELECTED INTEREST-RATE SPREADS BETWEEN DENMARK AND THE EURO AREA

Chart 9



Note: The monetary-policy interest-rate spread is the difference between Danmarks Nationalbank's lending rate and the ECB's marginal rate in its main refinancing operations. The spread for uncollateralised interest rates is the difference between 3-month Cibor and Euribor. The spread for collateralised interest rates is based on a 3-month interest-rate swap at the overnight interest rate. The most recent observations are from 5 March 2010.

Source: Reuters EcoWin and Danmarks Nationalbank.

market interest rates in the euro area to rise, thereby reducing the spread between Denmark and the euro area.

Since the introduction of an interest-rate margin between Danmarks Nationalbank's lending rate and the rate of interest on certificates of deposit, banks and mortgage-credit institutes have gradually reduced their gross utilisation of Danmarks Nationalbank's monetary-policy facilities. Around the turn of the year, a temporary increase was, however, seen in connection with the settlement of auctions for mortgage-credit bonds to finance adjustable-rate loans in December.

Danmarks Nationalbank has not held any foreign-exchange auctions under the swap lines with the Federal Reserve and the ECB since 15 September 2009, and the banks and mortgage-credit institutes have not had any foreign-exchange loans at Danmarks Nationalbank since 25 November 2009. As the foreign-exchange markets have normalised, the banks have thus been able to meet their needs to borrow foreign exchange without the assistance of Danmarks Nationalbank. Like the swap lines between the Federal Reserve and a number of other central banks, Danmarks Nationalbank's swap line was not extended when it expired on 1 February 2010.

On 15 February, Danmarks Nationalbank expanded its temporary collateral base for loans by including bonds issued on the basis of loans with individual government guarantees from the Financial Stability Company (SPV bonds). The bonds must meet a number of criteria and be approved as collateral by Danmarks Nationalbank.

The capital markets and the banks' funding

Over the last year, various government measures have had a considerable impact on the banks' financing. The Financial Stability Act (Bank Rescue Package I) provides all depositors and other unsecured creditors with an unconditional government guarantee against losses up to and including 30 September 2010.[1] Subsequently, ordinary depositors will be covered by the deposit guarantee up to an amount corresponding to 100,000 euro, i.e. around kr. 750,000, for ordinary deposits and fully covered for special deposits, including pension savings.[2] The deposit guarantee will eliminate uncertainty for most depositors. The expiry of the government guarantee may lead to shifts of large deposits between banks.

To facilitate the transition to normal market conditions for other unsecured creditors, a transitional arrangement was adopted as part of the Credit Package (Bank Rescue Package II). Under this arrangement, banks may apply for individual government guarantees for specific issuances of non-subordinated unsecured debt and, in the case of financial institutions issuing SDOs, for junior covered bonds with a maturity of up to three years issued before 31 December 2010.[3] The European Commission has approved the Credit Package under the EU rules on state aid. The approval is valid until 30 June 2010. So far, 14 banks have issued securities with individual government guarantees totalling kr. 59 billion.

It is essential that all Danish banks take the expiry of the general government guarantee into account in their financial planning. Total bank deposits from non-MFIs have remained more or less unchanged compared with the situation in the autumn of 2008. At the same time, the banks' lending to non-MFIs had declined. The gap between deposits and lending, i.e. the deposit gap, has thus been reduced, cf. Chart 10. Nevertheless, the deposit deficit remains substantial, and the banks are still heavily dependent on market-based financing. Since the autumn of 2008, the banks' financing has shifted in favour of longer maturities, cf. Chart 11, which reduces the need for refinancing and the exposure to market developments.

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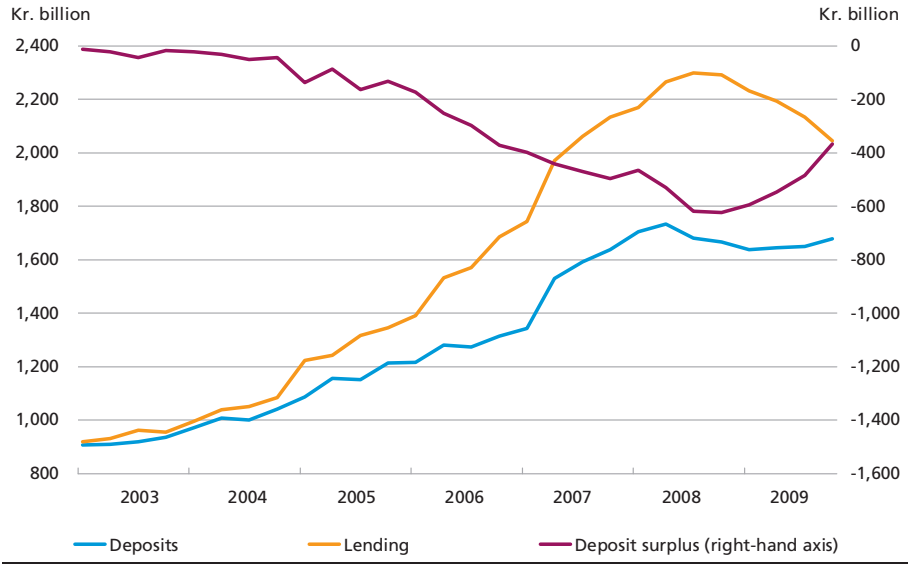
1 The financial institutions in question must be members of the Private Contingency Association. For more details, see Box 1 in Danmarks Nationalbank, *Financial stability*, 2nd Half 2008.

2 Until 30 September 2010, the deposit guarantee covers an amount corresponding to 50,000 euro, i.e. approximately kr. 375,000 for banks that are not members of the Private Contingency Association.

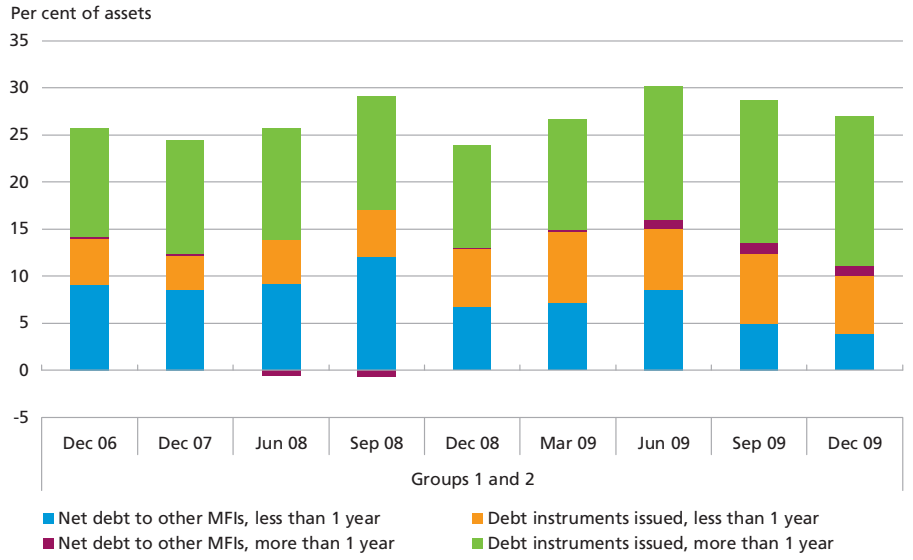
3 See Box 2 in Danmarks Nationalbank, *Financial stability*, 1st Half 2009.

DEPOSITS, LENDING AND DEPOSIT SURPLUS — Chart 10



Note: The deposit surplus is calculated as the banks' deposits less lending to non-MFIs.
Source: Danmarks Nationalbank.

DANISH BANKS' NET DEBT TO OTHER CREDIT INSTITUTIONS AND DEBT INSTRUMENTS ISSUED — Chart 11



Note: Groups 1 and 2 refer to the Danish Financial Supervisory Authority's grouping of banks.
Source: Danmarks Nationalbank.

The deadline for government capital injections into banks and mortgage-credit institutes under the Credit Package expired on 31 December 2009. 43 applicants received a total of approximately kr. 46 billion under the Package.

The Minister of Taxation has tabled a bill to amend the Danish rule on "blue-stamped" bonds with effect from 27 January 2010, thereby introducing a general tax liability on private individuals' capital gains and losses on claims, e.g. bonds, mortgage deeds and debt certificates. So far, private individuals who have acquired claims in Danish kroner at a nominal rate of interest exceeding the minimum coupon rate have only been taxed on the interest income. The amendments will eliminate the differences in the taxation of bonds denominated in Danish kroner and in foreign exchange. Private individuals' existing portfolios of blue-stamped bonds will still be comprised by the existing tax rules.

The banks' and mortgage-credit institutes' interest rates and credit developments

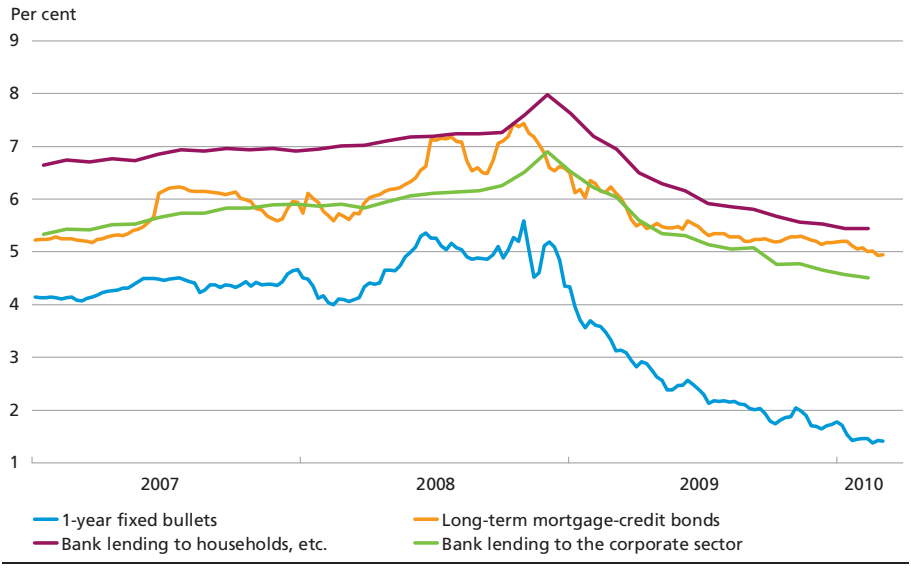
The yield on 1-year non-callable fixed-rate bullet bonds ("fixed bullets") used for financing adjustable-rate loans averaged 1.8 per cent in the auctions in November-December 2009. This is around 3.4 percentage points lower than in December 2008. The total amount in the auctions was around kr. 550 billion, and the process was smooth. Borrowers can thus benefit from substantially lower interest costs in 2010. In the first few months of 2010, the yield on short-term Danish mortgage-credit bonds has declined further to a level on the low side of 1.5 per cent in early March, cf. Chart 12. In contrast, the yield on long-term Danish mortgage-credit bonds remains broadly unchanged at around 5 per cent.

The banks' deposit and lending rates have fallen as Danmarks Nationalbank has reduced its monetary-policy interest rates. Since October 2009, retail lending rates have fallen more or less in parallel with Danmarks Nationalbank's lending rates.

The banks' interest-rate margin vis-à-vis households has narrowed further so that it is now back at the pre-crisis level, cf. Chart 13. On the other hand, the interest-rate margin vis-à-vis the corporate sector has remained unchanged at a level around 1 percentage point higher than before the onset of the financial crisis.

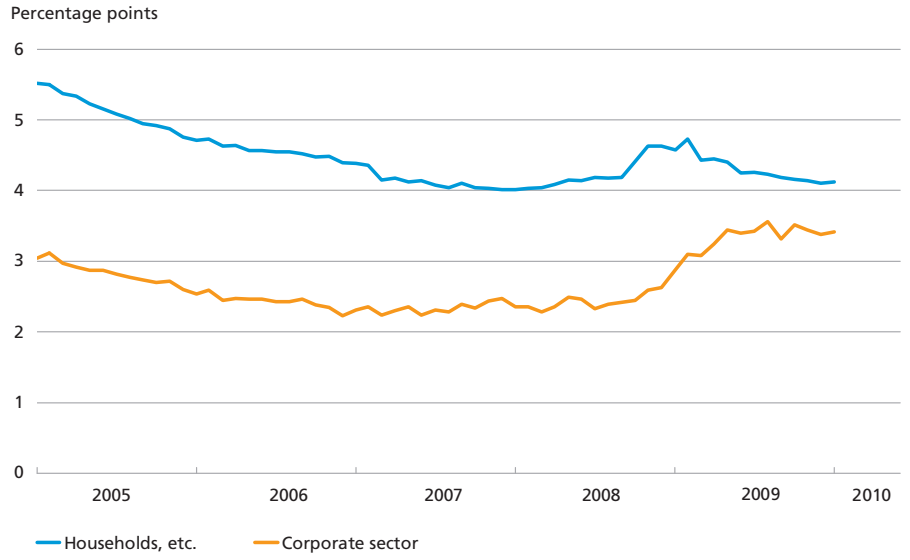
According to Danmarks Nationalbank's most recent lending survey, the banks and mortgage-credit institutes maintained their credit policies vis-à-vis both private individuals and the corporate sector in the 4th quarter of 2009. Credit policies thus remained unchanged in the last three quarters of 2009, having been tightened substantially in late 2008 and early 2009. The institutions do not expect to change their credit policies in the 1st quarter of 2010.

YIELDS ON MORTGAGE-CREDIT BONDS AND LENDING BY BANKS — Chart 12



Note: The 1-year yield on fixed bullets is a weekly average. The yield on long-term mortgage-credit bonds is the average yield to maturity based on 30-year callable mortgage-credit bonds, calculated on a weekly basis. The banks' lending rates are monthly averages of outstanding business. Households, etc. also comprises sole proprietorships, including farms. The corporate sector comprises non-financial corporations. The most recent observations are from 5 March 2010 and January 2010, respectively.
Source: Nordea Analytics, Association of Danish Mortgage Banks and Danmarks Nationalbank.

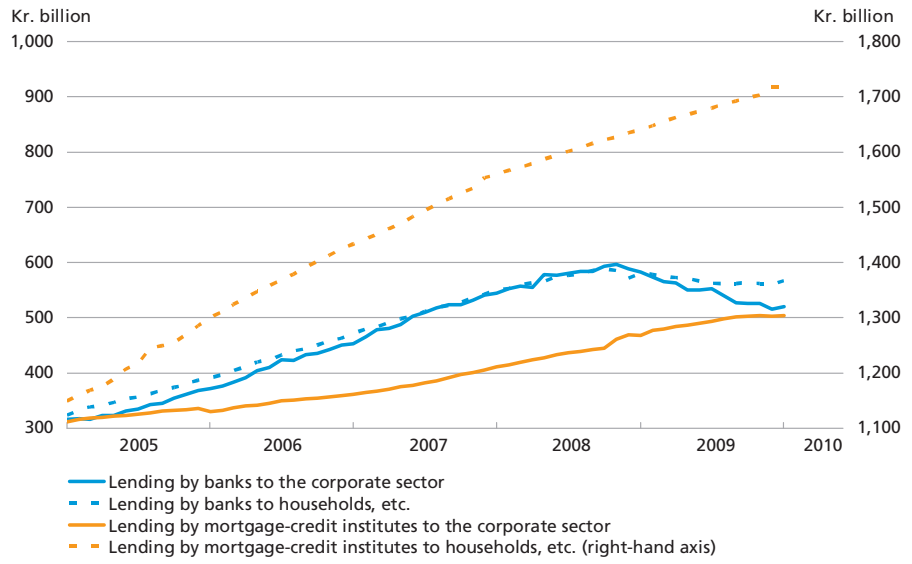
THE BANKS' INTEREST-RATE MARGINS — Chart 13



Note: The interest-rate margin is stated as the difference between the banks' average lending and deposit rates. The most recent observations are from January 2010. Households, etc. also comprises sole proprietorships, including farms. The corporate sector comprises non-financial corporations.
Source: Danmarks Nationalbank.

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

Chart 14



Note: Seasonally adjusted data. Outstanding lending by banks and mortgage-credit institutes domiciled in Denmark. The most recent observations are from January 2009. Households, etc. also comprises sole proprietorships, including farms. The corporate sector comprises non-financial corporations.
Source: Danmarks Nationalbank.

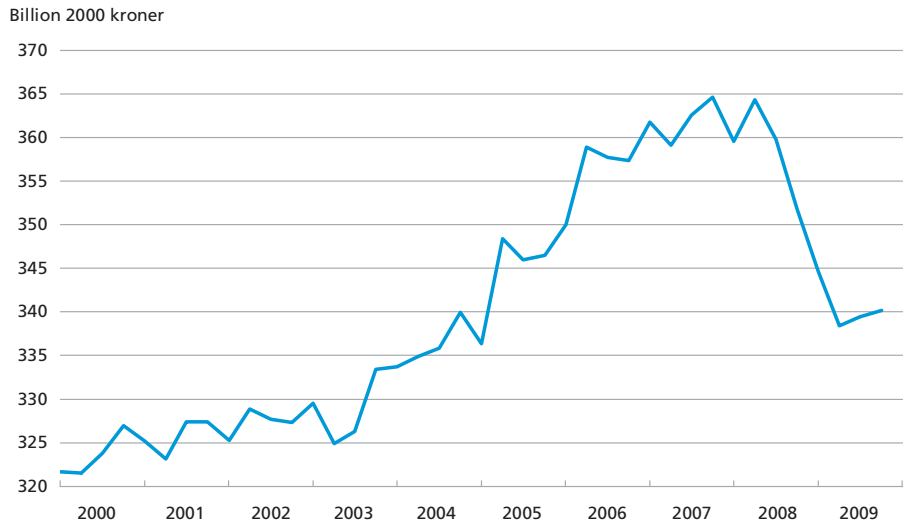
The banks' seasonally adjusted lending to the corporate sector dropped sharply in 2009, cf. Chart 14, but rose in January 2010. The mortgage-credit institutes' lending to the corporate sector was stable in the last months of 2009 and early 2010, having risen steadily since the beginning of 2006.

The banks' lending to households increased in early 2010 after having remained stable since mid-2009. At the same time, lending by mortgage-credit institutes to households has continued to rise. The trend for households to shift from bank loans to mortgage-credit loans thus continued. Both banks and mortgage-credit institutes reported rising demand from households in the 4th quarter of 2009 and expect further increases in the 1st quarter of 2010. This supports the view that the economy is beginning to recover.

THE DANISH ECONOMY

The 2nd half of 2009 saw renewed growth in the Danish economy, albeit at a modest pace. This means that the recession has come to an end. The upswing comes after a fall in GDP in volume terms of more than 7 per cent, cf. Chart 15. Hence, business enterprises still have considerable unused capacity. Private consumption is rising, but the economic recov-

GROSS DOMESTIC PRODUCT IN VOLUME TERMS Chart 15



Note: Chained values. The most recent observation is from the 4th quarter of 2009.
Source: Statistics Denmark.

ery is expected to be slow in the coming years, so unemployment will continue to rise for some time yet, cf. the forecast for the Danish economy on p. 35.

GDP in volume terms showed quarterly growth rates of 0.3 and 0.2 per cent, respectively, in the 3rd and 4th quarters of 2009. For the full year, GDP in volume terms fell by 5.1 per cent relative to the preceding year. Growth in the 2nd half of 2009 was driven by rising public and private consumption, while investments and exports fell.

Private consumption is buoyed up by growth in disposable incomes as a result of wage increases and tax cuts. In addition, homeowners with variable-rate mortgages will be paying less in interest. Household wealth after tax rose slightly from the 2nd to the 3rd quarter, mainly on account of rising stock indices. This increase is, however, not sufficient to reverse the previous strong fall. Total household wealth is still a good 16 per cent below the peak just over a year ago. Housing wealth, for which data is available one quarter further ahead, rose marginally in the 4th quarter. This is the first increase in two and a half years.

Retail turnover fell in January. The number of Dankort transactions does not point to private consumption having picked up further in the first months of 2010. Dankort transactions can be used as an indicator of retail turnover, which in turn is an indicator of private consumption, cf. the article Dankort Payments and Retail Sales on p. 109.

Confidence indicators

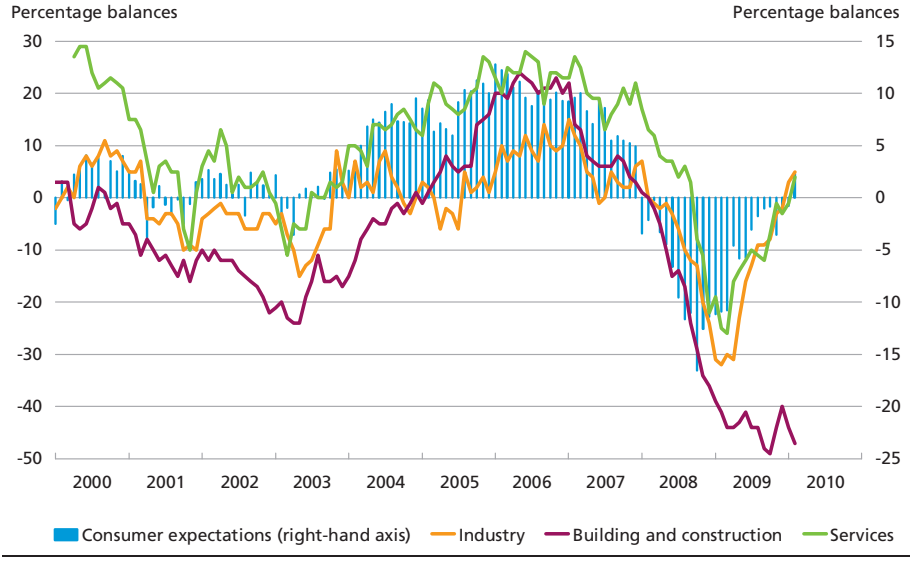
Confidence indicators generally support the view that the Danish economy is beginning to recover.

Industry expectations have risen over the last year and were marginally positive in the first months of the year, cf. Chart 16. The confidence indicator is close to its long-term average. This same applies to the confidence indicator for the services sector, whereas expectations remain strongly negative in the construction sector, one of the sectors most severely affected by the crisis. This reflects not only the very cyclical nature of this sector, but also the exceptionally high level of construction activity in the boom years.

Seasonally adjusted industrial production, excluding ships etc., continued to fall towards the end of the year, to a level more than 20 per cent below the peak in the summer of 2008. In January, industrial production grew by 3.5 per cent. The order intake from the domestic market is still on a downward trend, while orders from the export markets are increasing.

Consumer confidence has been rising over the past six months and was positive in the first two months of 2010, but so far the impact on retail sales has been modest. In January, retail sales, adjusted for seasonal fluctuations and the number of trading days, were 1.5 per cent lower than in January 2009. Sales of passenger cars have been going up over the last year. All in all, the indicators point to a slow recovery.

CONSUMER EXPECTATIONS AND BUSINESS CONFIDENCE INDICATORS Chart 16



Note: The most recent observations are from February 2010.
Source: Statistics Denmark.

The housing market

According to the seasonally adjusted data from the Association of Danish Mortgage Banks, prices for single-family and terraced houses rose slightly in Denmark overall from the 3rd to the 4th quarter, but remained almost 8 per below the level one year earlier. The prices of owner-occupied flats also rose. These increases follow a couple of years with falling nominal house prices. There are, however, considerable regional differences.

The supply of homes for sale is still high. According the statistics from the Association of Danish Mortgage Banks, the number of sales increased by more than 30 per cent from the 1st to the 2nd half of 2009, but from a low level.

All in all it thus looks as if the housing market is slowly improving and that prices have stabilised at the current low interest rates. The strong growth in real disposable incomes supports the housing market, and households take a more positive approach to future developments than previously. Nevertheless, uncertainty also prevails as to how robust the development is to the ongoing rise in unemployment and normalisation of the level of interest rates.

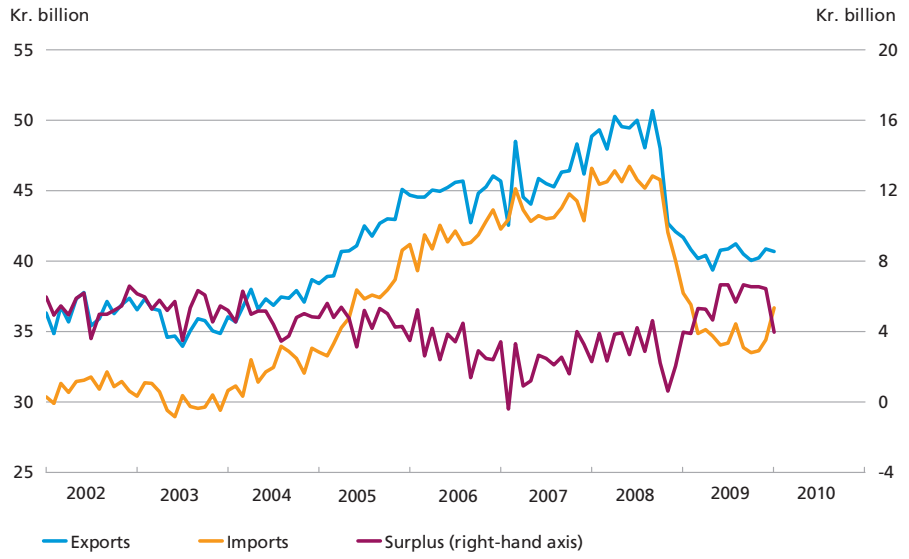
Foreign trade and balance of payments

Exports of Danish goods have been flat for the past six months, having fallen previously, cf. Chart 17. Exports of services continued to decrease, particularly due to a fall in sea freight. The weak development in domestic demand meant that imports of goods fell throughout 2009, but at a much slower pace than in late 2008. In January 2010, imports rose. The result has been an increase in the trade surplus to a seasonally adjusted level of just over kr. 6 billion per month, although it was slightly lower in January.

The current-account surplus has been increasing over the past two years, reaching kr. 66 billion in 2009, cf. Chart 18. The development in the current-account balance is strongly affected by cyclical differences between Denmark and abroad. The improvement is in line with the pattern of slower growth in domestic demand in Denmark than abroad since 2007. The capacity pressures in the preceding years meant that an increased share of domestic demand had to be met via imports. Today there is ample spare capacity to meet demand via domestic output, if competitive.

The large current-account surplus mainly reflects a substantial improvement in investment income, an item that is subject to considerable compilation uncertainty, cf. the article New Method for Estimation of Investment Income on the Balance of Payments on p. 101.

FOREIGN TRADE Chart 17



Note: Data for trade in goods. The most recent observations are from January 2010.
Source: Statistics Denmark.

Over the past six months, Denmark's export markets have improved and global trade is beginning to pick up again. This has not yet been reflected in Danish industrial exports, which are traditionally less cyclical than those of other countries. Moreover, weakened competitiveness

BALANCE OF PAYMENTS, CURRENT ACCOUNT Chart 18

Note: "Wages and investment income, net" is a sub-item on the current account of the balance of payments.
Source: Statistics Denmark.

could make it more difficult for Danish business enterprises to keep up with market growth in the export markets. The industrial sector still has a weak order intake and a weak assessment of orders from export markets, but sentiment is improving. In recent years, Danish export growth has trailed behind that of several comparable countries. For an analysis of the development in market shares, see the article Manufactured Exports and Wage Competitiveness on p. 43.

Denmark's external debt was subject to extraordinary revision in connection with the release of data for the 3rd quarter, *inter alia* with a view to ensuring better consistency with the current account of the balance of payments. The revision reduced the foreign debt by almost kr. 80 billion. Combined with sustained current-account surpluses and valuation gains, this means that Denmark has gone from having foreign debt to having wealth of kr. 42 billion. The portfolios of foreign shares held by Danish investors are substantially larger than the Danish portfolios held by non-residents. This entails a gain when stock indices rise.

The labour market

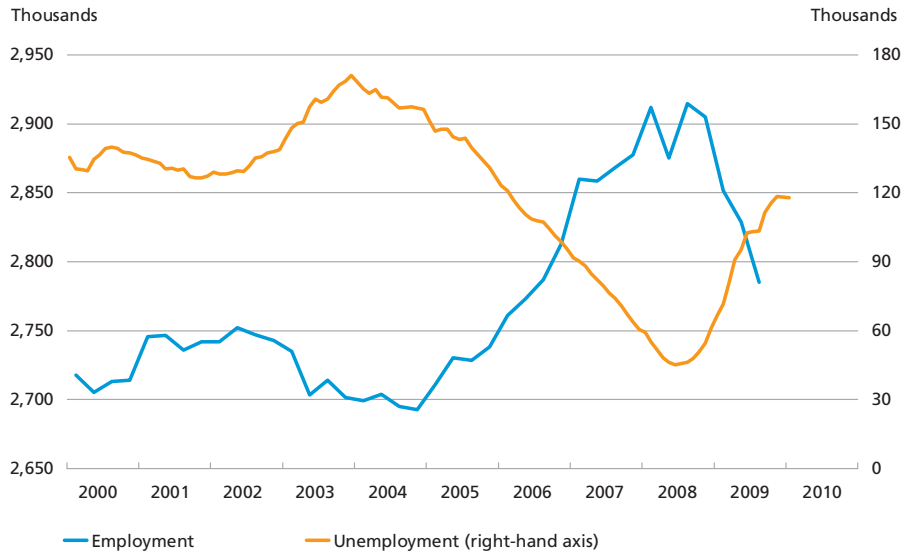
The unemployment rate has been flat for the last three months. In January, seasonally adjusted registered unemployment was 118,000 persons, corresponding to 4.2 per cent of the labour force. In addition, approximately 40,000 people were on activation schemes. The stabilisation in unemployment figures is not likely to last. According to the broader definition in the random-sample labour-force survey, the unemployment rate is 6.8 per cent. Whichever method is used, the recent development pattern remains the same.

The number of announced lay-offs has been 2,000 per month in recent months. Since announced lay-offs account for only a small share of the actual number of redundancies, caution should be exercised when using these as an indicator of unemployment trends. The number of new jobs advertised on the Internet has stabilised at around 15,000 per month, less than half the number advertised during the latter part of the upswing.

Rising unemployment could mean that more people are affected by unemployment, and that spells of unemployment lengthen. At the beginning of the recession, the former mainly applied, but since early 2009 the duration of unemployment spells has also increased.

The most recent upswing led to a surge in employment. From 2003 until the peak at the end of 2008, employment as reported in the national accounts rose by more than 200,000 to reach an all-time high of more than 2.9 million, cf. Chart 19. Approximately half of this increase has been lost over the last year, up to and including the 3rd quarter of

EMPLOYMENT AND UNEMPLOYMENT Chart 19



Note: Unemployment according to the national definition. The most recent observations are from the 3rd quarter of 2009 for employment and January 2010 for unemployment.
Source: Statistics Denmark.

2009. Employment has predominantly been falling in the private sector, mainly in industry and construction, while public-sector employment has grown.

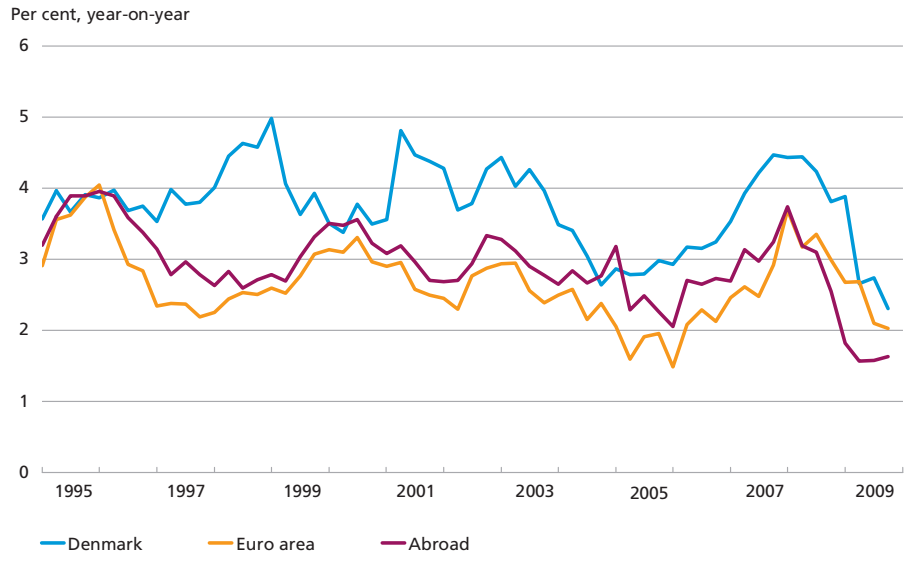
Wages and prices

Private-sector wage inflation has been declining in recent quarters. In the sectors covered by collective agreements with the Confederation of Danish Employers, DA, hourly wages rose by 2.3 per cent in the 4th quarter compared with the same period of 2008. The rate of increase was a little higher for white-collar workers than for blue-collar workers. The decline in wage inflation has been particularly pronounced in the construction sector, where the annual rate of wage increase was only 0.5 per cent in the 4th quarter.

In central and local government wage inflation was substantially higher than in the DA sectors. Over time, public-sector wages and salaries match those of the private sector, and the rate of increase is therefore expected to decline sharply in the coming quarters. Moderate growth in consumer prices entails that many groups of the population still experience growth in real wages.

Wage inflation in the competitive industrial sector has been higher than abroad for some time, cf. Chart 20. Viewed over a longer horizon, productivity development has been weak in Denmark, particularly when

WAGE INFLATION, INDUSTRY Chart 20



Note: Hourly wages for manufacturing workers. "Abroad" and "Euro area" are weighted using the weights in the krone-rate index. The most recent observations are from the 4th quarter of 2009.
Source: OECD, Confederation of Danish Employers and own calculations.

compared with other countries, cf. Box 3. Productivity development has been negative in recent years. This is a cyclical phenomenon. Stronger productivity growth is expected over the next few years, but there is much to catch up on after a prolonged period in which wages have been growing at a faster pace than productivity. In other words, unit labour costs have been rising.

The annual rate of increase in the Danish Harmonised Index of Consumer Prices, HICP, was 1.9 per cent in January and 1.8 per cent in February, compared with 1.2 per cent in December. The rising rate of inflation in the first two months of 2010 is mainly attributable to higher indirect taxes on a number of goods, including tobacco, sugar and energy.

Price inflation has been curbed by falling food prices over the last year. The moderate development in food prices is a result of strong price drops in the global commodity exchanges. Energy prices have risen by just under 8 per cent over the last year. Core inflation, i.e. inflation excluding energy and food, has been around 1.5 per cent in the past six months.

Domestic market-determined inflation, IMI, has shown a pronounced fall in recent months, standing at 2.2 per cent in February. IMI captures increases in consumer prices that are attributable to wages and profits in Danish business enterprises. Strong growth in unit labour costs as a result of weak productivity exerts upward pressure on domestic inflation.

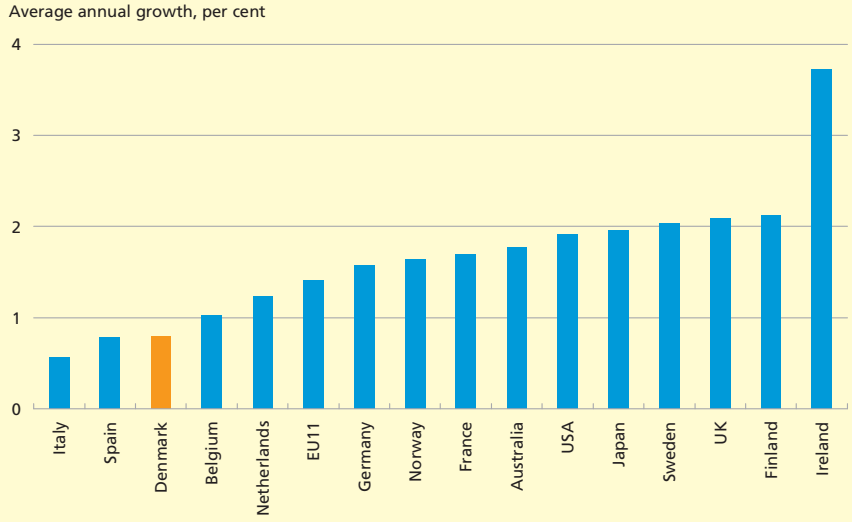
PRODUCTIVITY DEVELOPMENT IN DENMARK Box 3

The volume of output in a given country is determined partly by labour input, i.e. the number of hours worked, partly by productivity. The price at which the country's products can be sold abroad relative to the price of imports also plays a role. This is measured by the terms of trade. Improved terms of trade increase the purchasing power in society, thereby creating wealth in excess of that resulting from the output volume. For a number of years, Denmark enjoyed improving terms of trade, but the curve has stagnated in recent years.

Labour input in the economy is to some extent determined by demographic developments. The greater the share of the population that is active in the labour market and the more hours people work, the greater the output is, all other things being equal. Demographics thus have an impact on wealth. In the coming decades the age groups from which the labour force is recruited will shrink relative to the population as a whole. In a long-term perspective, however, wealth is primarily governed not by demographics and hours worked but by productivity[1].

Average hourly productivity in Denmark grew by less than 1 per cent annually in the period 1995-2009, cf. Chart 21. Recent years have seen negative growth in hourly productivity, placing Denmark among the weakest-performing OECD countries in this respect. In 1966-94 hourly productivity in Denmark rose by more than 3 per cent a year on average, i.e. three times the rate seen in the last 15 years. If the situation does not improve, Denmark's wealth will lag further behind that of comparable countries.

ANNUAL GROWTH IN HOURLY PRODUCTIVITY 1995-2008 Chart 21



Note: Hourly productivity is calculated as GDP for the entire economy at constant prices divided by the annual number of hours worked in the economy as a whole.
Source: OECD, Statistics Denmark.

Growth in hourly productivity can be broken down into contributions from a better general level of education/training (labour quality), a larger and better capital stock per hour worked (capital intensity) and technical and organisational advances (total factor productivity). For the market-related part of the economy, Statistics Denmark has provided such a breakdown of contributions to hourly productivity since 1966. It is seen that especially the contribution from total factor productivity has fallen.

CONTINUED Box 3

Total factor productivity is the share of productivity that cannot be attributed to more or better resources. It comprises all other conditions contributing to increasing labour productivity, including work planning and technological advances not immediately included in the data for the capital stock. Total factor productivity can only be measured indirectly.

Enhanced competition and less regulation of product markets promote economic growth. Denmark is among the OECD countries with least regulation of product markets. All other things being equal, this should boost growth in total factor productivity. The same applies to the flexible Danish labour market, in which costs and legal barriers to firing and hiring employees are below the OECD average[2]. However, the Danish labour-market model is very expensive, especially in downturns.

Denmark is among the industrialised countries to spend most on education per student[3]. This applies to both basic schooling and further education, and also to research[3]. Public expenditure for research and development has increased since the mid-1990s, to 1 per cent of GDP at present.

Denmark is faced with considerable challenges if wealth is to be boosted in an ever more competitive world. Nevertheless, it is difficult to point to a single factor behind Denmark's poor productivity performance. In several areas traditionally seen to be conducive to productivity, Denmark is in fact well positioned in an international context. Despite extensive spending in many areas the results have not yet materialised.

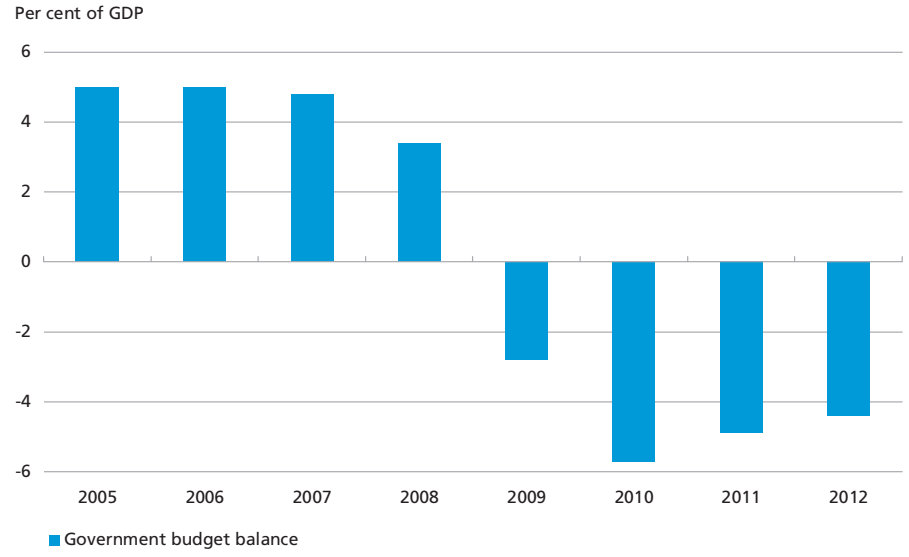
[1] See Danmarks Nationalbank, *Monetary Review,* 3rd Quarter 2008, pp. 119-129.
[2] OECD, Employment Outlook, 2009.
[3] OECD, Education at a glance, 2009.

Economic policy

The global crisis has added to the economic challenges faced by Denmark. Output has fallen by 7 per cent, and the large government surpluses in 2005-08 have made way for substantial deficits. In 2010, the budget deficit is expected to be kr. 97 billion, corresponding to just over 5.5 per cent of GDP, cf. Chart 22. Part of the weakening is attributable to the economic slowdown and can thus be expected to be temporary. However, the underlying structural balance has also deteriorated, partly on account of the very accommodative fiscal policy conducted in order to mitigate the impact of the crisis on unemployment and employment. In addition, the future growth path – potential growth – is weaker than before the crisis, reflecting a prolonged period in which the capital stock has grown more slowly.

If no further initiatives are taken, the Ministry of Finance expects a structural deficit in the range of 1.7 per cent of GDP in 2010. This deficit will not vanish even if the economic situation normalises. The deficit represents a significant deterioration relative to the situation before the crisis, when a structural surplus of 1 per cent of GDP was expected in 2010. A structural deficit means that an adaptation burden is being postponed.

GOVERNMENT BUDGET BALANCE Chart 22



Note: Data for 2010-12 is based on Danmarks Nationalbank's estimates.
Source: Statistics Denmark and Danmarks Nationalbank.

Due to the size of the government deficit and thus the accumulation of debt, as well as the related increase in interest expenditure, Denmark will have to start along the path of consolidation, although the output gap remains large. Experience from other countries shows that the situation can soon deteriorate even if the starting point is relatively good.

During 2010, Denmark is likely to be subjected to the excessive deficit procedure under the Stability and Growth Pact. This means that the Ecofin Council will issue a recommendation urging Denmark to reduce its deficit to a maximum of 3 per cent of GDP within a few years. Judging from the recommendations issued to other EU member states in a similar position, it will presumably be suggested that the structural balance be reduced by an average of 0.5 per cent of GDP annually in the period 2011-13. It would be wise to base Denmark's fiscal policy on the rules applying within the EU as this will create a sound stability-oriented framework for economic policy and reduce the risk that the yield spread to abroad widens.

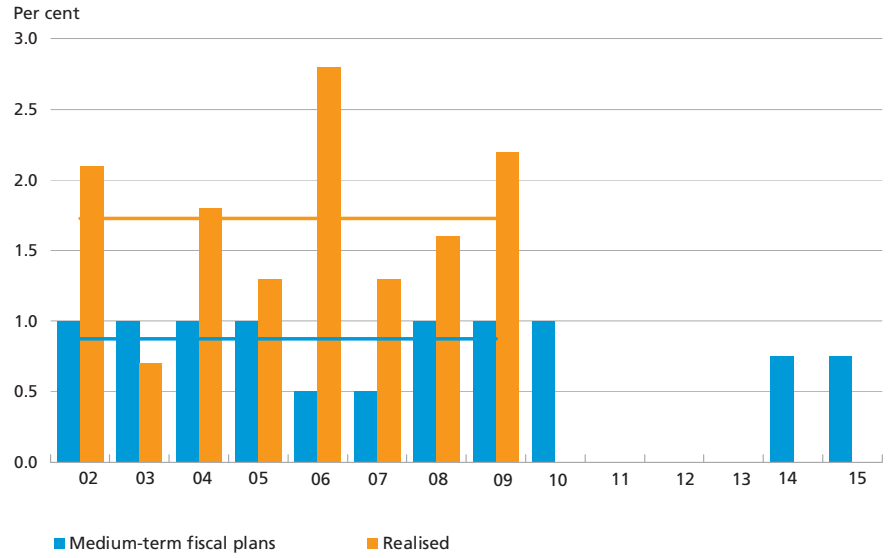
The fiscal-policy challenges are described in the Danish government's Convergence Programme 2009, which was published in February 2010. As previously, the aim is to achieve structural balance by 2015. This requires fiscal consolidation of kr. 31 billion. Kr. 13 billion can presumably be achieved by keeping real growth in public consumption at zero in 2011-13 and then at 0.75 per cent in 2014-15. This leaves a further consolidation requirement of kr. 18 billion, of which kr. 11 billion is expected to be found by reducing other operational costs and the remaining kr. 7 billion by introducing reforms to increase the job supply.

Both the 2010 plan from 2001 and the 2015 plan from 2007 contained targets for annual real growth in public expenditure. With a single exception, the limits have been exceeded every year, and in many cases by a considerable margin. Average real consumption growth in 2002-09 was 1.7 per cent, cf. Chart 23. There are consistent strong underlying pressures to increase public expenditure. The zero-growth target from 2011 onwards is very ambitious and requires far greater political determination to rein in public spending if it is to be met.

Should the ambitious spending policies prove impossible to realise, the tax freeze cannot be upheld in its present form. The tax freeze means that the revenue side of the budget cannot contribute to fiscal consolidation. At any rate, this option must be deemed to be limited. Denmark is already one of the world's most heavily taxed countries, and all tax bases are under pressure. In a small, open economy there are limits to how much taxes can be raised before the net impact on proceeds becomes low or even negative as a result of cross-border shopping, relocation of business enterprises, negative impacts on the job supply, etc.

In terms of both expenditure and revenue, the magnitude of the challenges ahead means that it would be of no avail to consider easing fiscal policy further. This would only make the consolidation task more difficult. If it is postponed, even greater tightening measures would be required in the future.

REAL GROWTH IN PUBLIC CONSUMPTION, PLANNED AND REALISED Chart 23



Note: The yellow line shows the average annual real growth in public consumption in 2002-09, while the blue line shows the average planned consumption growth in the same period.

Source: Planned real growth in public consumption in 2002-07 was sourced from the government's 2010 plan, in 2008-10 from the government's 2015 plan and in 2011-15 from Denmark's Convergence Programme 2009.

The Danish Economy 2010-12

INTRODUCTION AND SUMMARY

This article reviews Danmarks Nationalbank's forecast for the Danish economy in the years 2010-12. The forecast has been produced using the macroeconometric model MONA[1] and is based on available economic statistics, including Statistics Denmark's quarterly national accounts for the 4th quarter of 2009[2].

The Danish economy – like the economies of most other western countries – is picking up again after the severe downturn in 2008 and the 1st half of 2009. The downturn, which was strongest in the 2nd half of 2008, was primarily a consequence of negative impulses from the international economy and problems in the financial system. In addition, correction of the high capacity pressures and the heated housing market was already underway when the crisis set in. The gross domestic product, GDP, fell by 5.1 per cent in 2009, cf. Table 1. This is a large decline in an international perspective.

According to the most recent quarterly national accounts, the moderate output growth observed in the 3rd quarter of 2009 continued in the 4th quarter. This means that the Danish economic recession has come to an end. Growth in the 4th quarter was primarily driven by higher private consumption and less pronounced inventory reductions than in the preceding quarters. Fixed capital formation and exports as well as imports declined. The housing market remains fragile, but small price increases and slightly increasing turnover indicate a stabilisation at the current low level of interest rates following the clear weakening since 2007. The first indicators for 2010 in the form of confidence indicators for the households and the corporate sector point to further moderate growth with the construction sector as the negative exception. This reflects the strong cyclicality of the construction sector, but also an adjustment process, since construction accounted for a relatively large proportion of the economic resources towards the end of the most recent upswing.

Economic growth is expected to continue from a moderate level in 2010 to just over trend growth in 2011 and 2012. This is by and large in

[1] The model is described in MONA – a quarterly model of the Danish economy, Danmarks Nationalbank, 2003.
[2] The calculations are based on data covering the period up to and including 11 March 2010.

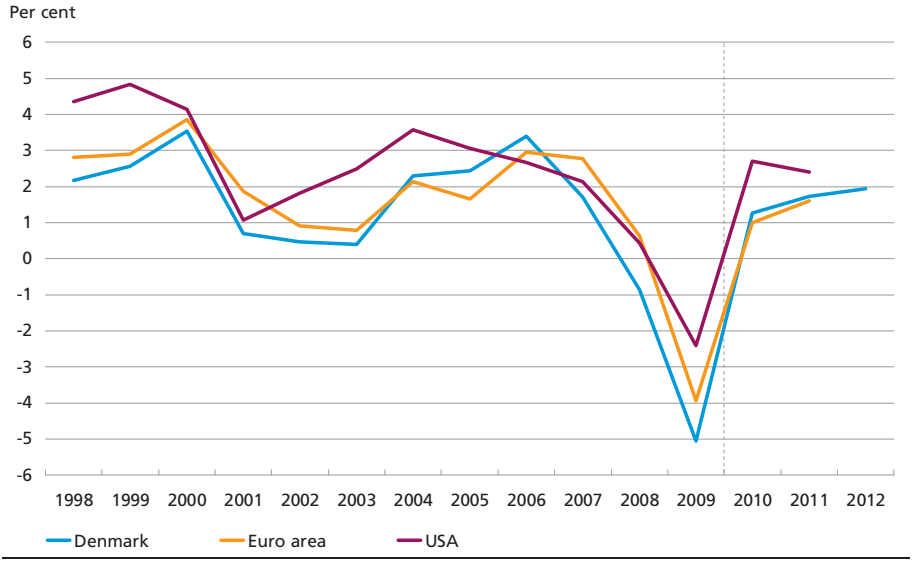
KEY ECONOMIC VARIABLES — Table 1

Real growth on previous year, per cent	2009	2010	2011	2012
GDP	-5.1	1.3	1.7	1.9
Private consumption	-4.6	1.7	2.8	3.3
Public consumption	2.2	1.3	0.8	0.8
Residential investments	-16.8	-8.5	0.6	1.8
Public investments	7.4	18.9	-10.6	-7.8
Business investments	-12.0	-8.2	3.9	3.8
Inventory investments[1]	-1.9	0.7	0.7	0.1
Exports	-10.7	-1.5	2.9	3.0
Industrial exports	-16.4	-0.8	4.9	5.0
Imports	-13.2	-2.4	5.1	4.0
Consumer prices, per cent year-on-year	1.1	2.0	1.5	1.5
Unemployment, 1,000 persons	98	152	168	154
Balance of payments, per cent of GDP	4.0	3.1	2.2	1.8
Government balance, per cent of GDP	-2.8	-5.7	-4.9	-4.4
Hourly wages, per cent year-on-year	2.9	2.3	2.5	2.7

[1] Contribution to GDP growth.

line with expectations for the euro area, cf. Chart 1, but weaker than for the US economy. At the same time, estimated GDP growth means that the large negative output gap that occurred after the decline in 2008 and 2009 will gradually be reduced up to 2012. It is still expected to be negative by that time, however. Due to considerable spare capacity in the corporate sector, unemployment will continue to rise over the next

GDP GROWTH IN DENMARK, THE EURO AREA AND THE USA — Chart 1



Note: Estimates after the broken line.
Source: Statistics Denmark, Reuters EcoWin, IMF, *World Economic Outlook*, Update, January 2010, and own forecast.

year or so despite increasing output growth. This makes up for the weak productivity development in recent years, which, together with higher wage increases than abroad, contributed to a significant weakening of competitiveness.

The current collective bargaining is thus taking place in a climate of weak export markets and competitive pressures. Indeed, preliminary negotiations point to weaker wage increases than in recent years, but it is not clear whether this will result in lower wage inflation than abroad, as warranted by competition. The rate of wage increase in 2010-12 will be significantly lower than in recent years, but with consumer price inflation below 2 per cent year-on-year, real wages are expected to rise in each of these years.

Public finances have weakened substantially as a result of the recession, from a surplus of more than 3 per cent of GDP in 2008 to a deficit of 2.8 per cent in 2009 and just over 5.5 per cent in 2010. The deterioration is mainly caused by the automatic effects on both the revenue and expenditure sides, but also by considerable fiscal easing and public investments. In view of the prospects of dampened growth and continued deterioration of the labour market, the government deficit is expected to remain large, and the public sector's debt is rising sharply.

The forecast presented is an expression of the economic scenario that is believed to be the most probable. The estimate is subject to some uncertainty. To illustrate this, Box 1 considers two alternative scenarios in which key assumptions have been changed.

The revisions of the forecast compared with the September 2009 forecast are described below, followed by a more detailed review of the forecast, including its underlying assumptions.

REVISIONS IN RELATION TO THE PREVIOUS FORECAST

Output is expected to increase by 1.3 per cent in 2010, which is slightly more than forecast in September 2009, cf. Table 2. The upward adjustment is mainly based on higher export market growth and a lower level

REVISIONS IN RELATION TO THE PREVIOUS FORECAST Table 2

	Actual	This forecast			Previous forecast		
	2009	2010	2011	2012	2009	2010	2011
GDP, per cent year-on-year	-5.1	1.3	1.7	1.9	-3.2	0.9	1.7
Unemployment, 1,000 persons ..	98	152	168	154	103	163	178
Balance of payments, kr. billion	66.3	52.8	39.3	32.3	22.4	10.9	15.9
HICP, per cent year-on-year	1.1	2.0	1.5	1.5	1.1	1.4	1.5

Note: The previous forecast was published in September 2009.

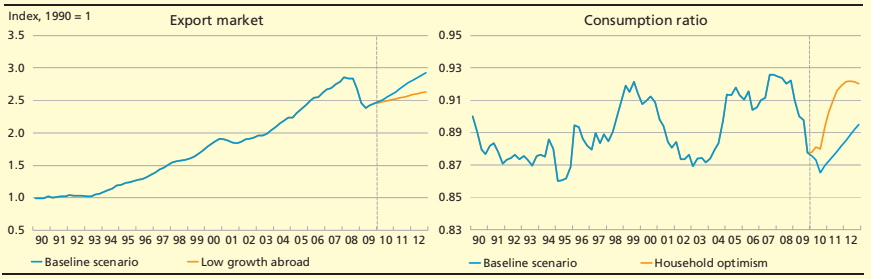
ALTERNATIVE SCENARIOS Box 1

Massive economic-policy expansion has contributed to the recovery of the global economy. The underlying strength of the upswing is subject to uncertainty, however, and the expected growth abroad may turn out to be weak. One element of uncertainty is linked to the need to consolidate balance sheets in the private sector. In this context, weakened confidence in the public finances may dampen consumption and investments. Furthermore, growing concerns that, in the absence of specific consolidation plans, the budget deficits will be financed through higher inflation may lead to higher interest rates. Conversely, lower growth will contribute to postponing the normalisation of monetary-policy interest rates, which will have a dampening effect on the slightly longer-term rates. Scenario 1 considers the impact of weak international development through lower export market growth, while, in view of the above, interest and exchange rates are maintained at unchanged levels. More specifically, export market growth of 0.6 per cent per quarter as from the 1st quarter of 2010 is considered, corresponding to the average export market growth during the slowdown in 2001-03, cf. the yellow curve in Chart 2 (left).

Private consumption has fallen more in Denmark than in other countries in recent years, and the consumption ratio has dropped to a very low level. Consumption has also experienced a sharper decline than warranted by the development in income and wealth. Combined with the stabilisation of economic activity and reduced uncertainty this will enable a quick return of confidence and conversion of the increase in disposable incomes into consumption and residential investments. A second alternative scenario therefore considers the consequences of an increased propensity to consume and higher residential investments. The consumption ratio will increase throughout 2010 and 2011 to a more normal level, cf. Chart 2 (right), pushing up residential investments to reflect the usual link to real cash prices more rapidly.

The weaker export market development in scenario 1 means that the expected export growth is largely eliminated – in 2012, exports in volume terms will be at more or less the same level as in the 4th quarter of 2009. This will dampen domestic output, and GDP growth will be reduced to around 1 per cent in each of the years from 2010 to 2012, cf. Table 3. The clearly weaker development in production will lead to further job losses in the private sector, and unemployment will rise to almost 200,000 persons in 2012 against 154,000 in the baseline projection. As a consequence, wage inflation, and, towards the end of the forecast period, also price inflation will be lower than in the baseline scenario. Finally, the current-account surplus will be reduced as a result of weaker exports.

ASSUMPTIONS OF ALTERNATIVE SCENARIOS Chart 2



CONTINUED Box 1

In addition to accelerating the return of the consumption ratio and residential investments to more normal levels in scenario 2, the households' growing optimism causes GDP growth of around 2.5 per cent this year and next year and 1.3 per cent in 2012. Employment rises with the surging output rates, and unemployment is close to its structural level towards the end of the forecast period. At the same time imports increase, reducing the current-account surplus to around kr. 10 billion in 2012. The lower unemployment rate gradually leads to higher wage inflation than in the baseline scenario, while price inflation is modest over the forecast horizon.

ALTERNATIVE SCENARIOS Table 3

	Baseline scenario	1: Low growth abroad	2: Household optimism
2010			
GDP, per cent year-on-year	1.3	1.1	2.5
Unemployment, 1,000 persons	152	155	142
Balance of payments, kr. billion ...	53	50	37
HICP, per cent year-on-year	2.0	2.0	2.0
2011			
GDP, per cent year-on-year	1.7	0.9	2.3
Unemployment, 1,000 persons	168	184	141
Balance of payments, kr. billion ...	39	30	10
HICP, per cent year-on-year	1.5	1.5	1.6
2012			
GDP, per cent year-on-year	1.9	0.9	1.3
Unemployment, 1,000 persons	154	196	127
Balance of payments, kr. billion ...	32	16	10
HICP, per cent year-on-year	1.5	1.4	1.7

of interest rates in this forecast. Stronger output development leads to a lower estimate for unemployment in the coming years.

The weak development in demand, including inventory investments in particular, has led to an unexpectedly strong decline in imports. According to the balance-of-payments statistics, net investment income from abroad rose from just over kr. 30 billion in 2008 to just over kr. 50 billion in 2009. This significant rise was not predicted in the forecast from September 2009, in which net investment income for 2009 was estimated at kr. 31 billion. Overall, this means that the current-account surplus has been adjusted substantially upwards compared with the previous forecast.

The higher consumer price inflation in 2010 in this forecast reflects rising oil prices and a stronger-than-expected effect from increases in indirect taxes on energy, tobacco and unhealthy food.

ASSUMPTIONS IN THE PROJECTION

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

The international economy

The global economic recession is over, and the major economies are showing positive growth rates again. The turnaround is somewhat stronger than anticipated in the September forecast, and the assessment of Danish export market growth has therefore been adjusted upwards. The market for Danish exports is thus expected to grow by 4.3 per cent in 2010 and slightly more in the next two years, cf. Table 4.

Despite the slightly brighter global economic prospects, global price pressures have declined further since the autumn. As a result, import prices for the countries to which Denmark exports and export prices for the countries from which Denmark imports are a little lower than in the previous forecast. Foreign wage increases are also 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 of future developments that can be derived from the yield curves in the financial markets. The short-term

OVERVIEW OF FORECAST ASSUMPTIONS — Table 4

	2009	2010	2011	2012
International economy:				
Export market growth, per cent year-on year	-13.3	4.3	6.6	6.0
Export market price[1], per cent year-on-year	0.0	-1.3	1.4	1.8
Foreign price[2], per cent year-on-year	-0.1	-1.4	1.4	1.9
Foreign hourly wages, per cent year-on-year	1.6	1.3	1.5	1.9
Financial conditions, etc.:				
3-month money-market interest rate, per cent p.a.	1.7	0.9	1.6	2.0
Average bond yield, per cent p.a.	3.8	3.4	4.1	4.8
Effective krone rate, 1980 = 100	107.8	105.7	105.5	105.5
Dollar exchange rate, DKK per USD	5.4	5.4	5.5	5.5
Oil price, Brent, USD per barrel	62.6	80.2	84.7	86.5
Fiscal policy:				
Public consumption, per cent year-on-year	2.2	1.3	0.8	0.8
Public investment, per cent year-on-year	7.4	18.9	-10.6	-7.8
Public-sector employment, 1,000 persons	827	830	833	835

[1] Weighted import price for all countries to which Denmark exports.
[2] Weighted export price for all countries from which Denmark imports.

interest rate has been declining since the autumn of 2008, and in March the 3-month money-market rate was approximately 0.8 per cent p.a. Looking ahead, the market expects the short-term interest rate to rise to just over 2 per cent p.a. in 2012. Long-term interest rates have also been declining since the autumn of 2008. At the beginning of March the average bond yield was 3.1 per cent p.a., and the forecast assumes a rise to almost 5 per cent p.a. in 2012.

Compared with the September forecast, the nominal effective exchange rate of the krone has fallen by 3 per cent. This trend reflects a weakening of the euro – and thus the krone – vis-à-vis a number of currencies, including the dollar and the Swedish krona. Most recently, it has strengthened vis-à-vis the pound sterling, however. In a longer-term perspective, the krone remains strong. In the projection, the dollar rate and the effective krone rate are assumed to be unchanged from the level at the beginning of March 2010.

The price of oil fell substantially from a level of around 135 dollars per barrel in mid-2008 to just over 40 dollars in early 2009. Since then it has almost doubled to nearly 80 dollars per barrel at the time of the forecast. In the projection, oil prices are assumed to mirror futures prices and rise a little from the current level.

Fiscal assumptions

The fiscal assumptions in the forecast reflect the fiscal-policy stance as presented in Spring Package 2.0, agreed local government budgets for 2010, the 2010 Finance Act and Denmark's Convergence Programme 2009. Growth in real public consumption is expected to be 1.3 per cent in 2010 and 0.8 per cent in both 2011 and 2012. Growth in public investments is expected to be significant in 2010, due to factors such as the decision to bring forward fixed local-government investments and the political agreement on transport investments. Public-sector investments will fall back in 2011-12 and approach the pre-2009 level. Growth in public consumption is higher than planned in Denmark's Convergence Programme, reflecting the normal tendency to exceed the target.

FORECAST FOR THE DANISH ECONOMY 2010-12

Output and employment

Output grew by a total of 0.5 per cent in the 3rd and 4th quarters following the strong downturn in 2008 and in the 1st half of 2009. For 2009 as a whole, GDP fell by 5.1 per cent. In the forecast period, output is expected to gradually increase to just over trend growth in 2011 and

2012. Due to the moderate growth rate, output will not reach its pre-crisis level until the end of 2012. In the forecast, the substantial negative output gap that arose in 2008 and 2009 thus narrows, but it will remain negative even in 2012. There will be idle production resources for some time to come.

Employment continues to fall, even though output has increased. For 2009 as a whole, employment is estimated to have been reduced by approximately 100,000 persons, and about half of the strong increase in employment that occurred during the most recent upswing has been lost. The drop in employment exceeded the increase in unemployment of 47,000, reducing the labour force by around 50,000 persons. The forecast operates with a fall in employment up to the 2nd half of 2011, while the labour force declines slightly from its present level, cf. Table 5.

In January 2010, seasonally adjusted unemployment was 4.2 per cent of the labour force, equivalent to 118,000 persons. This is a significant increase since the summer of 2008 when unemployment bottomed out at a level of around 45,000 persons or 1.6 per cent of the labour force. In the forecast, unemployment increases at a diminishing rate up to the beginning of 2011, to a level of around 170,000 persons. The unemployment turnaround is not expected until the summer of 2011.

Following a period of exceptionally weak development since 2006, productivity is estimated to have grown in the 2nd half of 2009. Weakening of productivity in connection with an economic turnaround is not uncommon, but it is unusual that the decline is so severe and that it lasts three years. In the forecast, productivity increases substantially in 2010 in response to the strong decline in the previous period, cf. Table 6. The massive spare capacity in the economy supports productivity development since it will be possible to expand production in the next few years without increasing employment correspondingly.

Wages and prices

Wage inflation in the private labour market declined throughout 2009. In the forecast, the moderate wage increases continue as unemployment grows further. For 2010 as a whole, hourly wages in industry are expect-

THE LABOUR MARKET — Table 5

1,000 persons, annual averages	2009	2010	2011	2012
Total employment	2,808	2,734	2,709	2,713
Of which private sector	1,981	1,904	1,876	1,878
Unemployment	98	152	168	154
Labour force	2,907	2,886	2,877	2,867

WAGES, ETC. IN NON-AGRICULTURAL SECTORS Table 6

Per cent, year-on-year	2009	2010	2011	2012
Hourly wages	2.9	2.3	2.5	2.7
Hourly wage costs	2.8	2.0	2.4	2.7
Hourly productivity	-1.6	6.3	3.9	2.3
Wage share, per cent of gross value added	72.9	71.3	69.6	68.7

ed to rise by 2.3 per cent, cf. Table 6, while the rates of increase will be slightly higher in 2011 and 2012.

Despite receding, wage inflation in Denmark is still on the high side compared with Denmark's trading partners, whose wage increases have also declined due to the global downturn. This development continues in the projection.

Hourly wage costs are projected to mirror the development in wages in the absence of significant changes in other labour costs. The expected productivity growth leads to falling unit labour costs after significant increases in the previous period. This trend results in a declining wage share, but in a longer-term perspective a wage share of almost 70 per cent, which is expected for 2012, is still relatively high.

In February 2010 consumer price inflation was 1.8 per cent measured as annual HICP inflation. The pronounced rise in inflation since the turn of the year is primarily attributable to indirect tax increases under Spring Package 2.0, but also to rising energy prices, reflecting the development in commodity prices. The indirect tax increases and the energy prices are expected to push up inflation throughout 2010, so that consumer prices will rise by 2.0 per cent compared with 2009, cf. Table 7. Inflation will

CONSUMER PRICES Table 7

Per cent, year-on-year	Weight[1]	2009	2010	2011	2012	2009/10 Q4	Q1	Q2	Feb.	Mar.	Apr.
HICP		1.1	2.0	1.5	1.5	0.9	1.8	2.1	1.8	1.8	2.2
Index of net retail prices	100.0	2.1	1.9	1.6	1.5	2.0	1.9	2.1	1.7	1.7	2.2
Exogenous:											
Energy	7.1	-6.4	17.8	11.3	6.3	0.9	12.6	17.9	10.5	13.5	17.1
Food	13.1	0.6	-1.5	0.0	0.3	-1.7	-2.5	-1.6	-2.3	-2.4	-1.7
Adm. prices	4.2	4.8	2.6	1.8	2.4	4.9	3.6	3.0	4.7	1.8	3.2
Rent	23.6	4.5	2.3	1.8	1.5	4.6	3.2	2.4	2.5	2.6	2.4
Excl. exogenous	52.0	2.4	0.4	0.2	0.7	1.7	0.9	0.6	0.9	0.6	0.9
Imports	15.6	-3.5	-1.5	0.8	2.5	-5.1	-2.7	-1.8	-2.6	-2.2	-2.0
IMI	36.4	5.1	1.1	0.0	0.0	4.9	2.3	1.6	2.4	1.8	2.0

Note: The most recent actual data cover February 2010.

[1] Weight in the index of net retail prices, per cent.

then subside, primarily because only modest indirect tax increases are expected in 2011.

Domestic market-determined inflation, IMI, was high in 2009, largely because business enterprises have only allowed the falling import prices to be reflected in consumer prices with a certain lag. IMI has fallen back in step with the stabilisation of import prices. The high IMI also reflects the significant rise in unit labour costs as a result of the weak productivity development. Looking ahead, a continued fall in IMI is expected since the weak wage development and dampened demand have resulted in spare capacity. The weak capacity pressures also contribute to keeping food prices down.

Domestic demand

Private consumption grew by around 0.5 per cent in both the 3rd and 4th quarters of 2009 after substantial drops in the preceding four quarters. Consumption growth is expected to continue in 2010 in the light of significant increases in disposable incomes. At the same time, household wealth has stabilised and consumer confidence has improved. Expectations of higher unemployment will curb consumption growth in 2010, however, and the consumption ratio will not increase until 2011 and 2012, cf. Table 8.

There are indications that the housing market is slowly picking up, and the prices of single-family and terraced houses rose by 0.4 per cent in the 4th quarter of 2009. Turnover increased, but from a very low level, and the number of houses for sale remains high. In view of this and the low level of interest rates, the modest improvements in the housing market are expected to continue in the coming years.

Residential investments declined substantially in 2009. In the coming quarters they are expected to decline further given the ample supply of houses for sale, but subsequently residential construction will gradually increase in step with the slightly higher real cash prices in the projection.

Business investments in machinery, transport equipment and software fell sharply in 2009, and non-residential construction also declined sub-

INCOME, WEALTH AND CONSUMPTION — Table 8

	2009	2010	2011	2012
Cash prices, per cent year-on-year	-14.1	0.6	1.8	1.8
Real disposable income, private sector, per cent year-on-year	0.4	2.6	1.4	1.8
Consumption ratio, per cent of private sector disposable income	87.8	87.0	88.2	89.5
Net lending, private sector, kr. billion	112.6	150.1	125.1	112.8

stantially. With the business enterprises' considerable spare capacity and weak prospects for output development, investments are expected to decline further in the 1st half of 2010. Business investments will then gradually pick up, but the investment ratio will remain at the current low level. In the projection, the considerable inventory reductions seen in 2009 will cease as demand begins to pick up.

Total domestic demand, excluding inventories, fell by 0.1 per cent in the 4th quarter of 2009. Rising private consumption and increased public demand will boost domestic demand this year, while lower private investments will have the opposite effect. Private investments are also expected to grow in 2011 and 2012, thereby increasing growth in demand despite the reduction of public investments from the high level during the downturn.

Foreign trade and the balance of payments

Danish exports stabilised in the 2nd half of 2009 as global economic activity and world trade slowly picked up. However, due to the substantial drop in exports from the autumn of 2008 to the middle of 2009, exports fell by 10.7 per cent overall from 2008 to 2009. The global economic turnaround is most pronounced in the emerging and developing economies, while the upswing is more fragile in most of the countries to which Denmark exports. Consequently, the projection does not show an increase in exports until later in 2010, as growth in the global economy becomes more broad-based, cf. Table 9.

In 2009, exports of goods, including industrial exports in particular, declined. Industrial exports in volume terms have fallen by more than 20 per cent since the 2nd quarter of 2008 due to the weaker development in foreign demand and deteriorating competitiveness. Industrial exports are projected to pick up again, but the loss of market shares is expected to continue. Oil and gas production in the North Sea has decreased in recent years, and fuel exports are projected to decline.

EXPORTS AND IMPORTS — Table 9

Per cent, year-on-year	2009	2010	2011	2012
Real exports	-10.7	-1.5	2.9	3.0
Real imports	-13.2	-2.4	5.1	4.0
Export prices	-8.1	2.4	1.6	1.0
Import prices	-7.9	3.6	1.3	1.0
Terms of trade	-0.2	-1.1	0.2	0.1
Import ratio, non-energy goods, standard calculation, 2000 = 100	104.4	101.5	106.3	109.1

Exports of services in real terms declined significantly in early 2009. The decline should be viewed against the considerable slowdown in world trade since the autumn of 2008. However, the value of services exports declined even further, reflecting in particular the drop in freight rates as a result of the sharp decline in world trade and excess capacity in the global merchant fleet. The forecast operates with a slight increase in services exports as world trade picks up. The modest increase should be seen in the light of the prospects of further growth in the global merchant fleet in the coming years.

Imports in volume terms fell in the autumn of 2008 as a consequence of reduced domestic capacity pressures and weakening of exports, which have a large import content. The decline continued in 2009, but at a slower rate towards the end of the year. Overall, imports fell by 13.2 per cent in 2009.

Since mid-2008, imports have declined more than demand, causing the import ratio to fall considerably again in 2009. Like exports, imports are not expected to increase until sometime during 2010, reflecting expectations of growing exports and the slow increase in domestic demand. Imports are estimated to increase relatively more than demand, causing the import ratio to rise over the entire projection period. One underlying factor is that the substantial inventory reductions seen in recent years are not expected to continue in the forecast.

According to the available national accounts, export prices fell a little more than import prices in 2009, implying a slight deterioration of the terms of trade. In the projection, further weakening of the terms of trade is expected in 2010, followed by stabilisation in the subsequent years.

The current-account surplus totalled just over kr. 65 billion in 2009, which is almost kr. 30 billion more than in 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. The projection operates with a reduction of the current-account surplus as the Danish economy improves and the surplus on trade in goods gradually declines, cf. Table 10. At the same time net investment income falls back from the very high level in 2009.

BALANCE OF PAYMENTS — Table 10

Kr. billion	2009	2010	2011	2012
Trade in goods	27.1	27.4	12.0	4.4
Trade in services	30.1	28.4	31.9	33.4
Interest, transfers, etc.	9.1	-2.9	-4.6	-5.4
Current account, total	66.3	52.8	39.3	32.3

TARGET2-Securities

TARGET2-Securities

Central banks, central securities depositories and market participants in Europe have worked together to further define TARGET2-Securities, T2S. The aim is to establish a trans-European securities settlement system in which cross-border transactions can be effected just as efficiently as domestic transactions[1].

According to the original project plan, system development was to commence in 2010, and T2S was to go live in 2013. In early 2010, the ECB announced that the project would be delayed and that the Governing Council would reconsider the timeline. This process will involve reviewing all milestones with a view to announcing a realistic schedule after the end of February 2010. A delay of approximately one year is expected, so that T2S will presumably be operational in 2014-15.

The Danish central securities depository, VP Securities (VP), has announced its intention of participating in T2S in both euro and kroner. Danmarks Nationalbank has likewise committed itself to making liquidity in kroner available for settlement in the system. Later this year, the Board of VP is to decide whether the commitment made to the Eurosystem is to be replaced by a framework agreement stipulating the terms and conditions for VP's participation.

Denmark's interests in relation to the development of T2S are safeguarded by VP and the market participants, as well as Danmarks Nationalbank. This is done via participation on committees and in working groups that meet under the auspices of the ECB, including the Advisory Group, which helps to prepare the basis for the Governing Council's decisions. A national user group also influences T2S, e.g. by assisting the above participants in the preparation of Danish views and by submitting consultation responses to the ECB.

At the national level, the Board of VP, on which the Danish financial sector enjoys broad representation, has acted as a kind of steering committee on T2S participation until now. To strengthen the organisation of the national effort, it has been decided to set up a group to assess overall issues prior to their consideration by the Board of VP.

[1] For a more detailed description, see Nikolaj Hesselholt Munck, Developments in European Securities Settlement, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2009.

The decision to settle securities transactions in T2S may have a number of consequences for securities settlement in Denmark. These need to be analysed in more detail in 2010. To this end, three sub-groups have been set up under the national user group. Two of the sub-groups are to prepare proposals for (i) the account structure to be used by VP for its T2S securities accounts, and (ii) the procedures for handling the special characteristics of Danish mortgage-credit bonds. Danmarks Nationalbank has set up a sub-group to analyse liquidity issues and suggest appropriate changes to the Danish settlement day.

The analyses performed during 2010 are to provide the necessary specifications for adapting the national systems, so that the modification of IT systems and procedures, etc. with a view to connecting the Danish infrastructure to T2S can commence in 2011.

Manufactured Exports and Wage Competitiveness

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INTRODUCTION AND SUMMARY

Denmark is a very open economy, in which approximately one job in four is export-dependent, directly or indirectly, and in which exports of goods and services account for more than half of the real gross domestic product, GDP. In other words, exports are of great importance to employment, production and income generation.

Manufactured exports account for about three fourths of Denmark's exports of goods and about half of total exports. About two thirds of Danish manufacturing output is exported, just as two jobs in three in manufacturing are created due to exports. This article focuses on the importance of wage competitiveness to export performance in the manufacturing sector. The development in manufactured exports is affected by other factors than wage competitiveness, including the cyclical position at home and abroad, capacity pressures in Denmark, the distribution of Danish exports on goods categories and countries, as well as globalisation. The level of education, infrastructure, institutional conditions in Denmark and other not easily quantifiable framework conditions also play an important role. However, wage competitiveness plays a larger role in exports of manufactured goods than for example in agricultural products, energy and sea freight, partly because labour intensity is significantly higher in manufacturing than in these sectors.

Wage competitiveness in the Danish manufacturing sector has weakened gradually since 1995. The reasons are higher wage increases and lower productivity growth than abroad as well as appreciation of the krone. In the same period, Danish manufactured exports have lost market shares in both value and volume terms, though the loss has been greatest in volume terms.

For many years, globalisation and intensified competition from emerging economies have contributed to a trend-related loss of Danish export market shares in volume terms, as has also been the case for several

other industrialised countries. For the manufacturing sector, however, the loss has been relatively drastic in Denmark compared with a number of similar economies. Since 1995, there has been a tendency that countries whose wage competitiveness has deteriorated the most have suffered the greatest loss of export market shares.

This development indicates that deterioration in wage competitiveness dampens exports of manufactured goods in volume terms, and thus also real production and employment in Denmark. A sustained higher level of wage and price increases in Denmark than abroad does not necessarily preclude export market growth, balanced foreign trade and high employment in Denmark, but there must be strong focus on innovation, productivity growth and adaptability.

WAGE COMPETITIVENESS

Wage competitiveness expresses a country's competitiveness based on wage costs. In the following, developments in Danish wage competitiveness are assessed based on the concepts of relative wages and relative unit labour costs. The former refers to Danish wages relative to wages abroad stated in the same currency.[1] The latter indicates wage costs per unit produced in Denmark relative to abroad, also stated in the same currency. While changes in relative wages are ascribable to wage and exchange rate developments, unit labour costs are also affected by developments in productivity.[2] If wage increases in Denmark exceed those seen abroad, and the krone rate remains unchanged, wage competitiveness – measured by relative wages – is eroded. Wage competitiveness measured by relative unit labour costs will weaken further if productivity develops less rapidly in Denmark than abroad.

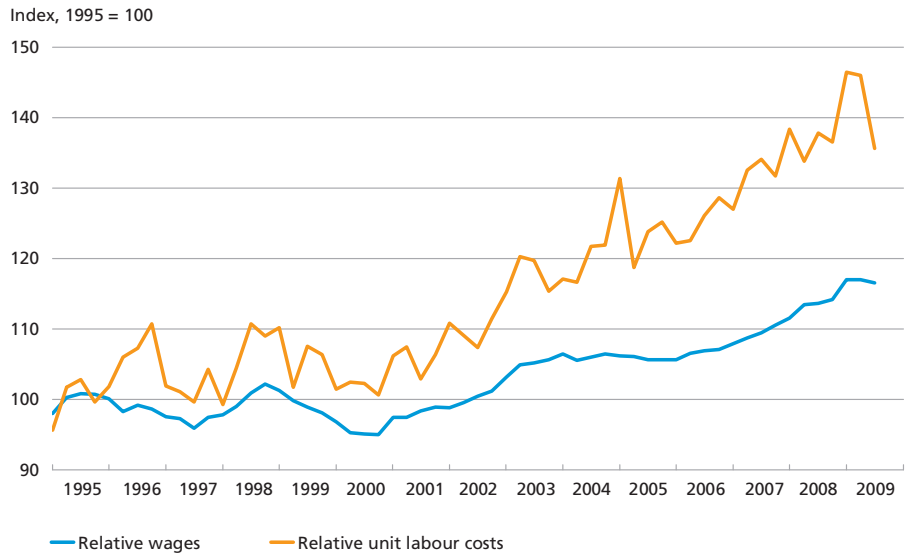
Danish wage competitiveness in the manufacturing sector has deteriorated continuously since 1995 and particularly since 2000, cf. Chart 1. Measured by relative wages, competitiveness has declined by about 15 per cent during this period. At the same time, relative unit labour costs have risen by about 35 per cent.[3] Thus, the weakening is caused by stronger wage increases and weaker productivity growth than abroad, as well as a strengthening of the Danish currency since 1995 measured by the effective krone rate. Overall, wage costs related to production

1 In this article, "abroad" comprises the 25 countries included in Danmarks Nationalbank's real effective exchange rates. Wage developments in the 25 countries have been weighted with weights from the effective krone-rate index.

2 For example, unit labour costs are constant if wage increases are fully offset by productivity increases.

3 The calculation of relative unit labour costs is subject to some uncertainty. This reflects the lack of an unambiguously correct measure of productivity trends and the fact that that calculations of productivity are subject to certain measurement problems.

WAGE COMPETITIVENESS Chart 1



Note: Relative hourly wages and unit labour costs in the manufacturing sector. Danish wages relative to wages abroad are converted into a common currency by using the effective krone rate. "Abroad" comprises the 25 countries included in Danmarks Nationalbank's real effective exchange rates.
Source: Statistics Denmark, OECD's MEI database and Danmarks Nationalbank.

have risen substantially more for Danish than for foreign manufacturing firms.

EXPORT PERFORMANCE

The following evaluation of Denmark's export performance is based on two concepts: relative exports and market shares. Relative exports compare Danish exports with exports from another country or a group of other countries, while market shares refer to Danish exports to other countries relative to the total imports of these countries.[1] Denmark is thus losing market shares when exports grow more slowly than the export markets, i.e. imports in Denmark's recipient countries.

Globalisation and increased international division of labour have led emerging economies such as India and China to become significant players in Denmark's export markets. This alone has reduced the market shares of the traditional industrialised countries. Against this background, it is relevant to compare developments in Denmark's market shares with developments in similar economies.

[1] In this article, the market share of Danish manufactured exports is defined as Danish exports relative to a weighted sum of imports in Denmark's recipient countries in the OECD. Denmark's market shares in the countries in question in 2005 are used as weights.

Another factor in the evaluation of export performance is whether exports are measured in values or volumes. Volumes are most relevant for real GDP and employment, while values are most relevant for purchasing power and, hence, prosperity in a society. Measuring manufactured exports in values is more reliable than measuring them in volumes since it is difficult to measure the price of manufactured exports, the so-called deflator. Data for total exports of goods and services in volume terms can be found in the national accounts. When it comes to manufactured exports in volumes, it is more difficult to find statistics that are comparable across countries.[1]

DEVELOPMENT IN EXPORT PERFORMANCE AND COMPETITIVENESS SINCE 1995

In volume terms, Denmark's manufacturing export performance has been weaker than that of a number of comparable countries, cf. Chart 2. For example, German and Dutch manufactured exports have risen significantly faster than their Danish equivalents. However, Norway and the UK have performed worse than Denmark in the markets for manufactured exports, and much worse than the other countries.

Since 1995, Danish manufacturing firms have lost export market shares in both value and volume terms, cf. Chart 3. The export market share in volumes has declined by more than 25 per cent, while the market share measured in value has declined by almost 13 per cent. In the same period, Denmark's wage competitiveness has weakened.

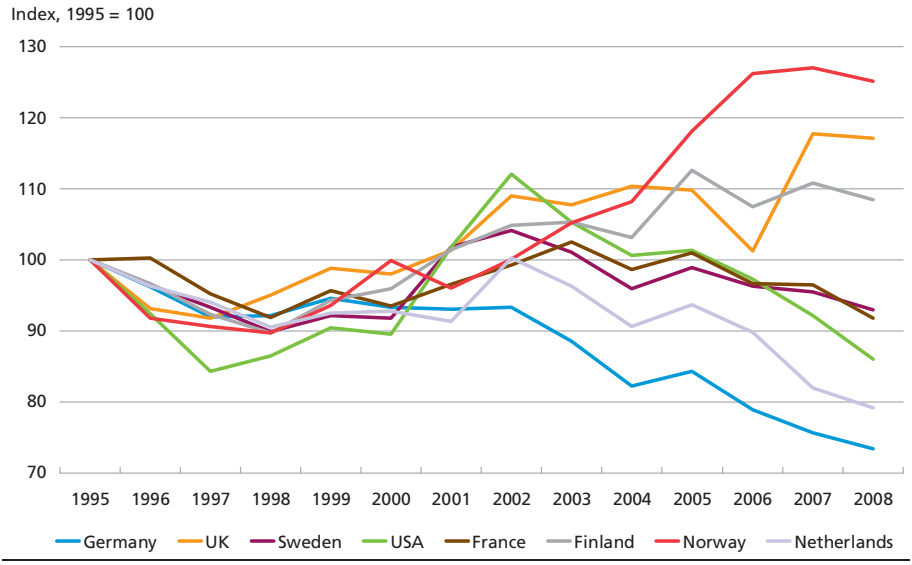
The reason why Denmark's market share in value terms has not declined as much as its market share in volumes is that the prices of goods exported by Danish manufacturing firms have risen more rapidly than average import prices of manufactured goods in Denmark's recipient countries. This trend is primarily seen from 2007.

Disregarding the negative trend in both wage competitiveness and export market share in volumes, the correlation between market share and wage competitiveness remains clear, cf. Chart 4. The loss of market shares has been particularly substantial since 2002, as unit labour costs in manufacturing have risen markedly more in Denmark than abroad during this period. This could indicate that higher unit labour costs force Danish firms to raise prices, resulting in loss of sales volume.

[1] In this article, OECD data for manufactured exports in volumes up to and including 2002 is used. The series for Denmark is projected by the growth rate of manufactured exports according to Danmarks Nationalbank's MONA database, while the series for the other countries are projected by the growth rate of total goods exports according the OECD's Monthly Statistics of International Trade or Eurostat. The export market for manufactured goods since 2002 is projected by the growth rate in the export market for total goods and services.

DANISH MANUFACTURED EXPORTS IN VOLUMES RELATIVE TO SELECTED COUNTRIES

Chart 2

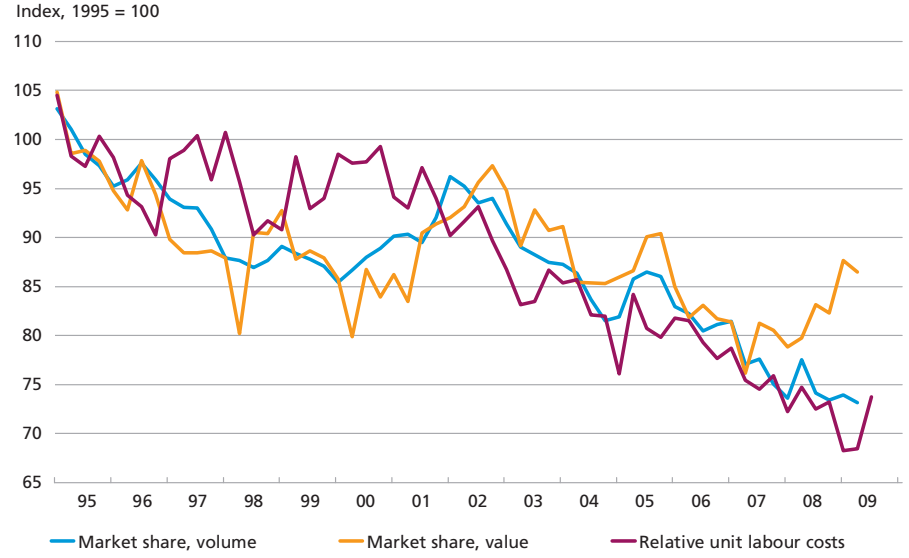


Note: The Chart shows Danish manufactured exports relative to manufactured exports in the selected countries. After 2002, manufactured exports in volume terms have been projected by the growth rate of total goods exports in volume terms. For Denmark, manufactured exports in volume terms are projected by the growth rate of manufactured exports according to MONA data.

Source: OECD, *Economic Outlook* No. 73, OECD, Monthly Statistics of International Trade, Eurostat and Danmarks Nationalbank's MONA database.

DANISH WAGE COMPETITIVENESS AND MARKET SHARE OF MANUFACTURED EXPORTS

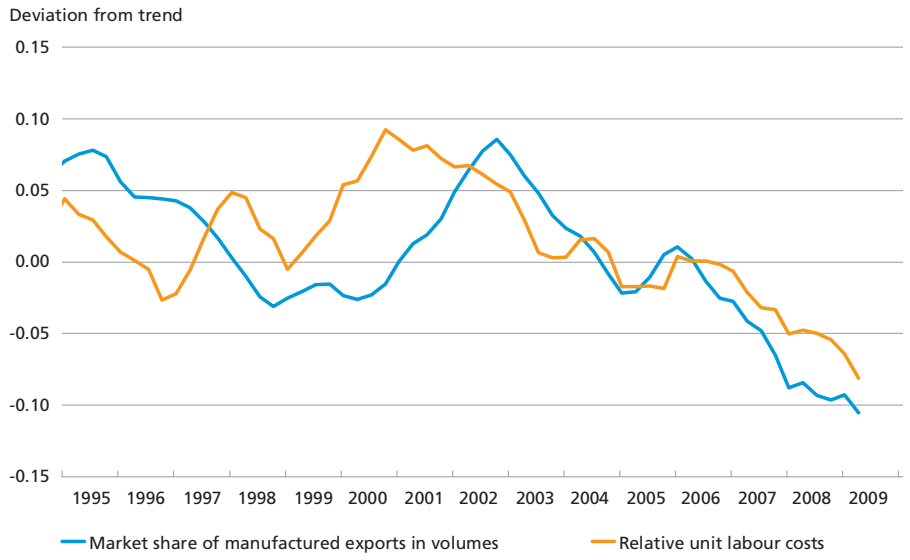
Chart 3



Note: In this Chart, relative unit labour costs are defined as foreign unit labour costs relative to their Danish equivalents. Thus, a declining curve means that unit labour costs have risen more rapidly in Denmark than in Denmark's recipient countries, meaning that wage competitiveness has weakened.

Source: OECD, *Economic Outlook*, Nos. 73 and 86, OECD, Monthly Statistics of International Trade, Statistics Denmark Danmarks Nationalbank's MONA database and own calculations.

DEVIATIONS FROM TRENDS IN THE MARKET SHARE OF DANISH MANUFACTURED EXPORTS AND RELATIVE UNIT LABOUR COSTS Chart 4



Note: Market share of manufactured exports in volumes and relative unit labour costs are shown as 4-quarter moving averages of deviations from linear trends.

Source: OECD, *Economic Outlook*, Nos. 73 and 86, Statistics Denmark, Danmarks Nationalbank's MONA database and own calculations.

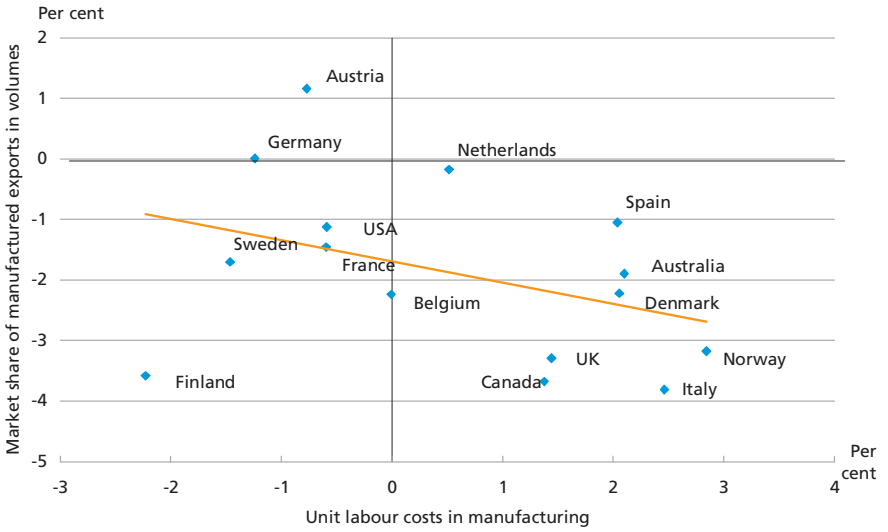
Development in market shares and wage competitiveness across countries

Denmark's loss of market shares in volumes since 1995 has been relatively large compared with countries whose economies resemble that of Denmark. The countries that have suffered major losses of market shares are typically also the countries that have experienced the strongest erosion of wage competitiveness, cf. Chart 5. Germany, the Netherlands and Austria have been able to maintain their export market shares despite increased globalisation. By contrast, countries such as Norway and the UK have lost market shares in step with the sharp increases in their unit labour costs. Finland stands out by having lost market shares despite improved wage competitiveness. To some extent, this reflects the particularly fast growth in the Finnish export market since 2001.

International economic cycles and market shares

In the short term, Denmark's export performance tends to contrast with the international economic cycles, cf. Chart 6. Consequently, Danish manufactured exports often win market shares during periods of international recession, but lose market shares during upswings. The reason is that a large share of Danish manufactured exports is made up of goods that are less cyclical than goods in Denmark's export markets in

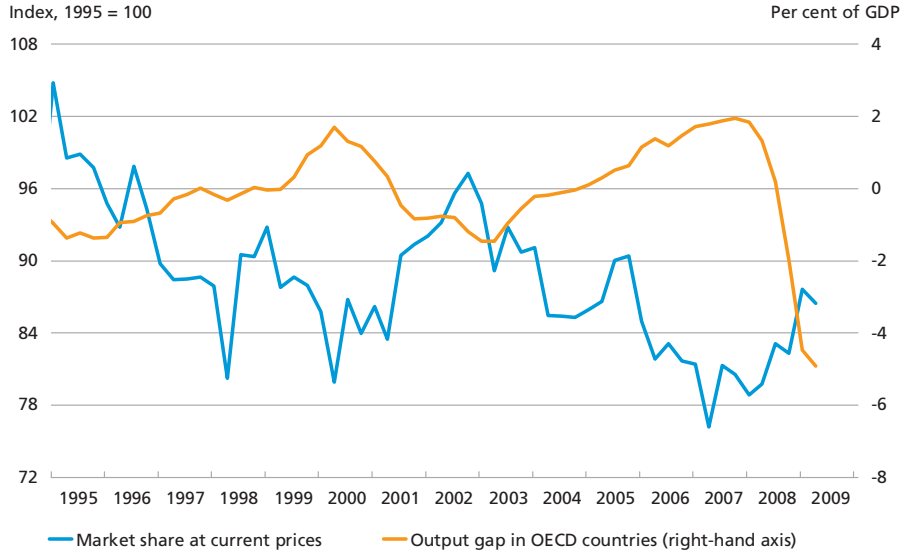
AVERAGE ANNUAL GROWTH 1995-2008 Chart 5



Note: The Chart comprises Denmark and 14 of Denmark's largest trading partners. Japan has been omitted, as its structural conditions, including changes in production processes and relocation of parts of the production to other Asian countries, imply that the market share is not a particularly accurate indicator of the Japanese export capability in the given period, cf. ECB, Competitiveness and the export performance of the euro area, *Occasional Paper,* No. 30, 2005.

Source: OECD, *Economic Outlook,* Nos. 73 and 86, OECD, Monthly Statistics of International Trade, Eurostat, Danmarks Nationalbank's MONA database and own calculations.

MARKET SHARE OF MANUFACTURED EXPORTS AND INTERNATIONAL ECONOMIC CYCLES Chart 6



Source: OECD, *Economic Outlook,* No. 86, OECD, Monthly Statistics of International Trade, Statistics Denmark, Danmarks Nationalbank's MONA database and own calculations.

general. This is the case for e.g. pharmaceuticals and energy technology. Due to the composition of Danish manufactured exports, they are not expected to grow at the same pace as world trade during an imminent international economic recovery.

MACROECONOMIC CHALLENGES

The development in wage competitiveness and export performance indicates that deterioration in wage competitiveness puts a damper on exports in volumes and hence also on real production and employment. Loss of market shares in value terms has been slightly less pronounced than in volumes. Continued erosion of wage competitiveness implies a number of macroeconomic challenges.

Danish manufactured exports are relatively non-cyclical. When the international economy normalises, Denmark is therefore unlikely to see the same increase in manufactured exports as comparable countries.

Higher price increases for Danish exports relative to the average for imported goods in Denmark's export markets have only to a modest extent made up for the loss of market shares. Moreover, focus on prices and consolidation in many countries could have increased following the most recent international crisis. This means that there are no indications that future improvement in the terms of trade can compensate the manufacturing sector for continued deterioration in wage competitiveness.

Sustained increases in relative unit labour costs heighten the likelihood of relocation of production and jobs to other countries. As in the rest of the economy, it is vital that wage increases over time are offset by increases in productivity so that unit labour costs do not continue to rise compared with other countries.

Increased globalisation implies that export-oriented firms are exposed to fiercer competition. Weakening of wage competitiveness reinforces competition from low-income countries. A sustained higher level of wage and price increases in Denmark does not preclude export market growth, balanced foreign trade and high employment, but there must be strong focus on innovation, productivity growth and adaptability.

The Increase in the Price of Gold in Recent Years

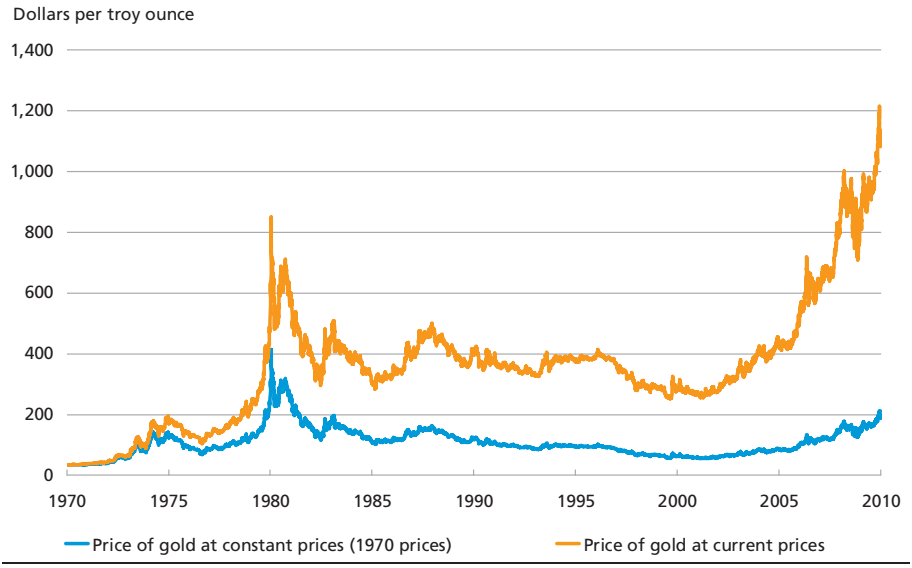
Thomas Krabbe Jensen and Christian Stampe Sørensen, Financial Markets

INTRODUCTION

During the financial crisis in 2007-09, the value of gold rose substantially, while prices of other financial assets fell. During periods of turmoil, the price of gold has been known to increase, the oil crises being cases in point, cf. Chart 1. This is related to the historical role of gold as a reserve asset and foundation of the international monetary system. Until the early 20th century, banknotes could be exchanged for gold at a fixed ratio at central banks in large parts of the world.

In 2009, the price of gold kept rising despite the tentative normalisation of the financial markets. The price has more than doubled over five years. This increase may be explained by a number of factors, including concerns that the extraordinarily accommodative monetary pol-

THE PRICE OF GOLD AT CONSTANT AND CURRENT PRICES — Chart 1



Note: The price of gold in constant prices is calculated using the US CPI. The CPI is compiled on a monthly basis. Linear interpolation is applied between the monthly observations.
Source: Reuters EcoWin.

icies and the large government deficits in the wake of the crisis might result in high inflation.

The prolonged and substantial increase in the price of gold has led some market participants to conclude that gold is overvalued. In practice, it is difficult to identify deviations from the fundamental value of assets. This applies not least to gold, which is an atypical asset. Gold normally yields a return only by way of rising prices and is primarily in demand for jewellery and less so for investment purposes. Furthermore, annual mine production is small compared to the total stock, the reason being that gold is not consumed in the same way as other commodities. The gold market has seen a structural shift in recent years, and gold is increasingly in demand because of its qualities as a financial asset.

This article analyses the gold market and the supply and demand factors that affect the price of gold. The conclusion is that most of those factors have supported a high price of gold in recent years.

THE GOLD MARKET

Gold has traditionally been traded "over the counter" (OTC), i.e. directly between the buyer and seller. The OTC markets are dominated by Industrial manufacturers and large institutional investors, as trade conventions often imply high minimum limits for traded volumes. At the global trade centre in London, the recommended minimum limit is 1,000 troy ounces.[1] The net trading volume in the London OTC market has been virtually unchanged since 2001 at an average of 20 million troy ounces (622 tonnes) per day.

As is the case with other metals, there are also well-developed markets for gold derivatives contracts. Basically, a derivatives contract is a security, the value of which depends on the price of another asset. Derivatives can be used to hedge risk for gold producers and industrial buyers – and they enable financial investors to obtain exposure to gold.

Gold producers used to hedge against drops in the price of gold by borrowing gold which they promptly sold in the market. In step with the extraction of gold by underground mining, producers were able to repay their gold loans. In this way they obtained a fixed price of the gold found in the underground. The extent of this type of hedging has decreased in recent years, as gold producers increasingly want to obtain exposure to the price of gold, cf. Box 1.

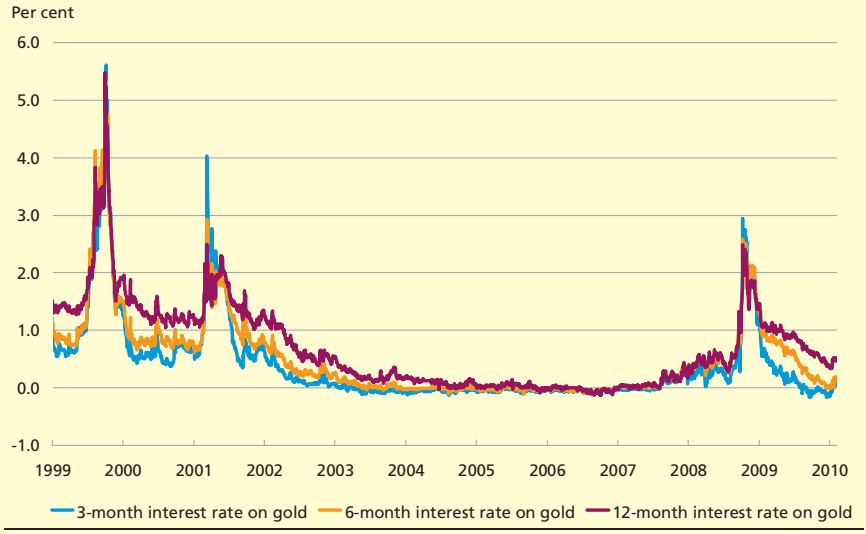
[1] Gold is measured in troy ounces. One troy ounce equals 31.10 g as distinct from an ordinary ounce which equals 28.35 g.

GOLD LENDING AND INTEREST RATE ON GOLD Box 1

Since the mid-1980s, there has been a loan market for gold where gold loans are subject to interest. The interest rate on gold is determined primarily by the supply and demand for gold for lending purposes. Central banks, among others, account for the supply, thereby obtaining a return on their gold reserves. Demand is dominated by gold producers who borrow gold as part of their efforts to hedge against future drops in the price of gold.[1] Less hedging by producers has reduced the demand for gold loans and pushed interest rates down, cf. Chart 2.

The interest rate on gold rose for a short period in October 1999 following the signing of the Central Bank Gold Agreement by 15 European central banks undertaking, among other things, not to extend their gold lending.[2] The brief rise in short-term interest rates on gold in March 2001 was caused by a change in lending activity whereby maturities were generally extended while the demand for short-term loans increased. This pushed short-term interest rates up. The increase in interest rates in September and October 2008 coincided with the bankruptcy of Lehman Brothers and the subsequent crisis in the financial markets.

SELECTED GOLD INTEREST RATES Chart 2



Source: Reuters EcoWin.

[1] Spall (2009).

[2] The agreement comprised the European Central Bank, ECB, and the central banks of Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden and Switzerland. The agreement is also known as the Washington Agreement on Gold, WAG. See ECB (1999).

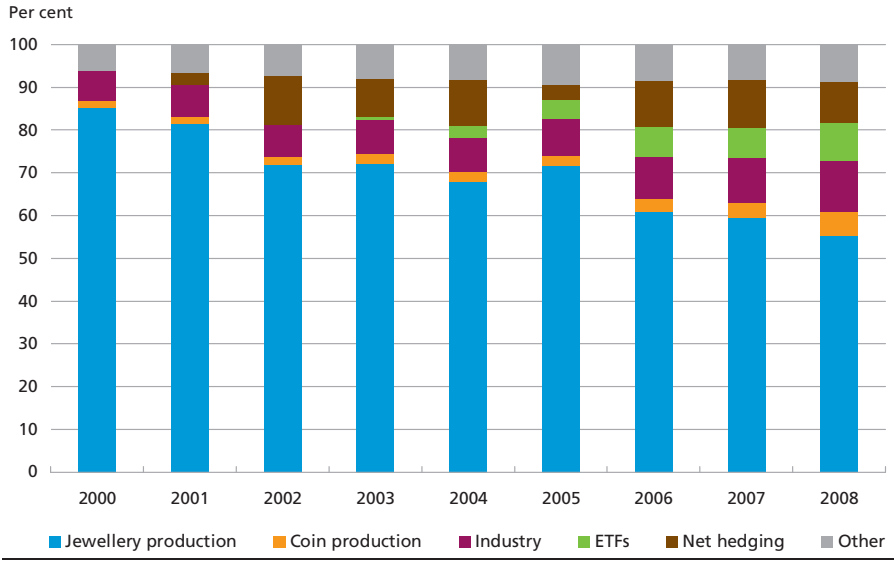
Since 2003, it has been possible to invest in gold through Exchange Traded Funds (ETFs), the value of which follows the price of gold.

Demand for gold

Gold is in demand for jewellery, for industrial use or as a financial asset.

Jewellery manufacturers account for more than half of the total demand, cf. Chart 3. However, part of this demand is attributable to the

DEMAND FOR GOLD Chart 3



Note: The figures in the Chart are estimated and subject to uncertainty.
Source: Virtual Metals Group.

fact that jewellery is also used for savings purposes. This is common in Asia and the Middle East.

Demand from the jewellery industry has been declining in recent years. This reflects that demand for jewellery is relatively price elastic and decreases when prices go up.

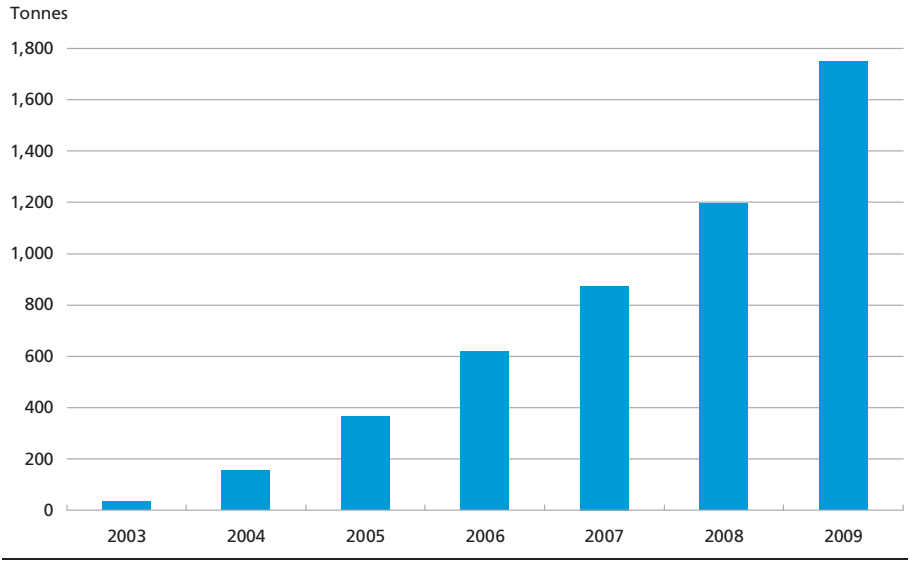
In addition to recorded sales, gold is also traded among private households. These transactions are difficult to quantify and they are not included in the supply and demand figures.

For industrial purposes, gold is primarily used by the electronics sector. This part of demand has been stable in recent years. The remaining part is largely attributable to financial instruments linked to gold.

Since the introduction of ETFs in 2003, investors have increasingly demanded gold through ETFs, cf. Chart 4. The introduction made it easier to invest in gold and contributed to opening the gold market to new classes of investors, including private investors and minor institutional investors.

The volume of gold derivatives contracts has also increased in recent years. For example, the number of 100 troy ounce contracts on the Comex commodity exchange in New York has gone up from almost 200,000 to just over 700,000 since 2001. This increase is much higher than for other precious metals and is an indication of growing interest in obtaining exposure to gold price movements. During the same period the net position among market participants with investment objectives has moved

GOLD STOCK IN EXCHANGE TRADED FUNDS Chart 4



Note: The stocks are calculated at year-end. 2009 is calculated at the end of October 2009.
Source: Virtual Metals Group.

from neutral to long, cf. Chart 5. The majority of financial investors thus entered into the contracts in order to obtain positive exposure.

Overall, demand for traditional purposes has declined in recent years, while demand for gold as a financial asset has risen. As a result, investment demand has been central to gold price trends in recent years.

Supply of gold

Most of the supply of gold comes from mining of new gold, cf. Chart 6. The second-largest share is attributable to recycling of jewellery and electronic components in particular. Finally, a number of central banks have reduced their gold stocks in recent years.

Supply from mine production is sluggish, responding only to a limited extent to changes in the demand for gold. The reason is that mine production requires substantial investments and that it takes time to start new production.

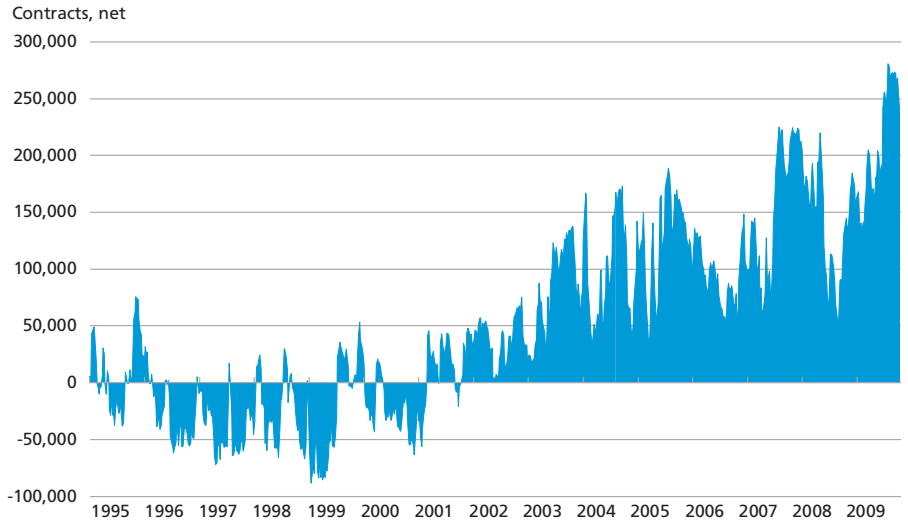
This is reflected in the relatively constant level of total mine production in recent years, cf. Box 2.

Recycling, on the other hand, has been increasing in step with rising gold prices, as higher prices have increased the incentive to sell jewellery and recycle gold from worn-out products.

In recent years, central banks have made only a modest contribution to the supply of gold. Nevertheless, they may potentially have a greater impact on the price of gold than fluctuations in production and recycling.

FINANCIAL INVESTORS' NET POSITION IN DERIVATIVES CONTRACTS BASED ON GOLD

Chart 5

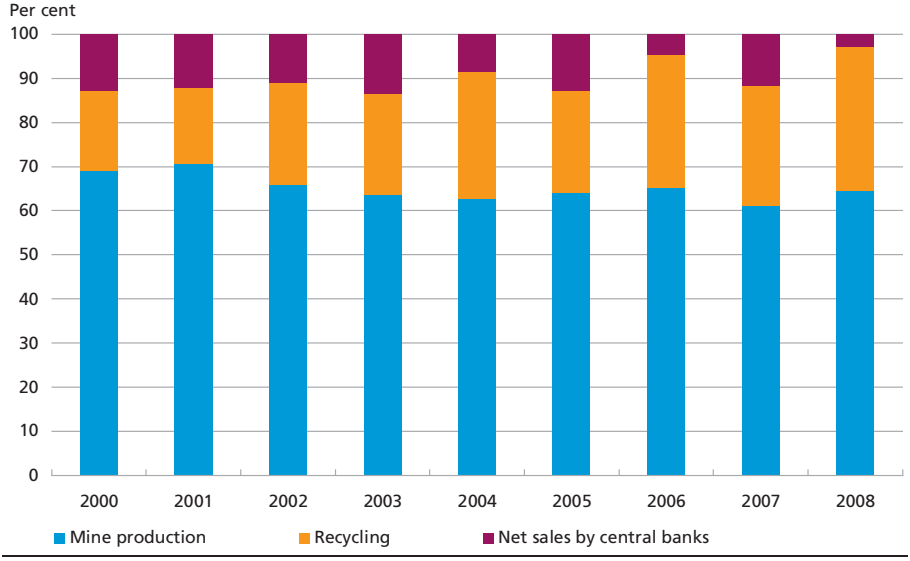


Note: The Chart shows the net position in 100 troy ounce gold contracts among non-commercial investors on the Comex commodity exchange in New York. Non-commercial investors are defined as investors who do not invest in derivatives contracts to hedge gold, and who should consequently be assumed to use the contracts for investment purposes.

Source: U.S. Commodity Futures Trading Commission.

SUPPLY OF GOLD

Chart 6



Note: The figures in the Chart are estimated and therefore subject to uncertainty.

Source: Virtual Metals Group.

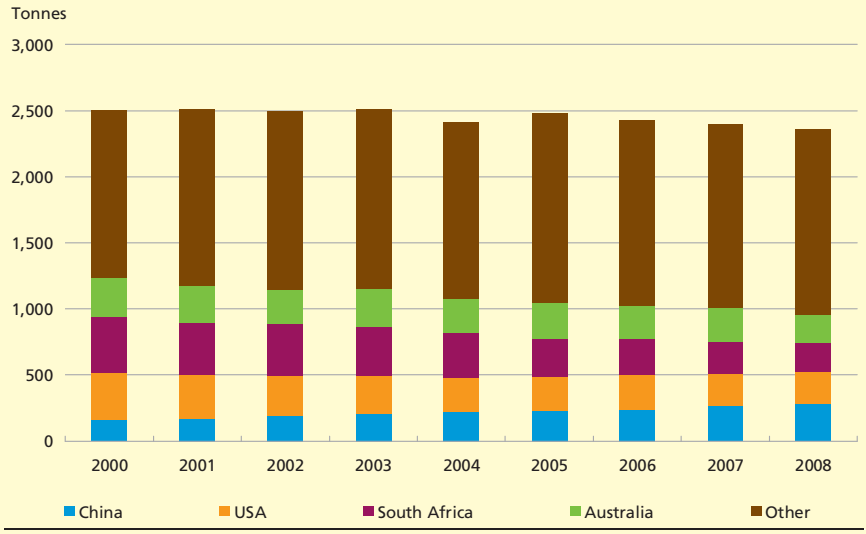
GOLD EXTRACTION Box 2

Gold is a rare, often hard-to-reach element that is mainly extracted by mining. This process requires massive investments and involves excavation and processing of considerable amounts of material. For each tonne of material that is excavated, extraction is typically limited to as little as 1-10 g gold, so the extraction process is very cost-intensive. In 2007, gold-extraction costs averaged almost 500 dollars per troy ounce.[1]

A total of around 165,000 tonnes has been extracted over time. Two thirds have been produced since 1950 and one third in South Africa alone. Up to 2006, South Africa, the USA and Australia were the largest gold-producing nations. Production in those countries has been declining, however, and in 2007, China became the world's largest gold-producing nation, cf. Chart 7.

It is estimated that there are around 47,000 tonnes of underground gold deposits the extraction of which would currently be worthwhile.[2]

MINE PRODUCTION OF GOLD Chart 7



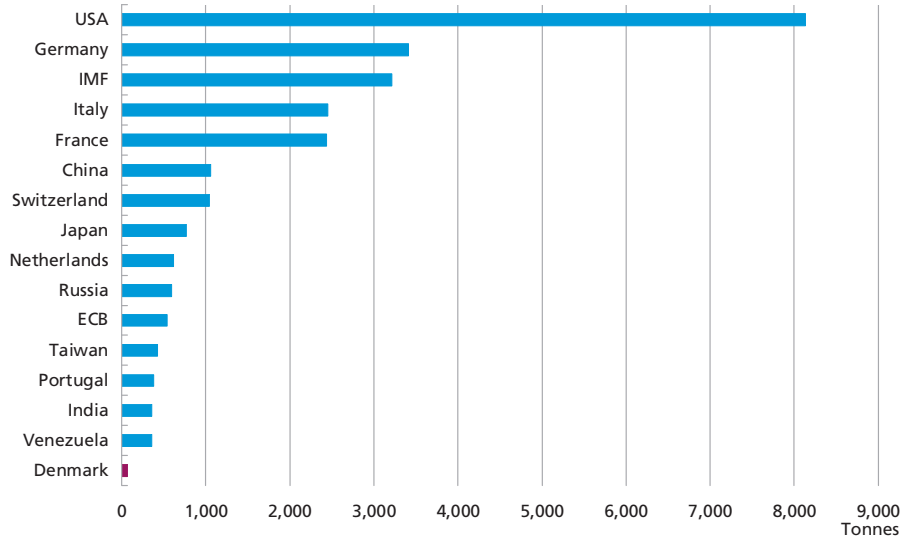
Note: The figures in the Chart are estimated and therefore subject to uncertainty.
Source: Virtual Metals Group.

[1] Spall (2009).
[2] U.S. Geological Survey.

THE IMPORTANCE OF CENTRAL BANKS

The behaviour of central banks in the gold market has periodically been of vital importance to the price of gold. They have traditionally owned large quantities of gold and have thus been able to influence supply and demand substantially. Today, the world's central banks own approximately 30,000 tonnes of gold or almost 20 per cent of the total stock. A few central banks account for a large part of the gold reserves, cf. Chart 8.

SELECTED CENTRAL BANK GOLD STOCKS, INCLUDING THAT OF THE INTERNATIONAL MONETARY FUND, IMF Chart 8



Note: The gold stocks are estimated at the end of September 2009.
Source: The IMF and the World Gold Council.

Viewed in that perspective, Danmarks Nationalbank has a modest gold reserve, cf. Box 3.

The total gold reserves held by central banks have been declining since 1975, mainly because of the reduced significance of gold to the monetary system.[1] During the 1990s, sales contributed to keeping down the price of gold. As a consequence, 15 central banks concluded the Central Bank Gold Agreement in 1999. Under this agreement they committed to not exceed 2,000 tonnes of total sales over the next five years. The agreement hardly amounted to a real limitation as the 2,000 tonnes cap was more than twice the quantity sold by the 15 central banks put together over the preceding 10 years. If anything, the objective of the agreement was to influence expectations and remove the concern in the market that central banks would reduce their gold reserves considerably, thus pushing the price further down. The agreement was renewed in 2004 and 2009.

The behaviour of central banks remains very important to the price of gold. This became evident in November 2009 when the Reserve Bank of India purchased 200 tonnes of gold from the IMF.[2] The purchase created an expectation that, in future, other central banks in emerging econ-

1 For a description, see Bie and Pedersen (1999).
2 The sale took place within the framework of the IMF decision to sell 403.3 tonnes and is part of the IMF income reform of 2008. For a description of the IMF income reform, see Bohn-Jespersen (2008).

DANMARKS NATIONALBANK'S GOLD STOCK Box 3

Pursuant to the Danmarks Nationalbank Act, Danmarks Nationalbank is obliged to hold a gold stock of 25 per cent of the volume of notes in circulation. When the Act was adopted in 1936, Denmark was expected to reintroduce the gold standard, and the stock was to serve as the foundation for notes in circulation. The Act allows exemptions from the gold coverage provision, which have been granted since 1939. Today, the gold stock forms part of the foreign-exchange reserve, but it only accounts for a limited share. Most of the gold is held by the Bank of England. Danmarks Nationalbank's gold stock amounts to almost 67 tonnes, placing it in 39th position on a list of the largest public gold stocks.

omies would make further investments in gold as part of the diversification of their foreign-exchange reserves. This exerted upward pressure on the price of gold.

GOLD AS A FINANCIAL ASSET

The greater interest in obtaining exposure to gold price trends through ETFs and the derivatives market reflects that gold is increasingly in demand as a financial asset. Demand is related to the special characteristics of gold in relation to other asset classes in a financial portfolio. Gold is often mentioned as a potential means of hedging against e.g. high inflation and major economic crises or as a diversification instrument .

Fear of inflation

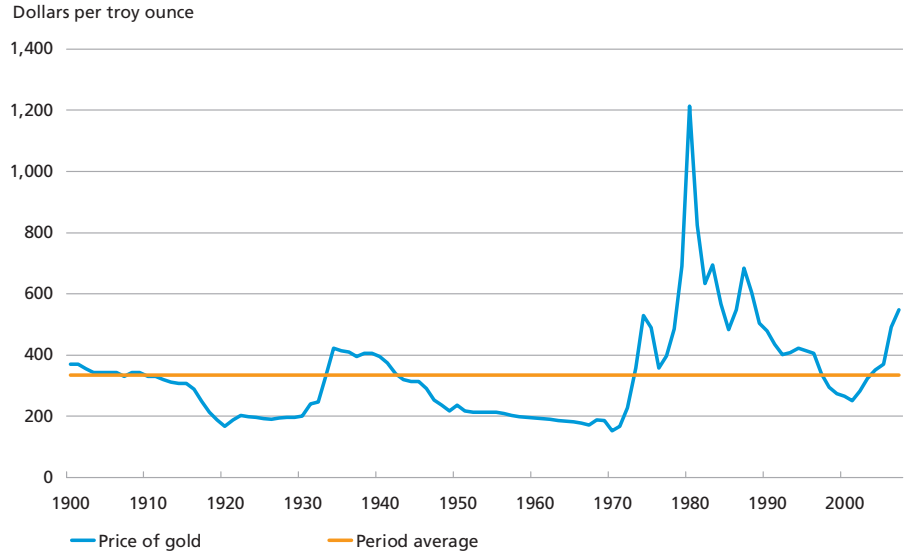
Historically, gold has played a role as a reserve asset, and it has maintained its purchasing power over long periods of time. The start and end times applied are of major significance, however, cf. Chart 9. Periodically, gold was the foundation of the international monetary system, and for many years it was traded at a fixed price of 35 dollars per troy ounce. The USA had to buy and sell gold at this price in order to maintain a constant ratio between the dollar rate and the price of gold. As a result of the system, the real price of gold in dollars fell in step with inflation.

The role of gold as the foundation of the financial system lost its importance in connection with the collapse of the Bretton Woods system in 1971.[1]

This was followed by substantial increases in the price of gold, especially in the late 1970s when overall inflation rose in most parts of the world, cf. Chart 10. The significant increase in the price of gold in 1980

[1] Under the Bretton Woods system, private ownership of and trading in gold were banned in the USA. The ban was suspended in 1974.

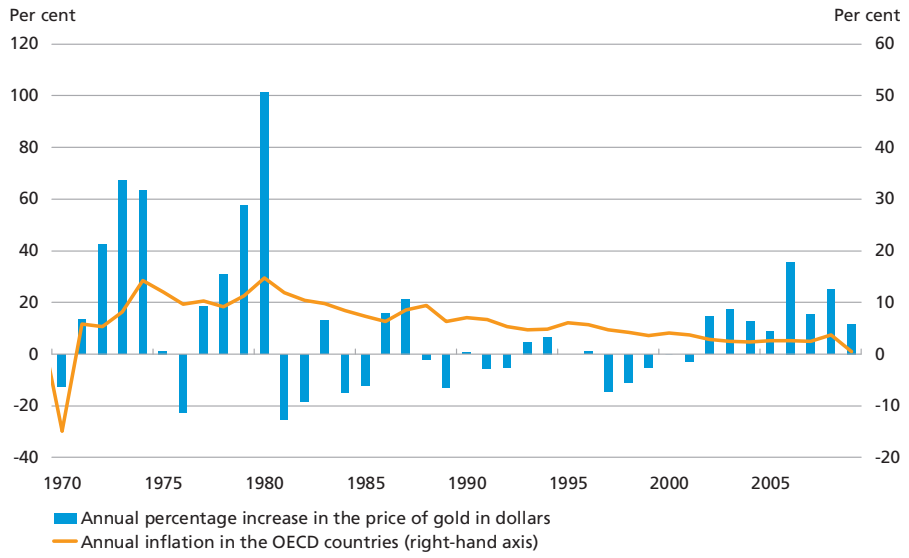
DEVELOPMENT IN THE REAL PRICE OF GOLD — Chart 9



Note: 1998 is the base year.
Source: U.S. Geological Survey.

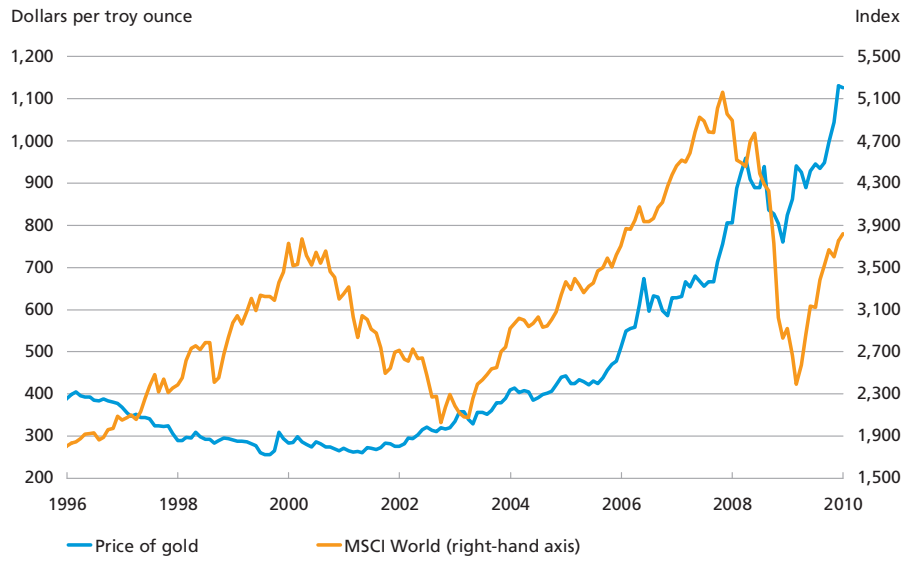
presumably reflected growing fear of inflation in the wake of the second oil crisis and the generally high inflation level. Seeking to dampen inflation, a number of central banks initiated a series of interest-rate increases. As inflation came under control, the real gold price fell.

ANNUAL CHANGE IN THE PRICE OF GOLD AND INFLATION IN THE OECD COUNTRIES — Chart 10



Source: Reuters EcoWin.

DEVELOPMENT IN THE PRICE OF GOLD AND THE MSCI WORLD STOCK INDEX Chart 11



Note: MSCI World is based on the development in stock prices in 23 industrialised countries, including the USA, Japan and Germany.
Source: Reuters EcoWin.

Recent years' economic development involving a financial crisis followed by unusually accommodative monetary policies and large government deficits may have fuelled fears of a return to the high inflation levels of the 1970s. However, due to the development in the financial markets, other types of assets, including inflation-indexed bonds, provide a more direct means of hedging against inflation. It is therefore less evident that the function of gold as an inflation-proof store of value is important for the interpretation of the gold price trend, although that function is probably still part of the reasoning behind the demand for jewellery.

General fear of crisis and a safe haven

Gold maintained its value during the stock market crash in 2000-01 and the financial crisis in 2007-09, thus acting as a safe haven at a time when many other assets lost value, cf. Chart 11. The growing investment demand may be partly linked to gold's role as a safe haven in periods of growing fear of crisis. Part of the explanation is that gold is widely accepted as a means of payment and does not involve counterparty risk.[1] This is likely to increase demand in periods of economic turmoil.

[1] The value of most financial assets, e.g. bonds, depends on the issuer's ability to make the agreed payments, and investing in such assets therefore involves counterparty risk.

MONTHLY RETURN, STANDARD DEVIATION AND CORRELATION DURING THE PERIOD 1995-2009 Table 1

Per cent	Gold	Dollars	MSCI World	WGBI
Average monthly return	0.67	-0.06	0.74	0.47
Standard deviation	3.76	2.41	4.00	0.76
Correlation with gold	1.00	-0.45	-0.06	-0.01

Note: Standard deviation and correlation are calculated on the basis of monthly return series. MSCI World is based on the development in stock prices in 23 industrialised countries, including the USA, Japan and Germany. WGBI, the World Government Bond Index, contains government bonds from the primary markets for government bonds. Gold is measured in dollars.
Source: Reuters EcoWin.

Gold's role as a safe haven is supported by empirical studies.[1] In connection with considerable negative shocks to the world economy or individual economies, investors who turned to gold have reduced their losses.

Portfolio diversification and the link between gold and the dollar

If the return on gold shows a diverging trend relative to the return on other assets, e.g. stocks and bonds, this has value for investors. It enables investors to reduce the aggregate risk by including gold in their portfolios.

There is almost no correlation between gold and stocks or government bonds, cf. Table 1. Accordingly, gold will contribute to the diversification of most traditional investment portfolios. This quality supports the demand for gold.

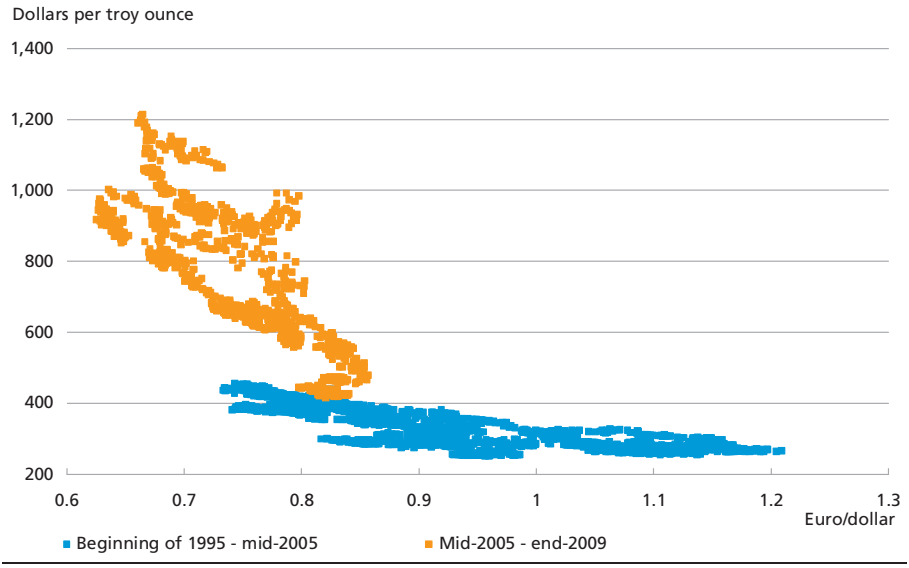
In terms of standard deviation, gold has been a riskier investment than bonds, but less risky than stocks. This result depends on the period under review, however. For example, gold was riskier than stocks in the period 1971-87.[2]

Gold is generally negatively correlated with the dollar, cf. Chart 12. The link between the dollar rate and the price of gold changed in 2005 as a result of the steep rise in the price of gold. The correlation was virtually unchanged, however.

The link between the dollar rate and the price of gold has been analysed both theoretically and empirically.[3] It has been demonstrated that, historically, the international gold market has been dominated by European countries. Part of the explanation is that they have accounted for a large share of demand and thus played a crucial role in pricing. Consequently, the development in the dollar rate vis-à-vis European currencies has affected the demand for gold and contributed significantly to fluctuations in the price of gold which is stated in dollars.

1 See e.g. Baur and McDermott (2009).
2 For an analysis of the diversification qualities of gold during the period 1971-87, see Jaffe (1989).
3 See e.g. Sjaastad and Scacciavillani (1996).

CORRELATION BETWEEN THE EURO/DOLLAR RATE AND THE PRICE OF GOLD Chart 12



Note: Before 1 January 1999, the ECU/dollar rate is used.
Source: Reuters EcoWin.

CONCLUSION

The price of gold is related to expectations of the future. Changes in expectations of inflation, central bank behaviour and economic uncertainty may be particularly important. Changes in structural supply and demand and the development in the dollar rate also affect gold price trends.

It is difficult to conclude whether expectations-driven assets such as gold are overvalued. Basically, most factors which determine the price of gold have been supportive of a high price of gold. The introduction of ETFs enabled more investor groups to invest in gold and achieve greater diversification. The financial crisis increased the demand for safe assets. The subsequent unusually accommodative monetary policies and the large government deficits raised fears of inflation and demand for assets that have traditionally retained their value over time. In recent years, there has been renewed focus on gold as a central bank asset in emerging economies. Mine production has been stable in the same period and has not increased despite growing investment demand. Finally, the dollar has depreciated significantly since 2000. It is uncertain whether all these factors will continue to support a high price of gold.

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Oil Market Developments

Jens Erik Boesen, Market Operations

INTRODUCTION AND SUMMARY

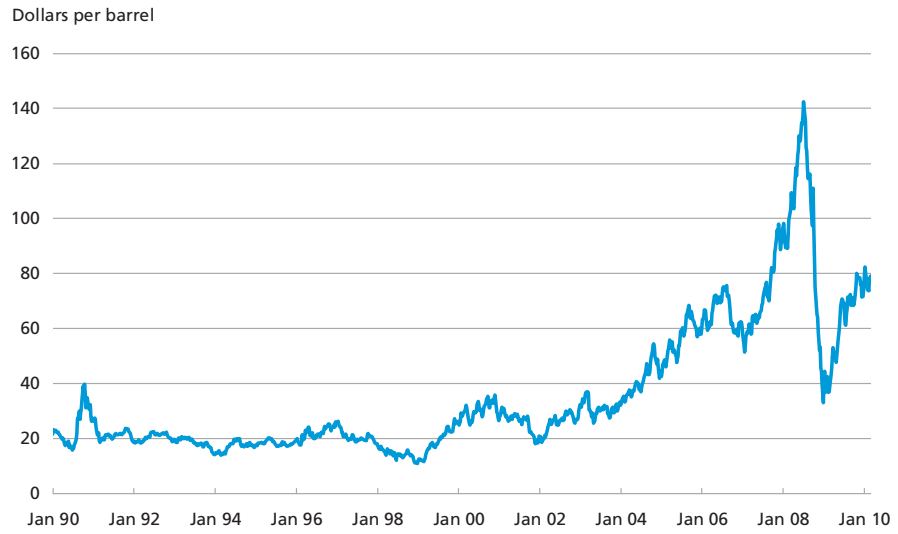
Oil is a major source of energy in the world. Hence, oil availability plays a key role in economic growth, and oil prices have a large impact on overall price developments. In view of the concentration of a large part of the world's oil reserves in a few countries, substantial amounts of money flow from many oil-importing countries to few oil-exporting countries. This has led to the establishment of large sovereign wealth funds that invest oil revenue in the financial markets. In addition to the direct influence on growth and inflation, oil market developments therefore have an indirect impact on economic development via the capital markets.

In recent years, oil prices have seen dramatic fluctuations. From the mid-1980s to the millennium rollover, the oil price was relatively constant at 20-30 dollars per barrel, with a few exceptions. It then climbed to the peak of 145 dollars per barrel in July 2008 – a record-high level in real terms as well. The financial crisis, which erupted in the autumn of 2008, caused oil prices to collapse. At the turn of the year 2008/09, the price was approximately 40 dollars per barrel. It doubled during 2009 and is currently 80 dollars per barrel, corresponding to the level before the onset of the economic crisis, cf. Chart 1.

The key drivers of oil market developments are presented in the following. The price increase until mid-2008 was partly attributable to stronger demand for oil, mainly from the emerging economies. This was to a certain extent met by an expansion of OPEC production. Another contributing factor was low spare production capacity, which generated concerns that the supply was insufficient to meet the stronger demand. The financial crisis and the subsequent economic crisis caused global demand for oil to drop considerably and oil prices to plummet.

The substantial oil price volatility in 2008 was attributable to low price elasticity on the supply and demand sides combined with considerable shifts in demand. It has been said that speculation in the financial markets reinforced the volatility. On the basis of futures market data from the USA, there is no strong evidence of a link between speculation and price developments.

OIL PRICE 1990-2010 Chart 1



Source: Energy Information Administration.

Stable prices in the oil market require build-up of permanent excess capacity in oil production as a buffer to accommodate temporary shifts in supply and demand, which will stabilise oil prices.

SUPPLY AND DEMAND CONDITIONS IN THE OIL MARKET

The price and income elasticity of demand

In the short term, oil price fluctuations have a limited impact on demand in volume terms, as oil is difficult to replace with other sources of energy. In the long term, the price sensitivity of demand is more pronounced, although limited, cf. Table 1, which shows estimates of the price elasticity of demand for oil in various geographical areas in the short term (within 1 year) and in the long term (within 10-15 years).

DEMAND FOR OIL: PRICE AND INCOME ELASTICITY Table 1

	Price elasticity		Income elasticity	
	Short term	Long term	Short term	Long term
OECD North America	-0.02	-0.12	0.04	0.22
OECD Europe	-0.03	-0.11	0.14	0.49
Asia	-0.03	-0.21	0.09	0.73
Middle East	-0.01	-0.07	0.07	0.67
Latin America	-0.03	-0.28	0.09	0.94

Source: IEA, *World Energy Outlook*, 2006, p. 287.

Price elasticity is the percentage change in demand on a 1-per-cent increase in oil prices. The Table also shows income elasticity, i.e. the change in demand resulting from a 1-per-cent increase in income per capita.

The emerging and developing economies show the greatest income elasticity, especially in the long term. In these countries, growth in the gross domestic product, GDP, generates a relatively strong increase in demand for oil.

Demand conditions

In 2009, global oil consumption totalled 84.9 million barrels per day[1]. Demand from OECD countries accounted for 45.5 million barrels (54 per cent), while demand from non-OECD countries accounted for the remaining 39.3 million barrels (46 per cent), cf. Chart 2.

Global demand for oil rose until the beginning of 2008, followed by a drop due to the economic crisis, cf. Chart 3. The increase in demand was driven by non-OECD countries. Demand from OECD countries has actually shown a slightly falling trend from 2007.

Annual growth in non-OECD demand was strong at times in the period 2002-08. A case in point is the marked increase in demand around 2004, which caused oil prices to rise considerably from 2004, cf. Chart 1. The eruption of the economic crisis led to falling OECD demand, while non-OECD demand saw only a temporary decline, followed by the current rising trend, cf. Chart 3.

Subsidised energy consumption – and thus oil consumption – is a characteristic feature of many relatively low-income countries. Hence, price fluctuations in the global oil markets have only limited influence on prices in the local markets in question. This has contributed to the rise in non-OECD demand even in the period from 2006 to the 1st half of 2008, which was characterised by strong price increases.

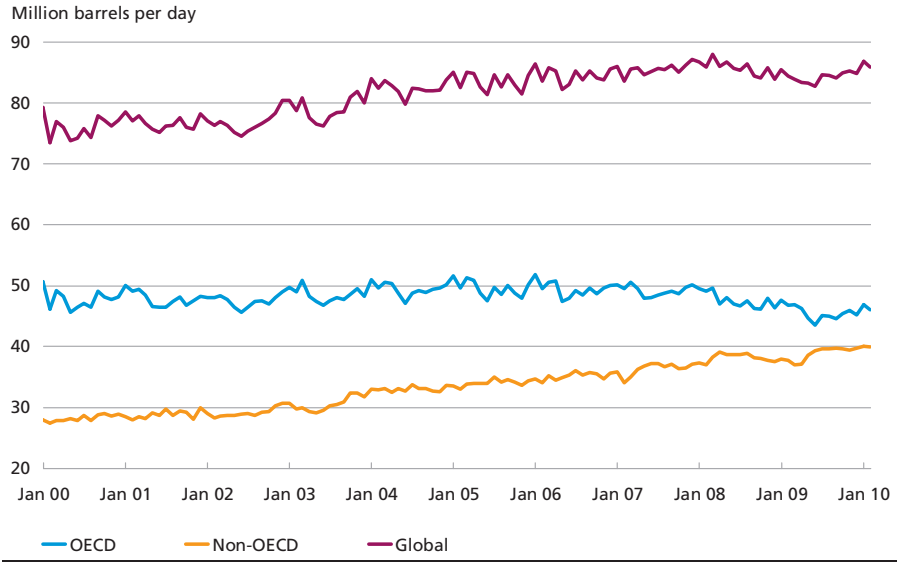
Supply conditions

On the supply side, the increase in demand for oil since the millennium rollover has been accommodated by a steady expansion of production, especially OPEC production, while non-OPEC production has not risen in recent years, cf. Chart 4.

For many years, OPEC has adjusted production volumes to match changes in global demand. In periods of surging demand, e.g. in 2003-04, OPEC increased production and thus reduced spare production capacity. OPEC also adjusted production volumes to match the weaker de-

[1] According to The International Energy Agency, IEA, *Oil Market Report*, January 2010.

DEMAND FOR OIL Chart 2

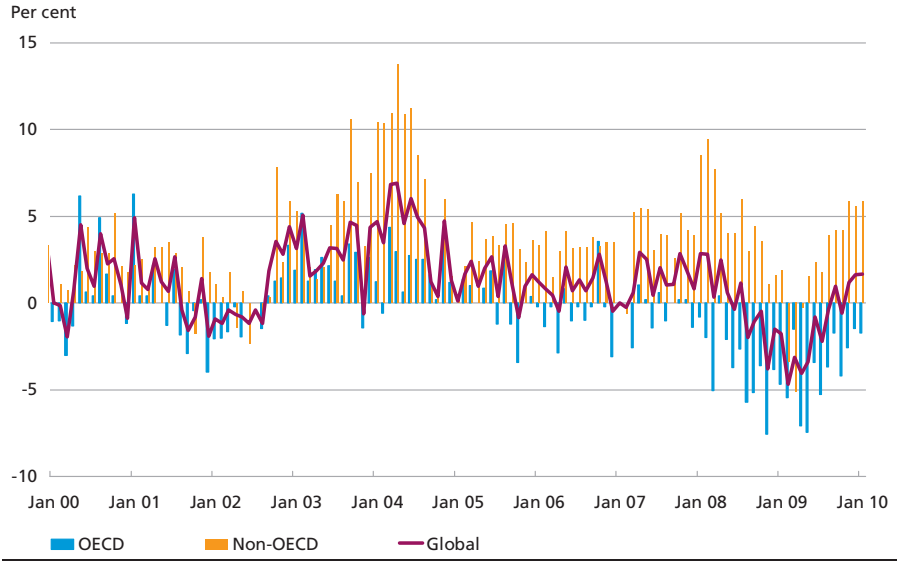


Source: Energy Intelligence, Bloomberg.

mand from the end of 2008. Spare OPEC capacity is currently high, at 5 million barrels per day, corresponding to almost 6 per cent of global demand, cf. Chart 5.

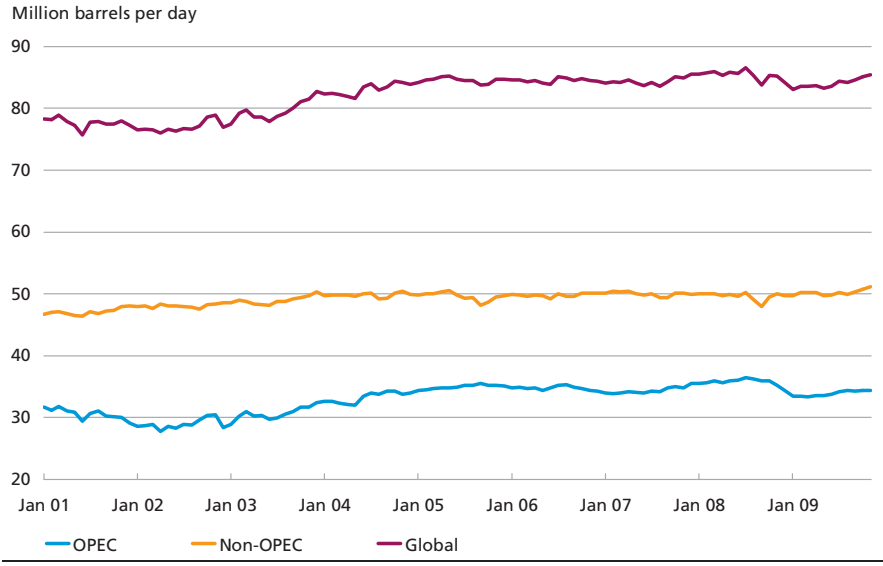
Non-OPEC production capacity is fully utilised, leaving no room for any significant production expansion e.g. when oil prices surged from 2005

DEMAND FOR OIL, ANNUAL CHANGES Chart 3



Source: Energy Intelligence, Bloomberg.

OIL PRODUCTION Chart 4

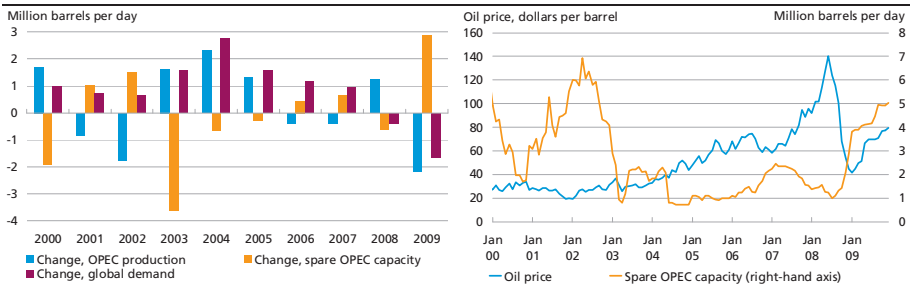


Source: Energy Information Administration.

to mid-2008. When production capacity is expanded, it takes a long time from investment to commencement of production. It follows that it is not possible to increase non-OPEC production in the short term to accommodate stronger demand. This entails low price elasticity on the supply side in non-OPEC countries.

As a result of the conditions described above, the supplier of the marginal barrel of oil is OPEC, which thus has significant influence on oil prices. For many years, OPEC has tried to control oil prices via agreements on production volumes. It has usually been difficult for OPEC to maintain discipline since some countries have deviated from the agreed production volumes. This has not been the case over the past year, however.

CHANGE IN OPEC PRODUCTION AND CAPACITY AND IN DEMAND Chart 5



Source: Energy Information Administration.

OIL MARKET DEVELOPMENTS IN 2008 AND 2009

Oil prices rose by approximately 50 per cent in the 1st half of 2008, but fell by 70 per cent from the peak in the 2nd half of 2008. During 2009 they doubled. The question is whether these developments can be explained by supply and demand factors, cf. Box 1. An alternative explanation is that speculation may have influenced oil prices.

Supply and demand in 2008 and 2009

In the 1st half of 2008, it became clear that the growth prospects for the USA and the euro area were relatively weak. This prompted the IEA gradually to reduce expectations of global demand for oil in 2008, cf. Chart 6. Expectations of OECD demand in 2008 were revised downwards by 2 per cent from January to July, while expectations of non-OECD demand remained relatively constant.

In the months following the collapse of Lehman Brothers in September 2008, the expectations of demand for oil in 2008 and especially in 2009 saw a strong downward revision. As it became more and more clear that the global economy was contracting, demand expectations were revised downwards for both OECD and non-OECD countries. 2009 saw ongoing upward revision of the expectations of global oil consumption in 2009 and 2010, particularly for non-OECD countries.

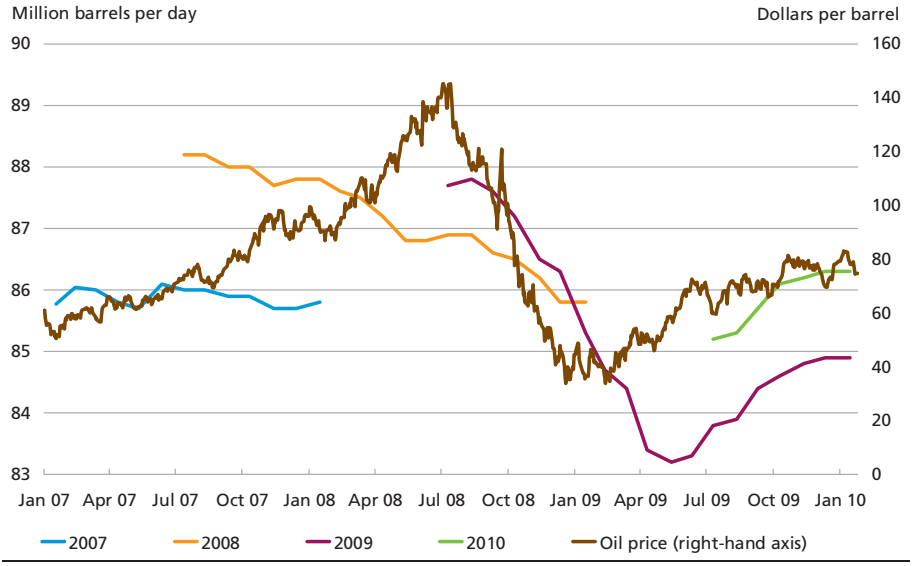
Overall, oil price fluctuations and the pattern of demand expectations are in sync as from the 2nd half of 2008. A number of negative demand shocks in the autumn of 2008 are consistent with the strong drop in oil prices. Similarly, the positive demand shocks since the spring of 2009 are consistent with rising oil prices. The development in the 1st half of 2008, on the other hand, is more difficult to explain on the basis of demand data.

On the supply side, spare capacity was limited at the beginning of 2008, cf. Chart 5, resulting in prospects of a tight oil market. In previous years, this had caused oil prices to surge. Uncertainty about whether

SUPPLY AND DEMAND – CONSEQUENCES FOR OIL PRICES — Box 1

Given the low short-term price elasticity in both the demand for and supply of oil, minor changes in demand or supply conditions may potentially generate strong price volatility. This can be illustrated by a scenario with a demand shock of 1 per cent. In conjunction with demand price elasticity of 0.03, cf. Table 1, and *inelastic* supply (i.e. a situation with no spare production capacity), the adjustment will require a 33-per-cent increase in the equilibrium price in order to obtain balance between supply and demand. Consequently, oil prices will be subject to strong upward pressure in periods of growing demand but low spare capacity. Cases in point are the periods 2003-06 and the 1st half of 2008, cf. Chart 5.

OIL PRICE AND EXPECTATIONS OF GLOBAL DEMAND FOR OIL Chart 6



Source: Monthly Oil Market Reports from IEA and Bloomberg.

OPEC was able to expand the supply in step with growing demand may have been driving the oil price increase.

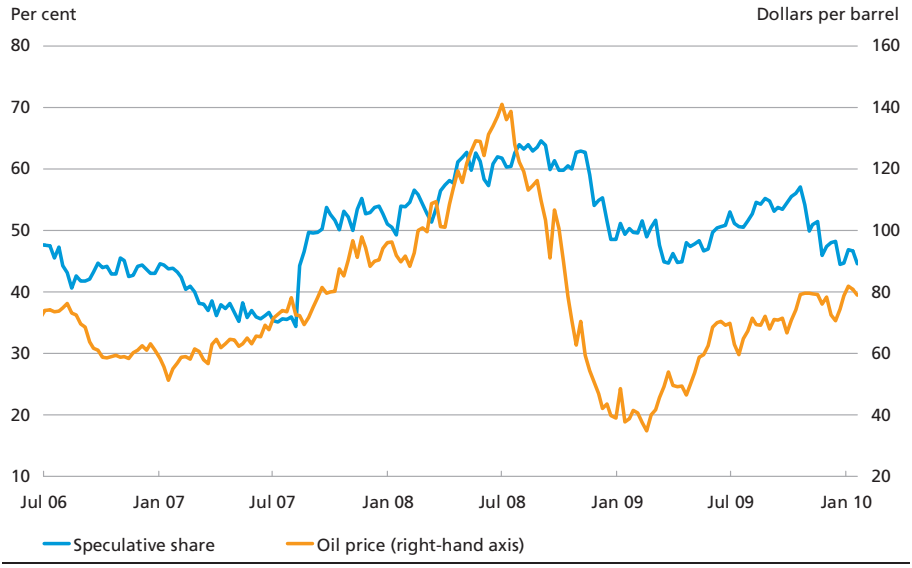
After the onset of the crisis, in the autumn of 2008 OPEC responded to the falling prices by lowering the quota – i.e. the desired OPEC production – on two occasions. This contributed to stabilising prices around the turn of the year 2008/09.

Speculative flows in the financial markets

Activity in the markets for commodity-related financial products has increased strongly since the millennium rollover. Commodities have grown into a separate asset class that financial investors can use e.g. to diversify their existing portfolios or just to obtain exposure to commodities. On the basis of this development, it has been argued that the pattern of oil prices in 2008 is not exclusively attributable to fundamental drivers, but that speculative flows in the financial markets contributed to the volatility.

Oil may be traded in the spot market – at current market prices and with actual delivery of the oil from seller to buyer. Oil may also be traded in the financial markets, e.g. the futures market. A futures contract is a contract for the purchase of oil for delivery at a fixed time in the future at a predetermined price. However, investors do not always buy futures in order to obtain oil. Far from it. Delivery can be avoided by selling the contract or settling in cash before expiry. This enables financial investors and speculators to obtain exposure to oil prices.

OIL PRICE AND SPECULATIVE SHARE OF THE FUTURES MARKET Chart 7



Source: CFTC and Bloomberg.

The best publicly available data comes from the US Commodity Futures Trading Commission, CFTC, which provides information on trade flows in the US futures markets for a large number of commodities, including oil. It its weekly report Disaggregated Commitment of Traders, DCOT, the CFTC classifies investors in the futures market according to whether they trade in the market for speculative purposes or not[1]. Non-speculators may be e.g. producers wishing to hedge oil price risks.

A precondition for a well-functioning futures market is that speculators are willing to act as counterparties of non-speculators. The question is whether the speculators have assumed a considerably higher risk than what is necessary to hedge the risks of non-speculators.

The speculative share of the futures market grew from mid-2007 to mid-2008, followed by a decrease until the turn of the year 2008/09, cf. Chart 7. However, due to the relatively short data series, it is not currently possible to determine whether the degree of speculation was abnormally high.

The IMF and the CFCT, among others, have attempted to find links between speculative flows in commodities markets and price developments. In overall terms, this has not been possible. For example, the CFTC has analysed, on the basis of daily data, whether shifts in investor

[1] The following specific categories are used: Producer/Merchant/Processor/User, Swap Dealer, Managed Money and Other Reportable. The last three are classified as speculative investors, while the producer category is classified as non-speculative.

positions can predict price fluctuations. The CFTC concluded that this is not the case. It is rather the reverse. Consequently, there is no statistical evidence of speculative flows having driven subsequent price developments, see CFTC (2008).

CONCLUSION

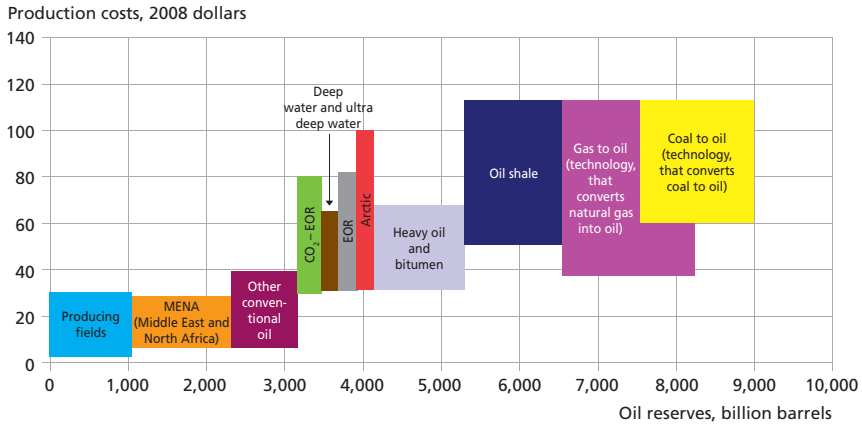
The oil market has seen historically strong fluctuations in recent years.

On the demand side, non-OECD countries will play a key role in the future developments. OECD demand is expected to decline slightly in the coming years. The principal driver of growth is expected to be Asia, including China, India and the Middle East.

On the supply side, the OPEC countries can increase production in the short term if demand rises. They have spare capacity for production of 5.0 million barrels per day, Saudi Arabia accounting for 3.8 million barrels.

However, in the longer term, supply may come under pressure. Production from existing fields, particularly outside OPEC, is declining strongly. Production from mature fields is decreasing by up to 10 per cent annually. Maintaining production from existing fields thus requires enhanced recovery methods that may be cost-intensive. Development of new fields requires large-scale investments and it takes a long time from investment to commencement of production. Moreover, new fields are more difficult to access, and production costs are substantial, cf. Chart 8. Long-term planning is impeded by the great volatility in oil prices. Consequently, investment in new production capacity is associated with considerable risk.

OIL RESERVES AND PRODUCTION COSTS — Chart 8



Note: Enhanced Oil Recovery, EOR (generic term for techniques that enhance the e volume of oil to be recovered from an oil field).
Source: IEA.

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Regulatory Initiatives in the Financial Sector

Borka Babic and Anne-Sofie Reng Rasmussen, Financial Markets

INTRODUCTION

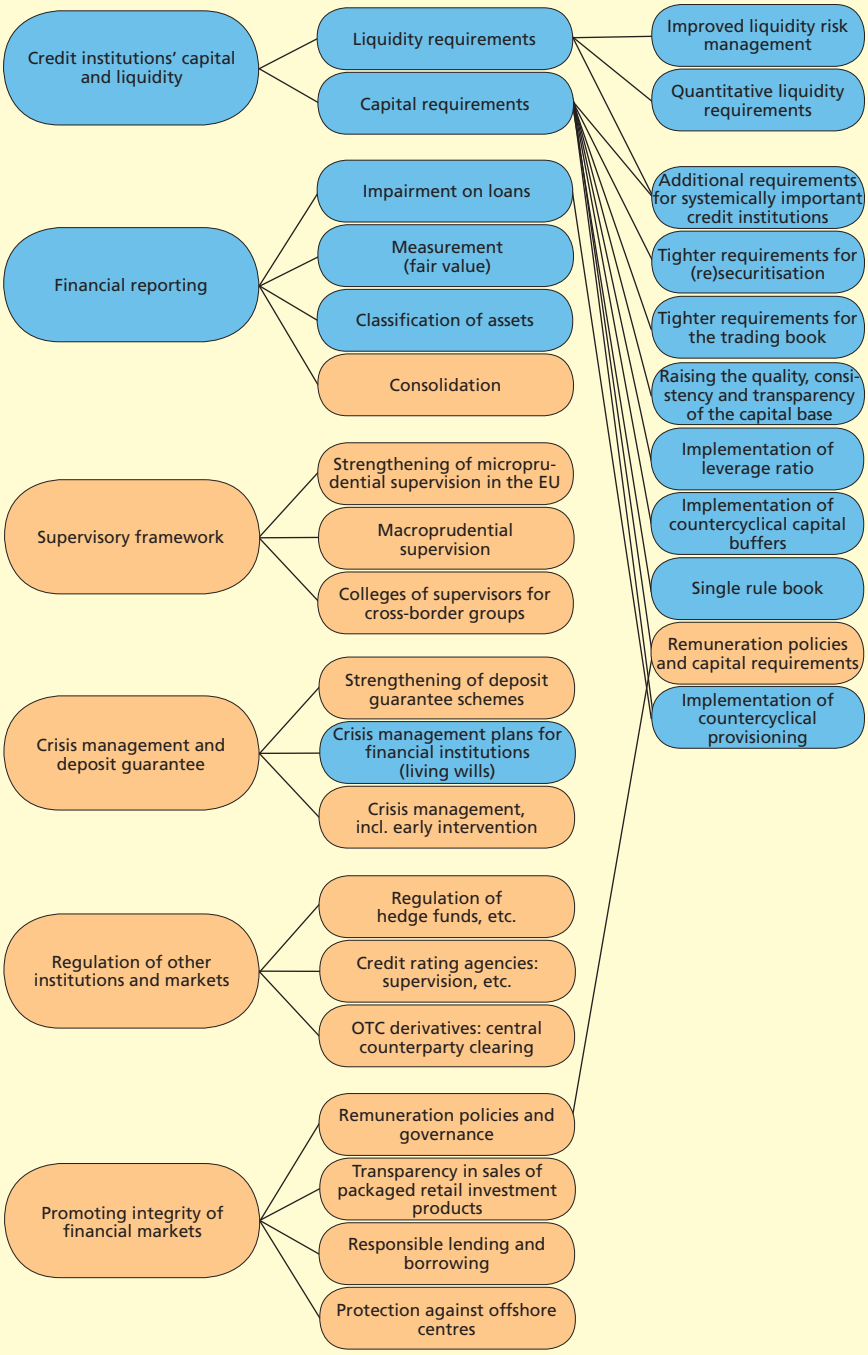
Credit institutions play a special role in the economy and are therefore subject to extensive regulation. The financial crisis has highlighted a number of weaknesses in the current financial regulation. Insufficient requirements in relation to financial institutions contributed to the build-up of large imbalances in the banking sector, thus exacerbating the crisis.

Against that background, authorities and international cooperation organisations have launched proposals and initiatives to address the regulation issues in the financial sector and seek to prevent a repetition of the crisis, cf. Box 1. Focus areas are liquidity, capital adequacy and financial reporting, including whether rules in the latter two areas amplify cyclical fluctuations.

Capital requirements will be enhanced in a number of areas. Tighter requirements have already been adopted in relation to securitisation. The European Commission has tabled proposals for amendment of directives regarding the trading activities of credit institutions that will also raise the capital requirements. Furthermore, countercyclical capital buffers are on the drawing board as well as proposals to improve the quality of the credit institutions' capital, limit their leverage and introduce quantitative liquidity requirements. In all these areas more or less specific proposals have been put forward by the Basel Committee on Banking Supervision, BCBS, and by the Commission. Statutory amendments are expected to be proposed before the end of the year. Additional requirements for systemically important credit institutions are also being discussed. Both the BCBS and the EU are assessing the quantitative impact of the proposed amendments to the rules.

As regards financial reporting, a number of international initiatives have been launched, including amendment of the rules on the impairment of financial assets in order to ensure that larger reserves are built up during economic booms.

OVERVIEW OF INITIATIVES IN THE FINANCIAL AREA Box 1



Note: The blue colour indicates that the topic is discussed in this article. The overview covers selected initiatives.
Source: Ecofin roadmap, October 2009; G-20 statements, April and September 2009.

OVERVIEW OF ADOPTED, PROPOSED AND POTENTIAL AMENDMENTS TO THE EU CAPITAL ADEQUACY RULES — Table 1

Amendments	Status
European Commission proposals, October 2008: • liquidity • securitisation • large exposures[1] • hybrid capital[1] • strengthening of supervisory collaboration in respect of institutions with cross-border activities	Adopted by the European Parliament and the Council. Expected to be implemented in national legislation by 31 October 2010. Enter into force on 31 December 2010 at the latest.
European Commission proposals, July 2009: • re-securitisation • trading book • remuneration	Being discussed by the European Parliament and the Council. Subject to adoption by both bodies, the proposals are expected to enter into force on 31 December 2010.
Proposals submitted for public consultation: • raising the quality, consistency and transparency of the capital base • quantitative liquidity requirements • enhanced requirements for counterparty credit risk • implementation of countercyclical capital buffers • implementation of leverage ratio • countercyclical provisioning • single rule book	The BCBS (in December 2009) and the European Commission (in February 2010) published consultative documents covering these areas (the last two items were only included in the Commission's document, however).[2] These documents have been submitted for public consultation until 16 April 2010. Except in relation to liquidity, the proposals do not contain quantitative requirements. These will be laid down following a quantitative assessment of the proposals conducted in the 1st half of 2010. Final proposals for standards and amended directives are expected to be published by the end of 2010. Amended rules will presumably be implemented by the end of 2012.
Initiatives to be proposed: • reduction of systemic risks by increasing capital/liquidity requirements, etc.[3]	A proposal is due in the course of 2010.

[1] Work in these areas commenced before the onset of the crisis.
[2] In July 2009, the Commission published a consultative document that included dynamic provisioning and a "single rule book".
[3] This topic is included in the Commission's consultative document, but as yet no specific proposals have been tabled.
Source: Websites of the European Commission and the BCBS.

Capital requirements

Revisions of the capital adequacy rules are in progress under the auspices of the Basel Committee and the EU.[1] Several changes have already been introduced since the onset of the crisis or are being introduced, cf. Table 1. In December 2009, the BCBS published a consultative docu-

[1] The current EU rules are laid down in Directives 2006/48/EC and 2006/49/EC, both of which are based on the Basel II Accord.

ment[1] outlining possible amendments to the rules in a number of areas. In February 2010, the Commission published a consultative document that broadly matches the BCBS proposals.[2]

Securitisation[3]

The risks in relation to securitisation were one of the issues highlighted by the subprime crisis (the "originate and distribute" model). The crisis has revealed a risk that credit policies may become too lenient where the credit risk is not retained by the original lender, but transferred to a third party via more or less transparent transactions.

To address the weaknesses of the model, the Commission in October 2008 tabled a proposal to amend the Capital Requirements Directive, including by tightening the requirements for institutions investing in securitised products. For example, investment in structured products will only be permitted if the lender, originator or sponsor retains at least 5 per cent of the nominal value of the securitised product. That will give the lender an incentive to ensure proper credit assessment of the underlying loans.

Subsequently, it has turned out that there is also a need to tighten the requirements for complex securitised products (re-securitisation). These are investment products for which the underlying portfolio of assets used as collateral contains other securitised products. The complexity of these products and their exposure to correlated losses make them more risky than ordinary securitised products. In July 2009, the Commission therefore tabled a new proposal for amendment of the Capital Requirements Directive that will increase the capital requirements for re-securitised products compared with ordinary securitised products with the same ratings.

Strengthening the capital requirements for the trading book

Many of the losses incurred by the global financial sector since the onset of the crisis in mid-2007 have been related to credit institutions' trading books. The capital reserved by credit institutions to cover such losses proved to be insufficient. The crisis has thus disclosed that the credit institutions' internal models for calculating capital requirements for their trading activities systematically underestimate potential losses in the event of volatile markets and markets on a downward trend. Moreover, the models generate pronounced increases in capital requirements

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1 BCBS, Strengthening the resilience of the banking sector, December 2009.

2 European Commission, Consultation regarding further possible changes to the Capital Requirements Directive ("CRD"), February 2010.

3 Securitisation is used to isolate a pool of financial assets within a company from the company itself and obtain separate funding for this pool in the financial markets.

if market conditions deteriorate. Consequently, the credit institutions' capital is subject to considerable procyclical volatility.

The Commission has proposed that credit institutions should adjust their models – and thus their capital planning – so as to be better prepared for periods of market turmoil.[1] Credit institutions should perform stress tests based on a historical period of one year with considerable turmoil in the financial markets. More specifically, the institutions should calculate their stress Value-at-Risk, VaR[2], and on this basis include an extra buffer capital requirement relative to the VaR calculations on which capital requirements have been based so far. Until now, data for the past 12 months has typically been used in the calculations, which means that a low-risk picture will emerge if the previous period was characterised by market stability. In the assessment of the Commission, this part of the proposal would more or less double the capital requirement for the trading book for credit institutions applying VaR models. Credit institutions that do not use internal models for assessment of market risk will not be affected by the amendments.

In addition, credit institutions must set aside capital to cover credit losses on their trading book that are not attributable to the default of an issuer, but to deterioration of the credit rating of the issuer and thus the price of the securities.

Raising the quality, consistency and transparency of the capital base

The crisis has demonstrated that the capital structure of credit institutions is significant when the sector comes under pressure. The crisis has revealed a shortage of high-quality capital, such as common equity, in parts of the financial system. This is the type of capital that market participants have attached importance to during the crisis – unlike other types of capital that can also be included in the calculation of the credit institutions' capital requirement. The latter includes e.g. various types of hybrid capital.[3]

There is international agreement that it is necessary to strengthen the capital base of credit institutions. The BCBS (in December 2009) and the Commission (in February 2010) have presented a number of proposals to strengthen the quality of credit institutions' capital, improve the comparability of the capital base across countries and promote transparency by increasing the disclosure requirements for credit institutions.

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1 European Commission, Proposal for a Directive of the European Parliament and of the Council amending Directives 2006/48/EC and 2006/49/EC as regards capital requirements for the trading book and for re-securitisation, and the supervisory review of remuneration policies, July 2009.

2 VaR expresses how much the value of an asset or a portfolio of assets will fall during a given period of time at a given probability (confidence level), assuming a stress scenario.

3 See Danmarks Nationalbank, *Financial stability,* 1st Half 2009, Box 1, p. 89.

Both documents emphasise the need to strengthen the share of the credit institutions' Tier 1 capital, which comprises common equity and retained earnings.[1] Various criteria for classification as common shares for regulatory capital purposes have been defined. The proposals are aimed at joint stock companies, but in principle the requirements should also be met by non-joint stock companies such as cooperative societies and savings banks. It will, however, be possible for supervisory authorities to take into account the specific constitution and legal structure of the enterprise when applying the Basel criteria. Depending on how strictly the criteria are to be interpreted, this may affect Danish savings banks in particular due to the special characteristics of their guarantee capital.

Criteria have also been defined for the other two types of capital included in the credit institutions' capital base: other Tier 1 capital (hybrid capital) and Tier 2 capital. Under these proposals, hybrid capital with agreed interest-rate step-ups, which give the issuer an incentive to redeem the capital, will neither be eligible as Tier 1 nor Tier 2 capital.

The capital instruments included in Tier 2 capital must – as is already the case in Denmark – be issued with a maturity of at least five years. In the last five years before these instruments mature, their inclusion in the capital base will be reduced on a linear basis, i.e. earlier than under the current Danish rules.

In the 1st half of 2010, both the BCBS and the EU will perform quantitative assessments of the proposal and then determine minimum requirements for common equity, Tier 1 capital and total capital as percentages of risk-weighted items. The current rules stipulating that hybrid capital may constitute up to 50 per cent of the total Tier 1 capital and that Tier 2 capital cannot be included at more than 100 per cent of the Tier 1 capital after deductions will be abolished. As previously announced by the BCBS[2], common equity and retained earnings must be the predominant form of the credit institutions' Tier 1 capital.

Countercyclical capital buffers

Financial activities are inherently procyclical. In good times, when unemployment is low and corporate earnings high, credit institutions are very willing to lend. Conversely, in recessions, when the value of the collateral declines, the risk associated with lending to households and the corporate sector is greater. The credit institutions' scope for assuming further risk also declines as write-downs are expected to increase.[3] Hence, credit institutions become less willing to lend.

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1 Under the new BCBS terminology in this area, all components of Tier 1 capital constitute "going-concern capital", while Tier 2 capital is "gone-concern capital".

2 BCBS, Comprehensive response to the global banking crisis, September 2009.

3 See Borka Babic, Credit Institutions and Procyclicality, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2009.

The capital adequacy rules potentially amplify this procyclicality. 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. Within the framework of the rules, credit institutions may, however, reserve more capital for unforeseeable events, etc.

In December 2009 it was announced that the BCBS will perform a quantitative assessment of several proposals for reducing the procyclicality of the minimum capital requirement. Among other things, this requirement is based on probabilities of default, PDs. Naturally, these are low in good times and may therefore contribute to low capital requirements. The BCBS will therefore perform a quantitative assessment of the effect of to specific proposals. The first is based on the use of the highest average PD estimate applied by a bank historically to each of its exposure classes as a proxy for a downturn PD. The second is based on the use of an average of historic PD estimates for each exposure class.

The BCBS has also presented a proposal for building up countercyclical capital buffers during upswings, and so has the Commission in its consultative document. The proposal is based on simple capital conservation rules. Restrictions on dividend payments, buy-backs of shares or bonus payments are to ensure that buffers are built up. Such buffers must be in excess of the minimum capital requirement, and the lower the degree of compliance with the buffer requirement is, the greater the restrictions on profit distribution will be, cf. the example in Table 2. The proposals will be detailed during 2010.

Internationally it is also being assessed whether it would be appropriate to require extra buffers when there are indications that lending has reached a high level. Historically, high lending growth has been followed by substantial losses.

EXAMPLE OF BUILD-UP OF CAPITAL BUFFERS THROUGH CAPITAL CONSERVATION

Table 2

Compliance with buffer requirement, per cent	Per cent of earnings to be saved by the credit institution
< 25	100
25 – 50	80
50 – 75	60
75 – 100	40
>100	0

Source: BCBS, Strengthening the resilience of the banking sector, December 2009.

Leverage ratio

High and increasing leverage – expansion of credit institutions' balance sheets relative to their capital – characterised parts of both the global and the Danish financial sector during the period leading up to the crisis. High leverage has made the banking sector more vulnerable to losses and difficult financing conditions, thereby contributing to procyclicality.

Internationally, there is broad agreement on the need to limit increases in the credit institutions' balance sheets in upswings by supplementing the capital adequacy rules with a "simple leverage ratio". In this respect, both the BCBS and the Commission have tabled proposals for implementing a leverage ratio to supplement the Basel II risk-based requirements. The ratio will be calculated as exposures relative to capital. Exposures will include all assets, including a number of off-balance-sheet items such as derivatives, repos and liquidity facilities. Basically, the capital should be of a high quality, i.e. the total Tier 1 capital or the common equity component of Tier 1 capital, but the final decision awaits the results of the quantitative analysis.

The proposals do not distinguish between different loan types and do not provide for reduction of exposures by means of physical or financial collateral. Therefore a simple leverage ratio does not necessarily give a true and fair view of risk for all types of credit institutions. For example, Danish mortgage-credit institutes typically have high leverage ratios, but at the same time their lending is well-collateralised.

In the 1st half of 2010 calibration of the leverage ratio will be considered as part of impact assessment, including interaction with the risk-based measure. BCBS will present its final proposal by the end of the year.

Systemically important financial institutions

Internationally there is agreement on the need to reduce risks related to systemically important financial institutions. Expectations of government bail-outs may give credit institutions an incentive to assume disproportionately large risks. At the same time, these institutions may benefit from lower financing costs due to implicit government guarantees.

A basic precondition for more restrictive regulation of systemic institutions is the ability to identify these institutions and quantify their contributions to systemic risk. A number of parameters may be applied when assessing the systemic importance of such institutions. Size is an obvious indicator of systemic risk. The degree to which an institution is connected with other institutions is another important indicator of its systemic importance – the more it is connected, the higher the risk that

problems will spread to the entire system. Interconnection could mean that smaller institutions are also systemically important. Lack of substitutes for the services offered is also a key indicator of systemic importance. The institution may thus be difficult to replace because of its importance to central infrastructure such as payment and settlement systems. These criteria are to be supplemented with a number of vulnerability variables such as leverage, liquidity risk and complexity.[1]

There are various ways of limiting the systemic risk of financial institutions. G-20 has requested the Financial Stability Board, FSB, to submit proposals for measures in relation to systemically important institutions, including more intensive supervision and further capital and liquidity requirements, by end-October 2010. The BCBS, the IMF and the Commission are also looking into various issues related to systemically important institutions. The G-20 emphasises that such institutions should develop internationally consistent firm-specific contingency and resolution plans ("living wills").

In connection with an amendment of the Danish Financial Business Act that is currently underway it has been proposed that the Danish Financial Supervisory Authority should take systemic risk into account to a greater extent than is currently the case.

Single rule book in banking

In July 2009 the Commission published its deliberations on increased harmonisation of the EU rules on capital requirements.[2] The Commission wishes to limit the opportunity for "gold plating", whereby a member state introduces requirements exceeding those contained in the Directive. The Commission's proposal targets minimum capital requirements, large exposures and disclosure rules.

In the Commission's consultative document from February 2010 it is emphasised that the aim of harmonisation is not to implement uniform rules irrespective of national conditions, but to ensure that a financial product is treated in the same way, irrespective of in which member state the bank that offers the product is authorised. In addition, the Commission, on the basis of the consultation responses received in connection with the July 2009 document, states that its harmonisation proposal enjoys considerable support.

In its February 2010 document, the Commission presents its deliberations on harmonisation of rules on lending against real property as collateral. For mortgage loans, the Commission is thus contemplating intro-

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1 IMF, FSB and BIS, Guidance to Assess the Systemic Importance of Financial Institutions, Markets and Instruments, November 2009.

2 European Commission, Possible changes to the capital requirements directive, *Staff Paper*, July 2009.

ducing limits to the size of the loan relative to income and relative to the value of the property. These limits must be observed if the institution is to apply lower risk weights when calculating its capital requirement.

In addition, the Commission is considering methods to limit inappropriate increases in lending during upswings, e.g. by linking the loan-to-value threshold to the cyclical position and the development in the housing market.

LIQUIDITY REGULATION

Liquidity risk for credit institutions can be defined as the risk that a credit institution is unable to meet it obligations as they fall due without assuming unacceptable costs. Liquidity risk is a natural element of a credit institution's activities due to differences in the maturities and liquidity of deposits and loans.

The financial crisis in recent years has clearly illustrated the volume of liquidity risk in the financial system and the consequences to credit institutions, the financial system and society as a whole. Against this background, the financial crisis has triggered a wish for intensified and improved liquidity regulation.

Liquidity regulation and supervision have previously been predominantly national concerns. Some countries have based their national liquidity regulation regimes on a number of general principles for liquidity management published by the BCBS, but implementation has varied from country to country. The financial crisis has highlighted the need to review liquidity regulation and ensure a higher degree of coordination and alignment. Globalisation of the financial markets means that the liquidity risks faced by individual banking groups cannot be confined within national borders. This should be taken into account in liquidity regulation.

The BCBS principles for good liquidity management were revised in 2008, and the Committee of European Banking Supervisors, CEBS, has made a number of recommendations on good practice. The principles published by the BCBS and the CEBS are similar in many respects. Overall, both are aimed at ensuring focus on internal liquidity risk and management in financial enterprises and at strengthening the role of the supervisory authorities.[1]

[1] For an in-depth description of the BCBS principles for liquidity management, see Jakob Windfeld Lund, "New Principles for Liquidity Risk Management" in Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2008.

These qualitative principles and recommendations have been incorporated into the Capital Requirements Directive. Previously there were only a few phrases about taking liquidity risk into consideration.

It appears from the revised Capital Requirements Directive that credit institutions must prepare solid strategies, policies, processes and systems to identify, measure and manage liquidity risks. Credit institutions must take various precautions to reduce and mitigate liquidity risks, including building up liquidity buffers, ensuring a sufficiently diversified funding structure and securing access to sources of funding. When determining the scope and composition of these instruments to mitigate risk, alternative stress scenarios must be considered. These should include both institution-specific and market-wide stress, as well as scenarios combining the two. Various time horizons and stress levels should also be taken into account.

Supervisory authorities must assess the exposure of the credit institutions to liquidity risk, measurement and management of liquidity risk, including analyses of alternative scenarios, management of instruments to mitigate risk (especially the size, composition and quality of liquidity buffers) and contingency plans.

Initially, these are qualitative standards for liquidity management and supervision. The amendments to the Capital Requirements Directive are expected to be implemented in Danish law by October 2010 and to come into force on 31 December 2010.

In addition to these qualitative standards for liquidity management, the BCBS and the CEBS are still preparing more quantitative measures and requirements.

In December 2009, the CEBS published a set of guidelines on liquidity buffers which credit institutions should observe in order to be able to resist liquidity stress for at least one month without having to adapt their business models. The guidelines specify the scope and composition of the assets to be included in a liquidity buffer.

The BCBS' consultative document from December 2009 includes proposals for two new quantitative liquidity ratios. In addition, it suggests various monitoring tools that supervisory authorities should use. The Commission's consultative document from February 2010 includes more or less the same proposals. The two quantitative liquidity ratios proposed are:

- "Liquidity Coverage Ratio" – This ratio relates to the credit institutions' liquidity buffers. It indicates the volume of unencumbered[1]

[1] Unencumbered assets are assets that have not been pledged as collateral and that can thus freely be used to generate liquidity.

high-quality assets that an institution must hold as a buffer against the net payments to be made by the institution in the event of intensive short-term liquidity stress, based on a stress scenario determined by the supervisory authority. The volume of liquid assets to be held by each institution will thus depend on the liquidity risks faced by the institution.

- "Net Stable Funding Ratio" – The second quantitative ratio concerns the funding structure of financial institutions. This ratio indicates the volume of stable sources of long-term funding used by an institution relative to the liquidity profile of the assets financed by the institution, as well as the potential liquidity withdrawals arising out of off-balance-sheet commitments and obligations. A minimum level of stable funding is laid down, which must be observed by the institution. Stable funding is defined as funding that can be expected to be stable over a 1-year horizon.

The proposed Liquidity Coverage Ratio could have consequences for the Danish market for mortgage bonds if implemented in its current form. It envisages a very stringent definition of the assets eligible for inclusion in the liquidity buffer. This narrow definition does not include covered bonds, which constitute a substantial part of the Danish bond market. A large proportion of the Danish credit institutions' liquidity is currently invested in covered bonds. If covered bonds can no longer be included in the definition of "highly liquid high-quality assets", demand for these bonds will presumably fall. The proposed Net Stable Funding Ratio could also pose a challenge for the Danish mortgage-credit system. The definition applied means that Danish mortgage bonds with a term to maturity of less than one year cannot be recognised as stable funding. At the same time, it is a requirement that loans with a maturity of more than one year are fully financed by stable funding. This will affect Danish adjustable-rate loans as they are financed via short-term bonds.

FINANCIAL REPORTING

Since the onset of the crisis, several aspects of financial reporting have been in focus, including:

- rules for measurement and classification of assets, and
- rules on impairment/provisions for loans.

Valuation and classification of financial assets

The International Financial Reporting Standards, IFRS, are laid down by the International Accounting Standards Board, IASB, which is an inde-

pendent organisation. The IFRS prescribe the use of various measurement methods, including fair value. Since the onset of the crisis, fair value has been criticised for being procyclical and for not functioning when the markets are under stress or when assets are illiquid. In response to the criticism, the IASB is reviewing the guidelines for the use of fair value, including when the instruments are illiquid.[1]

Moreover, in November 2009, the IASB adopted an amendment to the financial reporting standards concerning classification of assets.[2] The number of measurement methods has been reduced, and in future classification will depend on the business model applied. Against this background, it will be possible to classify assets as assets measured at amortised cost[3] or as assets measured at fair value with value adjustment over the income statement.

With the new standards, the "available for sale" category will be abolished. Financial assets in this category are measured at fair value and value adjustments are carried directly to equity. The same applies to the "held to maturity" category, which currently gives credit institutions the option to value listed bonds at amortised cost if they are to be held until maturity.

In principle, these amendments apply to financial statements from 2013 onwards, but the IASB permits application of the rules from 2009. The Commission has, however, chosen not to approve the amendments until the other two phases of the IASB project on replacement of IAS standards have been completed.[4] Consequently, Danish credit institutions were not able to apply the amended standards in 2009. The IASB is expected to complete its project in 2010.

The amendments entail a much-needed simplification of the rules. How these amendments will affect the credit institutions' financial statements depends on the business models applied. In this context it should be noted that a bank may operate with several business models.

From a Danish point of view, it is important that mortgage-credit institutes can still apply fair value on both sides of the balance sheet, i.e. for lending as well as bonds issued. This will also be possible under the new rules.

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1 IASB, Fair Value Measurement, Exposure Draft ED/2009/5, May 2009.

2 For further information see IASB, Phase 1 Classification and Measurement, at: http://www.iasb.org/Current+Projects/IASB+Projects/Financial+Instruments+A+Replacement+of+IAS+39+Financial+Instruments+Recognitio/Phase+I+-+Classification+and+measurement/Phase+I+-+Classification+and+measurement.htm.

3 See the section on impairment of financial assets.

4 The other two phases of the project relate to the standards for impairment of financial assets and the standards for hedge accounting.

Impairment of financial assets

Under the IFRS, impairment of financial assets measured at amortised cost should take place on the basis of objective indications of impairment (the "incurred loss model"). In Denmark this principle was introduced in 2005 in connection with the transition to the IFRS and replaced the prudential principle. Combined with cyclical developments, the new rules contributed to reducing provisions in the period leading up to the financial crisis.[1] This made the credit institutions vulnerable to the cyclical downturn.

In November 2009, the IASB published a draft "expected cash flow model" for calculation of impairment of financial assets. The new model enables earlier recognition of credit losses than the current rules do.[2]

One of the differences compared with the current incurred loss model lies in the calculation of the effective interest rate on the loan. Under the existing rules, interest income, fees and transaction costs are amortised over the expected maturity of the loan on the basis of the effective interest rate, which is calculated exclusive of expected credit losses. In the proposed expected cash flow model, the effective interest rate is to be calculated on the basis of expected cash flows. Cash flows are to be estimated on the basis of probability-weighted potential outcomes, in relation to both the size and timing of payments. Under the expected cash flow model initially expected credit losses will thus be included in the effective interest rate.

The expected cash flow model entails that the credit institution must, on every balance-sheet date, reassess its estimates of expected cash flows. Any change to the amortised cost as a result of changes in expected cash flows must be included on the income statement. Value adjustments may be negative or positive, depending on whether the credit institution expects the borrower's payment ability to deteriorate or improve.

The transition from a model only permitting impairment losses when there is objective evidence of impairment to a model which regularly takes into account expected losses can be expected to lead to larger provisions in good times. This will boost the credit institutions' resilience to cyclical reversals, while also reducing the procyclicality of impairment charges.

The IASB proposal includes extensive presentation and disclosure requirements. The credit institutions must provide information about the

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1 For further information, see the article in the *Monetary Review* referred to in footnote 3 on p. 80.

2 For further information see IASB, Exposure draft Financial Instruments: Amortised Cost and Impairment, November 2009. The proposal has been submitted for public consultation until 30 June 2010.

estimates applied and any changes to such estimates, policies for writing off loans that have been impaired, and information on any stress testing performed as part of the institution's internal risk management.

Countercyclical provisioning

Countercyclical provisioning is another topic included in the European Commission's consultative document from February 2010. According to the document, the purpose of implementing the provisions would be to ensure that credit institutions hold reserves to cover the losses expected over a business cycle. Capital buffers, on the other hand, are to be used to cover unexpected losses. For banks applying internal models for calculating credit risk (the Internal Ratings-Based – IRB – approach), provisions must be calculated on the basis of*, inter alia*, the average default rate expected over a business cycle, i.e. through-the-cycle probability of default. In good times, expected losses will be higher than write-downs calculated in accordance with the current method (the incurred loss model). In bad times, the opposite applies. Reserves will thus be built up in good times and reduced in bad times, thereby dampening procyclicality and making the institutions more resilient to economic fluctuations.

An advantage of this model compared with dynamic provisioning,[1] which is the model previously considered by the Commission, is that IRB banks will be able to apply bank-specific models and data.[2] Hence, it will be possible to take bank-specific credit risks into account[3], and thus the non-availability of data for calculation of dynamic provisions in many countries will no longer constitute a problem.

However, many banks do not apply the IRB approach today, which limits the advantages of this model. Moreover, the model is based on the current model for impairment of financial assets and therefore does not immediately tie in with the expected cash flow model as proposed by the IASB.

In addition, capital buffers are generally preferable to countercyclical provisioning as they make the credit institutions' income statements more transparent.

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1 For a more detailed description of the Spanish model for dynamic provisions, see Borka Babic, Credit
2 Institutions and Procyclicality, Danmarks Nationalbank, *Monetary Review,* 3rd Quarter 2009, Box 1.
3 European Commission, Possible changes to the capital requirements directive, *Staff Paper*, July 2009.
The model entails 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.

SUMMARY

It is important to address the weaknesses in financial regulation highlighted by the crisis. Consequently, new rules are underway in a number of areas.

The timing of the introduction of the new rules is crucial. On the one hand, immediate tightening of capital and liquidity requirements could lead to undesirable intensification of the balance-sheet contraction performed by many credit institutions worldwide. On the other hand, due diligence requires credit institutions to adapt to expected changes in the rule set and to adjust their balance sheets accordingly.

Like countercyclical provisioning, the IASB's proposal to switch to an expected cash flow model would increase the banks' resilience to recessions and reduce procyclicality. The proposal for countercyclical provisioning should be viewed in relation to other measures to counteract procyclicality, such as the implementation of capital buffers and leverage ratios. It is important to assess the overall impact of these and other proposed measures.

When amending financial reporting standards, it is important to keep in mind that while simplification of the rules is desirable, the information content in the credit institutions' financial statements must not deteriorate.

From a Danish point of view, the proposals submitted so far contain a number of particularly significant elements. More stringent liquidity rules are among the requirements that – if implemented as proposed by the BCBS – can be expected to have an impact on the Danish mortgage-credit system. Furthermore, the BCBS proposal to implement a leverage ratio that does not make a distinction between different loan types and does not permit reduction of exposures by way of collateralisation, will be to the disadvantage of the Danish mortgage-credit institutes.

New Payment Instruments

Jesper Bakkegaard, Payment Systems

INTRODUCTION

Danish as well as foreign consumers increasingly use new payment instruments in shops and on the Internet, primarily mobile payments and payments with "electronic money", which are prepaid funds stored on a chip card or a computer. A third new payment instrument, Internet bank payments for online purchases, is expected to gain substantial ground in the coming years.

Consumers are often reluctant to change their payment habits and use new payment instruments. In Denmark, a main reason has been the widespread use and acceptance of the Dankort debit card among consumers and retailers, which has limited the benefits of new instruments.

However, several factors indicate that new forms of payment now have better chances of finding a foothold than previously. Several potential new payment instruments are already widely used by consumers, with the mobile phone as the most obvious example. Moreover, technological advances have made it possible to purchase goods and services with new payment instruments. Finally, legislation passed in recent years has improved the framework conditions for new instruments.

Consumers and retailers prefer the payment instruments considered most efficient. An important dimension here is the payment execution time: the faster the payment can be made, the more efficient the instrument is considered to be. Shorter execution times can often only be achieved by compromising security. Therefore, security must be weighed against efficiency for both consumers and retailers.

Central banks support secure and efficient payments and are therefore interested in new payment instruments. Furthermore, central banks issue banknotes and coins, and the new payment instruments to some extent represent alternatives to these. For payments above a certain size, cash is usually assessed to be riskier and more costly than other types of payment. However, users may prefer cash for other reasons, such as anonymity. The pros and cons of cash payment are not discussed further in this article.

MOBILE PAYMENTS

In recent years, the field of application for mobile phones has been expanded significantly, and the mobile phone is increasingly expected to gain ground as a payment instrument. This is not only due to its widespread usage, but also because technological advances have paved the way for several new payment services and expanded the range of goods and services available via a mobile phone. These are no longer restricted to digital services, such as ringtones etc., but also include other goods and services.

Finally, mobile payments offer certain advantages for suppliers of goods and services and especially for consumers. These payments are typically executed faster than other types of payment, and they only require the use of a mobile phone, which is easily accessible since many consumers always carry one with them anyway.

Types of mobile payments

Overall, mobile payments can be divided into remote transactions and proximity transactions. A *remote transaction* is a payment that can be made at a shorter or longer distance of the goods or services purchased and can be executed irrespective of the customer's location. Remote transactions are typically executed by sending a text message from the mobile phone.

Proximity transactions are payments that are executed physically close to the goods or services purchased, e.g. in a supermarket. These transactions are typically executed via Near Field Communication, NFC, which is a special contactless technology that allows data to be exchanged within a distance of few centimetres.

Similarly, there are two types of settlement of mobile payments. One type implies booking by the mobile telephone company, either in the form of an additional charge to the customer's subscription or via prepaid airtime. The second type is direct settlement via bank accounts according to the same procedures as for ordinary payment instruments, such as the Dankort.[1]

Regulation

In Denmark, mobile payments are regulated by the Payment Services Act. The Act came into force on 1 November 2009 and is an implementa-

[1] See Jesper Bakkegaard, Mobilbetalinger (Mobile Payments – in Danish only), Danmarks Nationalbank, *Working Papers*, No. 63, October 2009.

tion of the Payment Services Directive, which is aimed at harmonising rules for payment intermediaries in the EU.[1]

However, the Payment Services Act only covers payments for which the telecom company merely acts as an intermediary and is not involved in providing goods or services. Thus, purchase of bus tickets is comprised by the Act, but not ringtones, news, etc. or value-added services supplied by the telecom company.

If payment is settled via the mobile phone customer's subscription with the telecom company, the company must in principle seek permission to operate as a payment institution. This is a new type of financial institution that has been introduced with the Payment Services Directive. This means that the telecom company must meet a number of harmonised requirements, including capital requirements and rules for the protection of customer funds, also known as ringfencing.

If payments are settled by using prepaid airtime, this could technically be defined as electronic money, e-money, see below. The telecom company will then have to seek authorisation as an issuer of e-money if the value of the payments exceeds a certain limit. Under the current legislation, such a company may not provide other services than intermediation of e-money payments.

In Europe, this limitation has been overcome with the recently adopted revision of the E-Money Directive, see below. This allows e-money issuers to provide other payment services, including mobile payments, settled via the customer's subscription. The revised E-Money Directive is now to be implemented in Denmark.

In Denmark, mobile payments are moreover regulated by a framework agreement signed by the telecom companies in June 2008. The agreement includes common rules for the supply of services settled via an additional charge to the mobile phone subscription, the aim being to promote the use of mobile phones as a payment instrument.

The mobile payment market

In other countries, mobile payments are undergoing rapid development. Today, suppliers offer NFC-based solutions for proximity transactions in many countries, e.g. for the purchase of bus and train tickets, minor purchases of goods etc. Remote transactions have gained ground in less developed countries, where access to traditional banking services is limited, and no real payments infrastructure exists.

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[1] See Anders Mølgaard Pedersen, The Directive on Payment Services, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2007.

An example of a system for transfers based on remote transactions via a mobile phone is the M-PESA system in Kenya. This system allows customers to transfer amounts to any other M-PESA customer via their mobile phones. Furthermore, customers can deposit and withdraw funds from their accounts with M-PESA.[1]

In Denmark, the mobile phone is still only to a limited extent used as a payment instrument. In recent years, several pilot projects have, however, been launched with remote transactions and payment via text messages with subsequent settlement via the telecom company alone. These have primarily been experiments with purchase of tickets for means of transport, such as buses and trains.

This year, PBS and the Danish banks expect to launch a mobile solution which also initiates the purchase with a text message, but with settlement via the customer's bank account and not through the telecom company. Proximity transactions based on NFC technology are not yet offered in Denmark.

PAYMENTS WITH ELECTRONIC MONEY

Electronic money – e-money – covers electronically stored monetary value that is valid for the purchase of goods and services from others than the issuer. Exactly like cash, e-money is typically used for minor payments in shops. Furthermore, certain types of e-money are particularly useful for online shopping.

In 2000, the European Parliament and the Council adopted the E-Money Directive, which regulates the issue of e-money.[2] The purpose was to strengthen the development of the e-money market in the EU, thereby promoting growth in online shopping and, more generally, reducing the costs of retail payments.

However, the e-money market has not developed as expected, and the use of e-money in Denmark as well as abroad is relatively limited. Neither consumers nor payment recipients have so far found the advantages of using e-money sufficiently attractive. Moreover, the relatively strict requirements imposed on e-money issuers in the Directive have been an impediment to progress.

In 2008, the European Commission therefore presented a revised E-Money Directive, cf. Box 1. The proposal contained an easing of the requirements for e-money issuers, including lower capital requirements, as

[1] See Howard Williams and Maili Torma, Trust and Fidelity: From "under the mattress" to the mobile phone, Moving the debate forward, Vodafone, *The Policy Paper Series*, No. 6, 2007, for more information about M-PESA.

[2] Directive 2000/46/EC on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

THE E-MONEY DIRECTIVE Box 1

With the emergence of new prepaid payment instruments, a need arose for a regulatory framework for such instruments and appropriate supervision. As a consequence, the European Parliament and the Council in 2000 adopted the E-Money Directive.[1]

However, the development of the e-money market has proved to be relatively sluggish, and according to the European Commission, one impediment has been regulation in this area. One of the problems is the unclear definition of e-money and the field of application of the Directive. Other problems are presented by the very extensive supervision, including the strict capital requirements, non-harmonised exemption rules and authorisation procedures.

The European Commission has therefore prepared a revised E-Money Directive – subsequently adopted by the European Parliament and the Council – with a view to easing market conditions for e-money issuers. The need for such a revision was reinforced by the adoption of the Payment Services Directive. The Directive introduces a new type of institutions – payment institutions – which currently, without the amendments to the E-Money Directive, may provide more forms of payment services and other activities than e-money institutions, but are subject to less rigorous supervisory requirements.

Overall, the amendments to the E-Money Directive level the playing field for suppliers of payment services and generally make it easier to take up and pursue operations as an e-money issuer.

More specifically, the initial capital requirement for e-money issuers is reduced from 1 million euro to 350,000 euro, bringing it more in line with the risk assumed. Add to this that the scope of activity for e-money institutions is expanded to include other payment services, such as services that make it possible to deposit cash amounts in a payment account or make withdrawals from the account as well as execute payment transactions, including transfer of funds to a payment account with the user's supplier of payment services or with another supplier. Moreover, e-money institutions will be allowed to grant credit, provided that it is only granted in connection with the execution of a payment transaction.

[1] Directive 2000/46/EC on the taking up, pursuit and prudential supervision of the business of electronic money institutions.

well as a number of changes resulting from the Payment Services Directive. The revised E-Money Directive was adopted by the European Parliament and the Council in 2009.

Background

Usually, a distinction is made between card- and network-based e-money, depending on where the monetary value is stored. Card-based e-money, also known as hardware e-money, can be compared with an electronic purse with the (remaining) value of the card being registered on a chip. Network-based e-money, or software e-money, is stored on a server and registered on individual accounts that the holders can access via the Internet.

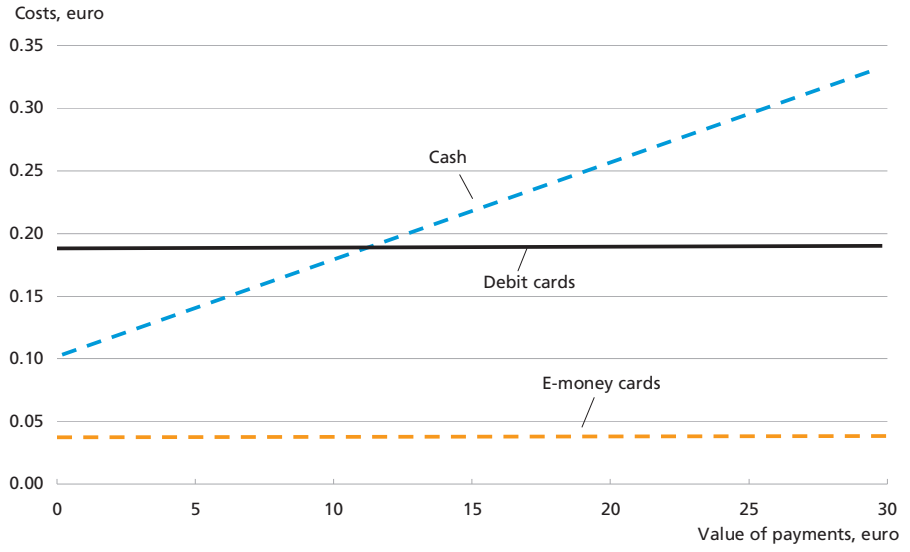
The first e-money emerged in Japan in the late 1980s when telecom companies, transport authorities and retailers expanded the applications of their prepaid chip cards. In Europe, this type of card began to gain ground in the early 1990s. The development of network-based e-money was somewhat more sluggish at first, but gained momentum with the increasing use of the Internet.

One of the first European e-money products was the Danish Danmønt card. The card was developed by the limited liability company Danmønt A/S, in which PBS held a majority stake, and was introduced in 1992. However, Danmønt was never a success, and the card was phased out in 2005. The lack of success was probably due to the already existing Dankort, which fulfilled the same consumer needs as the Danmønt card.

Several international studies suggest that e-money is an efficient payment product. This has e.g. been documented in a Dutch survey of the economic consequences of various types of retail payments, including e-money card payments. The results of the survey, cf. Chart 1, are that the costs of payments with e-money cards are lower than the costs related to cash payments and debit cards for all payment values.

The relatively low costs of e-money payments are largely due to the fact that e-money is prepaid, meaning that the value to be paid is already on the chip of the card or e.g. in an e-account. Therefore, unlike

COSTS OF RETAIL PAYMENTS IN THE NETHERLANDS Chart 1



Note: The Chart shows the economic consequences of various types of retail payments as a function of the value of the payment. For payments with debit or e-money cards, the costs of a payment are largely independent of the size of the payments. For cash payments, costs rise in step with the value of the payment.

Source: See H. Brits and C. Winder, Payments are no free lunch, De Nederlandsche Bank, *Occasional Studies*, Vol. 3, No. 2, 2005.

transactions with traditional payment cards, it is not necessary to verify the right to draw on the underlying account, which requires online communication with an authorisation centre.

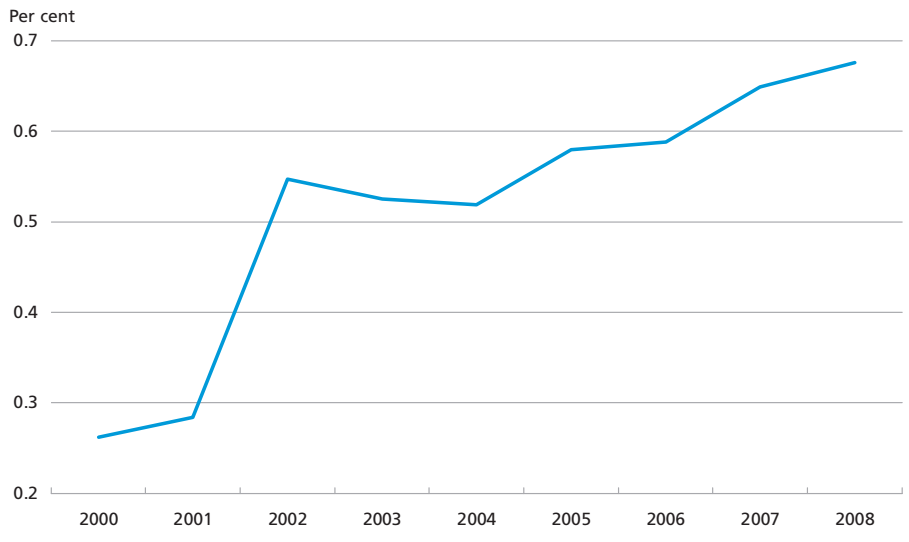
Use of e-money

Statistics on the popularity of e-money are scarce. According to the European Central Bank, ECB, payments with e-money account for less than 1 per cent of total retail payments in Europe, cf. Chart 2. The ECB's statistics do not comprise payments with network-based e-money, including PayPal transactions, see below, but nevertheless show that e-money is still used only to a modest extent.

E-money has not become popular in Denmark either. Existing e-money products are primarily network-based solutions in the form of e-accounts. The consumer opens an e-account on a central server and then transfers money to the e-account from his/her debit or credit card via the existing payments infrastructure. Once this has been done, the consumer can make online purchases without stating the card number etc.

Payment is effected by the customer transferring an amount from his/her e-account to the seller's e-account. The same procedure applies if the customer wishes to make a transfer to another customer. All transfers between e-accounts take place in a closed system outside the exist-

TRANSACTIONS WITH E-MONEY RELATIVE TO THE TOTAL NUMBER OF RETAIL PAYMENTS IN THE EU — Chart 2



Note: The Chart does not comprise all e-money transactions in the EU, as payments with network-based e-money are not included.
Source: ECB's Blue Book Statistics.

PAYPAL Box 2

PayPal Inc. offers customers the option to send and receive payments online. In 2002, the company was acquired by the online auction company eBay and through a subsidiary, PayPal Europe, it obtained a licence as a credit institution in Luxembourg. According to the E-Money Directive, credit institutions are allowed to issue e-money in line with e-money institutions.

In practice, transactions in the PayPal system are made by the customer transferring an amount to his/her PayPal account via the existing payments infrastructure. The customer can subsequently make an online purchase by transferring the relevant amount from his/her PayPal account to the seller's account. The same procedure applies for transfer of funds between two customers' PayPal accounts.

PayPal customers also have access to a facility allowing them to link up a bank account with PayPal. In case there are insufficient funds in the PayPal account to make a purchase, the transaction can still be executed, as the funds will then be drawn on the bank account.

On a global scale, PayPal has more than 80 million active accounts and executed transactions at a total value of USD 71 billion in 2009, a 19 per cent rise on the previous year.

Source: www.paypal.com.

ing payments infrastructure. In Denmark, the e-account solution is known from e.g. the PayPal system, cf. Box 2.

A major advantage of using e-accounts for online payments rather than the traditional payment cards is that the user does not have to enter card information, which reduces the risk of fraud and abuse.

A number of payment products are in the grey area of e-money. This applies to e.g. electronic vouchers used as gift vouchers, the telecom companies' prepaid calling cards and the travel card (Rejsekortet), cf. Box 3. Today, PBS offers retailers to issue prepaid gift tokens via the Internet or from dispensing machines, known as PBS Prepaid Internet. If

THE TRAVEL CARD Box 3

In 2003, a number of Danish transport authorities, including DSB, established the company Rejsekort A/S with the objective of establishing and operating a nationwide electronic ticket system, the travel card system. The travel card is an electronic card which, via a built-in chip, can communicate with card readers and portable control units used by the staff on buses, trains and the Copenhagen metro.

With the travel card, Denmark will be among the first countries in the world to have nationwide travel cards. Similar cards exist in other countries, but can primarily be used in major cities. The target for Rejsekort A/S is that 2 million customers hold a travel card by 2012 and that it can be bought online and at 400 points of sale across the country.

Source: www.rejsekort.dk.

these gift tokens can be used at a certain number of retailers, they meet the definition of e-money.

INTERNET BANK PAYMENTS FOR ONLINE PURCHASES

A third relatively new payment instrument is Internet bank payments for online purchases. This covers transactions during which customers making online purchases are directed to their Internet banking application and subsequently make a credit transfer. The solution can be viewed as an actual payment instrument, as the relevant information about the transfer is automatically filled out, so the customer only has to approve the payment – much like entering a PIN code for a card transaction.

Work is in progress to define a common European framework for this type of payment. This forms part of the effort to establish a Single Euro Payments Area, SEPA.[1] The European banks' organisation in charge of SEPA, the European Payments Council, EPC, has set up a working group to prepare a framework for Internet bank payments for online purchases in SEPA. The working group expects to publish its proposal during 2010.

The aim is to enable a customer with an account in e.g. a Belgian bank to buy something from an online retailer in Finland and instantly execute a credit transfer via the customer's Internet bank account. This will require that the customer's bank and the online retailer's bank are linked to the EPC's framework, and that the retailer's bank can receive a SEPA Credit Transfer, SCT, which is a harmonised instrument for credit transfers.

The establishment of a European solution for Internet bank payments can be significant, particularly to cross-border Internet trade, as a payment instrument is created that is particularly suitable for this type of trade.

Existing solutions

Today, there are several more or less national Internet bank payment solutions. One of them is Dutch iDEAL, which offers customers in many different banks the option to make Internet bank payments in connection with online shopping. Another solution is German GiroPay, which – just like iDEAL – directs customers to their Internet banking application in connection with online purchases at the moment of payment, after which the customer initiates a credit transfer to the online retailer.

[1] See Elin Amundsen, SEPA – Single Euro Payments Area, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2007, for a more detailed description of the SEPA project.

Similar solutions are offered in Denmark, but these are merely intra-bank solutions, meaning that the customer and the retailer need to have accounts at the same bank.

Other solutions aimed at online shopping include ePayment from PBS in Denmark. The solution provides online retailers with the possibility of receiving various payment cards, including the Dankort, and supports the card companies' standard for safe online shopping. The latter means that the risk of third party fraud against the online retailer is reduced. Connection to ePayment requires, among other things, that the online business has entered into a payment card agreement regarding the cards it will accept.

VALUE-ADDED SERVICES

In recent years, electronic payments have gradually replaced manual, paper-based payments. This reflects the increased convenience, security and efficiency of electronic payments.

However, the efficiency potential of these payments is not fully exploited if transactions are merely made electronic without streamlining the procedures and routines preceding the transaction. The latter concerns "value-added services", in this context defined as procedures and standards applied in connection with existing payment instruments with a view to increasing overall efficiency through the entire payment chain. One example of a value-added service is e-invoicing or electronic invoice handling.[1]

In Europe, the focus is on value-added services in connection with payments, and e-invoicing in particular. The European Commission has thus set up an expert group that is to establish a European e-invoicing solution. According the group, e-invoicing can significantly cut administration costs for European companies and institutions, e.g. through lower costs for manual work, materials and transport. In relation to the SEPA project, see above, this will entail substantial streamlining through the entire payment chain across the participating countries. For example, a German company could send an electronic invoice to a Dutch customer, who subsequently executes payment by initiating an SCT from its own bank.

Denmark has to some extent introduced e-invoicing, as all companies doing business with the public sector must send electronic invoices.

[1] See Elin Amundsen and Dace Kalsone, E-Payment products and value-added services – moving towards an innovative European internal market, Danmarks Nationalbank, *Working Papers*, No. 61, March 2009.

New Method for Estimation of Investment Income on the Balance of Payments

Jannick Damgaard, Mathies Lau Friis Laursen and Robert Wederkinck, Statistics

INTRODUCTION

The current account of the balance of payments is revised in October every year. In recent years particularly direct investment income[1] has led to substantial revisions. This causes uncertainty about the preliminary statement of the current account balance.

As regards the balance of payments, investment income is calculated as the return on invested capital by way of interest, dividend and undistributed profits. Direct investment income is stated on the basis of information about the annual profits of foreign enterprises owned by Danes and Danish enterprises owned by non-residents. Since the profit for the year is only available with a lag, estimates are applied in the preliminary statements of the balance of payments, and the extent of the revisions thus depends on the closeness of the estimate to the realised results. Major revisions of direct investment income are a widespread problem, also in other countries.[2] In order to minimise future revisions, a new model has been developed for estimating direct investment income in preliminary statements of Denmark's balance of payments.

Unlike current practice, the new model incorporates information on expected cyclical developments and is expected to lead to much smaller revisions of credits and debits. Hence the amended practice is expected to entail better estimates for preliminary statements of gross movements in the balance of payments, thereby improving their analytical usefulness. The revisions of net income are reduced to a lesser extent.

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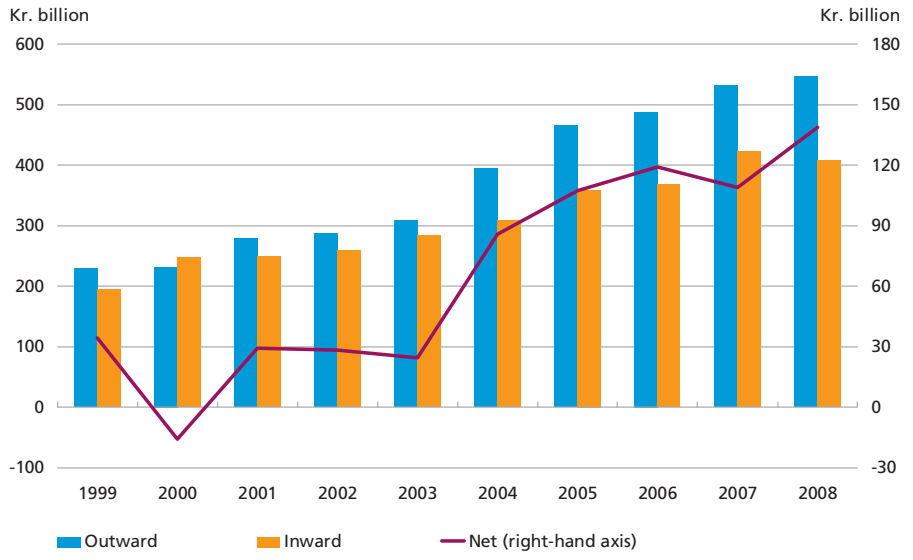
1 In accordance with international guidelines, cf. the IMF's *BPM6* and the OECD's *BD4*, direct investment is stated as financial accounts between group companies, defined as companies in which the ownership share is at least 10 per cent. Usually direct investment comprises both equity capital and intra-group loans, etc. but in this article direct investment refers to equity capital only. The reason is that returns on intra-group loans are reported on an ongoing basis so no estimates are required.

2 Cf. ECB (2009b).

DIRECT INVESTMENT (VALUE AT YEAR-END) Chart 1



Note: Excluding pass-through investments.
Source: Danmarks Nationalbank.

DIRECT INVESTMENT, INVESTMENT INCOME AND BALANCE OF PAYMENTS

Direct investment plays an important role on Denmark's international investment position, which amounted to approximately kr. 3,700 billion at end-2008.[1] Both Danish investment abroad and foreign investment in Denmark more than doubled from 1999 to 2008, cf. Chart 1. Since outward investment has grown more rapidly than inward investment, Denmark has achieved considerable net wealth by way of direct investment.

The rising net wealth from direct investment is one of the reasons why total Danish investment income exceeds total investment costs. Since 2003, direct investment income has grown substantially and has made a significant contribution to the current account surplus, cf. Chart 2.

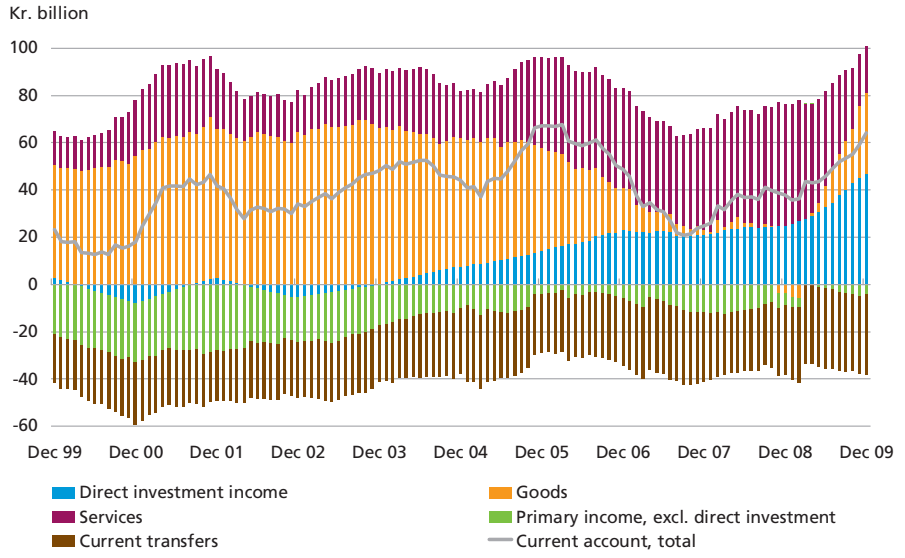
Over the period 1999-2008 investment income was generally the current-account item on the balance of payments that was subject to the largest revisions, cf. Chart 3.[2]

The type of investment income that gives rise to the largest revisions is return on direct investment. In the period 2006-08, annual absolute revisions of direct investment income averaged kr. 12.9 billion for credits and kr. 13.8 billion for debits, while absolute revisions of net income

1 Average of assets and liabilities, excluding pass-through investments.
2 As recommended by the IMF (2003) and the ECB (2009a), the size of the absolute revisions is considered.

BALANCE OF PAYMENTS, CURRENT ACCOUNT, ACCUMULATED 12-MONTH DATA

Chart 2

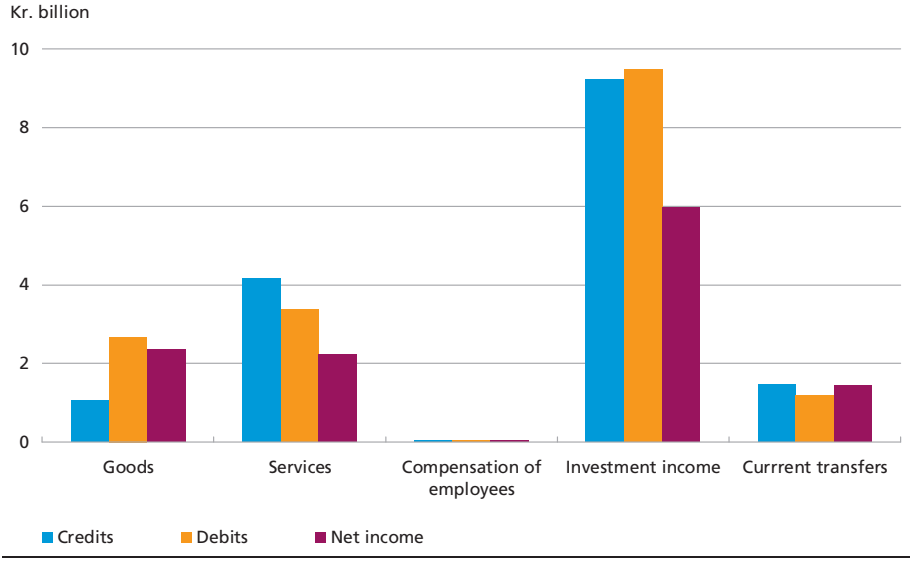


Note: Up to and including 2008, the compilation of direct investment income is based on data from corporate financial statements, while figures for 2009 are estimates.

Source: Statistics Denmark and Danmarks Nationalbank.

AVERAGE REVISIONS OF BALANCE OF PAYMENTS, CURRENT ACCOUNT, 1999-2008

Chart 3



Note: In connection with the publication in October of the balance of payments for August, a revision of the current account of the balance of payments for the preceding year is also published. The Chart shows the absolute averages of these revisions for the period 1999-2008.

Source: Official statements from Statistics Denmark published in various editions of *Statistiske Efterretninger*.

averaged kr. 6.8 billion. The other items of investment income are revised to a far lesser extent as this information is collected on a current basis and is therefore much more precise.

NEW ESTIMATION MODEL

A number of EU member states, including Denmark, have applied estimates based on historical profits for the preliminary statements of direct investment income. The estimation practice used by Danmarks Nationalbank so far has thus proved unable to capture cyclical reversals. In view of the significant contribution from investment income to the current account of the balance of payments, Danmarks Nationalbank has therefore developed a new model that should ultimately reduce the revisions.[1]

Danmarks Nationalbank's new model for estimating direct investment income includes data for expected cyclical developments, cf. Box 1.[2] Corporate profits are affected by the economy in general, as confirmed by Chart 4, which shows low returns on invested capital in the low-growth years 2001-03 and rising profitability until the peak of the boom in 2007.

A number of economic and financial variables have been tested as indicators of cyclical developments in the modelling of expected return on equity, ROE. The results show that acceleration/deceleration in expected private consumption[3] is the best general indicator of developments in ROE across country and industry groups. The model is used for most of the reporting enterprises.

In addition, individual estimates are now provided for investment income generated by special enterprises not fitting into the general pattern. Typically these are enterprises with lucrative concessions or patents that generate exceptional profits.[4] At present five such enterprises have been identified, and in future preliminary estimates of their investment income will be based on information from quarterly financial statements, current dividend payments, etc.

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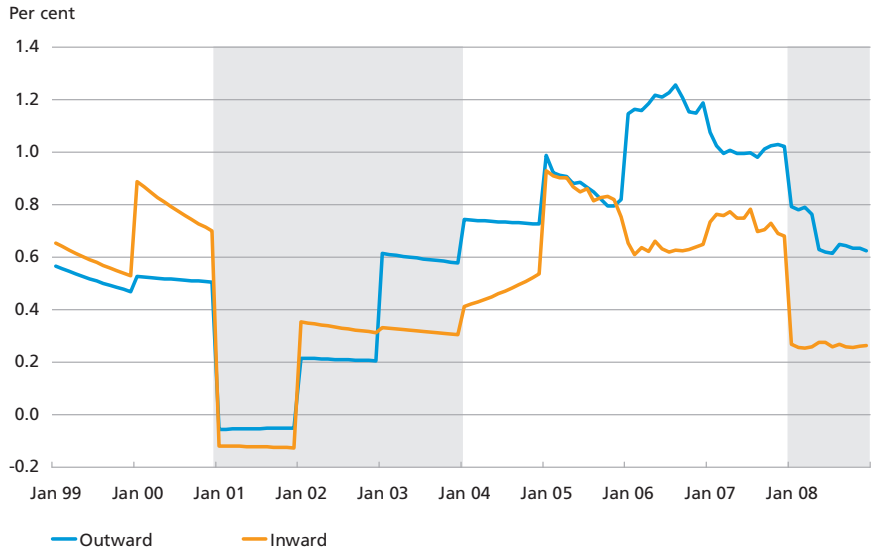
1 Investment income is compiled by Danmarks Nationalbank and supplied to Statistics Denmark, which is responsible for publishing the current account of the balance of payments.

2 For a detailed description of the new Danish method, see Damgaard, Laursen and Wederkinck (2010).

3 Consensus Economics forecasts of expected private consumption are applied.

4 For a precise definition of special enterprises in this context, see Box 1.

MONTHLY RETURN ON DIRECT EQUITY INVESTMENT Chart 4



Note: Excluding pass-through investments and special enterprises. The shaded areas are periods of low growth, defined as periods when annual GDP growth has been below 1 per cent.
Dam (2008) and Bordo and Helbling (2003) demonstrate that there is a tendency for business cycles to be synchronised across countries, and hence low growth is purely defined on the basis of Danish data in the Chart.
For the period 1999-2004, monthly data has been constructed on the basis of actual annual data, while actual monthly observations are available from January 2005.

Source: Own calculations on the basis of reporting to Danmarks Nationalbank for compilation of Denmark's balance of payments and international investment position.

EXPECTED EFFECT AND SUMMARY

By testing the model on historical data, it is possible to assess its effect. A comparison of the previous, purely retrospective practice and the new model that incorporates cyclical reversals shows that revisions are reduced substantially if the new model is applied, cf. Chart 5. The revisions of primarily credits and debits are reduced considerably, while the improvement is more modest for net income.[1] The reason is that while the previous practice led to major revisions of credits and debits, there was a tendency for both items to be either overestimated or underestimated, thus cancelling out each other on a net basis. The new model aims to estimate credits and debits as precisely as possible so that the estimates for credits may be overestimated while the estimates are underestimated – or vice versa. As a result, the revisions will not necessarily have the same tendency to cancel out each other on a net basis.

Against this background, implementation of the new model for projecting direct investment income is expected to lead to smaller revisions

[1] A comparison of the various models, cf. Diebold and Mariano (1995), shows that in statistical terms the new model provides better monthly estimates for income and expenses than the previous practice.

ESTIMATION Box 1

The previous practice for estimating direct investment income was based on an average of the return on equity, ROE, in recent years at enterprise level, but did not include any information on the general economic development.

The new model is also based on ROE, not the profit for the year. The primary reason is that ROE can be expected to be stationary, unlike the profit for the year, which grows over time as a result of increases in output and prices. Generally, results based on stationary rather than non-stationary series are more robust, cf. Granger and Newbold (1974). To smooth extreme ROE observations at enterprise level, a macro-based approach to data has been adopted. More specifically, data is aggregated and the average ROE ratio is calculated for Danish direct investment in: (a) EU/EFTA member states, (b) NAFTA member states, and (c) the rest of the world. For inward direct investment in Denmark, three industry groups are considered: (1) agriculture, manufacturing, raw materials extraction, etc., (2) trade, transport, telecommunications, etc., and (3) finance, insurance, business service, etc.

Before the models are estimated, data for pass-through investments and special enterprises is removed. Pass-through investments pertain to enterprises with no real economic activity in Denmark, but which have been established with the sole purpose of investing in foreign subsidiaries. In relation to investment income, pass-through investments are kept neutral on a net basis. Special enterprises are enterprises with ROE exceeding 35 per cent and profits of kr. 1 billion or more for at least three years running.

In practice the new model, like the old one, applies historical ROE, but it has been expanded so as to include a correction term with a view to capturing the effect of cyclical changes. The expected ROE in month *m* of year *t* can thus be calculated as follows:

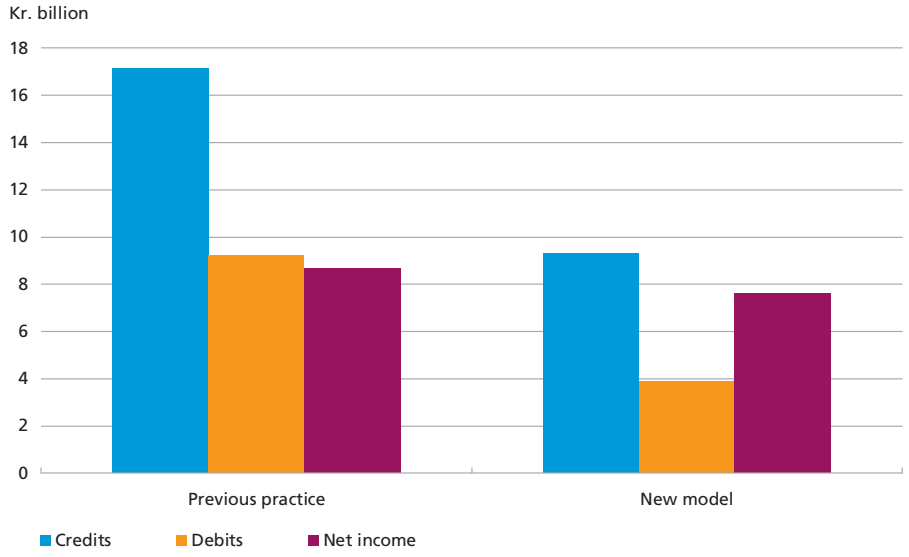
$$\hat{R}_{t(m)} = R_{t-1(m)} + \hat{e}_{t(m)},$$

where *R* represents the ROE and *e* the correction term. A model is specifically estimated for the correction term, which is defined as the difference between ROE in the current and the most recently available period, based on the acceleration/deceleration in expected private consumption, *C*:

$$e_{t(m)} = \beta\left(\hat{\hat{C}}_{t(m)} - \hat{\hat{C}}_{t-1(12)}\right)$$

of this item, and thus of the current account of the balance of payments, in future. The new model was implemented in connection with the publication of the balance of payments for January 2010. The effect will be visible in connection with the incorporation of annual financial data for 2010 when the annual revision takes place in October 2011.

COMPARISON OF AVERAGE REVISIONS IN 2006-08 Chart 5



Note: The Chart compares the average absolute annual revisions of direct investment income excluding pass-through investments and special enterprises. In the underlying calculations, the models have been implemented at country/industry group level.

Source: Own calculations on the basis of reporting to Danmarks Nationalbank for compilation of Denmark's balance of payments and international investment position.

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Dankort Payments and Retail Sales

Maria Carlsen, Financial Markets, and Peter Ejler Storgaard, Economics

INTRODUCTION

A substantial proportion of Danish retail sales payments are effected using the Dankort (debit card). The value of Dankort payments can be used as an early indicator of retail sales since Dankort data for a given month is available from PBS A/S around one week after the expiry of the reference month, while Statistics Denmark publishes monthly retail sales data with a lag of approximately 30 days.

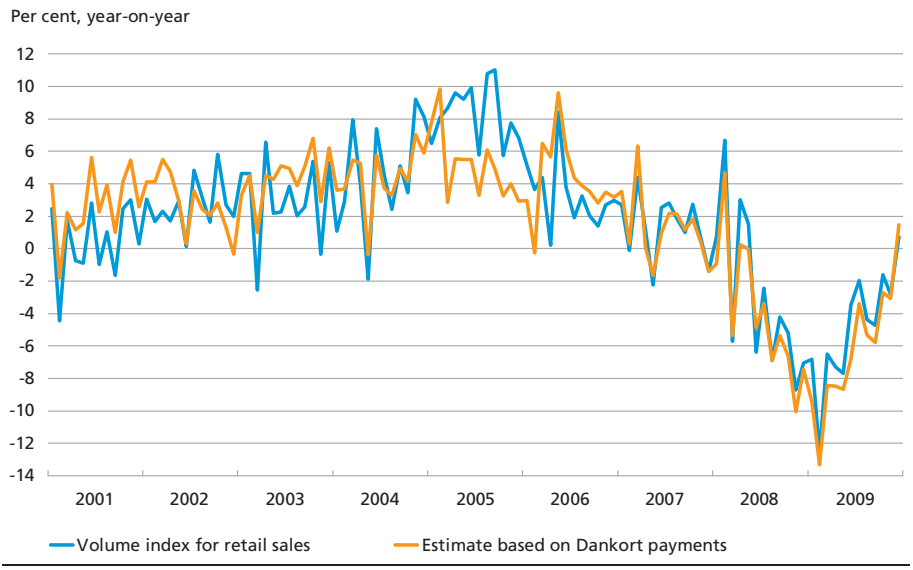
Since 2005, Danmarks Nationalbank has used Dankort payments as an indicator of retail sales. Retail sales account for around 45 per cent of private consumption excluding car purchases and housing occupancy and are often used as an indicator of developments in private consumption. Page 18 of the Monetary Review for the 2nd quarter of 2005 shows a simple regression model explaining the annual growth rate in the value index for retail sales on the basis of annual growth in Dankort payments. There is no one-to-one relationship between Dankort payments and retail sales, one reason being that a number of products and services not included in retail sales are also paid for using the Dankort. In addition, the share of payments effected via the Dankort has been steadily rising.

Deflating the modelled estimates of annual growth in the value index gives an estimate of annual growth in the volume index for retail sales, which is shown in Chart 1. It is seen that Dankort payments are generally a good indicator of retail sales.

In connection with the assessment of cyclical developments, the seasonally adjusted volume index for retail sales is of particular interest. The existing model has therefore been extended so as to provide an estimate of the seasonally adjusted volume index. According to the model, an increase of 1 per cent in Dankort payments indicates an increase of 0.4 per cent in retail sales. The models and the results are outlined below; further details and data descriptions can be found in Working Paper No. 66[1].

[1] See www.nationalbanken.dk.

VOLUME INDEX FOR RETAIL SALES, ACTUAL AND MODEL PREDICTION Chart 1



Note: Not seasonally adjusted.
Source: Statistics Denmark, PBS A/S and own calculations.

EXTENSION OF THE EXISTING MODEL

Relative to the original model, two dimensions have been extended: modelling of the seasonal pattern and adjustment for price developments.

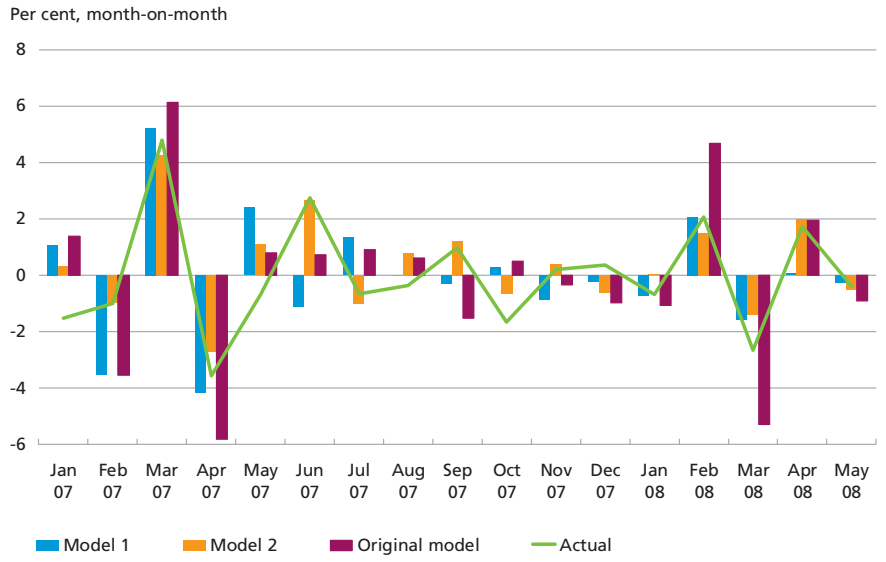
Two models are set up to explain the seasonally adjusted volume index for retail sales on the basis of Dankort payments. Model 1 operates with annual growth rates, while model 2 is based on a model[1] using monthly growth rates. The advantage of model 2 is that information from the last 11 months is used.

Both Dankort payments and retail sales show clear seasonal patterns. Volumes fluctuate from month to month – for example, both Dankort payments and retail sales are particularly high in December due to Christmas sales – and also from day to day, in that Dankort payments rise on Fridays compared with other days of the week. To take this into account, seasonal dummies are applied, including dummies for the number of Mondays, Tuesdays, etc. in each month. This variable captures e.g. differences in the number of Mondays in the various months.

Adjustment for price developments takes place using the implied price deflator calculated on the basis of the value and volume indices for retail sales supplemented with a price estimate for the most recent

[1] A cointegrated vector autoregressive model.

VOLUME INDEX FOR RETAIL SALES, ACTUAL AND MODEL PREDICTION Chart 2



Note: Seasonally adjusted data.
Source: Statistics Denmark, PBS A/S and own calculations.

month based on consumer prices, which are available only 10 days or so after the expiry of a month.

RESULTS

The two models are estimated for the period January 1998 to December 2006. The remaining 17 observations in the data set are used to assess the predictive abilities of the models outside the estimation period.

Models 1 and 2 are both better at predicting retail sales than the original model, cf. Chart 2. A comparison of the predictive abilities of the three models measured by MSE[1] shows that the prediction errors are substantially smaller for model 2 than for model 1 and the original model. The mean prediction error, which indicates whether the estimates are biased, is close to zero for model 1, while there is a small positive bias in model 2 (in the range of one fifth of the standard deviation of the monthly changes in retail sales).

To serve as an indicator of retail sales, the model using Dankort payments should have a lower MSE than a model based solely on retail sales in previous months. Compared with such an AR(4) model, model 2 does have a lower MSE. This shows that Dankort payments provide valuable information for estimating retail sales.

[1] MSE (mean square error) is the average of the squared prediction errors.

Working Papers Issued

Press Releases

10 DECEMBER 2009 INTEREST RATE REDUCTION

Effective from 11 December 2009, Danmarks Nationalbank's rate of interest on certificates of deposit is reduced by 0.05 percentage point to 0.95 per cent, the lending rate is reduced by 0.05 percentage point to 1.20 per cent, and the current-account rate is reduced by 0.05 percentage point to 0.85 per cent. The discount rate is maintained at 1.0 per cent.

The interest-rate reduction is a consequence of purchases of foreign exchange in the market. The money-market rates in euro are very low and the spread to the equivalent Danish rates tends to strengthen the Danish krone.

Effective from the above date, Danmarks Nationalbank's interest rates are:

Lending rate: 1.20 per cent
Rate of interest on certificates of deposit: 0.95 per cent
Current-account rate: 0.85 per cent
Discount rate: 1.0 per cent

7. JANUARY 2010 INTEREST RATE REDUCTION

Effective from 8 January 2010, Danmarks Nationalbank's rate of interest on certificates of deposit is reduced by 0.05 percentage point to 0.90 per cent, the lending rate is reduced by 0.05 percentage point to 1.15 per cent, and the current-account rate is reduced by 0.05 percentage point to 0.80 per cent. The discount rate is maintained at 1.0 per cent.

The interest-rate reduction is a consequence of purchases of foreign exchange in the market. The money-market rates in euro are very low and the spread to the equivalent Danish rates tends to strengthen the Danish krone.

Effective from the above date, Danmarks Nationalbank's interest rates are:

Lending rate: 1.15 per cent
Rate of interest on certificates of deposit: 0.90 per cent
Current-account rate: 0.80 per cent
Discount rate: 1.0 per cent

14. JANUARY 2010 INTEREST RATE REDUCTION

Effective from 15 January 2010, Danmarks Nationalbank's rate of interest on certificates of deposit is reduced by 0.10 percentage point to 0.80 per cent, the lending rate is reduced by 0.10 percentage point to 1.05 per cent, and the current-account rate is reduced by 0.10 percentage point to 0.70 per cent. The discount rate is reduced by 0.25 percentage point to 0.75 per cent.

The interest-rate reduction is a consequence of purchases of foreign exchange in the market during a longer period. The money-market rates in euro are still very low and the spread to the equivalent Danish rates has tended to strengthen the Danish krone.

Effective from the above date, Danmarks Nationalbank's interest rates are:

Lending rate: 1.05 per cent
Rate of interest on certificates of deposit: 0.80 per cent
Current-account rate: 0.70 per cent
Discount rate: 0.75 per cent

26 JANUARY 2010 REPORT ON DOMESTIC PAYMENT TRANSFERS

Danmarks Nationalbank publishes a report from a working group that has analysed how long it takes to execute a payment transfer in Denmark, and whether it is possible to do it faster. The working group comprised representatives from the Danish Consumer Council, the Danish Chamber of Commerce, the Confederation of Danish Industry, the Danish Federation of Small and Medium-Sized Enterprises, the Ministry of Finance, the Ministry of Economic and Business Affairs, the Danish Agency for Governmental Management, the National IT and Telecom Agency, the Danish Financial Supervisory Authority, the Danish Bankers Association, PBS and Danmarks Nationalbank.

The report from the working group describes the Danish infrastructure for retail payments and international experience in this area. In Denmark, it typically takes one day from an electronic payment is made until it reaches the recipient. In some countries it takes longer, while in other countries it is possible to execute some payment types intraday.

The working group points out three initiatives that could result in shorter settlement times. These are:

- Rescheduling the settlement of all payments made during the weekend, so that these reach the recipients on Monday morning instead of Tuesday morning as it is now.

- Postponement of the data processing centres' deadlines for receiving payment orders, so that more payments made in the evening, for instance via Internet banking, reach the recipients already on the morning of the following day.
- Introduction of an additional daily settlement cycle for credit transfers, which would make it possible to execute payments, for instance via Internet banking, on an intraday basis.

On the basis of the report, the Danish Bankers Association, PBS and Danmarks Nationalbank will prepare a final basis for decisions regarding potential changes to the payment infrastructure.

Tables

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 15 April 2010 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 NASDAQ OMX Copenhagen 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: Discount rate	Lending	Certificates of deposit	The ECB's interest rate: Main refinancing operations, fixed rate[1]	End of period	Inter-bank interest rate, 3-months uncollateralized	Bond yields: 10-year central-government bond	30-year mortgage-credit bond	Share-price index OMXC20 (prev.KFX)
	Per cent per annum					Per cent per annum			3.7.89 =100
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	1.00	1.20	0.95	1.00	2009	0.85	3.62	5.19	336.69
2009 11 Dec	1.00	1.20	0.95	1.00	Sep 09	1.15	3.53	5.19	335.03
2010 8 Jan	1.00	1.15	0.90	1.00	Oct 09	1.05	3.65	5.28	324.16
15 Jan	0.75	1.05	0.80	1.00	Nov 09	1.05	3.53	5.21	327.20
26 Mar	0.75	1.05	0.70	1.00	Dec 09	0.85	3.62	5.19	336.69
	|	|	|	|	Jan 10	0.80	3.54	5.10	354.85
	|	|	|	|	Feb 10	0.85	3.42	5.03	354.77
15 Apr	0.75	1.05	0.70	1.00	Mar 10	0.70	3.37	5.01	383.04

[1] 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						
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
2009	394.5	60.8	212.4	166.2	22.1	104.2	84.1
Oct 09	376.1	58.4	195.6	167.4	10.2	92.8	84.8
Nov 09	383.4	58.6	185.2	142.0	15.0	53.3	103.7
Dec 09	389.1	60.8	210.9	166.2	22.1	104.2	84.1
Jan 10	415.4	58.1	196.0	131.2	11.3	26.4	116.2
Feb 10	416.1	58.3	202.0	113.8	12.3	15.5	110.6
Mar 10	417.2	59.4	203.5	116.1	19.2	23.3	112.0

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
	Kr. billion									
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
2009	178.6	123.8	54.8	153.6	17.1	170.7	6.5	-35.3	196.8	84.1
Oct 09	17.3	20.5	-3.2	0.0	-0.1	-0.1	0.5	-1.2	-3.9	84.8
Nov 09	28.9	19.6	9.3	8.7	-0.2	8.5	-0.2	1.2	18.9	103.7
Dec 09	-12.4	13.8	-26.2	7.9	-1.7	6.2	-0.4	0.7	-19.6	84.1
Jan 10	27.2	13.5	13.7	18.7	3.5	22.2	-3.7	-0.2	32.1	116.2
Feb 10	8.6	16.0	-7.4	0.0	2.1	2.1	1.3	-1.6	-5.5	110.6
Mar 10	19.5	22.0	-2.5	3.1	-0.9	2.2	1.2	0.4	1.3	112.0

SELECTED ITEMS FROM THE CONSOLIDATED BALANCE SHEET OF THE MFI SECTOR

Table 4

End of period	Total balance	Assets				Liabilities		Foreign assets, net [1]
		Domestic lending		Domestic securities				
		Public sector	Private sector	Bonds, etc.	Shares, etc.	Domestic deposits	Bonds, etc. issued	
	Kr. billion							
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
2009	5,970.1	135.9	3,647.9	78.2	65.5	1,429.0	1,648.4	-417.6
Sep 09	6,031.5	131.1	3,670.8	72.4	61.6	1,408.5	1,667.4	-381.4
Oct 09	5,945.4	131.7	3,642.0	74.1	63.0	1,414.5	1,630.3	-381.6
Nov 09	6,025.3	130.5	3,648.3	74.8	63.2	1,393.1	1,642.2	-417.3
Dec 09	5,970.1	135.9	3,647.9	78.2	65.5	1,429.0	1,648.4	-417.6
Jan 10	6,091.2	133.7	3,660.0	80.1	68.0	1,431.5	1,701.4	-399.5
Feb 10	6,150.8	132.1	3,652.2	72.2	68.6	1,423.0	1,716.1	-402.3
	Change compared with previous year, per cent							
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	...
2009	...	3.3	-2.0	92.4	15.5	-3.9	9.3	...
Sep 09	...	4.8	2.3	115.4	5.2	13.8	9.9	...
Oct 09	...	3.1	0.3	80.1	11.3	4.5	10.8	...
Nov 09	...	2.2	-1.1	60.7	11.7	-5.1	13.5	...
Dec 09	...	3.3	-2.0	92.4	15.5	-3.9	9.3	...
Jan 10	...	1.5	-1.7	111.1	19.0	-3.2	13.2	...
Feb 10	...	1.9	-1.4	60.7	22.5	-2.7	13.6	...

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.

[1] 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[1]	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								
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
2009	48.5	772.5	821.0	183.5	19.6	1,024.0	10.9	143.0	1,178.0
Sep 09	49.6	754.4	804.0	209.4	18.6	1,032.0	4.2	181.2	1,217.4
Oct 09	49.7	781.3	830.9	201.4	18.0	1,050.4	2.9	167.0	1,220.4
Nov 09	48.1	786.0	834.2	187.1	17.7	1,039.0	3.1	160.1	1,201.2
Dec 09	48.5	772.5	821.0	183.5	19.6	1,024.0	10.9	143.0	1,178.0
Jan 10	47.4	793.3	840.8	185.7	17.2	1,043.7	6.9	191.5	1,242.2
Feb 10	47.5	791.7	839.2	174.9	17.3	1,031.4	6.5	189.5	1,227.5
	Change compared with previous year, per cent								
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
2009	...	...	8.7	...	...	-3.4	...	...	5.1
Sep 09	...	...	7.8	...	...	4.0	...	...	9.3
Oct 09	...	...	9.5	...	...	-1.5	...	...	4.5
Nov 09	...	...	9.5	...	...	-2.3	...	...	3.7
Dec 09	...	...	8.7	...	...	-3.4	...	...	5.1
Jan 10	...	...	9.1	...	...	-3.7	...	...	4.5
Feb 10	...	...	7.9	...	...	-4.3	...	...	2.8

[1] 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: Lending to MFIs	Assets: Domestic lending: Total	Assets: Domestic lending: of which: Households, etc.	Assets: Domestic lending: of which: Non-financial companies	Assets: Holdings of securities	Liabilities: Loans from MFIs	Liabilities: Deposits
	Kr. billion							
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
2009	4,147.6	876.1	1,359.1	575.7	529.7	1,203.5	1,179.6	1,418.7
Sep 09	4,175.5	785.8	1,391.2	568.4	522.1	1,240.1	1,141.0	1,397.7
Oct 09	4,103.1	784.2	1,357.3	562.5	517.7	1,236.3	1,072.0	1,443.8
Nov 09	4,170.2	861.8	1,355.7	560.6	529.3	1,204.9	1,152.6	1,432.6
Dec 09	4,147.6	876.1	1,359.1	575.7	529.7	1,203.5	1,179.6	1,418.7
Jan 10	4,244.1	950.4	1,361.4	565.4	523.6	1,181.3	1,234.5	1,432.6
Feb 10	4,261.4	969.2	1,344.9	560.9	534.6	1,154.1	1,229.6	1,418.2
	Change compared with previous year, per cent							
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
2009	...	-10.1	-12.1	-1.9	-12.2	10.2	-18.3	-0.4
Sep 09	...	-18.6	-3.3	-4.0	-9.7	2.7	-29.1	1.5
Oct 09	...	-23.4	-7.8	-4.3	-11.2	6.0	-31.8	0.0
Nov 09	...	-19.7	-10.2	-3.9	-11.7	0.3	-31.0	-0.9
Dec 09	...	-10.1	-12.1	-1.9	-12.2	10.2	-18.3	-0.4
Jan 10	...	0.8	-11.3	-2.3	-10.6	2.0	-13.5	-1.8
Feb 10	...	6.9	-10.2	-2.0	-7.2	-2.2	-10.9	-0.7

Note: Excluding Danish banks' units abroad.

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

Table 7

End of period	Total balance	Assets					Liabilities	
		Lending to MFIs	Domestic lending			Holdings of securities	Loans from MFIs	Bonds, etc. issued
			Total	of which:				
				Households, etc.	Non-financial companies			
	Kr. billion							
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
2009	3,827.1	512.2	2,278.8	1,712.2	501.0	927.6	539.3	3,048.3
Sep 09	3,136.7	444.8	2,265.5	1,693.7	501.6	330.2	438.8	2,479.1
Oct 09	3,127.3	410.7	2,271.1	1,698.7	503.7	343.9	457.5	2,450.8
Nov 09	3,236.9	420.0	2,278.9	1,704.9	504.2	426.6	456.0	2,557.0
Dec 09	3,827.1	512.2	2,278.8	1,712.2	501.0	927.6	539.3	3,048.3
Jan 10	3,074.5	429.2	2,283.2	1,714.0	504.2	278.4	484.6	2,418.2
Feb 10	3,120.7	438.3	2,288.9	1,716.5	506.6	290.8	495.5	2,444.5
	Change compared with previous year, per cent							
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
2009	...	19.5	5.3	5.1	7.2	46.4	13.7	18.0
Sep 09	...	19.3	6.0	4.8	13.4	87.6	37.0	16.0
Oct 09	...	7.0	5.8	4.7	12.9	65.8	28.7	13.9
Nov 09	...	16.6	5.6	4.6	9.1	54.8	24.3	14.0
Dec 09	...	19.5	5.3	5.1	7.2	46.4	13.7	18.0
Jan 10	...	27.4	4.9	4.7	7.7	-6.9	18.2	6.7
Feb 10	...	30.7	4.6	4.4	6.4	18.5	21.9	9.6

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	House-holds, etc.	Business	Total	House-holds, etc.	Business	Total	House-holds, etc.	Business
	Kr. billion								
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
2009	3,682.4	2,287.9	1,283.8	1,403.6	575.7	770.0	2,278.8	1,712.2	513.8
Sep 09	3,702.0	2,262.1	1,331.2	1,436.5	568.4	814.8	2,265.5	1,693.7	516.4
Oct 09	3,672.9	2,261.2	1,303.3	1,401.9	562.5	784.8	2,271.1	1,698.7	518.5
Nov 09	3,679.1	2,265.5	1,305.7	1,400.2	560.6	785.6	2,278.9	1,704.9	520.2
Dec 09	3,682.4	2,287.9	1,283.8	1,403.6	575.7	770.0	2,278.8	1,712.2	513.8
Jan 10	3,689.1	2,279.4	1,301.8	1,405.9	565.4	784.9	2,283.2	1,714.0	516.9
Feb 10	3,678.3	2,277.4	1,296.5	1,389.4	560.9	777.2	2,288.9	1,716.5	519.3
	Change compared with previous year, per cent								
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
2009	-2.8	3.2	-11.9	-13.5	-1.9	-21.3	5.3	5.1	7.3
Sep 09	2.3	2.4	3.6	-3.1	-4.0	-2.1	6.0	4.8	14.0
Oct 09	-0.6	2.3	-4.1	-9.5	-4.3	-12.9	5.8	4.7	13.4
Nov 09	-1.8	2.4	-8.1	-11.8	-3.9	-17.1	5.6	4.6	9.8
Dec 09	-2.8	3.2	-11.9	-13.5	-1.9	-21.3	5.3	5.1	7.3
Jan 10	-2.0	2.9	-8.7	-11.3	-2.3	-17.1	4.9	4.7	8.0
Feb 10	-1.6	2.7	-7.8	-10.2	-2.0	-15.5	4.6	4.4	6.6

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	Adjustable-rate lending: of which =<1 year	Total	of which: Lending in foreign currency	of which: Instalment-free lending [1]
	Kr. billion						
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
2009	68.3	740.2	1,472.7	1,106.6	2,281.2	211.4	695.1
Sep 09	71.2	783.9	1,409.9	1,102.0	2,265.0	198.9	677.1
Oct 09	71.2	776.3	1,423.1	1,097.8	2,270.7	199.6	682.4
Nov 09	70.7	769.0	1,437.9	1,103.4	2,277.6	201.3	688.0
Dec 09	68.3	740.2	1,472.7	1,106.6	2,281.2	211.4	695.1
Jan 10	68.5	729.5	1,487.3	1,092.9	2,285.3	214.2	697.5
Feb 10	68.7	719.2	1,504.0	1,103.6	2,291.9	216.1	702.5

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

[1] The mortgage-credit institutes' instalment-free lending to owner-occupied dwellings.

THE BANKS' EFFECTIVE INTEREST RATES — Table 10

	Lending: All sectors	Lending: Households, etc.	Lending: Non-financial companies	Lending: Financial companies	Deposits: All sectors	Deposits: Households, etc.	Deposits: Non-financial companies	Deposits: Financial companies
	Per cent, per annum							
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
Q3 09	4.6	6.0	5.0	2.1	1.8	1.8	1.5	1.9
Q4 09	4.1	5.6	4.6	1.7	1.4	1.5	1.1	1.5
Sep 09	4.3	5.8	4.7	1.9	1.6	1.7	1.4	1.7
Oct 09	4.3	5.7	4.7	1.9	1.5	1.5	1.2	1.6
Nov 09	4.1	5.7	4.6	1.6	1.4	1.5	1.1	1.5
Dec 09	3.9	5.6	4.5	1.5	1.3	1.5	1.1	1.4
Jan 10	3.9	5.6	4.4	1.5	1.3	1.4	1.0	1.4
Feb 10	3.9	5.4	4.4	1.5	1.2	1.3	0.9	1.3

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						
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
2009	865.3	487.5	301.3	252.7	357.8	185.0	22.7
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
Q3 09	844.0	478.5	283.7	243.6	338.7	189.8	17.7
Q4 09	865.3	487.5	301.3	252.7	357.8	185.0	22.7
	Quarterly transactions, kr. billion						
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
Q3 09	...	13.2	15.0	5.4	11.7	-3.4	0.2
Q4 09	...	4.8	4.1	3.0	5.9	-4.9	3.0

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							
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
2009	3,410.7	435.8	392.9	160.0	2,799.3	255.4	639.8	348.7
Sep 09	2,798.7	475.6	399.3	167.5	2,183.3	287.1	635.6	339.8
Oct 09	2,906.2	461.2	404.9	162.9	2,289.9	279.0	619.6	332.7
Nov 09	3,037.9	452.3	396.6	163.2	2,433.5	269.5	618.3	338.7
Dec 09	3,410.7	435.8	392.9	160.0	2,799.3	255.4	639.8	348.7
Jan 10	2,740.5	459.6	412.8	156.6	2,120.1	283.9	675.7	368.3
Feb 10	2,762.2	479.1	413.5	173.2	2,143.2	285.4	671.1	375.5

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
	Kr. billion							
2005	785	173	1,121	1,617	3,696	1,892	1,804	3,696
2006	836	181	1,559	1,681	4,256	2,073	2,183	4,256
2007	902	191	1,434	1,723	4,250	2,272	1,977	4,249
2008	900	180	784	1,785	3,649	2,434	1,215	3,649
2009	913	168	912	1,929	3,923	2,572	1,351	3,923
Q4 08	900	180	784	1,785	3,649	2,434	1,215	3,649
Q1 09	912	167	688	1,781	3,548	2,463	1,086	3,549
Q2 09	913	171	815	1,796	3,695	2,488	1,207	3,695
Q3 09	908	172	886	1,886	3,852	2,527	1,325	3,852
Q4 09	913	168	912	1,929	3,923	2,572	1,351	3,923

COMPANIES' FINANCIAL ASSETS AND LIABILITIES — Table 14

End of period	Assets				Liabilities				
					Debt				
	Currency, bank deposits and granted credits, etc.	Bonds, etc.	Shares and certificates issued by investment associations, etc.	Total	Loans, etc.	Bonds, etc. issued	Shares, etc. issued	Net financial assets	Total
	Kr. billion								
2005	790	162	2,198	3,150	1,342	142	3,219	-1,554	3,149
2006	815	148	3,083	4,046	1,575	139	4,427	-2,095	4,046
2007	896	134	2,890	3,921	1,711	118	4,234	-2,141	3,921
2008	1,034	126	1,763	2,922	1,914	109	2,489	-1,589	2,923
2009	1,020	127	1,954	3,100	1,874	138	2,612	-1,524	3,100
Q4 08	1,034	126	1,763	2,922	1,914	109	2,489	-1,589	2,923
Q1 09	1,020	124	1,591	2,735	1,933	107	2,184	-1,490	2,735
Q2 09	998	134	1,847	2,978	1,917	118	2,490	-1,547	2,979
Q3 09	970	139	1,910	3,019	1,887	122	2,563	-1,553	3,019
Q4 09	1,020	127	1,954	3,100	1,874	138	2,612	-1,524	3,100

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					
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
2009	35.7	21.8	57.5	42.7	-32.0	68.1
Mar 08 - Feb 09	-5.8	51.1	45.3	23.1	-32.0	36.4
Mar 09 - Feb 10	40.5	18.0	58.4	42.3	-32.1	68.6
Sep 09	5.8	3.1	8.9	4.2	-2.1	11.0
Oct 09	1.6	1.5	3.1	4.4	-2.2	5.3
Nov 09	6.4	1.6	8.0	4.2	-2.2	9.9
Dec 09	3.2	2.0	5.2	4.4	-2.2	7.4
Jan 10	0.4	0.8	1.2	2.4	-4.1	-0.5
Feb 10	2.6	1.5	4.1	2.3	-3.8	2.6

FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 16

	Current account and capital account, etc., total	Capital import				Other[2]	Danmarks Nationalbank's transactions with abroad[3]
		Direct investments		Portfolio investments[1]	Other capital import		
		Danish abroad	Foreign in Denmark				
	Kr. billion						
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
2009	67.7	-84.7	42.5	107.8	191.9	-37.1	288.0
Mar 08 - Feb 09	36.8	-88.0	15.2	63.7	-20.7	-21.7	-14.8
Mar 09 - Feb 10	68.2	-85.3	27.0	75.2	219.1	-65.0	239.2
Sep 09	11.0	-9.8	8.0	55.7	3.8	-39.8	28.9
Oct 09	5.4	-16.1	7.4	-28.1	-4.5	22.3	-13.6
Nov 09	10.0	-9.0	3.4	-34.2	61.1	-20.3	10.9
Dec 09	7.5	15.3	-12.4	-30.0	14.0	11.1	5.4
Jan 10	-0.5	-10.3	8.8	-21.6	55.3	-11.7	20.0
Feb 10	2.6	-12.7	-10.5	22.2	5.9	-7.3	0.3

[1] 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.
[2] Including errors and omissions.
[3] Including transactions on *all* Danmarks Nationalbank's accounts with abroad and not only transactions on accounts included by compilation of the foreign-exchange reserve. The latter is 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		
	Krone-denominated bonds, etc.	Foreign currency denominated bonds, etc.	Shares	Bonds, etc.	Shares	Total[1]
	Kr. billion					
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
2009	-0.1	163.3	46.3	-75.2	-26.5	107.8
Sep 09	7.6	19.1	8.5	24.0	-3.4	55.7
Oct 09	-0.8	-10.0	0.9	-8.9	-9.4	-28.1
Nov 09	-12.6	-31.1	7.5	1.2	0.8	-34.2
Dec 09	-9.1	-10.5	3.7	-19.4	5.4	-30.0
Jan 10	-0.1	17.0	0.6	-31.0	-8.0	-21.6
Feb 10	12.8	-7.3	5.8	1.1	9.9	22.2

Note: A negative sign (-) indicates residents' net purchase of foreign securities, or non-residents' net sale of Danish securities.
[1] 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[1]
	Equity	Inter-company debt, etc.	Shares, etc.	Bonds, etc.		Trade credits	Loans and deposits	Other		
	Kr. billion									
Assets										
2005	564	253	556	684	85	37	720	19	217	3,140
2006	575	258	741	674	47	41	823	30	178	3,380
2007	635	285	793	733	1	47	1,034	32	176	3,749
2008	621	375	445	777	83	45	1,097	37	226	3,731
2009	754	368	592	918	34	39	927	32	400	4,098
Q4 08	621	375	445	777	83	45	1,097	37	226	3,731
Q1 09	665	394	430	833	54	46	1,088	36	269	3,842
Q2 09	732	360	475	864	41	43	991	36	336	3,918
Q3 09	740	362	563	881	39	41	955	33	400	4,053
Q4 09	754	368	592	918	34	39	927	32	400	4,098
Liabilities										
2005	506	231	311	1,019	...	27	967	21	3	3,080
2006	485	272	358	1,067	...	32	1,144	35	4	3,383
2007	543	277	425	1,124	...	36	1,407	37	5	3,840
2008	502	296	245	1,199	...	43	1,409	41	121	3,830
2009	513	305	356	1,368	...	37	1,414	38	5	3,998
Q4 08	502	296	245	1,199	...	43	1,409	41	121	3,830
Q1 09	507	309	232	1,314	...	40	1,483	39	46	3,943
Q2 09	511	298	298	1,357	...	42	1,437	38	38	3,978
Q3 09	508	311	344	1,437	...	36	1,376	39	8	4,016
Q4 09	513	305	356	1,368	...	37	1,414	38	5	3,998
Net assets										
2005	59	22	245	-335	85	10	-247	-2	214	61
2006	90	-15	382	-393	47	9	-321	-5	174	-3
2007	92	8	368	-392	1	10	-372	-5	171	-90
2008	119	79	199	-422	83	1	-312	-4	105	-99
2009	241	62	236	-450	34	2	-486	-6	395	100
Q4 08	119	79	199	-422	83	1	-312	-4	105	-99
Q1 09	158	86	198	-482	54	6	-395	-3	223	-100
Q2 09	221	61	177	-493	41	1	-446	-2	298	-60
Q3 09	232	51	219	-556	39	5	-421	-6	392	37
Q4 09	241	62	236	-450	34	2	-486	-6	395	100

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

[1] The Total figures have been revised to ensure consistency with Danmarks Nationalbank's statistics on Financial Accounts, cf. Table 13 and 14. The other figures will not be revised until later on and thereby the sum of the underlying components does not add up to the Total figure.

GDP BY TYPE OF EXPENDITURE — Table 19

	GDP	Final domestic demand					Exports of goods and services	Imports of goods and services
		Private consumption	General-government consumption	Gross fixed capital formation	Change in inventories	Total		
	Kr. billion							
2005	1,545.3	745.1	402.5	303.9	17.9	1,469.5	757.0	681.2
2006	1,631.7	786.6	422.6	356.0	14.6	1,579.8	849.6	797.7
2007	1,691.5	821.7	439.1	379.6	9.8	1,650.2	886.4	845.1
2008	1,737.4	845.5	463.8	365.7	15.7	1,690.7	955.9	909.2
2009	1,659.7	817.4	492.1	312.1	-19.1	1,602.6	784.2	727.0
Q4 08	440.2	213.7	121.9	93.0	2.1	430.6	233.0	223.5
Q1 09	405.2	199.5	118.3	81.9	-2.7	397.0	193.5	185.2
Q2 09	410.3	203.8	122.2	77.2	-5.9	397.3	191.2	178.2
Q3 09	414.2	200.4	123.5	74.6	-4.3	394.3	197.8	177.9
Q4 09	430.0	213.7	128.1	78.4	-6.3	413.9	201.7	185.6
	Real growth compared with previous year, per cent							
2005	2.4	3.8	1.3	4.7	...	3.5	8.0	11.1
2006	3.4	3.6	2.8	14.2	...	5.3	9.0	13.4
2007	1.7	2.4	1.3	2.9	...	2.0	2.2	2.6
2008	-0.9	-0.2	1.6	-4.7	...	-0.5	2.4	3.3
2009	-4.9	-4.6	2.5	-12.0	...	-6.1	-10.4	-13.2
Q4 08	-3.6	-5.4	2.0	-9.3	...	-3.5	-0.9	0.0
Q1 09	-3.9	-6.0	2.8	-4.6	...	-5.2	-7.9	-11.1
Q2 09	-7.2	-7.0	2.3	-16.5	...	-8.5	-13.7	-16.8
Q3 09	-5.2	-4.3	2.7	-13.9	...	-6.1	-11.4	-13.7
Q4 09	-3.2	-1.0	2.1	-12.6	...	-4.4	-8.3	-11.2
	Real growth compared with previous quarter (seasonally adjusted), per cent							
Q4 08	-2.3	-3.2	0.7	-4.3	...	-2.4	-3.1	-3.5
Q1 09	-1.8	-1.2	0.4	0.4	...	-0.4	-5.3	-8.0
Q2 09	-1.9	-0.6	0.5	-11.1	...	-2.6	-3.9	-4.3
Q3 09	0.4	0.5	0.9	0.3	...	0.6	0.4	1.5
Q4 09	0.2	0.4	0.2	-2.2	...	-0.2	0.3	-0.9

EU-HARMONIZED INDEX OF CONSUMER PRICES (HICP) AND UNDERLYING INFLATION (IMI) Table 20

	HICP							Index of net retail prices[1]		
		Subcomponents:								
					Administered prices		HICP excl. energy, food and administered prices[3]	Index of net retail prices excl. energy, food and administered prices[3]	Split into[4]:	
	Total	Energy	Food	Core inflation[2]	Rent	Public services			Import content[5]	IMI[6]
	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									
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
2009	1.1	-4.0	0.5	2.0	3.1	4.8	1.7	1.9	-4.3	5.1
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
Q3 09	0.6	-5.9	-0.5	2.0	3.5	5.1	1.6	1.9	-6.0	6.0
Q4 09	0.9	0.3	-1.5	1.6	2.9	4.9	1.2	1.6	-5.0	4.9

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

[1] Prices in the index of net retail prices are compiled excluding indirect taxes and subsidies.

[2] Core inflation is defined as the increase in HICP excluding energy and food.

[3] Goods and services excluding energy, food and administered prices constitute 60.9 per cent of HICP's weight basis and 53.2 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.

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

[5] The indirect energy content is included in the import content.

[6] 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	Quantity index		Forced sales of real property	New passenger car registrations	Consumer confidence indicator	Composite cyclical indicator for		
		Manufacturing industry [1]	Retail trade				Manufacturing industry	Building and construction	Service
	Per cent of labour force	2005=100	2005=100	Number		Balance per cent			
2005	5.1	100.0	100.2	1,874	148,578	9	0	7	20
2006	3.9	105.7	103.5	1,231	156,719	10	9	21	24
2007	2.8	107.0	104.9	1,392	162,481	7	5	9	20
2008	1.8	106.7	101.7	2,840	150,663	-8	-7	-16	3
2009	3.5	88.2	97.0	4,140	112,247	-5	-17	-44	-13
				Seasonally adjusted					
Oct 09	4.1	83.4	96.8	425	9,940	-1	-8	-49	-7
Nov 09	4.2	86.3	96.5	392	9,704	-2	-2	-43	-2
Dec 09	4.2	82.4	96.8	445	10,657	-4	-2	-39	-4
Jan 10	4.2	83.5	95.8	480	13,221	1	4	-43	-1
Feb 10	4.1	85.7	96.1	470	10,844	2	6	-47	3
Mar 10	...	...	...	514	...	-1	8	-41	0

[1] Excluding shipbuilding.

SELECTED QUARTERLY ECONOMIC INDICATORS — Table 22

	Employment		Hourly earnings			Property prices (purchase sum, one-family dwellings)
	Total	Private	All sectors in Denmark, total	Manufacturing industry in Denmark	Manufacturing industry abroad	As a percentage of property value 2006
	1,000 persons		1996=100			
2005	2,767	1,924	141.4	141.7	130.7	82.3
2006	2,825	1,980	145.7	146.1	134.0	100.0
2007	2,908	2,066	151.3	152.0	138.1	104.9
2008	2,949	2,111	158.0	158.5	142.4	101.1
2009	2,842	1,995	162.8	163.1	144.7	...
	Seasonally adjusted					
Q4 08	2,949	2,110	160.3	160.6	143.3	93.0
Q1 09	2,892	2,050	161.7	162.3	144.0	87.3
Q2 09	2,868	2,019	162.3	162.3	144.3	86.8
Q3 09	2,823	1,976	163.4	163.8	145.0	87.7
Q4 09	2,786	1,938	163.9	164.3	145.7	...
	Change compared with previous year, per cent					
2005	1.0	1.4	2.9	2.7	2.6	17.6
2006	2.1	2.9	3.1	3.1	2.5	21.6
2007	2.9	4.4	3.8	4.0	3.0	4.6
2008	1.4	2.2	4.4	4.2	3.1	-4.5
2009	-3.6	-5.5	3.1	2.9	1.6	...
Q4 08	0.9	1.3	4.2	3.8	2.5	-10.5
Q1 09	-2.1	-3.0	4.1	3.9	1.8	-15.1
Q2 09	-2.4	-4.0	3.0	2.7	1.6	-16.3
Q3 09	-4.5	-6.7	2.8	2.7	1.6	-13.1
Q4 09	-5.5	-8.2	2.3	2.3	1.6	...

EXCHANGE RATES — Table 23

	EUR	USD	GBP	SEK	NOK	CHF	JPY
	Kroner per 100 units						
	Average						
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
2009	744.63	535.51	836.26	70.18	85.39	493.17	5.7296
Oct 09	744.38	502.45	813.16	72.20	89.05	491.72	5.5606
Nov 09	744.15	498.97	827.87	72.02	88.44	492.66	5.5974
Dec 09	744.18	508.69	826.69	71.46	88.43	494.93	5.6775
Jan 10	744.24	521.55	842.99	73.01	90.97	504.06	5.7128
Feb 10	744.40	543.98	849.77	74.83	91.94	507.39	6.0308
Mar 10	744.16	548.49	825.42	76.50	92.59	513.89	6.0496

EFFECTIVE KRONE RATE — Table 24

Average	Nominal effective krone rate	Consumer-price indices: Denmark	Consumer-price indices: Abroad	Real effective krone rate based on consumer prices	Real effective krone rate based on hourly earnings	Consumer-price index in the euro area
	1980=100					2005=100
2005	101.6	241.7	228.4	107.6	109.5	100.0
2006	101.6	246.2	233.0	107.5	110.3	102.2
2007	103.2	250.5	238.2	108.5	112.9	104.4
2008	105.8	259.0	245.8	111.5	117.1	107.8
2009	107.8	262.4	246.3	115.3	121.2	108.1
Oct 09	108.5	263.3	247.0	115.9	...	108.4
Nov 09	108.4	263.3	247.2	115.7	...	108.5
Dec 09	108.1	262.9	247.8	114.9	121.6	108.9
Jan 10	107.0	263.6	247.4	114.3	...	108.1
Feb 10	105.7	266.6	247.8	114.2	...	108.4
Mar 10	105.4	268.2	...	...	...	...
	Change compared with previous year, per cent					
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	2.4	2.2
2008	2.5	3.4	3.2	2.8	3.7	3.3
2009	1.9	1.3	0.2	3.4	3.5	0.3
Oct 09	3.8	1.0	-0.3	4.9	...	-0.1
Nov 09	3.6	1.3	0.4	3.8	...	0.5
Dec 09	0.7	1.4	1.1	0.6	2.9	0.9
Jan 10	-0.3	2.0	1.3	0.0	...	1.0
Feb 10	-1.0	1.9	1.1	-0.5	...	0.9
Mar 10	-2.4	2.2	...	...	...	...

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.

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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.

"Nyt" is available in Danish only, whereas the tables supplement and the corresponding sources and methodologies also are available in English.

Statistics databank
The above publications are supplemented by a statistics database comprising all time series which are updated concurrent with a release. The time series include data as far back in time as possible. The statistical data from Danmarks Nationalbank are published through Statistics Denmark's "StatBank Denmark". Danmarks Nationalbank's part of the "StatBank Denmark" is available directly via:
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