Danmarks Nationalbank

Monetary Review 4th Quarter 2009

DANMARKS NATIONAL BANK 2009

MONETARY REVIEW 4th QUARTER 2009

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

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Recent Economic and Monetary Trends

This review covers the period from mid-September to early December

SUMMARY

The economic cycle has turned worldwide. Industrial production and global trade are beginning to pick up, albeit from a low level, and the financial markets continue to stabilise. The international recovery is to a large extent being driven by temporary effects from substantial easing of monetary and fiscal policies and inventory adjustment. It remains to be seen whether the upswing will be self-sustained once the temporary factors cease to apply. Unemployment is still high and many countries have extensive spare capacity in manufacturing.

In Denmark, output continued to fall strongly in the 2nd quarter of 2009, the gross domestic product, GDP, being 7 per cent lower than in the 2nd quarter of 2008. Available indicators for the 3rd quarter of 2009 show that the downward trend has stopped, but output does not really seem to be picking up. A slow upswing with moderate growth is predicted. Confidence indicators for industry and services have gradually been improving since the spring, while there is still widespread pessimism in the severely affected construction sector. Consumer confidence has also improved since the spring, but this has not been reflected in higher private consumption. This caution should be seen in the light of higher unemployment and the considerable decline in the households' net wealth in recent years, primarily on account of falling prices for owner-occupied housing. The housing market has begun to show signs of stabilisation after almost two years with price drops in a contracting market.

Private-sector employment continued to decrease in the 3rd quarter of 2009, but at a more measured pace than in the first half of the year. A period of low economic growth is anticipated, so unemployment is set to rise for some time yet. In response to the more sluggish labour market, the rate of wage increase declined in the 3rd quarter, but in the export-oriented manufacturing sector it nevertheless remained higher than among Denmark's most important trading partners.

The 2010 Finance Act agreement and previous decisions entail expansionary fiscal policy in 2010. This emphasises the need for the Danish government to prepare a medium-term plan for fiscal consolidation in the coming years, following the presentation of Denmark's convergence

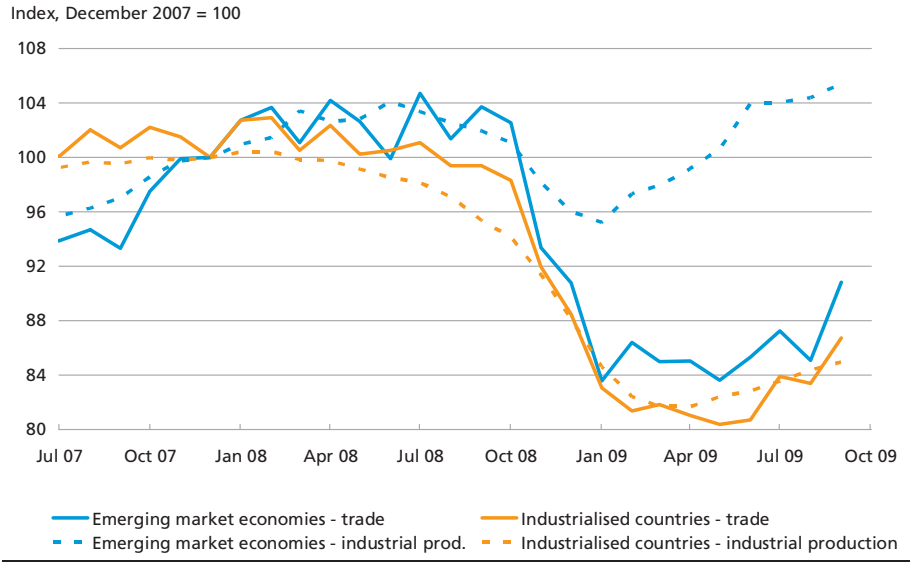
programme in early 2010. The plan should not only include consolidation targets, but also indicate the measures to be taken to achieve the planned fiscal improvement. This will support the credibility of fiscal policy and reduce the risk that yield spreads to abroad will widen as a result of rapidly rising debt.

THE INTERNATIONAL ECONOMY

Economic growth has become positive in most industrialised countries after 5-6 quarters of declining output. Global trade and industrial production have slowly begun to rise, cf. Chart 1, but global trade is still 10-15 per cent below the level at the end of 2007, when the cycle peaked in the USA. In the emerging market economies, the slowdown in output has been less pronounced, and the recovery has come earlier and has been stronger. The international economic recovery is to a large extent being driven by temporary factors such as inventory adjustment and substantial easing of economic policy, but receding uncertainty in the financial markets has also contributed.

In the export-oriented emerging market economies in Asia, the shift has been particularly strong on account of an increased inflow of capital and considerable easing of fiscal and monetary policies. Particularly in China this has increased domestic demand.

GLOBAL INDUSTRIAL PRODUCTION AND TRADE — Chart 1



Note: Industrial production excluding construction. Trade is the mean value of total imports and exports. The most recent observations are from September 2009.
Source: Netherlands Bureau for Economic Policy Analysis.

It remains to be seen whether the international recovery will be self-sustained. The most recent forecasts from international organisations still point to slow and moderate growth, cf. Table 1. The households are expected to continue to save in the wake of massive losses of equity and housing wealth, and the extensive spare capacity reduces the demand for investments. Moreover, the effect of temporary expansions of fiscal policy will gradually fade away. The outlook is slightly weaker for Europe than for the other major economies.

Labour markets remain weak in most industrialised countries. In the euro area and the USA, unemployment has risen to around 10 per cent over the autumn. There are substantial differences within the euro area, with unemployment remaining more or less unchanged in Germany since the onset of the recession in 2008, cf. Box 1, while it has almost doubled in Spain.

Consumption has shown a weak trend in most industrialised countries, but made a positive contribution to growth in the USA and Japan in the 3rd quarter. Several countries have implemented temporary measures to stimulate consumption, e.g. by way of subsidised vehicle scrapping schemes in the USA, Germany, France and the UK.

Housing markets are showing signs of improvement, especially in Sweden and Norway, but real house prices are still falling in most industrialised countries. The US housing market, which triggered the global financial crisis, is recovering, but remains fragile. Sales of existing and new homes have been on the increase since March, and house prices have shown small signs of stabilisation since July. The upswing in the housing market may prove to be temporary as it is to some extent driven by tax rebates for first-time buyers. This scheme was to have expired in November, but has been extended until June 2010 and expanded to in-

RECENT ESTIMATES OF DEVELOPMENT IN GDP AT CONSTANT PRICES Table 1

		OECD			European Commission			IMF	
	2008	2009	2010	2011	2009	2010	2011	2009	2010
USA	0.4	-2.5	2.5	2.8	-2.5	2.2	2.0	-2.7	1.5
Euro area	0.5	-4.0	0.9	1.7	4.0	0.7	1.5	-4.2	0.3
Germany	1.0	-4.9	1.4	1.9	-5.0	1.2	1.7	-5.3	0.3
France	0.3	-2.3	1.4	1.7	-2.2	1.2	1.5	-2.4	0.9
Italy	-1.0	-4.8	1.1	1.5	-4.7	0.7	1.4	-5.1	0.2
UK	0.6	-4.7	1.2	2.2	-4.6	0.8	1.4	-4.4	0.9
Japan	-0.7	-5.3	1.8	2.0	-5.9	1.1	0.4	-5.4	1.7
China	9.0	8.3	10.2	9.3	8.7	9.6	9.5	-8.5	9.0
Denmark	-1.2	-4.6	1.0	1.6	-4.5	1.5	1.8	-2.4	0.9

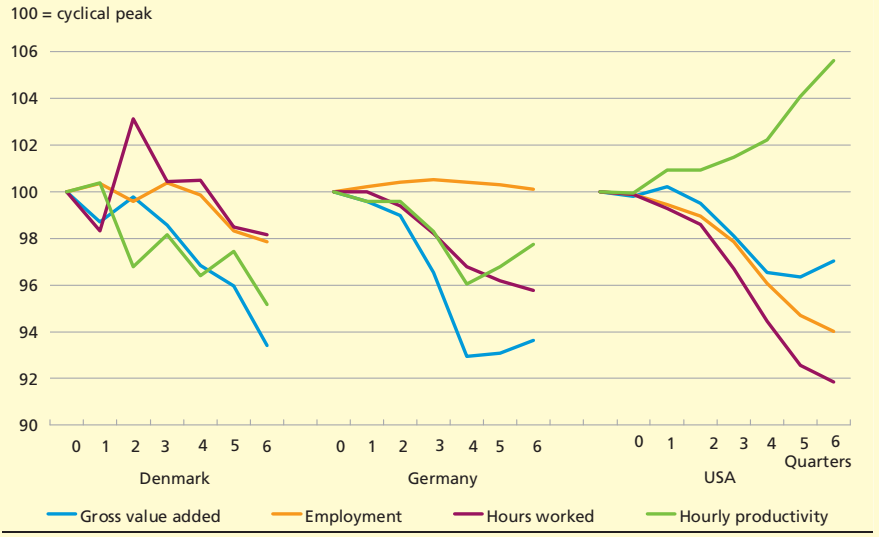
Source: OECD: *Economic Outlook*, November 2009, IMF: *World Economic Outlook*, October 2009, European Commission: *European Economic Forecast*, November 2009.

PRODUCTIVITY AND EMPLOYMENT IN DENMARK, GERMANY AND THE USA Box 1

It is not unusual for first hourly productivity growth and then employment to weaken in connection with an economic downturn, but this time the pattern has been different.

In Denmark, hourly productivity has fallen by almost 5 per cent since the 4th quarter of 2007, cf. Chart 2. This masks a reduction by around 2 per cent in employment and number of hours worked, while output has declined by almost 7 per cent. In Germany, hourly productivity has fallen by approximately 2 per cent. The impact has been mitigated by extensive use of work-sharing schemes so that employment in numbers has been almost constant throughout the downturn, while the number of hours worked has declined. In contrast, US productivity has risen by almost 6 per cent. Both the number of hours worked and employment have dropped at a faster rate than output in the USA.

PRODUCTIVITY, OUTPUT, EMPLOYMENT AND HOURS WORKED Chart 2



Note: The cyclical peak for Denmark has been identified as the 4th quarter of 2007, determined by the largest positive output gap, with potential output being estimated using the HP filter (λ=400). In Germany, the Bundesbank has identified the 1st quarter of 2008 as the cyclical peak. In the USA, the National Bureau of Economic Research, NBER, has identified the 4th quarter of 2007 as the cyclical peak. For Denmark and Germany, output has been calculated as gross value added, GVA, i.e. GDP less product taxes, while US output is stated as GDP. Hourly productivity (green curve) is stated as output relative to hours worked. The gap between the amber and red curves is the decline in hours per employee since the cyclical peak.

Source: Statistics Denmark and Reuters EcoWin.

In Denmark and Germany, output has shown a weaker trend than employment in terms of both number of hours worked and number of people, while the opposite applies in the USA. Employment development has been particularly flat in Germany as a result of the extensive use of work sharing ("Kurzarbeit") with government wage subsidies to cover the temporary reduction in working hours. It is relatively difficult and costly for German companies to lay off labour. Work sharing has been used to a much lesser extent in Denmark and the USA, where the labour markets are considerably more flexible. In Denmark a jobless recovery is likely as employment has declined less than output during the recession. Consequently, it will be possible to increase output without increasing employment. Hourly productivity will thus rise when

CONTINUED Box 1

the economy picks up. The extensive use of work sharing in Germany also points to a jobless recovery as output can be stepped up by increasing the number of hours worked per employee without increasing the number of employees. In the USA a jobless recovery is less likely.

clude existing homeowners too. In the 3rd quarter of 2009, US housing investments rose for the first time in four years, but relative to GDP they remain historically low. Housing investments are still falling in several European countries, notably in Spain and the UK.

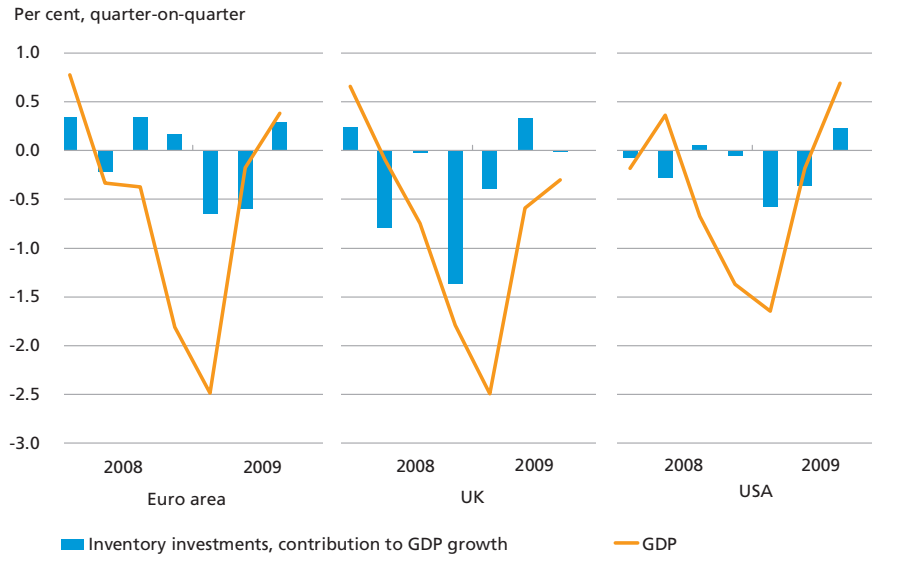
Business investment has fallen strongly in the industrialised countries during the economic downturn. Lower output has reduced industrial capacity utilisation, and the extensive spare capacity has in turn reduced the need to invest. Since the summer, capacity utilisation in the manufacturing sector has increased, but nevertheless remains historically low at around 70 per cent in the USA and the euro area.

Inventory investments generally account for a modest share of GDP, but this share is highly volatile and has amplified GDP fluctuations. At the beginning of the recession an involuntary inventory build-up took place, after which business enterprises reduced their inventories in response to falling demand. This led to considerable negative growth contributions to GDP from inventory investments. As the economy is beginning to recover and demand is picking up, the rate of inventory reduction is decreasing, and in some case rising output even boosts inventories. Inventory investments are thus beginning to make a positive contribution to GDP growth. This was the case in the USA, the euro area and the UK in the 3rd quarter, cf. Chart 3. The contribution to growth from inventory adjustment is a temporary phenomenon.

Price developments

Consumer prices in the industrialised world continued to fall in the autumn months when compared with prices in the same months of 2008. This is primarily attributable to the high oil and food prices throughout most of 2008, which will drop out of the statistics at the end of 2009. Extensive spare capacity dampens the underlying inflationary pressure, which is reflected in consumer prices excluding energy and food, i.e. core inflation. In both the USA and the euro area, core inflation is considerably lower than in the autumn of 2008. The weak labour markets have dampened wage increases. International organisations expect inflation to be positive, but modest in most industrialised countries in 2010 and 2011. Inflation expectations in the medium and long term, derived from yield differentials between nominal and in-

GDP GROWTH AND CONTRIBUTION FROM INVENTORY INVESTMENTS TO GDP Chart 3



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

flation-linked bonds, have been rising marginally in the autumn, but remain at a relatively low level of 1.5-2 per cent year-on-year over a 5-10-year horizon in the USA and the euro area.

Commodity prices have risen strongly since they bottomed out at the beginning of the year. This reflects increasing risk appetite, the depreciation of the dollar and growing demand, especially from the emerging market economies in Asia. Unlike in previous recoveries, commodity prices began to rise before any serious improvement in the global real economy was seen. OPEC output cuts have exerted upward pressure on oil prices. At just under 80 dollars in early December, the price of a barrel of Brent crude oil had doubled since the turn of the year.

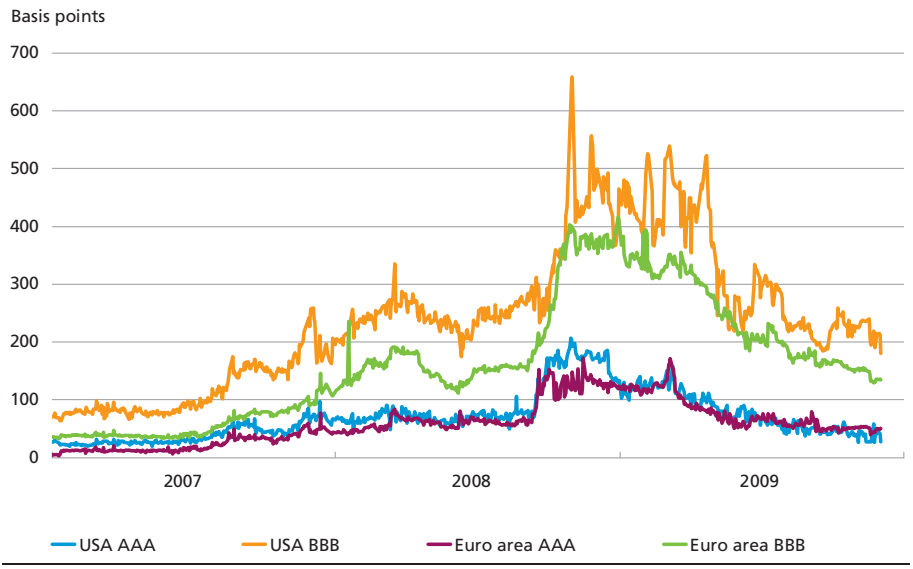
The financial markets

Financial market conditions have been improving steadily throughout 2009. Credit spreads have narrowed considerably, but still remain above the very low pre-crisis levels, cf. Chart 4.

Stock indices have risen by around 60 per cent in the USA and the euro area since the trough in the spring, but are still far below the level in previous years. Uncertainty, measured by volatility, soared last autumn, but has now more or less returned to the long-term average.

Long-term US and European government bond yields fluctuated somewhat during the autumn and are now slightly lower than in the summer. At the beginning of December, the yields on 10-year government bonds

CREDIT SPREADS Chart 4



Note: Yield spreads between 2-year corporate bonds rated AAA and BBB, respectively, and 2-year government bonds. The most recent observations are from 2 December 2009.
Source: Reuters EcoWin.

in the USA, Germany and the UK were 3.3, 3.2 and 3.6 per cent, respectively. Despite a high issuance volume, ample liquidity buoys up demand for government bonds, which in turn curbs yields.

Against the backdrop of stabilisation in the financial markets, the International Monetary Fund, IMF,[1] has reduced its estimates of actual and potential global write-downs held by banks and other financial institutions in 2007-10 from approximately 4,000 billion dollars in April to 3,400 billion dollars in October. US banks have realised more than half of the expected write-downs, while euro area banks have so far realised just under half. According to the IMF, losses on loans will constitute approximately two thirds of the banks' total write-downs.

The dollar has weakened further vis-à-vis most currencies since the spring, reversing the strong appreciation in the autumn of 2008. Since March the dollar has weakened by approximately 20 per cent against the euro and by 10 per cent against the currencies of the USA's trading partners. The depreciation should be seen in the light of the low US interest rates. The USA is seen as a "safe haven", and last autumn globally falling risk appetite led to stronger demand for US assets, thereby strengthening the dollar. The increasing global risk appetite since the spring has resulted in growing capital outflows from the USA and caused

[1] IMF, *Global Financial Stability Report*, October 2009.

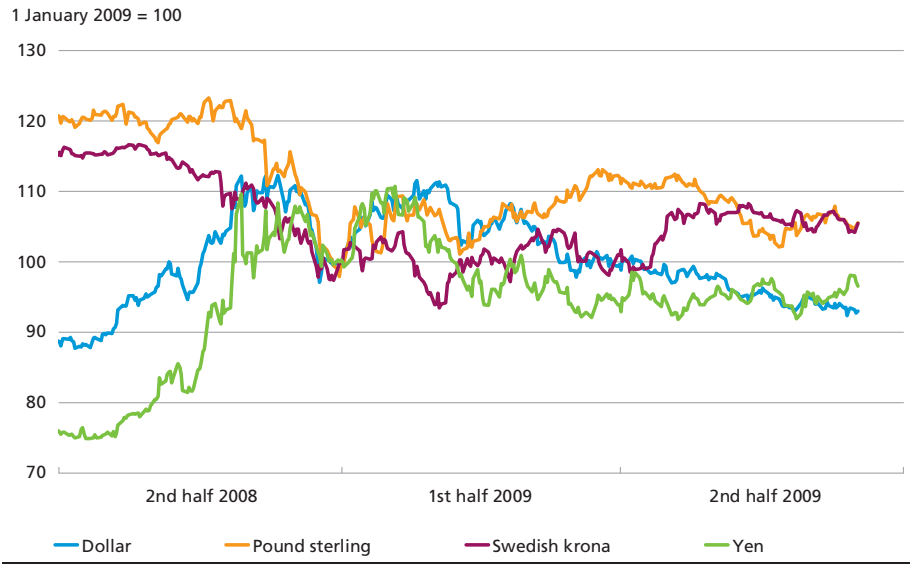
the dollar to weaken. Among other things, these capital flows reflect "carry trades", in which investors borrow in dollars at a low rate of interest and invest the funds at higher rates, either in the emerging market economies or in industrialised countries with robust banking systems and a better growth outlook, e.g. Australia.

The euro has tended to strengthen vis-à-vis the dollar during the autumn, but in spite of some fluctuation the exchange rate against the yen, the Swedish krona and the pound sterling has remained more or less unchanged, cf. Chart 5. The euro weakened against several eastern European currencies over the summer, but has been stable since August.

The price of gold reached a record-high level of just over 1,200 dollars per ounce in early December, compared with around 700 dollars last autumn, cf. Chart 6. This is attributable to factors such as large-scale purchases of gold by central banks in several emerging market economies, as well as the weakening of the dollar.

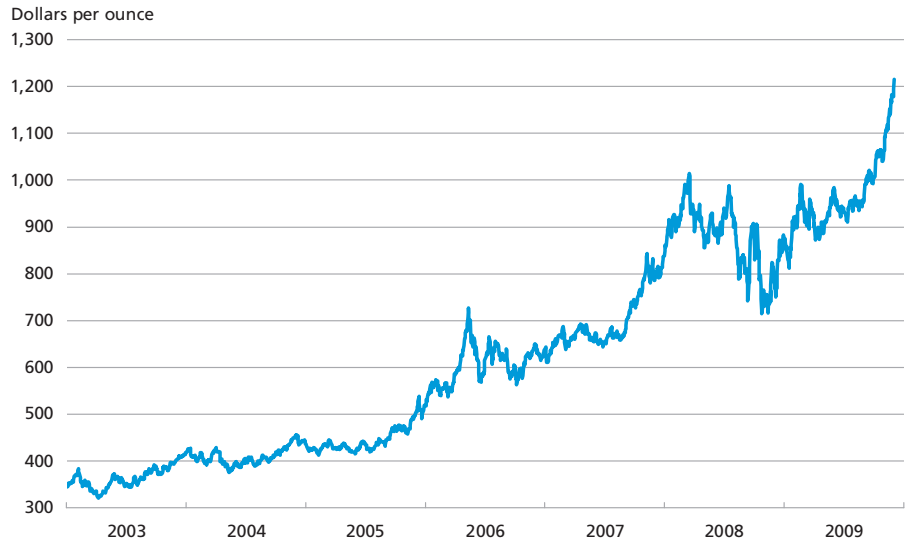
In mid-October the Icelandic parliament adopted a government guarantee on commitments concerning loans from the UK and the Netherlands to the Icelandic Depositors' and Investors' Guarantee Fund. These loans are to cover depositors' losses on guaranteed Icesave accounts in connection with the default of Landsbanki in the autumn of 2008. Subsequently, the IMF's Executive Board completed its first review under a stand-by arrangement with Iceland and approved a loan disbursement. This meant

DEVELOPMENTS IN SELECTED CURRENCIES VIS-À-VIS THE EURO Chart 5



Note: Euro per foreign currency unit. A rising index indicates strengthening of the currency. The most recent observations are from 2 December 2009.
Source: Reuters EcoWin.

GOLD PRICE Chart 6



Note: 1 (troy) ounce is equivalent to 31.103 grams, so if the exchange rate was 5 kroner per dollar, 1 kg gold cost approximately kr. 193,000 at the beginning of December. The most recent observation is from 2 December 2009.
Source: Reuters EcoWin.

that the conditions for disbursement of loans by the Nordic countries to Iceland had also been met.

To ensure sufficient resources for lending, the international community has taken a number of steps in 2009 to provide further funds for the IMF. Denmark contributes to this effort, and as of 4 November 2009, Danmarks Nationalbank has concluded a loan agreement for 1.95 billion euro with the IMF, cf. the article Danmarks Nationalbank's Financial Accounts with the International Monetary Fund, IMF, p. 67.

Economic policy

In order to limit the negative economic consequences of the financial crisis, the authorities in most industrialised countries have eased monetary and fiscal policies and supported the financial markets. The question remains as to when, how fast and in which way these measures are to be unwound. There are a number of challenges in this respect: inflationary risks, fiscal sustainability, long-term growth potential and financial stability.

In the context of the economic crisis, G-20 has become the premier forum for international economic cooperation, cf. Box 2. At the G-20 summit in September, the heads of state and government agreed to prepare exit strategies in relation to the extraordinarily expansionary policies and to implement a coordinated roll-back when the time is ripe.

NEW G-20 FRAMEWORK FOR ECONOMIC COOPERATION Box 2

At their summit in Pittsburgh in September 2009, the G-20 leaders stated that in future the G-20 is to be the premier forum for international economic cooperation. It was decided to coordinate economic policies within a "Framework for Strong, Sustainable and Balanced Growth". The idea is for G-20 to assess the consequences of the member countries' economic policies overall and against that background to decide on common economic objectives and initiatives.

In November the G-20 ministers of finance and central bank governors met, among other things to discuss the details of the above framework for economic policy coordination. The IMF will be the main supplier of the analyses on which the G-20 assessments will be based.

The national economic policy programmes and forecasts are to be presented in January 2010, and according to the schedule the first assessment of whether the national and regional economic policies of the G-20 countries meet the common objectives will be ready in April 2010. The assessment is to lead to a number of possible policy initiatives to meet the objectives, which will then be discussed by the leaders at the next G-20 summit in June 2010. Finally, more specific policy recommendations are to be prepared before the summit in Korea in November 2010.

The IMF has contributed to the G-20 discussions by formulating a set of principles for unwinding the substantial easing measures. The core message is that a roll-back should not be initiated until there is sound evidence that the economic upswing is self-sustained. Furthermore, the strategies should be clearly communicated in a timely manner. In particular, a clear plan should be prepared for fiscal consolidation, whereas monetary policy is more flexible and can be adapted more rapidly.

Monetary policy remains strongly expansionary in most countries. In the autumn, Australia, Israel and Norway raised their monetary-policy rates for the first time since the onset of the global economic crisis. In the USA, the euro area and the UK, monetary-policy rates remain record low at 0-0.25 per cent, 1.0 per cent and 0.5 per cent, respectively. Since the economic recovery is expected to be moderate and inflation low, market participants predict that central banks in most industrialised countries will maintain their accommodative monetary policies for some time yet.

Besides cutting monetary-policy rates to historically low levels, many central banks have opted for quantitative easing by supplying ample liquidity and buying back securities. As the financial markets normalise, demand for some of these measures will fall, so that they will to a certain extent automatically be phased out. At the August meeting of the Federal Open Market Committee, the Federal Reserve, Fed, decided

to extend the period for purchasing Treasury securities and mortgage-backed securities, but did not expand its framework. In mid-November the Fed announced that, effective 14 January 2010, it would reduce the maximum maturity on some of its extraordinary liquidity facilities in light of the continued improvement in financial market conditions. The European Central Bank, ECB, has only to a limited extent purchased securities. It has mainly relied on extraordinary liquidity allotments. At the monetary-policy meeting in early December, the ECB laid down the framework for gradually phasing out its longer-term refinancing operations. In the last 12-month operation, the rate of interest will no longer be fixed, but will reflect the actual development in the ECB's minimum bid rate over the life of the operation. In contrast, the Bank of England in early November increased the size of its asset purchase programme by 25 billion pounds to 200 billion pounds, thereby easing monetary policy further.

Massive easing of fiscal policy in most industrialised countries leads to rapidly growing budget deficits and government debt. The deteriorating government finances imply considerable fiscal consolidation in the foreseeable future – particularly since age-related expenses for health and pensions are set to rise in most industrialised countries in the coming years.

In the USA, the Congressional Budget Office expects a deficit in 2010 of just under 10 per cent of GDP and government debt of a good 60 per cent of GDP. According to the European Commission, the 2010 budget deficits of practically all EU member states will exceed the Stability and Growth Pact's reference value of 3 per cent of GDP, and for the EU overall a deficit of 6.9 per cent is expected in 2009 and 7.5 per cent in 2010. Almost half of the EU member states will not be able to keep their government debt within the limit of 60 per cent of GDP next year, meaning that most EU member states will be subject to the excessive deficit procedure under the Stability and Growth Pact in 2010.

For most EU member states, the Commission has recommended fiscal consolidation from 2011 considerably in excess of the Stability and Growth Pact's minimum requirement of improving the structural balance by 0.5 per cent of GDP p.a. In Germany a medium-term fiscal rule was adopted in September that will, according to Commission estimates, entail average annual consolidation of just over 0.6 per cent of GDP until 2016. It is a significant challenge to implement the necessary fiscal consolidation measures, especially when the economy is weak. Fiscal consolidation was below 0.5 per cent p.a. for the EU overall during the latest boom, i.e. at a time when the economic situation was considerably more favourable than at present.

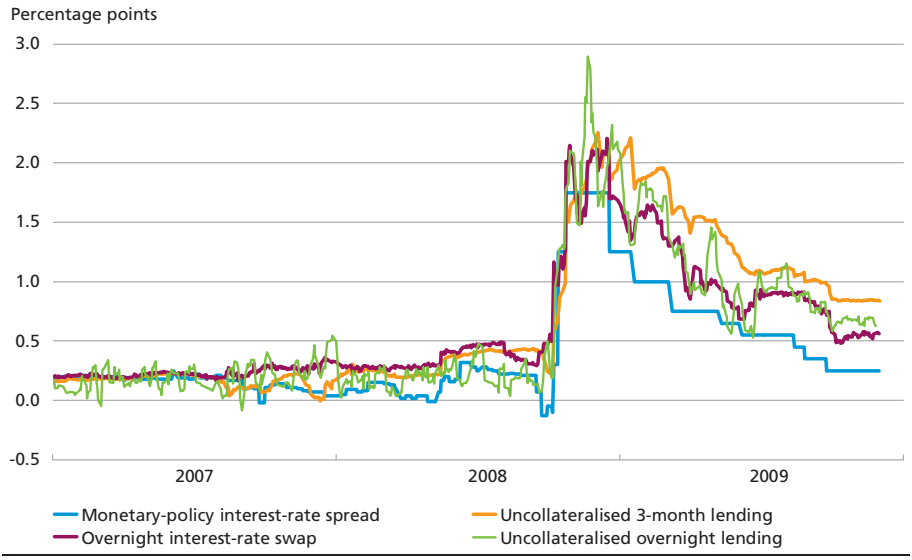
THE DANISH ECONOMY: MONETARY AND EXCHANGE-RATE CONDITIONS

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

The ECB has provided extensive liquidity for euro area banks since the financial crisis escalated in the autumn of 2008. Consequently, short-term money-market interest rates in the euro area have been markedly below the ECB's lending rate, while the equivalent Danish rates have generally mirrored Danmarks Nationalbank's monetary-policy interest rates. As a result, the spread between money-market interest rates in Denmark and the euro area has been somewhat wider than the corresponding monetary-policy interest-rate spread, cf. Chart 7, making it more attractive to invest in kroner. This has increased the demand for kroner against euro.

Owing to the demand for kroner in the foreign-exchange market, Danmarks Nationalbank has been purchasing foreign exchange for considerable amounts, cf. Chart 8. In the 3rd quarter of 2009, the foreign-exchange reserve grew by kr. 63.6 billion, to kr. 393.8 billion at end-

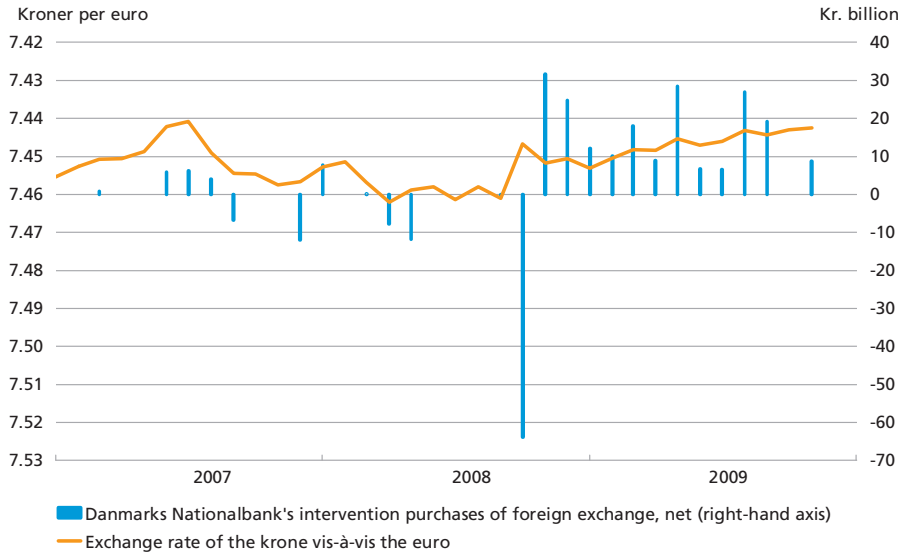
SELECTED INTEREST-RATE SPREADS BETWEEN DENMARK AND THE EURO AREA Chart 7



Note: The monetary-policy interest-rate spread is the spread between Danmarks Nationalbank's lending rate and the ECB's marginal rate on its main refinancing operations. The interest-rate spread for uncollateralised overnight lending is a centred moving average over 5 banking days of the difference between the Tomorrow/Next rate and Eonia. The interest-rate spread for uncollateralised 3-month lending is the Cibor-Euribor spread. The spread for interest-rate swaps is the spread between 3-month interest-rate swaps at the overnight rate. The most recent observations are from 1 December 2009.

Source: Danmarks Nationalbank and Reuters EcoWin.

THE EXCHANGE RATE OF THE EURO AND DANMARKS NATIONALBANK'S INTERVENTION IN THE FOREIGN-EXCHANGE MARKET Chart 8



Note: The exchange rate of the euro is monthly averages, while Danmarks Nationalbank's intervention is stated as monthly net purchases of foreign exchange. The most recent observations are from November 2009.
Source: Danmarks Nationalbank.

September. Kr. 52.6 billion of the increase is attributable to Danmarks Nationalbank's intervention in the market in the 3rd quarter.

Against this background, Danmarks Nationalbank reduced its lending rate by 0.1 percentage point to 1.25 per cent effective 25 September. At the same time the rate of interest on certificates of deposit was reduced by 0.1 percentage point to 1.15 per cent. Effective 29 September, Danmarks Nationalbank reduced the rate of interest on certificates of deposit by a further 0.15 percentage point to 1.0 per cent, while the current-account rate was reduced by 0.1 percentage point to 0.9 per cent. The discount rate was kept unchanged at 1.0 per cent.

Following the interest-rate cuts in late September, Danmarks Nationalbank has intervened far less. The foreign-exchange reserve decreased in October as the central government redeemed foreign loans totalling kr. 17.7 billion. At end-November the foreign-exchange reserve was kr. 383.4 billion.

Throughout 2009, the interest-rate spread to the euro area has been relatively high for uncollateralised money-market reference rates (Cibor and Euribor), which are calculated on the basis of reporting by large banks, cf. Chart 7. This trend has strengthened since August. At the beginning of December, the 7-day uncollateralised interest-rate spread for the reference interest rates was 0.2 percentage points higher than the

spread between uncollateralised interest rates traded in the overnight money markets in Denmark and the euro area, respectively. Market concentration is relatively high in the Danish financial sector, which could explain the fairly slow pass-through from changes in the traded market interest rates to uncollateralised reference rates.

The changes in the monetary-policy interest rates that took effect on 29 September also meant that the margin between the lending rate and the rate of interest on certificates of deposit increased from 0.1 to 0.25 percentage points, thereby giving banks and mortgage-credit institutes a stronger incentive to even out liquidity differences via the money market rather than using Danmarks Nationalbank's facilities. From 28 September until the beginning of December, the banks and mortgage-credit institutes reduced their borrowing (excluding loans in foreign currency) from Danmarks Nationalbank by kr. 61 billion, while their current-account deposits and holdings of certificates of deposit were reduced by kr. 28 billion overall. Consequently, their net position vis-à-vis Danmarks Nationalbank increased by kr. 33 billion, cf. Chart 9. How much of the reduction in gross use of Danmarks Nationalbank's facilities that can be attributed to the interest-rate margin is difficult to assess.[1]

Danmarks Nationalbank has not conducted any currency auctions under its swap lines with the Fed and the ECB since 15 September. As the foreign-exchange markets continue to normalise, the banks have been able to meet their needs to borrow foreign exchange without the assistance of Danmarks Nationalbank. Since 25 November the banks have no longer borrowed foreign exchange from Danmarks Nationalbank. The swap line with the Fed expires on 1 February 2010.

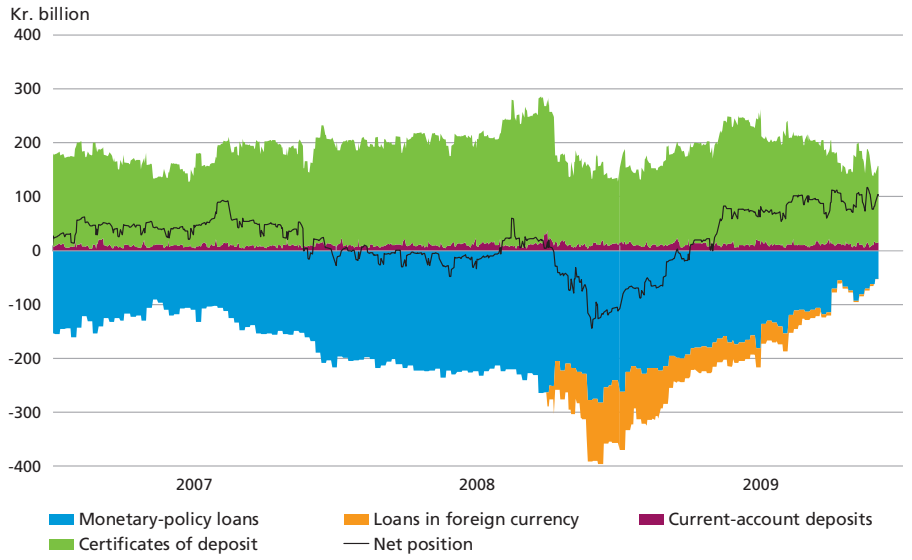
Bank interest rates, mortgage-credit bond yields and credit developments

The yield on both short-term and long-term Danish mortgage-credit bonds has been relatively stable over the last few months. At end-November the yield on 1-year non-callable fixed-rate bullet bonds ("fixed bullets") used for financing adjustable-rate loans fell slightly to 1.7 per cent, while the yield on long-term bonds was 5.2 per cent, which is equivalent to the mid-September level, cf. Chart 10.

This year, auctions for refinancing adjustable-rate loans have been spread over several weeks from mid-November to mid-December. The outstanding volume of fixed bullets maturing in January 2010 has been calculated at just under kr. 660 billion. The aggregate refinancing volume

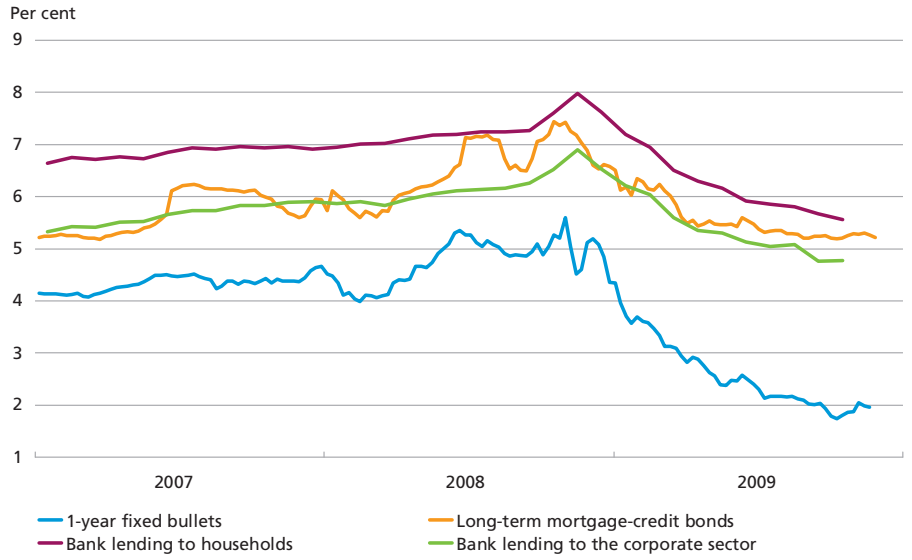
[1] For a more detailed review of the development in Danmarks Nationalbank's balance sheet during the financial crisis, see the article on p. 107.

NET POSITION OF BANKS AND MORTGAGE-CREDIT INSTITUTES VIS-À-VIS DANMARKS NATIONALBANK — Chart 9



Note: Stocks. The banks' and mortgage-credit institutes' loans in foreign currency from Danmarks Nationalbank are not included in their net position vis-à-vis Danmarks Nationalbank. Loans in foreign currency are granted by Danmarks Nationalbank to banks and mortgage-credit institutes on the basis of swap lines with the Federal Reserve and the ECB. The most recent observations are from 1 December 2009.
Source: Danmarks Nationalbank.

MORTGAGE-CREDIT BOND YIELDS AND BANK LENDING RATES — Chart 10



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 for outstanding business. The most recent observations are from 27 November 2009 and October 2009, respectively.
Source: Nordea Analytics, Association of Danish Mortgage Banks and Danmarks Nationalbank.

will, however, be approximately kr. 520 billion since some borrowers have decided to lock the price of the bonds beforehand or have opted for other loan types. The present short-term yield means that homeowners and others with adjustable-rate mortgages will benefit from considerably lower interest payments in the new year. On 12 October, the Association of Danish Mortgage Banks and the Danish Mortgage Banks' Federation agreed with Danmarks Nationalbank that their members should implement measures to ensure a more suitable and even distribution of these refinancing activities over the year than has been the case until now. This is to prevent further build-up of refinancing around the turn of the year in the coming years.

When the financial turmoil escalated in the autumn of 2008, the yield spread between mortgage-credit and government bonds widened, both in the euro area and in Denmark. As a result, the Danish Ministry of Economic and Business Affairs concluded an agreement with the Danish Insurance Association with a view to ensuring market stability and preventing systematic divestment of Danish mortgage-credit bonds, which could give pension savers unnecessary losses.[1] The agreement runs until the end of 2009, and since its conclusion the spread between mortgage-credit and government bonds has returned to a more normal level. On 27 October, the parties agreed to extend the agreement by one year to the end of 2010.

Like the short-term bond yields, the banks' lending and deposit rates have fallen against the background of lower monetary-policy interest rates, cf. Chart 10.

Total lending by the banks and mortgage-credit institutes to the corporate sector has declined by almost kr. 50 billion in 2009, while lending to households has risen by nearly kr. 45 billion.

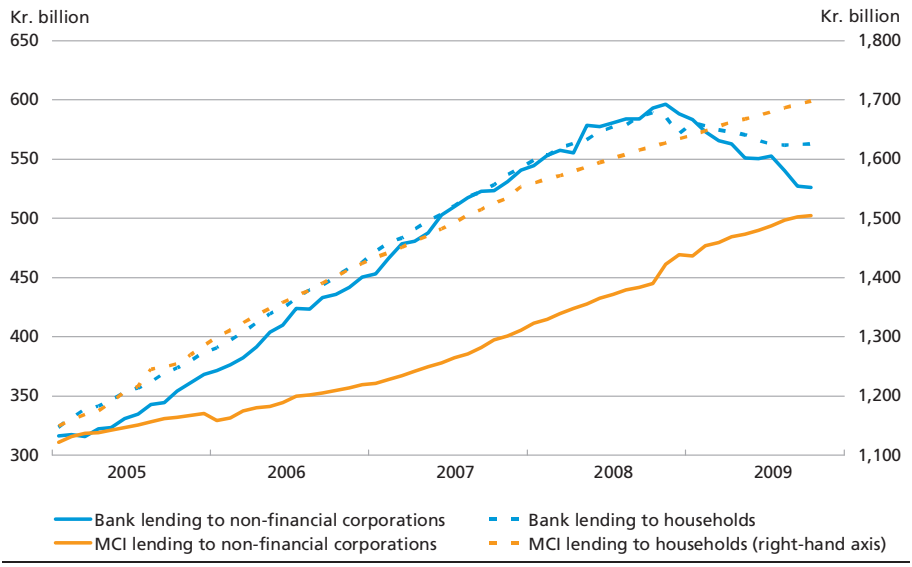
Since the summer of 2009, lending by banks to households has been stable at around kr. 560 billion, while lending to the corporate sector has decreased further, to around kr. 525 billion at end-October, cf. Chart 11. For the mortgage-credit institutes, lending to both the corporate sector and the households has continued to increase.

A shift has thus taken place from bank loans into mortgage credit. This development is in accordance with Danmarks Nationalbank's lending survey, which shows that the credit institutions have tightened their collateral requirements. Moreover, the yield on short-term mortgage credit relative to bank loans fell by approximately 1 percentage point during 2008 for both households and the corporate sector, and

[1] For further details about the agreement, see Danmarks Nationalbank, *Monetary Review*, 4th Quarter 2008, pp. 36-37.

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

Chart 11



Note: MCI = mortgage-credit institutes. Seasonally adjusted data. Outstanding lending by banks and mortgage-credit institutes domiciled in Denmark. The most recent observations are from October 2009.

Source: Danmarks Nationalbank.

the yield spread has remained at this high level throughout 2009, cf. Chart 10. The lower fall in bank lending rates should be seen in relation to the higher risk associated with bank lending than with mortgage credit. Bank loans are to a large extent uncollateralised, while mortgage credit is raised against collateral. In connection with the financial crisis and the economic downturn, risk premiums have risen, making bank loans relatively more expensive than mortgage credit. Consequently, the latter has become more attractive for households and the corporate sector.

The shift from bank loans to mortgage credit is also reflected in Danmarks Nationalbank's most recent lending survey. In the 3rd quarter of 2009, the banks reported declining demand for loans from both the corporate sector and the households relative to the 2nd quarter. The mortgage-credit institutes, on the other hand, reported unchanged demand from the corporate sector and rising demand from households.

According to the lending survey, the banks and mortgage-credit institutes did not tighten their credit policies further in the 3rd quarter. However, it should be noted that credit policies were tightened substantially at the beginning of 2009.

THE DANISH ECONOMY: REAL ECONOMY

Economic activity

Economic activity, measured as seasonally adjusted GDP at constant prices, fell by 2.6 per cent in the 2nd quarter of 2009 relative to the 1st quarter. This is the fourth consecutive quarter with negative growth in Denmark, and relative to the 2nd quarter of 2008 GDP is 7 per cent lower. The Danish economy is thus stabilising later than those of Denmark's major trading partners. Both the euro area and the USA saw limited output falls in the 2nd quarter and positive growth in the 3rd quarter.

Several indicators do, however, point to the Danish economy having stabilised in the 3rd quarter[1]. Looking ahead, the first signs of economic recovery abroad will help to boost the level of activity in Denmark by way of higher exports. In addition, manufacturing and wholesale stocks continued to fall in the 3rd quarter, but at a lower pace than in the 2nd quarter, cf. the statistics on stock changes. As the rate of decline drops, this will have a positive impact on growth. A slow upswing with moderate growth is predicted. It will take many quarters to catch up on the output losses seen over the past year, so unemployment is expected to rise for some time yet.

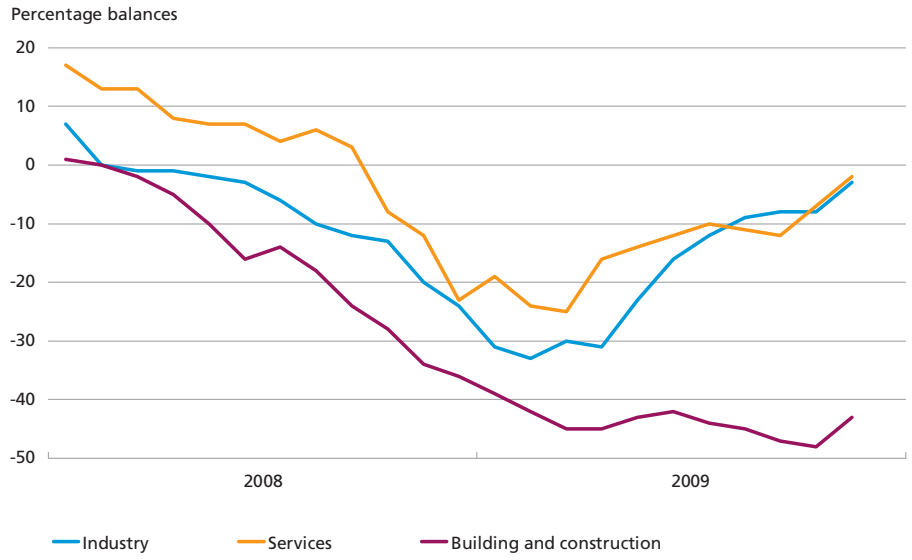
Industrial production has continued to fall since the summer, but the rate of decline has abated relative to the very strong fall at the beginning of 2009, and the sector is now less pessimistic, cf. Chart 12. The indicator of industrial output expectations for the coming three months has been positive since July, while expectations of employment and sales prices in the industrial sector were still negative in November. In the service sector the sentiment has improved, with positive expectations for turnover in the coming months. In contrast, pessimism still prevails in the construction sector, where employment expectations and order-book assessments improved in November, but nevertheless remain very low compared with the level in previous years.

Although confidence indicators are rising, the number of businesses failing indicates that conditions are still tough for the private sector. The failure rate has soared since the spring of 2008, with 507 registered liquidations in November, seasonal fluctuations taken into account. Most of the business enterprises that fail are less than five years old and have fewer than 10 employees.

Consumer confidence has picked up since the spring, but this has not yet been reflected in rising consumption. Private consumption has shown

[1] The national accounts for the 3rd quarter of 2009 are to be published on 22 December.

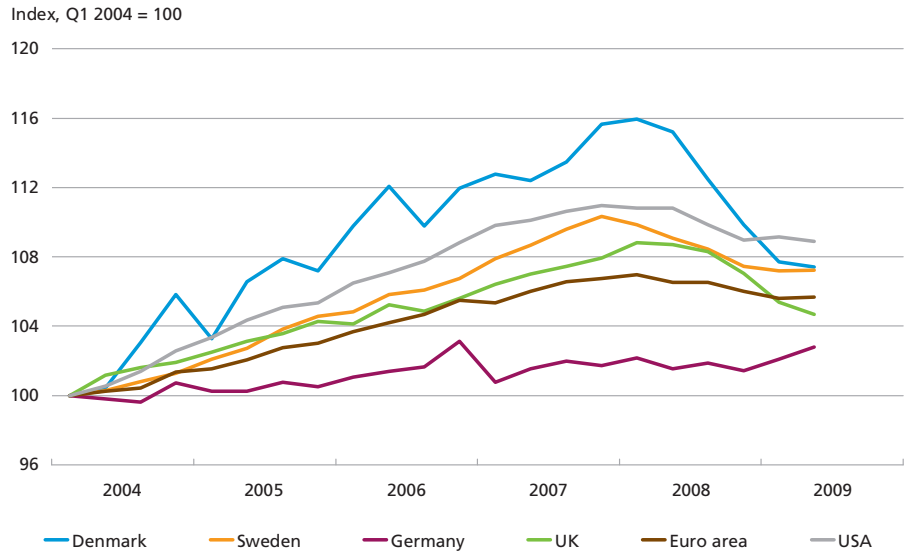
INDICATORS OF BUSINESS EXPECTATIONS Chart 12



Note: Seasonally adjusted series. The most recent observations are from November 2009.
Source: Statistics Denmark.

a steady downward trend from the 1st quarter of 2008. Since the onset of the crisis, the decline has been greater in Denmark than in comparable countries, cf. Chart 13, but the increasing trend was correspondingly strong during the very pronounced upswing in Denmark prior to the crisis.

PRIVATE CONSUMPTION AT CONSTANT PRICES IN SELECTED COUNTRIES Chart 13



Note: Seasonally adjusted series. The most recent observations are from the 2nd quarter of 2009.
Source: Reuters EcoWin for the USA, Eurostat for the rest.

Retail sales and sales of passenger cars to households decreased from the 2nd to the 3rd quarter, which does not indicate that private consumption began to recover in the 3rd quarter. In October, both retail sales and car sales to households rose. Retail sales grew by 1.1 per cent, the largest month-on-month increase since September 2008, primarily on account of higher sales of clothing and other consumer goods. Expectations of higher unemployment and a substantial fall in the households' net wealth since mid-2007 have increased the propensity to save. The decline in net wealth until the 1st quarter of 2009 was attributable to falling housing and equity prices, cf. Box. 3. Net wealth was more or less unchanged from the 1st to the 2nd quarter of 2009, but this stabilisation has not yet boosted consumption.

The housing market

According to the statistics of the Association of Danish Mortgage Banks, the first small signs of stabilisation in housing prices were seen in the 3rd quarter of 2009. Cash prices for single-family and terraced houses stopped falling, while prices for owner-occupied flats picked up slightly. The average price of houses traded was 10.8 per cent lower in the 3rd quarter of 2009 than in the same quarter of 2008, while prices for flats were 12.4 per cent lower.

According to Statistics Denmark, the seasonally adjusted number of homes sold rose by 10.4 per cent in the 2nd quarter. This is the first overall increase since the end of 2007. Data from the Association of Danish Mortgage Banks shows that the upward trend continued in the 3rd quarter, cf. Chart 15. Relative to the 3rd quarter of 2008, turnover in single-family and terraced houses was a good 13 per cent lower, but trading activity for owner-occupied flats was almost 15 per cent higher. Time on market remains high, but has stabilised in recent months at just under 8 months for both houses and owner-occupied flats.

The housing market has begun to show signs of stabilisation. This is attributable to the very low level of interest rates as well as rising disposable incomes. Similar developments have been seen in other countries that also saw soaring housing prices during the boom. The prospect of a continued rise in unemployment and the risk of higher interest rates may reverse the pattern and cause the housing market to weaken.

Foreign trade and balance of payments

Foreign trade showed weak signs of a recovery in the 3rd quarter of 2009. The value of goods exported (excluding ships, etc.) increased marginally following a sustained fall for four quarters. The increase was primarily attributable to higher energy exports as a result of rising oil prices, while

HOUSEHOLD WEALTH AND SAVINGS — Box 3

At the end of the 2nd quarter of 2009, the households' total net wealth was just over kr. 2,500 billion, having decreased by almost kr. 1,000 billion from the peak in the 2nd quarter of 2007. The decline reflects falls in the value of homes and of equities held, as well as higher debts.

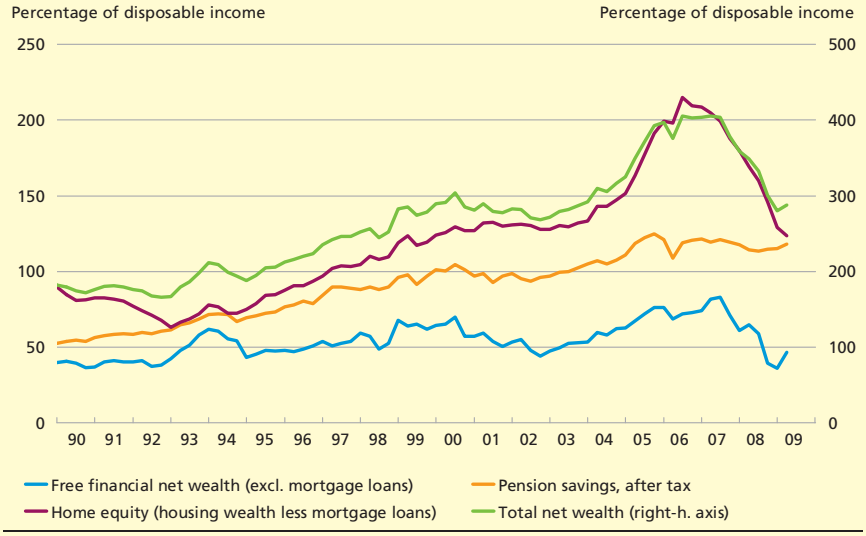
Nevertheless, the ratio of wealth to disposable income remains high when viewed in a longer-term perspective, cf. Chart 14. This is mainly attributable to housing and pension wealth still being robust.

Pension wealth has shown a steady upward trend over the last 30 years, partly reflecting the increasing prevalence of labour-market pensions. The Danish Economic Council notes that the increase in pension savings does not reduce other savings significantly. According to its calculations, the crowding-out effect of labour-market pensions is only around 20 per cent, i.e. 1 krone in extra labour-market pension savings increases total wealth by 0.80 kroner, cf. chapter 2 of the Danish Economic Council's spring 2008 report on the Danish economy (in Danish only).

Since the onset of the recession in the 1990s, home equity as a ratio of the disposable income has risen from around 90 per cent to approximately 120 per cent at the end of the 2nd quarter of 2009. Seen over a longer horizon starting in 1973, home equity has averaged around 130 per cent of disposable income, i.e. slightly more than at present.

Free financial net worth, on the other hand, has been relatively stable at around 50 per cent of the disposable income. As stock indices dived, it fell from around 75 per cent in 2007 to 50 per cent at the end of the 2nd quarter of 2009.

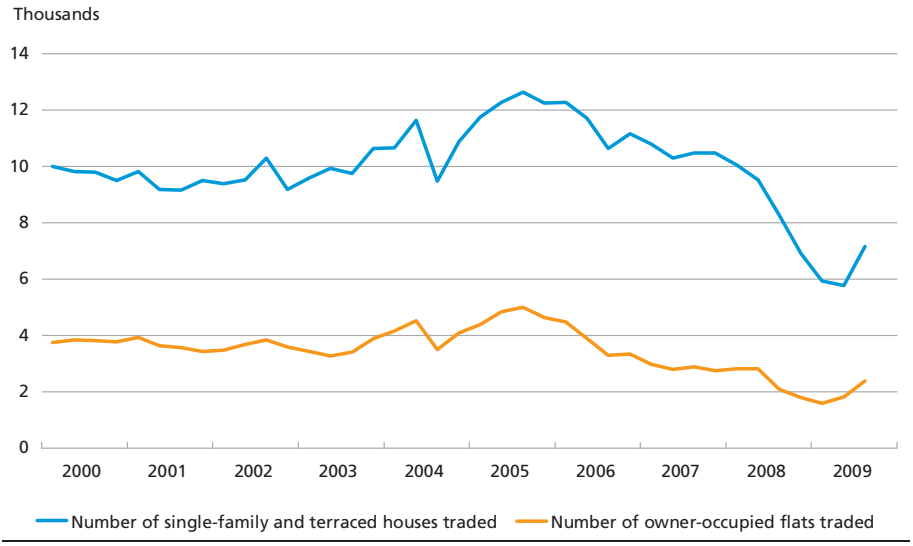
HOUSEHOLD WEALTH — Chart 14



Note: The household sector includes the self-employed and non-profit organisations. The compilation of housing wealth does not include the value of commercial properties, unbuilt plots and consumer durables. Pension wealth after tax is defined as 50 per cent of the pension wealth (estimated value after tax), including ATP, LD and SP deposits and excluding non-funded pension schemes. Free financial net wealth is the value of financial assets not invested in a pension scheme, less the value of financial liabilities except mortgage loans. Own seasonal adjustment of the disposable income including changes in the households' pension fund reserves. The most recent observations are from the 2nd quarter of 2009.

Source: Statistics Denmark and Danmarks Nationalbank.

NUMBER OF TRADES IN THE HOUSING MARKET Chart 15



Note: Seasonally adjusted series. The most recent observations are from the 3rd quarter of 2009.
Source: Association of Danish Mortgage Banks. The statistics comprise trades involving mortgaging and thus cover approximately 80 per cent of all trades.

industrial exports were broadly unchanged. Imports of goods (excluding ships. etc.) rose by 2 per cent from the 2nd to the 3rd quarter, mainly reflecting higher imports for the business sector. As imports rose slightly more than exports, the balance of trade deteriorated in the 3rd quarter after having improved in the 1st half of 2009.

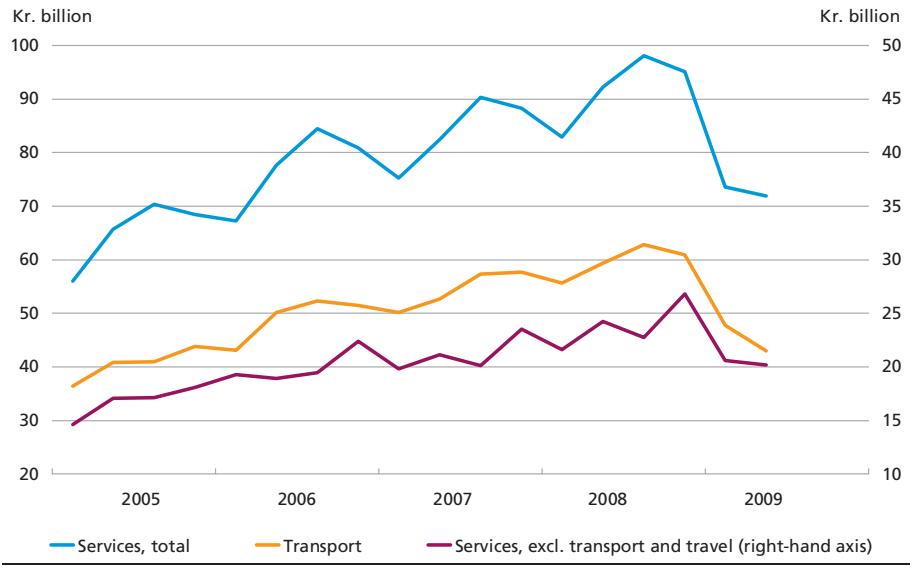
The value of exports of services has dropped by almost one fourth over the last year. The primary reason is lower earnings from sea freight, which has been severely affected by contracting global trade and lower freight rates. The latter have also been squeezed by rising capacity in the global merchant fleet. Newbuilding orders increased while freight rates were high in the boom years, and due to long production times capacity is still being expanded.

Exports of other services such as consultancy, IT and communication services, etc. have fallen over the last year, following a strong increase in 2005-08, cf. Chart 16.

Imports of services have decreased in the last year, but not as strongly as exports. The net trade surplus for services has therefore declined. According to the balance-of-payments statistics, the net trade surplus for services was just over kr. 30 billion from October 2008 to September 2009, compared with approximately kr. 50 billion one year earlier.

The contribution from investment income has grown, and overall the current-account surplus has increased. In the period from October 2008

EXPORTS OF SERVICES Chart 16



Note: The most recent observations are from the 2nd quarter of 2009.
Source: Statistics Denmark.

to September 2009, the aggregate current-account surplus was kr. 55 billion, which was just over kr. 14 billion more than one year earlier.

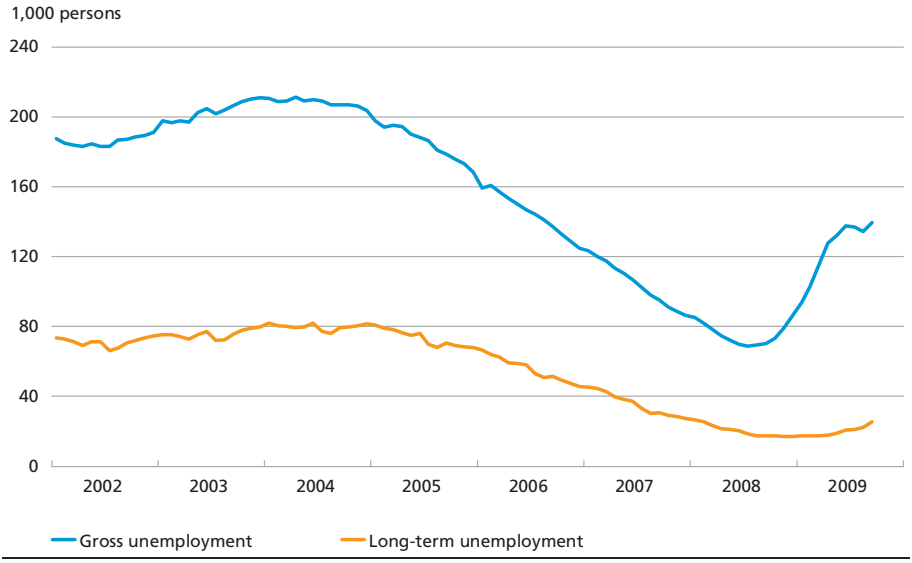
Labour market and wages

From June to October 2009 seasonally adjusted unemployment rose by an average of 3,800 a month. This is somewhat less than in the 1st half of 2009, when the monthly rate of increase was almost 7,000. According to Statistics Denmark's random-sample labour survey, particularly the group of people who have been looking for work for 3-12 months has grown in 2009. In the 3rd quarter, this group constituted 45 per cent of the unemployed in the survey population.

Long-term unemployment will rise in the coming months in step with unemployment in general. Many people who are laid off still find work relatively quickly, so until now long-term unemployment has risen only moderately, cf. Chart 17. Data from the Ministry of Employment show that on average a person who is made redundant leaves the benefit system three weeks later than before the economic crisis. The proportion who find new employment within three months is still higher than when unemployment rose in 2002 and 2003.

Wage inflation in the private-sector labour market has declined as the economy has deteriorated. According to Statistics Denmark, annual wage inflation in the private sector was 2.8 per cent in the 3rd quarter of 2009, a little below the level in the 2nd quarter. In the struggling

GROSS UNEMPLOYMENT AND LONG-TERM UNEMPLOYMENT Chart 17



Note: Seasonally adjusted series. Gross unemployment includes recipients of unemployment benefits and cash benefits and people in activation schemes. Long-term unemployment is calculated on a monthly basis as the number of people (full-time equivalents) who have been unemployed or in activation schemes more than 80 per cent of the time during the last 12 months. The most recent observations are from September 2009.

Source: The Danish National Directorate of Labour's RAM register, and the Danish Ministry of Employment's DREAM database.

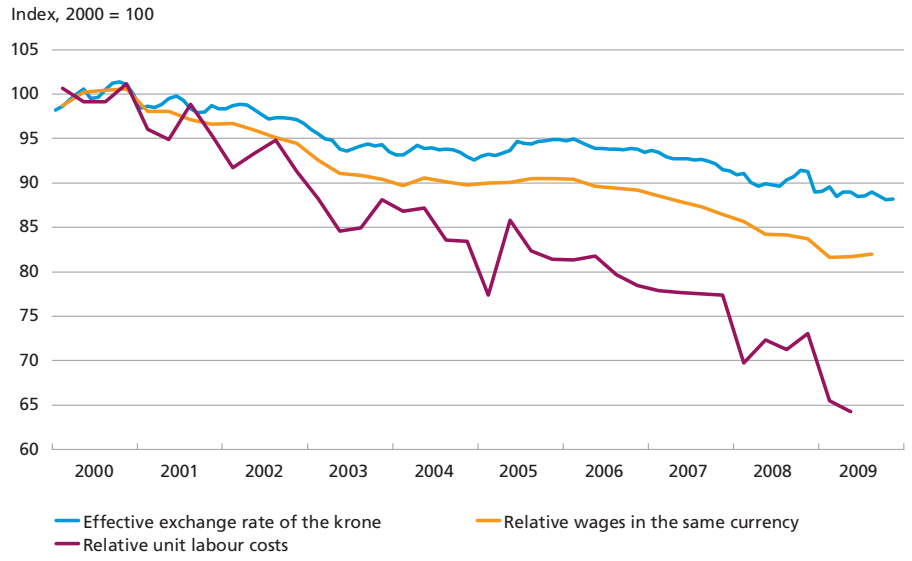
building and construction sector, wage inflation declined to 1.7 per cent year-on-year. Annual wage inflation in the public sector fell from the 2nd to the 3rd quarter, but remained high. Wages in the local and regional government sector were 5.1 per cent higher in the 3rd quarter of 2009 than in the 3rd quarter of 2008. Public-sector wage inflation is expected to decline further in the coming quarters as the collective agreements are implemented. The crisis has put a damper on the labour market, both in Denmark and abroad, but in the 3rd quarter wage inflation was still higher in Denmark than in its most important trading partner countries.

Combined with a strengthening of the effective exchange rate of the krone and very weak productivity development, the relatively high wage inflation in Denmark over a considerable number of years has reduced Denmark's competitiveness by around 35 per cent since the millennium rollover, cf. Chart 18. Over the same period, the terms of trade for goods excluding energy have improved by approximately 8 per cent.

Prices

Inflation, measured by HICP, has decreased over the year, to 0.6 per cent in October. Despite the subdued price development, consumer price in-

WAGE COMPETITIVENESS IN INDUSTRY Chart 18



Note: Relative wages and relative unit labour costs are those abroad relative to those in Denmark in the same currency in industry. Unit labour costs are payroll costs divided by GVA at constant prices in industry. A fall in an index indicates a deterioration in wage competitiveness.
Source: Statistics Denmark, OECD and Danmarks Nationalbank.

flation is still somewhat higher than that of the euro area, which fell by 0.1 per cent year-on-year in October. Core inflation, which excludes energy and food prices, was 1.7 per cent year-on-year in October. This reflects slightly lower price pressures, but core inflation remains higher than in the euro area. Domestic market-determined inflation, IMI, which is a measure of the development in business enterprises' payroll expenditure and profits, is high, standing at 5.9 per cent year-on-year in October. Prices of input for production, e.g. commodities, are lower than one year ago. Since falling input prices are typically passed on to consumers with a certain lag, this is reflected in an increase in IMI.

Economic policy

Economic growth in Denmark was negative in the 2nd quarter of 2009. The 3rd quarter saw signs of recovery among Denmark's largest trading partners, while the Danish economy showed signs of stabilising. The improved international outlook can help to drive the Danish economy forward in the near future, but the upswing is set to be slow.

The 2010 Finance Act agreement and previous decisions entail expansionary fiscal policy, so that the government deficit and debt, which were already expected to grow considerably in 2010, will increase further.

In 2010 Denmark, like most other EU member states, will exceed the Stability and Growth Pact's reference value for the government deficit of 3 per cent of GDP. A deficit of that magnitude will subject Denmark to the excessive deficit procedure, and the European Commission will issue a recommendation to reduce the government budget deficit.

In early 2010 the Danish government will present a new convergence programme for Denmark. It will thus be necessary to prepare a medium-term plan for fiscal consolidation in the coming years. The plan should not only include consolidation targets, but also indicate the measures to be taken to achieve the planned fiscal improvement. This will support the credibility of fiscal policy and reduce the risk that yield spreads to abroad will widen as a result of rapidly rising debt.

Economic Activity, Asset Prices and Credit

Erik Haller Pedersen and Søren Vester Sørensen, Economics

INTRODUCTION AND CONCLUSION

Fluctuations in economic activity are normal in a market economy. This article compares the most recent upswing in Denmark with previous periods of economic expansion.

During periods of strong economic growth, imbalances typically build up in the economy, which subsequently have to be addressed. This was also the case during the upswing in Denmark from 2003 to 2007, when imbalances were evident in e.g. the housing market and the construction sector. Subsequently, this led to problems for banks that had become overly involved in these areas. Private consumption also grew rapidly, albeit with a clear positive savings ratio throughout the entire upswing. The rising losses of banks do not relate primarily to loans to households, but rather to corporate loans, especially for building and construction.

The erosion of competitiveness intensified during the upswing, but extraordinary income, including from oil and gas production in the North Sea, secured lasting current-account surpluses. This is in contrast to the other upswings over the past 40 years, practically all of which ended in contractionary policy measures in response to current-account problems.

The most recent economic boom was characterised by exceptionally strong credit growth and rising prices of owner-occupied housing. Experience shows that in such a situation imbalances often build up and subsequently have to be addressed. This typically entails a period of low growth. It was not the increased debt *per se* that led to the economic slowdown, but high debt levels make households and business enterprises more vulnerable now that the economy has reversed. This also applies to high gearing levels in the banking sector.

Crises cannot be avoided in a market economy. No economic policy could have shielded the Danish economy from the severe global setback in 2008.

Theory and practice show that it is very difficult to control expectation-driven asset prices via interest rates. The alternative is increased taxation of the asset or tightening of the terms for loans collateralised

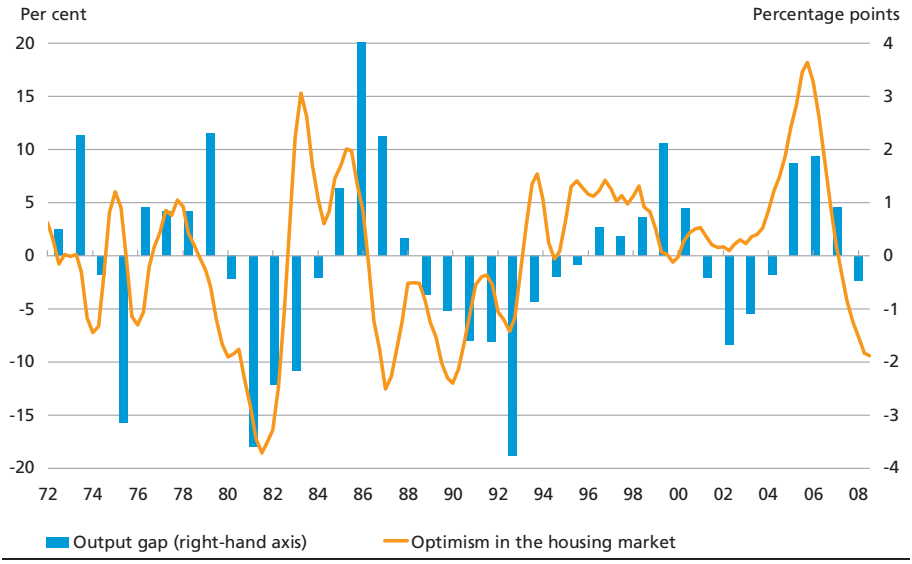
on the asset. The fiscal easing in 2004 broke with the previous years' medium-term fiscal strategy, helping the economy to shift into a higher gear in the following years and reducing unemployment far below its structural level. The safest approach is to maintain a medium-term economic policy line and abandon the idea that it is possible to fine-tune business cycle developments.

CYCLICAL FLUCTUATIONS IN DENMARK

Over the past 40 years, four periods of economic upswing in the Danish economy are identifiable: the second half of the 1970s after the shock following the oil price surge in 1973 had subsided, the early 1980s when the Schlüter government had taken office, the period after the kick-start in 1993, and most recently the period 2003-07. Measured by the output gap, i.e. the difference between the actual and the potential gross domestic product, GDP, the four upswings match periods during which the gap has widened, implying that it has become less negative or more positive, cf. Chart 1.

Housing prices and stock prices are inherently volatile. Housing prices typically move more sluggishly than stock prices. The price of a financial asset, such as a share, depends on expectations of future returns and

HOUSING MARKET AND ECONOMIC ACTIVITY Chart 1



Note: "Optimism in the housing market" is calculated as a 4-quarter moving average of growth in nominal cash prices of single-family houses less nominal GDP growth. "Output gap" shows actual production relative to the level compatible with equilibrium in the economy.

Source: OECD, Statistics Denmark and own calculations.

thus of future economic trends. The market tends to project the current situation into the future, both when it is positive, as was the case during the most recent upswing, and when it subsequently turns more negative. This leads to large fluctuations in stock prices over time, cf. Ejerskov (2000). A similar tendency applies to housing prices. In connection with the discussion of bubbles, Mishkin (2009) has stated that a distinction should be made between bubbles financed via credit expansion and bubbles with no credit expansion. In the case of the former, banks will be faced with substantial financial losses when the bubble bursts. Therefore these bubbles are more dangerous. For a theoretical overview of various types of bubbles, see Brunnermeier 2009.

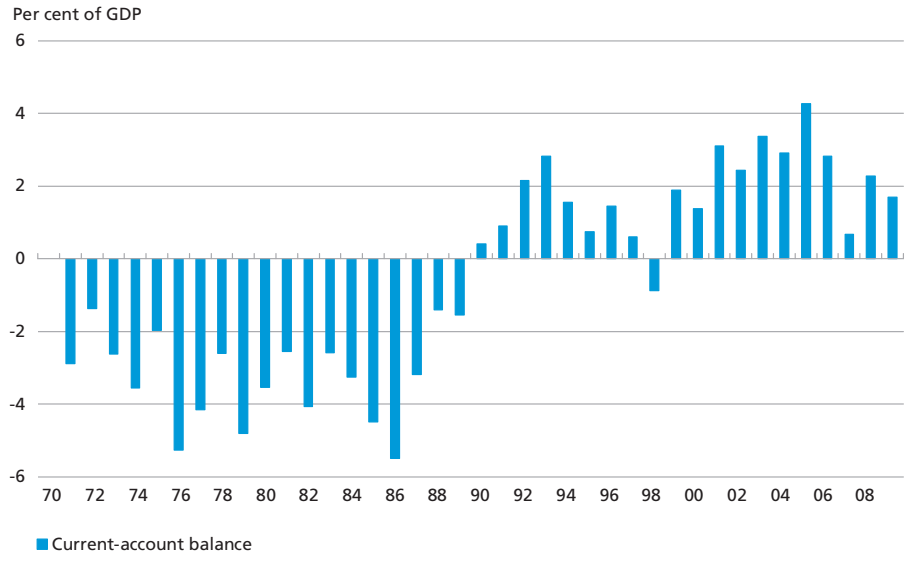
Furthermore, asset prices are highly procyclical. Prices are highest at the peak of the economic cycle and thus stimulate consumption, investment and borrowing when there is a need for the opposite, and vice versa. Asset price movements are far from the only factor behind cyclical fluctuations, which also reflect changes in supply and demand conditions triggered by e.g. technological leaps, economic policy, expectations of future economic developments etc.

One of the channels through which asset prices affect the economy runs through the financial sector, cf. Pedersen (2003). A significant share of the banks' lending is collateralised, and rising asset prices are typically followed by increased borrowing activity, e.g. in the form of loans against home equity or loans based on the rising value of a stock portfolio. If asset prices begin to fall, the financial sector is therefore vulnerable, especially if it has failed to take the necessary precautions or to pursue a sufficiently prudent strategy during the upswing.

The most recent upswing differs from previous periods of economic growth in that there was a continuous savings surplus in both the private and the public sector and hence a current-account surplus, cf. Chart 2. In previous upswings, deterioration in the current account has typically led to contractionary measures, marking the beginning of a low-growth period. This was the case in the 1970s, in the mid-1980s with the austerity measures known as the "Potato Cure", and a tax reform as well as the "Whitsun Package" in 1998. During the most recent upswing it was not a policy initiative that heralded the end of the upswing, but the external financial crisis, which gave rise to a sharp synchronised shift in sentiment worldwide. However, the Danish economy was already reversing when the crisis hit.

Denmark came from a strong upswing with unemployment at very low levels. The setback has therefore been stronger in Denmark than in many of its neighbouring countries. Debt levels soared in many households and business enterprises during the upswing. Therefore, a period

CURRENT ACCOUNT Chart 2



Source: Statistics Denmark.

of consolidation is now necessary, but household balance sheets are not unhealthy.

Unlike in previous upswings, consumer price inflation was moderate throughout the recent upswing, both in Denmark and abroad, reflecting a strong increase in imports of goods produced in low-wage countries, among other factors. Due in part to the subdued rate of increase, the need for measures to curb growth was underestimated by the authorities, also in Denmark. Warnings that the fiscal policy was too expansionary were ignored.

However, the key issue is not only the rate of price and wage inflation, but also the level of prices and wages relative to abroad and thus competitiveness. Over many years, Denmark's competitiveness has constantly been eroded, and this trend intensified during the recent upswing. The reason is that wage inflation in Denmark has exceeded that of Denmark's foreign competitors. Add to this the strengthening of the krone and a weak development in productivity. Nevertheless, the current account has continued to show surpluses. This is to some extent attributable to rising production and export of oil and gas from fields in the North Sea combined with the periodically very high oil prices and high freight rates, benefiting the large and expanding Danish merchant fleet. These factors have provided scope for higher domestic demand without jeopardising the current account. The current-account balance has therefore been a poor indicator of domestic overheating.

The housing market

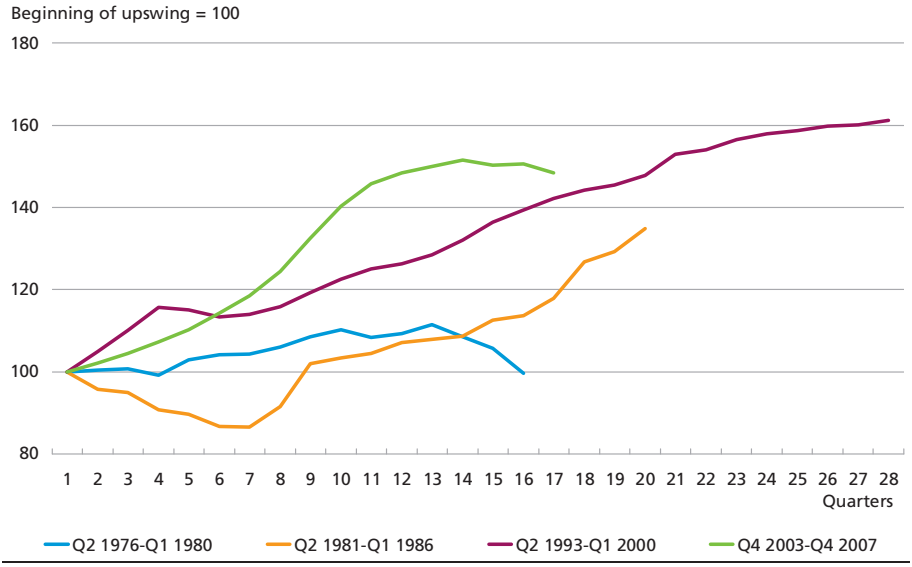
Danish housing prices rose almost continuously from 1993 to 2007. During the most recent upswing, the rise was extraordinarily strong in 2005, cf. Chart 3. Price trends for commercial properties were also exceptionally strong in the recent upswing, cf. Chart 4.

Several reasons can be identified for the long-term trend in Danish housing prices. At the onset of the economic boom in the 1990s, they were significantly underestimated after a preceding 7-year period of sluggish economic growth and declining nominal housing prices. In addition to the restoration of price levels, a sharp fall in interest rates helped fuel price rises after 1993.

The rise in housing prices during the most recent upswing is to a large extent explained by a fall in interest rates, particularly at the short end, growth in disposable real incomes, declining unemployment, the tax freeze, which has reduced the effective property value tax rate, and new products, including primarily loans with deferred amortisation from 2003. The sum of all these underlying factors explains much of the price trend for owner-occupied housing until early 2005.

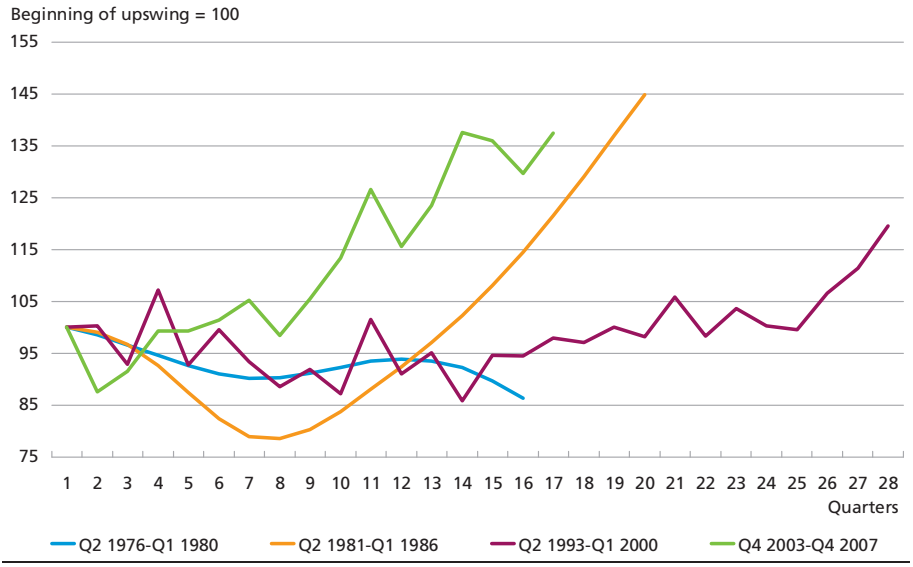
However, the economic upswing led to an unrealistic assumption that housing prices would continue to rise indefinitely. A questionnaire survey conducted by Catinét for the Ministry of Economic and Business Affairs in early 2005 showed that 30 per cent of the population expected housing prices to increase by more than 5 per cent over a 1-year horizon.

REAL HOUSING PRICES — Chart 3



Note: The x-axis shows the number of quarters since the beginning of the upswing.
Source: Association of Danish Mortgage Banks, Statistics Denmark and own calculations.

REAL COMMERCIAL PROPERTY PRICES Chart 4



Note: The x-axis shows the number of quarters since the beginning of the upswing.
Source: Statistics Denmark and own calculations.

It was also widely practised to buy a new home before the old one had been sold. Driven by this type of expectations, prices of single-family and terraced houses rose by almost 25 per cent in one year from early 2005. The increase in the Copenhagen area was significantly higher, while other parts of the country were much less affected. A surge in housing prices of this magnitude following many years of rising prices cannot be explained by underlying factors, and the Danish housing market has struggled to roll back this increase over the past couple of years.

The rising housing prices during the recent upswing led to a sharp acceleration in construction activity with clear signs of overheating in this sector. The subsequent cooling has generated problems, not only in the construction sector, but also in many of the banks that have been strongly exposed to the property market.

Addressing some of the imbalances that have arisen during a strong upswing can be a painful process and lead to problems for the entire financial sector. It is worth noting, however, that the current challenges and problems facing many banks do not relate primarily to loans to households, but rather to corporate loans, not least for construction. In this respect the present situation bears resemblance to the banking crisis in the early 1990s, but unlike then, many banks ran into trouble at a surprisingly early stage of this economic reversal. Usually, the problems in the banks emerge further into the low-growth period. That things went so wrong so fast suggests that a large number of projects were

based on a highly optimistic view on future property price developments. This also indicates an overly accommodative credit policy and an urge to expand in some banks.

The development is a reflection of an economic upswing that generally got out of control. In such cases imbalances will invariably build up and subsequently have to be addressed. Expectations of price trends in the property market have been negative for a while. The unsustainable increase in prices during the last stage of the upswing was driven by expectations, and so is the downturn to some extent.

Credit

Low stable inflation promotes macroeconomic and financial stability. If inflation expectations are firmly anchored, households and business enterprises can increase borrowing during an economic upswing in expectation of continued stable growth amid low inflation. Even at low stable inflation, some households, business enterprises and lenders can thus assume too high financial risks. Such financial imbalances typically build up over a period of time and are reflected in rising asset prices, credit expansion and gearing, but not necessarily in rising consumer prices at first. International experience shows that the combination of strong credit growth and massive housing price increases is a potentially dangerous cocktail, cf. Borio and Lowe (2004) and Detken and Smets (2004).

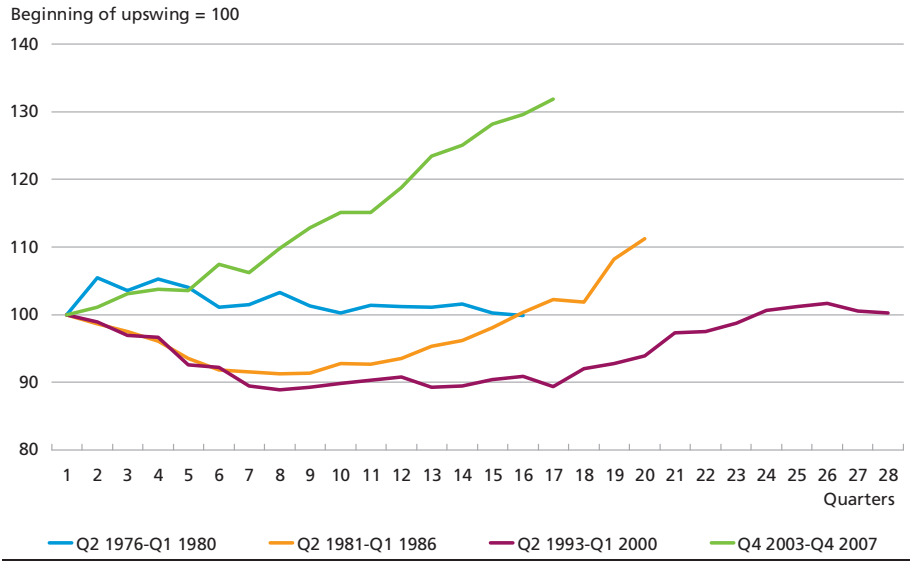
During the most recent upswing, credit expansion was significant in Denmark compared with previous upswings, cf. Chart 5. In the last part of the upswing lending by banks and mortgage-credit institutes to households and non-financial corporations grew by more than 15 per cent annually, which was three times as fast as nominal GDP growth. It is not unusual for lending growth to exceed GDP growth, particularly not during an upswing, but this time the difference was considerable. The boom years thus led to increased debt in large parts of the economy relative to the incomes to service this debt going forward. However, it should also be mentioned that much of the increased debt in households was not immediately used for spending, but set aside for savings.

The rise in stock prices did not deviate from the pattern seen in previous upswings, cf. Chart 6.

Concurrently with debts, the value of assets also rose, so balance sheets were to some extent inflated. This may cause problems during a subsequent economic slowdown if asset values fall without debts being reduced accordingly. This has had a strongly negative effect on households' propensity to consume.

Households to some extent took out extra mortgages as the rise in housing prices boosted their home equity during the upswing. Debt rose

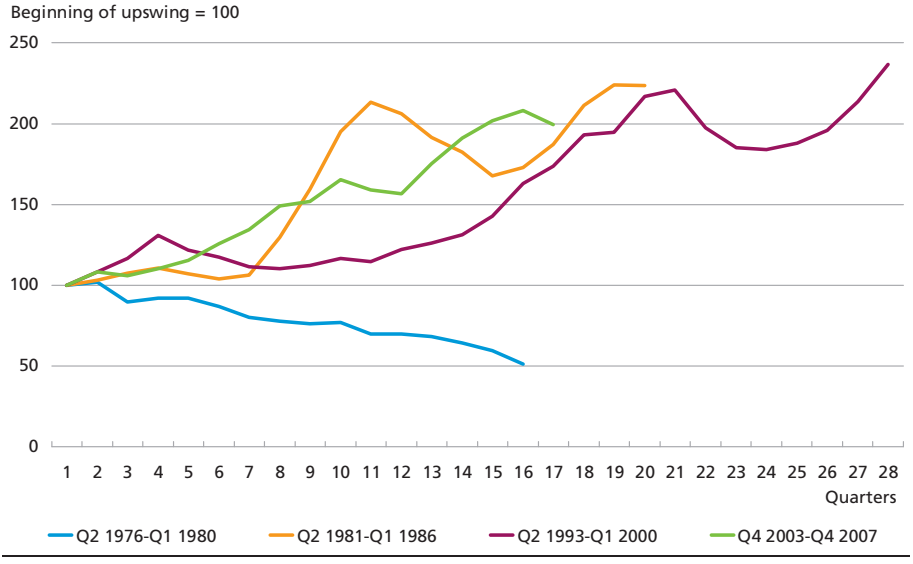
TOTAL LENDING RELATIVE TO GDP Chart 5



Note: The x-axis shows the number of quarters since the beginning of the upswing.
Source: Danmarks Nationalbank and own calculations.

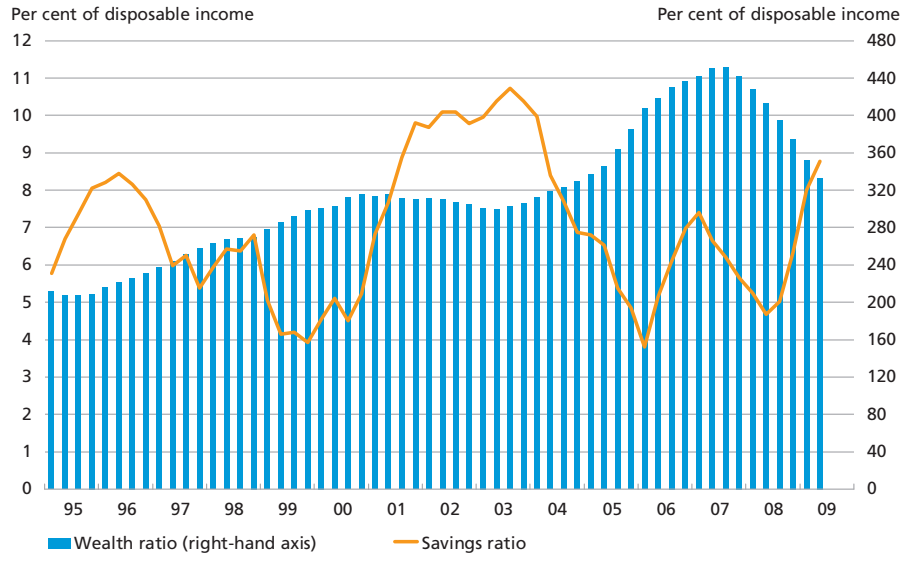
to three times the disposable income. Asset prices rose even faster than debt, so household wealth grew to four and a half times the disposable income by 2007. The decline in house prices has since then reduced household wealth somewhat, but it is still above the level seen at the

STOCK PRICES Chart 6



Note: The x-axis shows the number of quarters since the beginning of the upswing.
Source: Statistics Denmark and own calculations.

SAVINGS RATIO AND HOUSEHOLDS' WEALTH RATIO Chart 7



Note: "Savings ratio" shown as a 4-quarter moving average. Own seasonal adjustment.
Source: Statistics Denmark and Danmarks Nationalbank.

beginning of the economic upswing in 2003 and remains high even in a longer-term perspective. Overall, households are thus still well-consolidated. Those who bought their homes when prices peaked are in less fortunate positions, though, and more than 100,000 homeowners are currently technically insolvent, implying that their mortgage debt exceeds the value of their homes.

During the entire upswing, the savings ratio has remained at the long-term average of 5-10 per cent of the disposable income, cf. Chart 7. This suggests that the wealth effects on consumption have been moderate. Over the past 18 months, the savings ratio has soared as private consumption has declined and disposable incomes have continued to grow. Thus, households are having a negative effect on the economy in the form of lower demand.

CONCLUSION

The foundations for the current international crisis were laid during the most recent economic upswing. In Denmark, the favourable economic trends spurred strong credit growth and gearing in parts of the economy. This development was supported by strong growth in asset prices, both stock prices and housing prices, reflecting, *inter alia*, very low interest rates that promoted risk-taking in parts of the financial sector, cf. Adrian and Shin (2008), and overly expansionary fiscal policy during an upswing.

Though borrowing rose sharply, the present crisis in Denmark was not rooted in excessive household debt, but the high debt levels across the economy require a period of consolidation. This applies to households, business enterprises and banks alike. Today the primary source of bank losses is not household loans, but rather corporate loans and, for some banks, excessive exposure to the building and construction sector.

Consolidation among banks is supported by the Credit Package (Bank Rescue Package II), under which government capital injections require a solvency ratio of at least 12 after the injection compared with the usual requirement of 8. Many business enterprises are also working at reducing debt. On the other hand, debt is rising rapidly in the public sector following a few years of surpluses. This pattern, whereby the savings balances of the public and private sectors develop in opposite directions, is typical.

In the literature and among practicians, there has been a widely held belief that low inflation – measured by consumer prices – would automatically keep asset prices in check. This is based on the view that if markets for goods are efficient, asset prices, which are by nature forward-looking, will also be anchored. The ongoing crisis has shown that low inflation is necessary, but not sufficient, to ensure financial stability.

Financial crises are not new, but have been an almost regularly recurring phenomenon in the world economy for as long as financial markets have existed. In Reinhart and Rogoff (2009) financial crises are analysed in a long-term historical perspective.

In practice, it is difficult to define exactly when developments in financial asset prices and lending become unsustainable, and hence when vulnerabilities begin to emerge in the financial sector. The economic literature recommends the application of a few simple indicators to identify the build-up of vulnerabilities in the economy and thus the risk of a subsequent financial crisis, cf. Box 1.

However, it is not only problematic if imbalances are allowed to develop, but also if the economic policy response is implemented too early or addresses a situation which turns out not to result in imbalances. This will often not be evident until later. The type of shock to the economy is also important, but can be difficult to determine in the situation.

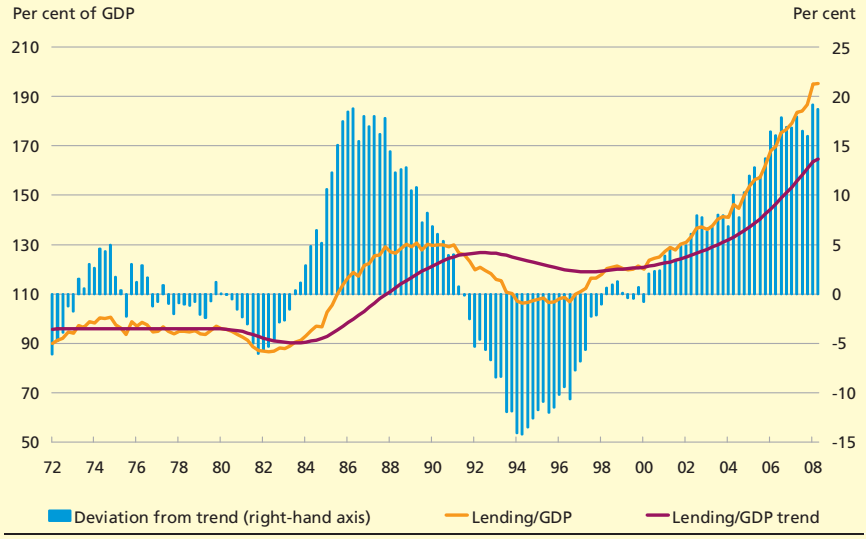
The economic implications of fluctuations in asset prices become increasingly serious, the further asset prices move away from their "correct" level before the development reverses. The most appropriate approach is therefore to puncture any bubble before it grows too big. However, this involves two problems. Firstly, it may be difficult to identify economic imbalances in time, cf. above.

INDICATOR OF FINANCIAL IMBALANCES — Box 1

Several studies indicate that total credit activity in the economy relative to GDP can be used as an indicator of the build-up of financial imbalances. Detken and Smets (2004) find that when the ratio of total lending to GDP exceeds a calculated trend level by more than 10 per cent, there is an increased risk of subsequent financial slowdown and stronger economic deceleration.[1]

Chart 8 shows developments in the ratio of total lending to GDP, a calculated smoothed trend level, and the deviation from the trend level.[2] During the most recent upturn, total lending exceeded its trend level by 10 per cent in early 2005. During the economic upswing in the 1980s, total lending exceeded its trend level by 10 per cent in the 4th quarter of 1985.

SUPERNORMAL INCREASE IN LENDING — Chart 8



Note: Quarterly data for lending by banks and mortgage-credit institutes relative to GDP. Trend is calculated recursively using the Hodrick-Prescott filter with a high smoothing parameter (lambda=400,000), cf. Detkens and Smets (2004). The first 32 quarters are used for initialising the trend, and subsequently it is calculated recursively by adding one quarter at a time.

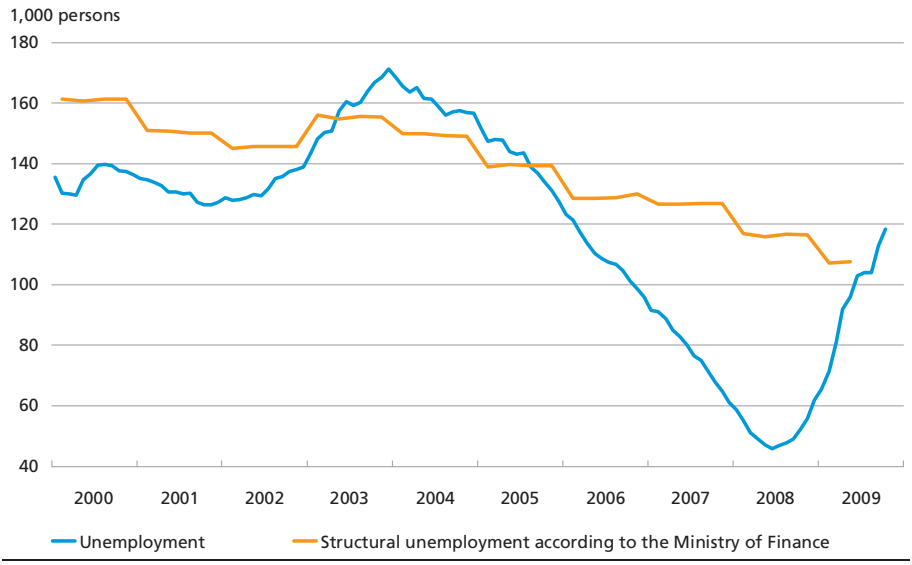
Source: Danmarks Nationalbank and own calculations.

[1] Borio and Lowe (2004) also find that this indicator correlates best with financial crises, but apply a lower threshold value (4 per cent).

[2] The calculation of the smoothed trend follows Borio and Lowe (2004) and is made by using a recursive HP filter with a high smoothing factor, i.e. on all observations up to and including a given observation. The trend calculation is started for the first 8 years, and subsequently the trend is calculated recursively by adding one observation at a time. As in Borio and Lowe (2004), a very high smoothing factor is used in the HP filter (lambda) of 400,000 rather than the normal value of quarterly data (1,600). If the normal value is used, the same remarkable deviations from the trend are not found.

Secondly, it is difficult to counteract rising asset prices and general expectations via economic policy, cf. for example IMF (2009). Monetary policy in Demark is exclusively aimed a maintaining a fixed rate of exchange against the euro and thus cannot be used for pursuing other goals. Nor have other elements of Danish economic policy, including fiscal policy, been sufficiently aimed at dampening strong growth in asset

OVERHEATING OF THE LABOUR MARKET Chart 9



Source: Statistics Denmark and Ministry of Finance.

prices and lending during the most recent upswing. The overheating meant that unemployment fell significantly below its structural level, cf. Chart 9.

Experience from for example the late 1980s shows that even in the case of a policy response it is difficult to strike the right balance. This also applies to the present situation, which requires stimulation of the economy. The safest approach is to maintain a medium-term economic policy line and abandon the idea that it is possible to fine-tune economic trends.

If instead a more activist stance is adopted in line with the economic policy easing in 2004, policy tightening is necessary in good times, cf. Andersen (2004). This was not the case in Denmark despite many signs of overheating and strong credit growth.

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Netting – Offsetting the Mutual Rights and Obligations of Two or More Parties

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INTRODUCTION

Turnover in payment and securities settlement systems is considerable. In the Danish systems alone, the daily volume amounts to more than kr. 300 billion, and turnover is rising. This entails an ever sharper focus on risk, as one participant's bankruptcy could spread to the entire financial system.

Netting makes it possible to offset the mutual rights and obligations of two or more parties rather than exchanging gross services. This reduces the credit risk between the parties significantly. Thus, in the event of bankruptcy, a creditor may calculate its claim on the estate on a net basis, thereby limiting any losses and the risk that the bankruptcy of a large market participant will also bring down other participants (domino effect). Access to netting is thus of great importance to the stability of the financial system.

The value of netting is acknowledged in the Basel II Accord, which allows the exposures of a credit institution to be included in the calculation of the capital requirement on a net basis, provided that the exposures are subject to netting agreements. This makes it possible for individual financial institutions to reduce their statutory capital requirements or increase their exposures.

In principle, two or more parties can agree to offset their mutual rights and obligations by way of netting. However, the benefits of netting can only be derived if there is a sound legal basis which ensures that netting is respected by third parties, including, if applicable, the estate of one of the parties.

This article describes the existing Danish rules on netting following the implementation of Directive 98/26/EC of 19 May 1998 on settlement finality in payment and securities settlement systems (the Finality Directive) and Directive 2002/47/EC of 6 June 2002 on financial collateral arrangements (the Collateral Directive).

The multilateral netting agreements relating to the Sumclearing (payment system) and VP settlement (securities settlement system) are also outlined, and examples are given of how Danmarks Nationalbank uses

bilateral netting agreements. Finally, some of the remaining impediments to full harmonisation of netting rules across the EU are touched upon.

THE CONCEPT OF NETTING

Netting means that the mutual rights and obligations of two or more parties are calculated as one net obligation/claim for each party.

Netting is similar to traditional offsetting of claims. However, a netting agreement enjoys special protection in relation to third parties, and some of the conditions applying when offsetting claims do not have to be observed in connection with netting.

A distinction is drawn between *multilateral* and *bilateral* netting. A multilateral netting agreement entails that the rights and obligations of *more than two* parties are netted. The rules on multilateral netting solely comprise participants in payment and securities settlement systems such as the Sumclearing and VP settlement. A bilateral netting agreement is an agreement on netting between *two* parties. For examples, see Box 1.

EXAMPLES OF MULTILATERAL AND BILATERAL NETTING — Box 1

MULTILATERAL NETTING BETWEEN THREE PARTIES — Table 1

	A	B	C	Net calculation
A		100	-50	50
B	-100		200	100
C	50	-200		-150

In the example, B owes A 100, A owes C 50, and C owes B 200. Multilateral netting entails that e.g. the amount owed by C to B is not fully transferred to B since half of it is used to cover the amount owed by B to A.

All rights and obligations between the three participants are netted so that each participant ends up with only one net obligation/claim.

BILATERAL NETTING — Table 2

	Receivable	Debt	Net calculation
A	100	50	50
B	50	100	-50

In the example, B owes A 100, and A owes B 50. Bilateral netting entails that B transfers 50 to A.

Netting thus means that the rights and obligations of the parties are calculated as a single net amount.

There are two types of bilateral netting agreement, i.e. agreements on ongoing netting[1] and agreements on close-out netting. Close-out netting means that the claims comprised by the agreement are calculated (netted) as a single claim, should a need to perform close-out netting arise, e.g. if bankruptcy proceedings are initiated against one of the parties.

Netting, and above all bilateral netting, is particularly interesting if one party does indeed go bankrupt. This article will mainly focus on netting in that situation.

THE LEGAL BASIS FOR NETTING

In connection with Stock-Exchange Reform II, Act no. 1072 of 20 December 1995, with effect from 1 January 1996 amended the Danish Securities Trading Act, STA, to include provisions on multilateral netting between participants in payment and securities settlement systems, and on bilateral netting of claims related to foreign-exchange and securities trading. One of the reasons for introducing these provisions was to bring Danish legislation in line with international standards, which recommend that netting systems have a sound legal basis, also in the event of a participant's bankruptcy.

Prior to Stock-Exchange Reform II there was no clear legal basis for netting agreements in Danish legislation. If a party went bankrupt, doubt might therefore arise as to the obligation of the estate to acknowledge netting[2].

The provisions were subsequently amended in connection with the implementation of the Finality and Collateral Directives.

The following is a description of the current netting provisions of STA following the implementation of the two Directives.

The Finality Directive and its implementation in Denmark – multilateral netting

The first European steps to comply with the recommendations for a sound legal basis for netting were taken with the adoption of the Finality Directive. The Directive was adopted with a view to improving settlement security in payment and securities settlement systems.

The Directive focuses on two general issues: (i) that claims can be satisfied by way of the collateral pledged, irrespective of whether a partici-

[1] Agreements on ongoing netting, under which the parties' rights and obligations are calculated as they fall due, will not be discussed in this article.

[2] For a description of the netting provisions introduced by Stock-Exchange Reform II, see Peter Møller Nielsen, The Netting Provisions of the Securities Trading Act, Danmarks Nationalbank, *Monetary Review,* May 1996.

pant becomes insolvent[1], and (ii) that transfer orders for payments or securities and netting are binding, also in the event of insolvency proceedings, provided that the order has been entered into the system prior to the commencement of such proceedings. The moment of final entry of a transfer order into the system is determined by the individual system. A final order cannot be revoked by the participant or its estate. Moreover, other system participants cannot elect to halt a final order, including a payment to a bankrupt participant, thereby preventing settlement.

Consequently, the system may process the orders entered with a view to settlement, and netting may also be performed if the system settles transactions on a net basis, irrespective of whether a participant is declared bankrupt.

The Danish 1995 provisions on multilateral netting in relation to payment and securities settlement systems meet the requirements of the Finality Directive and therefore required no substantial amendment in connection with the implementation of the Directive by Act no. 283 of 26 April 2000.

Section 57 of STA, on multilateral netting, stipulates that an agreement under which transfer orders pertaining to payments or securities in payment and securities settlement systems shall be netted, cleared and settled or reversed in full[2] if one of the parties is declared bankrupt, shall have legal effect towards the estate and creditors.

Prior to the bankruptcy, the netting agreement must have been submitted to the Danish Financial Supervisory Authority[3], and it must include objective criteria for determining when transfer orders which have been entered into the system but have not yet been settled are either settled in accordance with the netting agreement or reversed in full.

The Collateral Directive and its implementation in Denmark – bilateral netting

The Collateral Directive is aimed at promoting efficient use of cross-border pledging of collateral and laying down uniform provisions for close-out netting. The Directive pertains to bilateral netting only, while multilateral netting is regulated by the Finality Directive, cf. above.

In connection with the implementation of the Directive, the Danish 1995 provisions were amended in two material respects. The range of

1 The collateral provisions are not discussed in this article.

2 This does not prevent a system from seeking to settle, on the basis of objective, predefined criteria, the transactions for which cover can be found, while the remaining transactions are postponed for later settlement. A case in point is VP settlement.

3 Agreements relating to registered payment systems that are of major significance to the settlement of payments or conduct of Danmarks Nationalbank's monetary-policy transactions and that are subject to oversight by Danmarks Nationalbank must be submitted to Danmarks Nationalbank.

financial claims that may be comprised by a close-out netting agreement was extended, and the option was introduced to postpone close-out netting until the non-defaulting party notifies the defaulting party.

The provision in STA section 58h on close-out netting states that, with legal consequences for third parties, including the estate of one of the parties, an agreement may contain provisions stipulating that the financial obligations covered by the agreement are to be netted through close-out netting if one of the parties defaults.

Financial obligations shall be taken to mean obligations giving the parties the right to cash settlement or delivery of securities[1]. If neither party to a close-out netting agreement is a central bank, a public authority, a financial institution or another institution as listed in STA, only claims originating from trade in foreign exchange and securities, trading on commodities exchanges, and deposits and loans shall be deemed to be financial obligations. If both or either party is a physical person who does not run a sole proprietorship, only claims originating from trade in foreign exchange and securities shall be deemed to be financial obligations.

A close-out netting agreement must be in writing and describe the financial obligations comprised. In addition, the situations entitling the parties to close-out netting, e.g. insolvency proceedings, should be specified. Calculation of the value of financial obligations in connection with close-out netting must take place on commercially reasonable terms.

The financial obligations comprised by the close-out netting agreement are often in different currencies that must be translated into a common currency in connection with the close-out netting, and likewise valuation must take place. In the event of bankruptcy, the prices or exchange rates applying at the time when the bankruptcy order was issued shall in principle apply, irrespective of when the counterparty became aware of the bankruptcy. Nevertheless, it may be agreed that close-out netting shall not take place until the non-defaulting party notifies the defaulting party. This need not be immediately. If insolvency proceedings have been initiated against the defaulting party, the estate may, however, demand to be placed in the same position as if close-out netting had taken place without undue delay from the time when the non-defaulting party became aware or should have become aware that insolvency proceedings had been initiated against the defaulting party.

The Directive was implemented in Danish law by Act no. 1171 of 19 December 2003. The current provisions apply to close-out netting agree-

[1] This definition covers all obligations concerning turnover in cash and securities relating to ordinary transactions in the financial markets, e.g. deposits and loans, an obligation to deliver securities, and obligations relating to foreign-exchange and securities trading.

ments concluded *after* 1 January 2004 only. Close-out netting agreements concluded *before* 1 January 2004 that have not been replaced by new agreements or supplementary agreements will still be comprised by the previous STA provisions on close-out netting. This means that only claims originating from foreign-exchange and securities trading will be comprised by the close-out netting agreement as the previous provisions were limited to such claims. Furthermore, they did not provide for making close-out netting conditional upon specific notification.

DESIGNATED PAYMENT AND SECURITIES SETTLEMENT SYSTEMS IN DENMARK

The Danish Financial Supervisory Authority must prepare a list of the payment and securities settlement systems in Denmark for which agreements on multilateral netting can be concluded. The Danish Financial Supervisory Authority notifies the European Commission of these systems, and notification of the systems protected by the provisions of the Finality Directive is then published throughout the EU.

The designated systems are currently: VP settlement, the Sumclearing, Kronos, DN Inquiry and Transfer System and TARGET2.

Kronos, DN Inquiry and Transfer System and TARGET2 are real-time gross settlement (RTGS) systems in Danish kroner (Kronos and DN Inquiry and Transfer System) and euro (TARGET2) as opposed to VP settlement and the Sumclearing, which are net settlement systems. In RTGS systems, payments are settled to the accounts in real time with final effect.

The Finality Directive stipulates that a system must be designated in order to be comprised by the protective provisions of the Directive, meaning that other European jurisdictions must also respect not only a netting procedure, but also the legal effect of an order having been finally entered into the system. This is why the gross settlement systems, which to not operate with netting, have also been designated.

The following provides an outline of the netting agreements concluded in relation to the Sumclearing and VP settlement. These are the systemically most important payment and settlement systems in Denmark.

The Sumclearing

The Sumclearing is a system for clearing and settlement of retail payments[1]. Sumclearing participants, i.e. the clearing participants, are

[1] For a description of the Sumclearing, see Danmarks Nationalbank, *Payment Systems in Denmark*, 2005.

Danish banks and foreign banks with branches in Denmark or otherwise conducting cross-border activities in Denmark. Danmarks Nationalbank acts as settlement bank for the Sumclearing. The Sumclearing operates with multilateral netting, i.e. the rights and obligations of all participants are added up to make one payment or one claim per participant per cycle. Payments or claims are settled via the participants' accounts at Danmarks Nationalbank.

Settlement is based on "sum data", i.e. the individual participants' credit or debit balance vis-à-vis each of the other Sumclearing participants. The multilateral netting agreement is incorporated into the participation agreement concluded between the participants and the system owner (the Danish Bankers Association). The agreement complies with STA as it, *inter alia,* includes objective criteria for when payment orders submitted (sum data) are executed and netted. Under the netting agreement, sum data submitted will be cleared and settled with final effect irrespective of any participant's bankruptcy, provided that the sum data has been notified to PBS (system operator), before the bankruptcy order was issued. It is a precondition that the participant has a credit line at Danmarks Nationalbank equal to or exceeding the net amount drawn on the participant's account.

VP settlement

VP settlement is a system for clearing and settlement of securities transactions[1]. Danmarks Nationalbank acts as settlement bank for VP settlement. In the VP settlement system, multilateral netting takes place of both the cash and securities legs. All payments to and from participants are added up to make one payment or claim per participant. Payments or claims are settled via the participants' accounts at Danmarks Nationalbank, and the net effect of trades is entered to the participants' securities accounts at VP Securities A/S, VP, as one increase or reduction per ISIN. The multilateral netting agreement is incorporated into the participation agreement concluded between the participants and VP. The agreement complies with STA as it, like the Sumclearing agreement, includes objective criteria for when trades submitted will be executed and netted. Under the netting agreement, trades finally submitted to VP prior to the bankruptcy of any participant will be executed in accordance with VP's clearing rules. It is a precondition that the participant has a credit line at Danmarks Nationalbank and securities in the relevant VP accounts equal to or exceeding the participant's net positions.

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[1] For a description of VP settlement, see Danmarks Nationalbank, *Payment Systems in Denmark*, 2005.

The significance of netting in the Sumclearing and VP settlement if a participant is declared bankrupt

Trades and sum data submitted with final effect are in principle protected by the Finality Directive. In the event of bankruptcy this is, however, of limited significance as regards trades and sum data involving the estate in bankruptcy. The reason is that bankruptcy proceedings are generally commenced during the daytime, while VP settlement and the Sumclearing primarily operate with night-time settlement, so that the process has been completed.

Furthermore, a trustee in bankruptcy may request that both cash and securities accounts be blocked so that the estate cannot make cash or securities available for VP settlement. Irrespective of the fact that trades can be submitted with final effect up to 365 days before the settlement date, it will in fact typically not be possible to settle them in a bankruptcy situation. Unlike VP trades, sum data is reported immediately prior to settlement and therefore there are typically no payment orders submitted with final effect that are not settled because the trustee has blocked the accounts of the estate.

In both VP settlement and the Sumclearing, multilateral netting is thus of greatest importance in situations not involving bankruptcy, as participants need only make securities and cash available on a net basis.

USE OF BILATERAL NETTING AGREEMENTS AT DANMARKS NATIONALBANK – MASTER AGREEMENTS ON SWAPS AND REPOS

Swaps

Acting on behalf of the central government, Danmarks Nationalbank concludes agreements with Danish and foreign banks to swap flows of interest and foreign-exchange payments. The individual swaps are concluded under the ISDA Master Agreement[1]. The Master Agreement is a framework agreement regulating all swap transactions concluded between the parties.

The Master Agreement contains a number of provisions concerning events of default, including a party's bankruptcy. In that situation, depending on the agreement between the parties, transactions are terminated automatically or when the non-defaulting party notifies the defaulting party.

In the event of automatic termination, all outstanding transactions under the Master Agreement are considered to have ceased immediately before the petition for bankruptcy was received by the court. If the

[1] The Agreement was created by the International Swaps and Derivatives Association, ISDA.

parties have *not* agreed on automatic termination, the non-defaulting party can, by notifying the counterparty of the grounds for default, fix a termination date for all outstanding transactions under the Master Agreement. This date must be within 20 days after the counterparty has received the notification. The Master Agreement contains a provision on bilateral netting, under which the mutual rights and obligations of the parties are calculated on the termination date according to principles laid down in the Master Agreement, after which netting takes place. One party must then pay a net amount to the other.

Repos

Most of Danmarks Nationalbank's deposits in foreign banks take place via repurchase agreements (repos)[1]. Repos are concluded under the Global Master Repurchase Agreement, GMRA[2].

The GMRA includes a number of provisions concerning events of default, including a party's bankruptcy. In that situation, all transactions concluded under the GMRA are automatically terminated. In other events of default, the transactions terminate when the non-defaulting party notifies the defaulting party. The GMRA contains a provision on bilateral netting under which the value of the parties' mutual obligations is calculated according to principles laid down in the GRMA and netted. One party must then pay a net amount to the other. The amount is calculated according to GMRA 1995, under which most of Danmarks Nationalbank's repos have been concluded, as a main rule on the trading day after the event of default occurred, at the latest[3]. Box 2 describes close-out netting of Danmarks Nationalbank's repos with Lehman Brothers International (Europe).

BILATERAL NETTING RULES STILL NOT FULLY HARMONISED

On 6 May 2009, the European Parliament and the Council adopted a number of amendments to the Finality and Collateral Directives, primarily with a view to bringing them in line with recent market developments. This is ensured by expanding the protection under the Finality Directive to include settlement between linked systems, as payment and securities settlement systems are expected to be increasingly linked in future rather than operating on individual, national bases. In addition, the Directives are expanded to comprise collateral pledged by way of

[1] Reverse repos, i.e. Danmarks Nationalbank purchases securities from the counterparty, who at the same time undertakes an obligation to repurchase equivalent securities.
[2] The Agreement was created by the International Capital Market Association, ICMA.
[3] Under GMRA 2000, calculation in connection with bankruptcy as a main rule takes place by the fifth trading day after the party not in breach has become aware of the breach.

CLOSE-OUT NETTING OF DANMARKS NATIONALBANK'S REPOS WITH LEHMAN BROTHERS INTERNATIONAL (EUROPE) Box 2

Lehman Brothers International (Europe) was a repo counterparty for Danmarks Nationalbank, in which connection a GMRA agreement had been concluded. On 15 September 2008, insolvency proceedings were initiated against Lehman Brothers International (Europe)[1]. Under the GMRA, Danmarks Nationalbank was entitled to construe this as default so that the parties' obligations under the agreement would fall due[2]. Danmarks Nationalbank sent notification of default to Lehman Brothers International (Europe) and, in accordance with the terms of the GRMA, calculated the market value of all claims between the parties under the GMRA, netting the amounts owed by the parties to each other. All amounts resulting from close-out netting were stated in dollars as stipulated in the GMRA. Close-out netting meant that Danmarks Nationalbank had to pay an amount to Lehman Brothers International (Europe).

[1] Lehman Brothers International (Europe) was placed under administration in England.
[2] I.e. the buyer's resale of the securities to the seller is brought forward to this date.

credit claims since these can also be pledged as collateral in the Eurosystem's credit operations. By 30 December 2010, the EU member states must implement the Directive in national legislation with effect from 30 June 2011.

The Finality and Collateral Directives have both contributed to creating uniform rules on netting in the EU member states. However, the rules on bilateral netting have not yet been fully harmonised and the netting provisions were not changed in connection with the most recent amendment of the Collateral Directive.

The member states may have implemented the Collateral Directive in different ways. For example, a member state may have chosen to limit the scope of the Directive to a certain group of people, or to make the validity of a close-out netting agreement conditional upon its being part of an agreement on financial collateral, meaning that collateral has been pledged for the financial obligations comprised by the close-out netting agreement. In addition, one party may be a non-EU resident.

National rules continue to play a role when assessing the scope of a netting agreement concluded between two parties.

It is therefore of significance to the validity and scope of the close-out netting agreement whether it is governed by Danish law or that of another member state, e.g. if the agreement has been concluded between two parties not resident in Denmark. If bankruptcy proceedings have been initiated against one party, it may thus be relevant to consider the bankruptcy rules applying in the member state where that party is resident. The issue of the law governing a close-out netting agreement, especially in the case of bankruptcy, is complex and will not be discussed in this article. The Collateral Directive and STA do not regulate the issue.

If the bankrupt party is a European credit institution, however, the Executive Order on Choice of Law, etc., with regard to suspension of payments, compulsory composition, compulsory dissolution or bankruptcy of banks, mortgage-credit institutions and electronic money institutions[1], lays down that netting agreements are subject to the legislation applying to these agreements.

Both ISDA and ICMA have had legal opinions prepared by all relevant jurisdictions with a view to clarifying, among other things, whether the netting clause must be respected in the jurisdiction where the counterparty is resident.

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[1] This Executive Order implements Directive 2001/24/EC on the reorganisation and winding up of credit institutions (the Winding-Up Directive).

Price Stability and Employment

Morten Spange, Economics

INTRODUCTION AND SUMMARY

Low inflation is currently the primary monetary-policy objective in most countries. Factors such as growth and employment are typically assigned secondary priority when designing the monetary-policy strategies that the central banks are expected to pursue. The Federal Reserve may appear to be an exception as its dual mandate attaches importance to both inflation and employment. However, experience shows that keeping inflation down is also a priority in the USA.

The reason that price stability is made the primary monetary-policy objective is the current consensus that monetary policy cannot increase output in the long term; it can only influence inflation. Hence, it does not make sense to have as a main objective that monetary policy should contribute actively to creating growth and employment. At best, monetary policy can create a stable economic framework in the form of low and predictable inflation. Within that framework, monetary policy can be used in the short term to stabilise output around its potential.

There are a number of reasons why low and predictable inflation benefits the economy. For example, decisions concerning consumption and especially investment are easier to take when it is known that the price level will remain fairly constant in the coming years. Furthermore, it is difficult to design a system of taxes and transfers with the intended distributional effects when prices and wages increase significantly from one year to the next. Instead, a situation with high and varying inflation would almost inevitably entail that random groups would stand to gain or lose from their income exceeding various nominal thresholds. Accordingly, price stability benefits households and the corporate and public sectors alike.

Denmark's primary monetary-policy objective is also stable prices, but unlike most central banks in countries with an independent monetary policy, Danmarks Nationalbank does not focus specifically on inflation. Instead, Danish monetary policy is aimed at keeping the krone stable against the euro. But since the European Central Bank, ECB, aims to ensure low inflation in the euro area, keeping the krone stable against the euro will also lead to low and stable inflation in Denmark. Danish mon-

etary policy thus reflects the realisation that there is no trade-off between low inflation and high growth in the longer term.

The following sections discuss the opportunities and limitations inherent in monetary policy. This discussion leads to an understanding of the international consensus that monetary policy should primarily focus on price stability, while other economic-policy instruments are needed to promote sustained growth and employment. This line of argumentation is supported by both Danish and international experience gained in recent decades. Finally, it is emphasised how the credibility of monetary policy has reduced the adverse effects of the large fluctuations in commodity prices in recent years.

HOW CAN MONETARY POLICY BE USED?

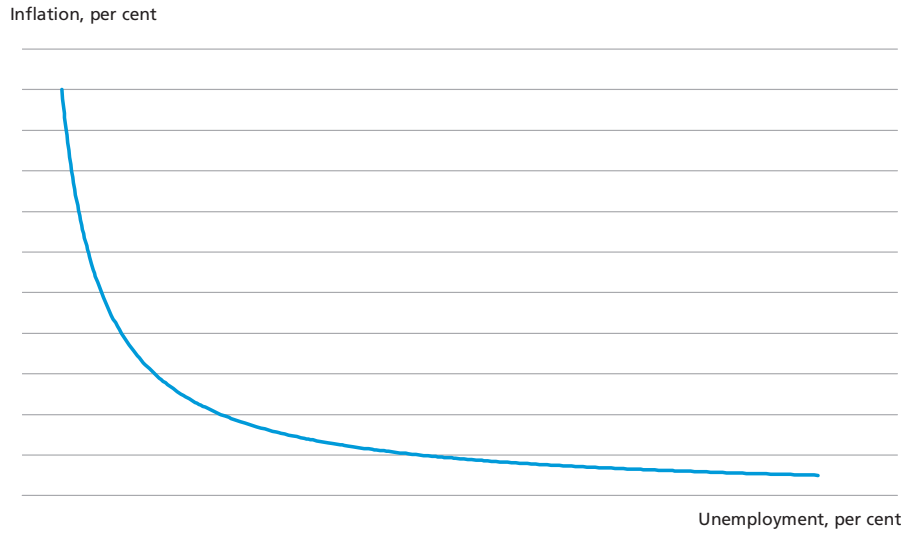
In the vast majority of western countries, the central banks pursue a monetary policy based on a pre-determined strategy. This enables the rest of the world to understand the monetary-policy decisions, thereby contributing to building up economic-policy credibility. Monetary-policy strategy is typically determined politically and contains directions on what the central bank should aim to achieve through its conduct of monetary policy. When designing the monetary-policy strategy it is important to be aware of the opportunities and limitations of monetary policy. If policymakers instruct a central bank to achieve a number of objectives not relating to monetary policy, or which are mutually incompatible, it may have inappropriate implications for the economy. For example, as explained below, monetary policy cannot be used to increase employment in the longer term. And a wish to control stock prices is not necessarily compatible with keeping inflation stable.

The Phillips curve and its collapse

In the years up to the 1970s, there was an expectation that persistently lower levels of unemployment could be achieved through expansionary economic policy. The price for this would be higher inflation. Consequently, it should be possible for the central bank to stabilise the economy around a politically determined level of unemployment. This theory is illustrated in Chart 1 by a Phillips curve showing the expected relationship between inflation and unemployment.

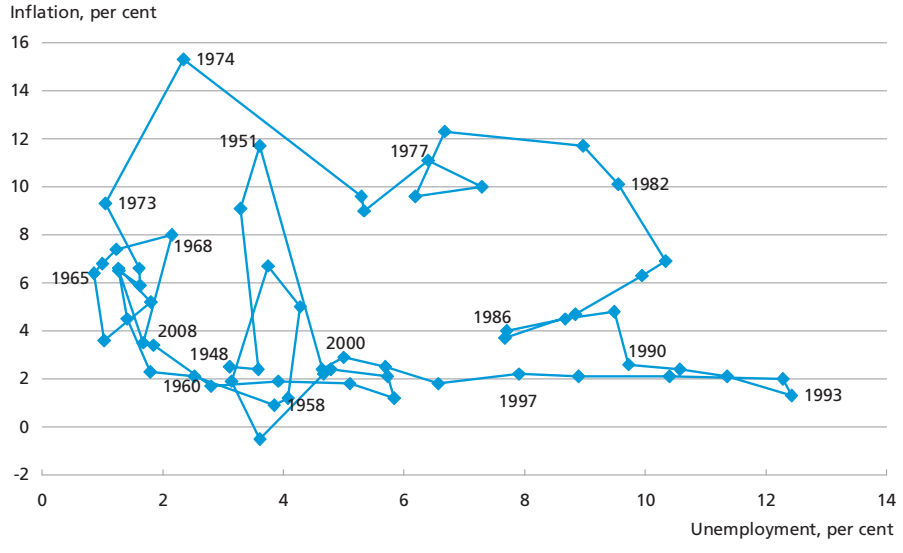
In the course of the 1970s, it became clear that the traditional Phillips curve theory did not hold up. On the contrary, it became evident that in the longer term attempts to exploit the relationship between inflation and unemployment would lead to higher inflation without improving the real economy. Chart 2 shows the actual relationship between infla-

THEORETICAL PHILLIPS CURVE Chart 1



tion and unemployment in Denmark since World War II. It is clear that this relationship has not been as predicted by the traditional Phillips curve. Throughout the period preceding the first oil crisis, unemployment was less than 5 per cent, while inflation was between 2 and 8 per cent for most of the period. In connection with the oil crisis, there was a

PHILLIPS CURVE FOR DENMARK 1948-2008 Chart 2



Note: Data for the years 1948-2008. CPI is used as the measure of inflation.
Source: Statistics Denmark. There is a break in the data series in 1980 due to changed definitions.

pronounced rise in inflation, to more than 15 per cent in 1974. It then remained in the range of 10 per cent up to the transition to the fixed-exchange-rate policy in 1982. Despite the high rate of inflation, unemployment rose considerably. Only after the transition to the fixed-exchange-rate policy was inflation gradually reduced without unemployment rising further. The period after 1993 has been characterised by a number of structural labour-market reforms, thereby reducing the unemployment level that is compatible with stable wages and prices. This is reflected in the pronounced decline in unemployment since 1993 without a rise in inflation. So by no means has there been a clear relationship between inflation and unemployment in Denmark.

Effects of monetary policy

When assessing the effects of monetary policy it is important to distinguish between the short and the long term. In the short term, expansionary monetary policy will lead to increased demand, since lower interest rates make it less attractive to save, and consumers are encouraged to increase their consumption. Likewise, investment will be more worthwhile when interest rates are low. Besides, a cut in interest rates is often reflected in higher prices for private-sector assets. This causes private-sector wealth to grow, thereby also contributing to increasing demand. Stronger demand puts pressure on resources, which causes prices to rise, while unemployment declines as the private sector increases output. In the short term, easing of monetary policy may thus increase both activity and inflation and reduce unemployment, which is in accordance with the simple theory based on the Phillips curve.

The transition from the short to the long term may go via wage formation. Initially, a monetary-policy expansion will not necessarily impact wages to any great extent as they are typically subject to contracts of some duration. But as a result of increased demand for labour and higher prices, employees will demand higher wage increases in connection with subsequent wage bargaining. Furthermore, employees will comprehend that if they demand higher wages to compensate for price rises that have already taken place, firms will raise prices even further. Employees will therefore demand wage increases to compensate not only for previous price rises but also for future increases. As real wages fall back to the baseline, operating with a higher level of employment will be less attractive for the firms. Hence, the favourable effect on employment will only be temporary.

The key point is that employees take into account the inflation rate they expect for the duration of their wage contracts. If it was possible to systematically surprise employees with an unexpected high rate of infla-

tion, lower unemployment might be achievable at the cost of higher inflation. However, empirical evidence shows that this is not the case. Employees gradually learn to look to the future and focus on real wages rather than money wages.

This means a partial recovery of real wages as employees allow for the higher rate of price increase. As a result it will no longer be attractive for firms to maintain the new higher level of employment, which is then reduced to the original level. Nevertheless, firms must raise prices more than before the monetary-policy relaxation in order to compensate for the high wage increases. As the price increases are higher than at the outset to compensate for the higher wage increases, employees must also go on demanding higher wage increases than before the easing of monetary policy to compensate for this.

Goods inflation and wage inflation will both end up at a higher level than before the monetary-policy expansion, as expectations of higher inflation have been incorporated into the economic system. But this has no favourable consequences for the real economy as both real wages and employment are back at the original level. As a result, employment exceeded the normal level during the time it took the rate of price and wage increases to adapt to the new reality. But the cost is that higher wage and price increases have been incorporated into the economy through the formation of expectations of households and firms, with the problems this entails, cf. p. 60.

If the central bank still wishes to increase output more than its potential, it must generate even more inflation in order to surprise the private sector yet again. Obviously, systematically surprising households, firms and employees by creating ever more inflation to erode real wages is not a long-term solution for the central bank. And at some point it will no longer be possible to surprise the private sector as it comes to understand the monetary-policy response pattern.

In order to bring inflation back to the original level, monetary policy must be tight for a while, which will have negative consequences for employment. It is therefore important to avoid situations where expectations of higher wage and price increases are incorporated into the economic system. Following the realisation that monetary policy can only reduce unemployment if the central bank generates more inflation than expected by households and firms, economic policy is now often analysed within the framework of an expectations-augmented Phillips curve. Box 1 briefly outlines the development of the Phillips curve.

In the long term, monetary policy cannot increase activity beyond the potential level determined by the labour force, the labour-market structures, the size of the capital stock and the production technology.

THE HISTORY OF THE PHILLIPS CURVE Box 1

The Phillips curve dates back to 1958 and A. W. Phillips' seminal article showing that throughout the preceding just under 100 years there had been a relatively stable relationship between unemployment and wage inflation in the UK.[1] Periods of low unemployment had been characterised by high wage growth, while wage increases had been low in periods of high unemployment. A similar relationship could be found between unemployment and price inflation. The idea was that economic policy faced a trade-off between unemployment and wage and price increases. According to this theory, it was possible to permanently reduce unemployment by accepting higher wage increases. This relationship seemed to hold in the years following Phillips' article, and as a result the principles behind the Phillips curve were incorporated into many countries' conduct of economic policy. The theoretical Phillips curve is illustrated in Chart 1 of the main article.

In the 1970s, the relevance of the Phillips curve was seriously questioned. Many countries were experiencing high inflation and high unemployment at the same time. This situation was not supposed to be possible according to the Phillips curve, so something had to be wrong. Moreover, the collapse of the Phillips curve had already been predicted. In theoretical papers, Milton Friedman and Edmund Phelps had argued that in the long run, real quantities such as output and employment are determined by real factors and not influenced by nominal quantities such as money and inflation.[2] A country will have a "normal" or "natural" level of unemployment, and monetary policy cannot keep unemployment above or below that level in the long run. The long-term Phillips curve is thus vertical as there is no trade-off between inflation and unemployment. The normal level of unemployment will be determined by a number of structural factors in the markets for labour and goods. On the other hand, monetary policy will always be able to determine inflation through the amount of money put into circulation. Friedman and Phelps both received the Nobel Prize in economics for their work.

Although the long-term Phillips curve is vertical, this does not mean that monetary policy cannot have real effects in the short term. In the 1970s, a branch of theoretical literature began to analyse the conditions under which monetary policy could have real effects. Here, Robert E. Lucas, who was later awarded the Nobel Prize, was a key figure. He concluded that it was essential to distinguish between expected and unexpected shocks. According to Lucas, monetary-policy shocks will only have real effects if they are unexpected by the private sector.[3] If, on the other hand, a monetary-policy expansion is expected, it will just result in higher prices.

Today, there is broad consensus among central banks and similar institutions that there is a short-term trade-off between inflation and activity. The reason is the widespread adoption of the "New Keynesian" theory of price and wage stickiness. This means that a monetary-policy expansion could increase activity during the period until prices and wages have adapted to their new long-term levels. However, the real economy would inevitably fall back to the baseline determined by structural factors such as labour-market structures.

[1] See A. W. Phillips, The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861–1957, *Economica*, *New Series*, 1958, Vol. 25, No. 100, pp. 283–299.

[2] See M. Friedman, The Role of Monetary Policy, *American Economic Review*, 1968, Vol. 58, pp. 1–17, and E. S. Phelps, Money-Wage Dynamics and the Labour-Market Equilibrium, *Journal of Political Economy,* 1968, Vol. 76, pp. 678-711.

[3] See R. E. Lucas, Expectations and the neutrality of money, *Journal of Economic Theory*, 1972, Vol. 4, pp. 103-124.

Accordingly, the only real possibility is for the central bank to accept that monetary policy cannot be used to increase economic growth in the longer term. Storgaard (2009) presents an empirical analysis of wage formation in Denmark from 1975 to 2007[1]. One of the key conclusions of the article is that in the longer term wage increases will be fully reflected in wages. This means that in the longer term it will not be possible to achieve a higher level of employment by systematically using inflation to reduce real wages.

Growth is determined by supply

In the long term, the level of economic activity will be determined by the supply side of the economy. For a given labour force and capital stock there will be a level of output that is compatible with wage and price stability. Attempts to increase activity beyond this level through demand-stimulating economic policy may be successful in the short term, but in the long term they will only result in higher price and wage increases, cf. the discussion above. So it is not possible to stabilise the economy at a level above its potential, and this applies whether monetary policy or fiscal policy is used to stimulate demand.

Therefore, to achieve a sustained increase in economic activity it is necessary to launch initiatives to boost the potential output of the economy. For example, this can be achieved by changing the depreciation or taxation rules to make it more attractive to invest in productive capital. Alternatively, it may be sought to increase the labour force, to upgrade its qualifications through education and training or to reduce the level of unemployment that is compatible with stable wages. This may be achieved through structural reforms that make it more attractive to work.

Although monetary policy cannot contribute positively to growth in the long term, there is broad consensus among economists that both monetary and fiscal policy may influence activity in the shorter term by stimulating or dampening demand. And it is worth noting that monetary policy focusing on stabilising inflation at a low level may also have stabilising effects on activity. For example, this is the case if fluctuations in growth and employment are primarily driven by demand shocks as seen during the financial crisis. Here, a fall in demand has led to a decline in both activity and inflation around the globe.

In response to this, the leading central banks have all reduced their interest rates to close to zero. This supports demand and prevents inflation from falling too far below the desired level. So in the current situ-

[1] Peter Ejler Storgaard, Wage Development in Denmark, *Monetary Review,* 2nd Quarter 2009.

ation there is no short-term or long-term conflict between the issues of employment and price stability. What is important is that the economy is stabilised around its potential and not around an activity level that is incompatible with stable prices and wages. When the economy picks up again, interest rates must therefore be raised to a normal level.

Inflation is determined by monetary policy

In the short term, inflation will be influenced by a number of factors. For example, changes in commodity prices will inevitably influence consumer prices. Likewise, fiscal policy may influence inflation, which will tend to rise in the wake of a fiscal expansion as a result of increased capacity pressures. As a consequence, a procyclical fiscal policy stimulating the economy when growth and inflation are rising may impede the task of the central bank and lead to greater fluctuations in policy rates than would otherwise have been the case. However, in the long run inflation is determined by monetary policy. As the central bank determines inflation in the long term, but is unable to influence employment, there is no conflict between high employment and low inflation.

Most central banks have been instructed to aim for low and stable inflation as high inflation reduces the efficiency of the economic system. This is due to a number of factors:[1]

- High inflation often goes hand in hand with fluctuating inflation rates, which masks the development in relative prices. This hampers the savings and investment decisions of households and corporations, with a risk of inexpedient allocation of resources in the economy.
- Fluctuating inflation rates prompt creditors to add a risk premium to the rate of interest to compensate for the uncertainty about the future level of inflation. All other things being equal, this leads to higher nominal interest rates, which may impede investment and economic growth.
- In an inflationary environment, corporations and households use a disproportionate amount of resources on safeguarding themselves against future inflation when concluding contracts in the markets for goods and labour and in the financial markets.
- High and fluctuating inflation leads to a redistribution of wealth among debtors and creditors that has no real-economic foundation.
- Inflation may lead to distortions in a nominally based tax system so that the real yield on investments after tax depends on the rate of inflation and does not simply reflect the productive yield on the investments.

[1] The following is taken from Danmarks Nationalbank, *Monetary Policy in Denmark,* 2009, pp. 4-5.

EXPERIENCE FROM DENMARK

Chart 3 shows inflation and nominal and real wages in Denmark over the last 40 years or so. The period preceding the transition to a consistent fixed-exchange-rate policy in the early 1980s was generally characterised by high nominal wage growth. But high wage growth was accompanied by high inflation, so real wage growth was close to zero for several consecutive years. The high rate of inflation reflected the attempts to increase economic growth through repeated exchange-rate devaluations. The results did not materialise, however, and there was a rise in both unemployment and inflation.

To reduce inflation the newly elected government in 1982 decided to avoid any further devaluations. In addition, wage indexation was suspended and fiscal policy was tightened. In the subsequent years, it was gradually believed that the economic policy pursued would be able to reduce inflation. As a result, lower nominal wage increases eventually became acceptable to employees. Since the late 1980s, the rate of nominal wage increase has been significantly lower than in the preceding period. Nonetheless, employees have benefited from considerable increases in real wages. This illustrates the fact that a credible economic framework keeping inflation low is a good safeguard against erosion of real wages. But history also shows that it takes time to build up credibility. It is therefore important to avoid undermining the credibility of economic

INFLATION AND WAGE GROWTH — Chart 3

Source: Statistics Denmark (inflation), Confederation of Danish Employers (wages).

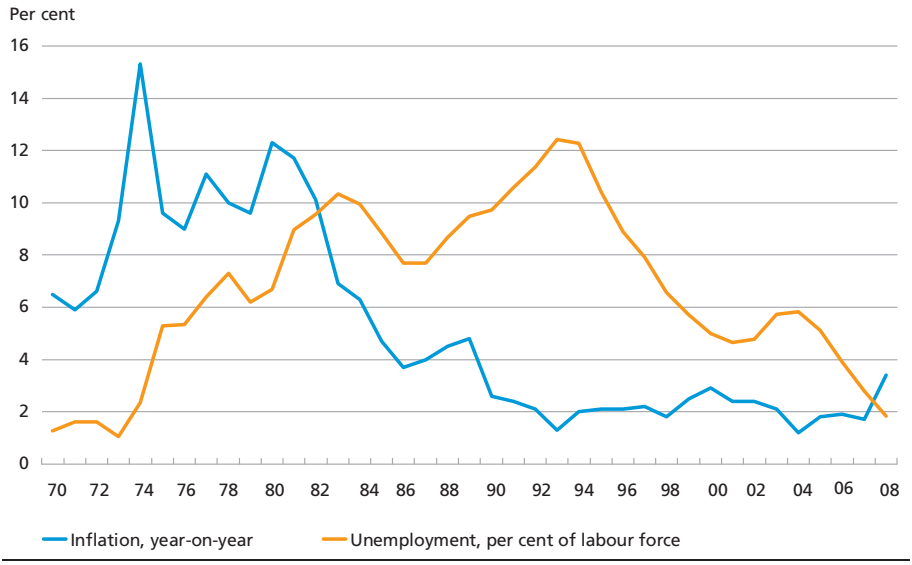
policy by deviating from the long-term strategy in order to obtain high growth in the short term.

Chart 4 shows inflation and unemployment in Denmark from 1970 to 2009. It appears that since the beginning of this decade, unemployment has been at the lowest level since the first oil crisis. At the same time, this period in particular has been characterised by low and stable inflation. So in Denmark, low inflation has been accompanied by high employment for many years.

If the favourable development is to continue, pursuing a responsible economic policy is important. In the mid-2000s, fiscal policy tended to be procyclical, thereby contributing to unemployment falling under its structural level. This is risky as in the longer term an attempt to stabilise unemployment below its structural level would lead to higher wage and price increases. A period of higher unemployment may thus be necessary to avoid rising inflation.

Low inflation is not the only factor behind favourable economic development. For example, labour-market structures are essential for unemployment to remain at a low level, while investments in education and research are important to ensure future growth. Such policies are not within the monetary-policy framework, but low and stable inflation provides the best basis for structural improvements.

INFLATION AND UNEMPLOYMENT IN DENMARK — Chart 4



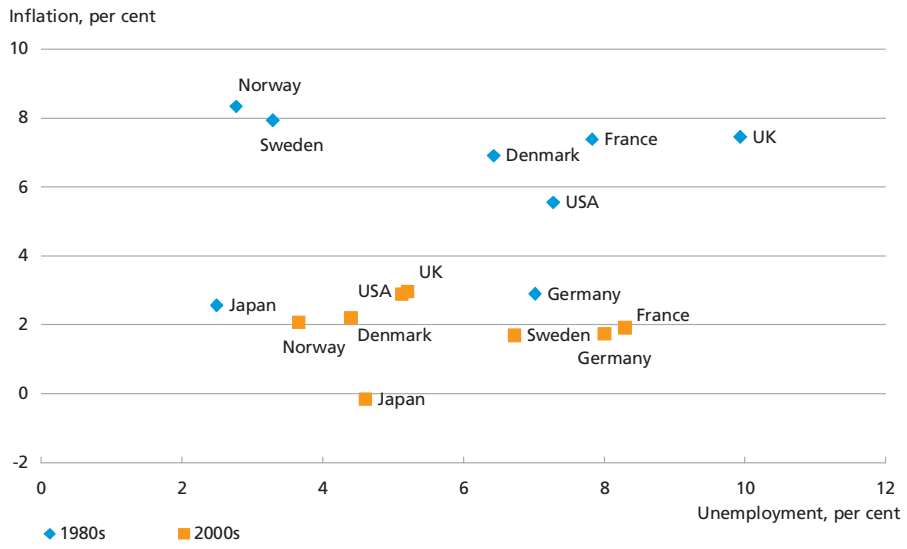
Note: CPI is used as the measure of inflation.
Source: Statistics Denmark.

EXPERIENCE FROM ABROAD

Denmark's experience with monetary policy aimed at price stability is far from unique. Over the last decades, a number of countries have successfully established a credible economic-policy framework in order to achieve low and stable inflation. This has not had negative consequences for employment. Chart 5 shows the average rates of inflation and unemployment for a number of countries in the 1980s compared to the period from 2000. It is evident that all the countries have recorded lower rates of inflation in the last decade, while the picture is less clear with regard to unemployment.

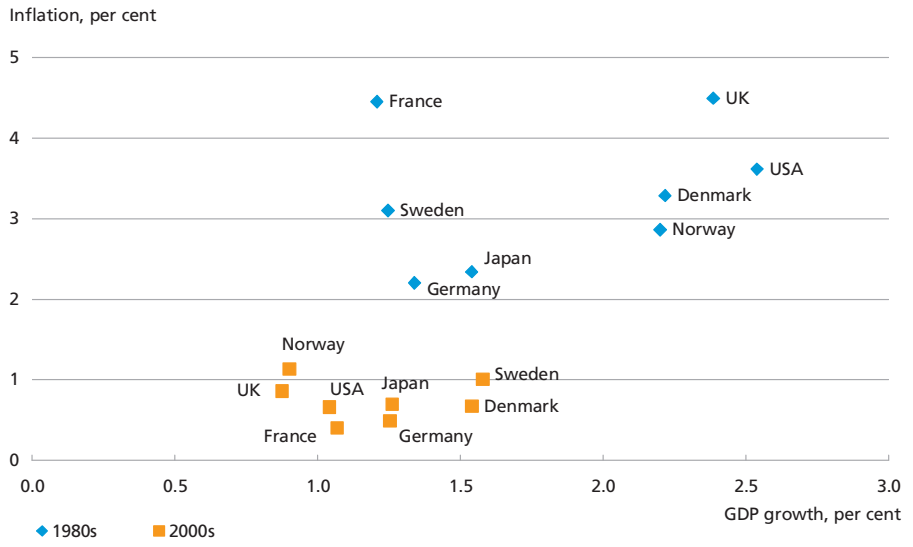
Average inflation was low from 2000 to 2008, and that period was also characterised by a high degree of stability. Chart 6 shows the standard deviation of inflation and GDP growth in the 1980s and from 2000 onwards for the same countries as in Chart 5. As can be seen, both growth and inflation have generally been more stable after 2000. Accordingly, monetary policy aimed at low inflation may lead to low unemployment as well as macroeconomic stability.

INFLATION AND UNEMPLOYMENT Chart 5



Note: CPI is used as the measure of inflation.
Source: OECD, *Economic Outlook*, June 2009, Reuters EcoWin (Germany, unemployment in West Germany only), Office for National Statistics (UK inflation).

STANDARD DEVIATION FOR INFLATION AND GROWTH Chart 6



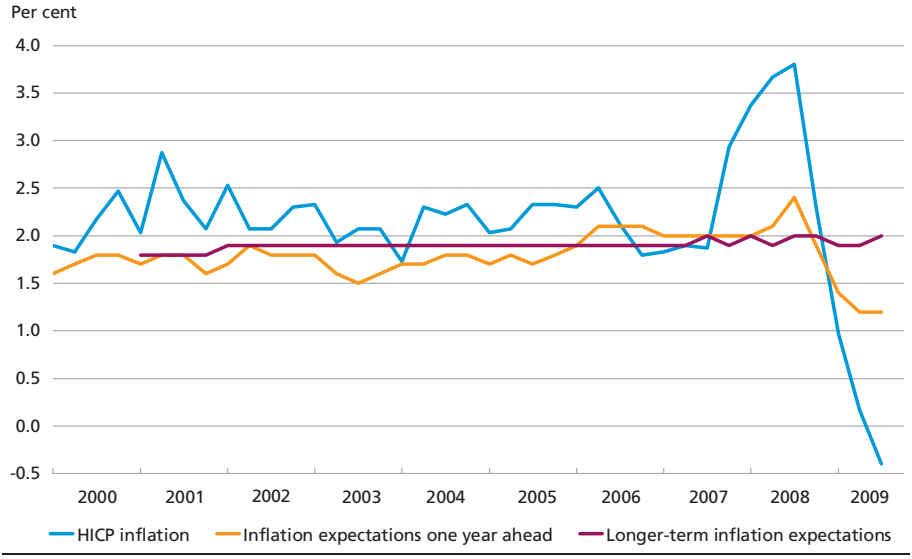
Note: CPI is used as the measure of inflation. Economic growth is calculated on the basis of real GDP.
Source: OECD, *Economic Outlook,* June 2009, OECD.Stat Extracts (growth in Germany), Reuters EcoWin (inflation in Germany), Office for National Statistics (UK inflation).

MONETARY POLICY IN RECENT YEARS

The inflation pattern in recent years, in the light of the strong fluctuations in commodity prices, illustrates some specific advantages of a credible nominal anchor. Despite the large fluctuations in actual inflation in e.g. the euro area, market participants' expectations of future inflation have remained remarkably stable around the ECB's objective of keeping the rate of inflation below, but close to, 2 per cent, as appears from Chart 7. Stable inflation expectations are important, as prices and especially wages are often subject to multi-annual contracts. As employees are primarily interested in their real wages, they will pay particular attention to the inflation rate expected during the term of the collective agreements when entering into the agreements. Thus, if employees expect inflation to be low, they will be willing to accept relatively low nominal wage increases.

As such, the belief that central banks are going to stabilise inflation at a low level has a stabilising effect on the economy through inflation expectations. As a consequence of the monetary-policy credibility, leading central banks only had to raise interest rates moderately despite the global increase in inflation during the period up to the summer of 2008 due to commodity price hikes, cf. Box 2.

EURO AREA INFLATION AND INFLATION EXPECTATIONS Chart 7



Note. Quarterly observations, most recently from the 3rd quarter of 2009.
Source: Reuters EcoWin.

CREDIBILITY AND SECOND-ROUND EFFECTS Box 2

As described in this article, last year's commodity price hikes only resulted in a small rise in private-sector expectations of future inflation, because there was confidence that central banks would soon bring inflation back to the target level. As a result, wage growth did not come to reflect the temporary rise in inflation. However, in a situation where the focus of monetary policy on low inflation had been less evident, employees concluding collective agreements could not be sure that the higher price increases would just be temporary. In such a situation it is likely that employees would have demanded higher wage increases to compensate for this, and the price increases attributable to higher energy prices would thus be incorporated into the inflationary process.

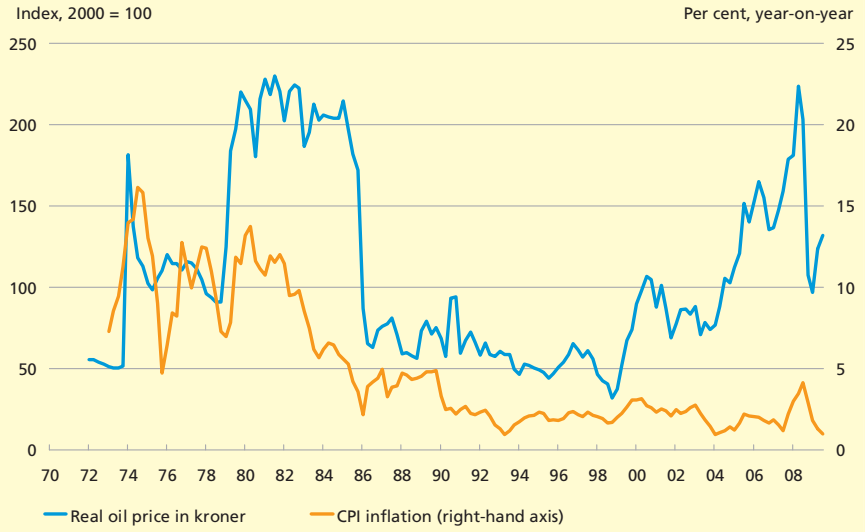
Firms would have to raise prices as a consequence of the higher wage demands. Higher energy prices would thus have resulted in second-round effects where higher energy prices leading to a temporary rise in inflation in the first round would result in permanently higher inflation due to the expectations of firms and households. This is exactly what happened in a large number of countries, including Denmark, in the wake of the oil price hikes in the 1970s.

As seen in Chart 8, oil prices rose considerably in the early 1970s and from 2004 to 2008. But while this resulted in a sustained increase in inflation in the early period, rising oil prices have only had short-term effects on consumer price inflation in recent years. If a central bank wishes to bring inflation back to the baseline in a situation where rising energy prices have resulted in a sustained increase in inflation, this can only be achieved by raising the interest rate. That, in turn, would dampen demand, thereby resulting in a period of higher unemployment. This painful adjustment can be

CONTINUED Boks 2

avoided if from the outset the economic agents know that the central bank will not tolerate sustained higher inflation.

OIL PRICE AND INFLATION Chart 8



Source: Statistics Denmark and Reuters EcoWin.

Danmarks Nationalbank's Financial Accounts with the International Monetary Fund, IMF

Thomas Krabbe Jensen, Financial Markets, and *Søren Vester Sørensen, Economics*

INTRODUCTION

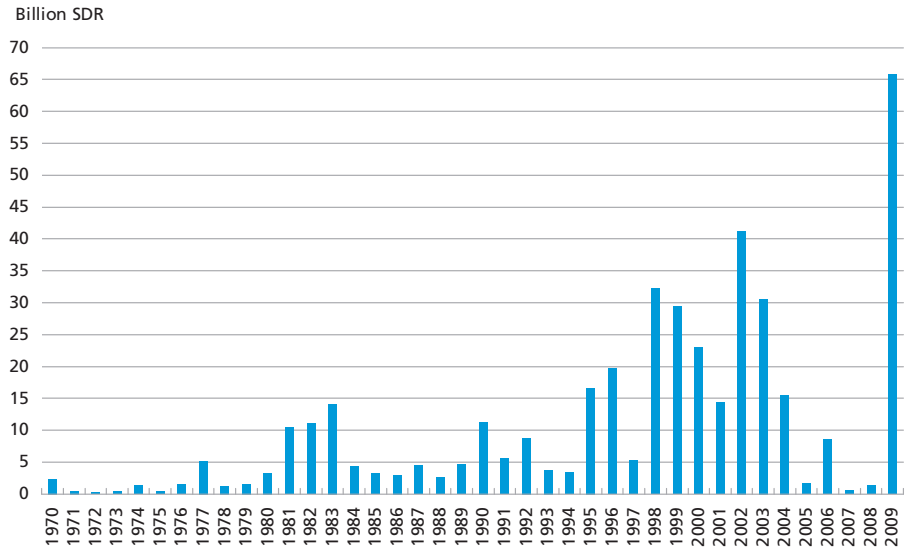
After some years with a decline in lending, the economic crisis has led to strong growth in the commitments to new lending by the International Monetary Fund, IMF, cf. Chart 1. To ensure adequate lending resources, the international community launched a number of initiatives in 2009 with a view to mobilising further funds for the IMF. As a member of the IMF, Denmark contributes to these funds. Because Danmarks Nationalbank is responsible for managing Denmark's financial accounts with the IMF, these initiatives impact Danmarks Nationalbank's balance sheet and foreign-exchange reserve.

In 2009, Danmarks Nationalbank concluded a loan agreement with the IMF for 1.95 billion euro and made commitments for further loans totalling 1.1 billion euro. Danmarks Nationalbank also made commitments for a further 200 million SDR[1] for IMF loans to low-income countries. In addition, Danmarks Nationalbank has received 1.4 billion SDR through the SDR system. This amount is included in the foreign-exchange reserve. These facilities generally increase the IMF's drawing rights on Danmarks Nationalbank. If the IMF draws on the facilities, this will impact the composition of the foreign-exchange reserve, as hard currency is exchanged for claims on the IMF, while the size of the foreign-exchange reserve remains unchanged.

This article describes the IMF's lending facilities and how they are financed by the member countries, followed by a description of how the outstanding accounts affect Danmarks Nationalbank and the foreign-exchange reserve. The article concludes with a review of Danmarks Nationalbank's risk management of its outstanding accounts with the IMF.

[1] SDRs (Special Drawing Rights) are the IMF's unit of account. SDRs are composed of a basket of currencies, currently including the dollar, the euro, the yen and the pound sterling. This article uses an SDR rate of kr. 799.00 per SDR 100, corresponding to the exchange rate at 30 October 2009. For a further description of the composition of SDRs, see Box 2 on page 77.

IMF COMMITMENTS TO NEW LENDING 1970-2009 Chart 1



Note.: Fiscal years. For example, data for 2009 covers the period from 1 May 2008 to 30 April 2009.
Source: IMF, *Annual Report*, various volumes.

THE ROLE OF THE IMF

The IMF is an international organisation consisting of 186 member countries. Founded in 1945, one of its objectives is to promote economic growth and stability.

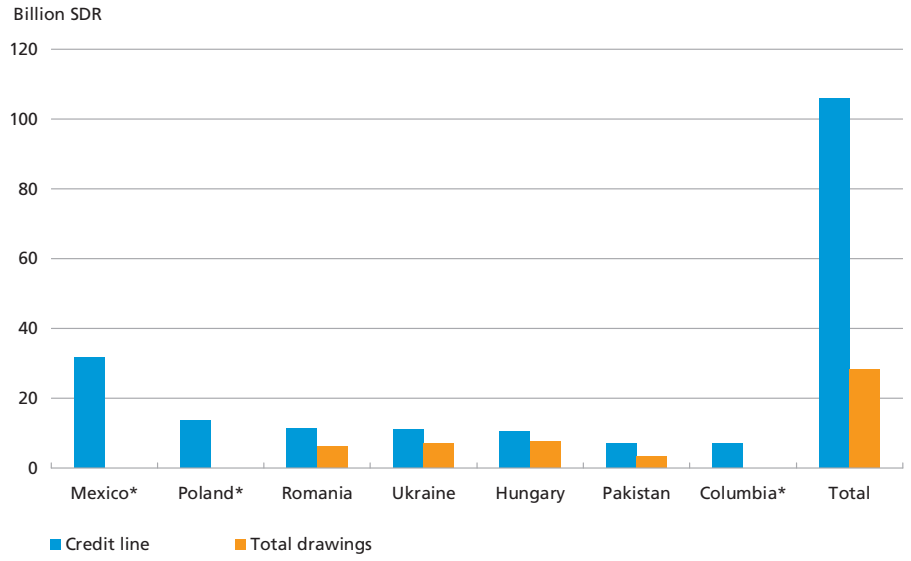
A large part of the IMF's work consists in monitoring and analysing the economies of its member countries. Based on such analyses it provides help and guidance concerning appropriate economic policies (*surveillance*).

The IMF also provides technical assistance to its member countries, e.g. in the form of training of civil servants or help to set up economic institutions.

Furthermore, the IMF has a number of financial tasks. Its primary task is to provide loans to member countries that have trouble meeting their international payments. The credit can be provided either in an attempt to prevent a balance-of-payments crisis or as a "cure" to make a country better equipped to deal with such a crisis if it has already occurred.

The IMF's normal loans for balance-of-payments support, called Stand-By Arrangements, can be obtained on request from the member country to the IMF. Disbursement of such loans is normally based on a number of economic-policy conditions and negotiations between the country concerned and the IMF are therefore necessary. The credit terms aim to enable the borrower to achieve economic recovery and thus to repay its debt to the IMF.

LARGEST IMF CREDIT ARRANGEMENTS Chart 2



Note: * indicates FCL programmes. Calculated at 31 October 2009.
Source: IMF.

In 2009, the IMF introduced the *Flexible Credit Line,* FCL. This facility allows the Fund to provide preventive credit to member countries with healthy economic policies without any further credit conditions. The facility serves as insurance against deterioration of the balance of payments.

Chart 2 outlines the largest IMF credit arrangements and the drawings on them. At the end of October 2009, loan commitments totalling 106 billion SDR had been made, including to a number of Central and Eastern European countries.[1] The three FCL programmes account for about half of the total credit line. The other credit arrangements and their associated credit terms constitute 54 billion SDR, of which 28 billion SDR has been disbursed. In step with the recently improving economic outlook, the demand for new loans from the IMF has declined, however, and its outstanding commitments have stabilised at around 106 billion SDR. As a consequence, the IMF's commitments to new lending in 2010 are not expected to be as high as in 2009. A common characteristic of IMF loans for balance-of-payments support (hereinafter referred to as the IMF's ordinary lending) is that they are ultimately financed by the other members of the IMF, including Danmarks Nationalbank. This is described in further detail in the following section.

Another financial task is the administration of the SDR system which gives member countries access to international foreign-exchange liquid-

[1] See Christensen (2009) for a further description of the impact of the crisis on Eastern Europe.

ity. The IMF creates an international foreign-exchange reserve asset by allocating SDRs that can be exchanged for hard currency from member countries with a strong balance-of-payments position. Prior to 2009, the system did not play any significant role, but in view of the IMF's decision to allocate 183 billion SDR to the member countries it cannot be ruled out that it will have a greater impact in the future. The system is described in more detail below.

Finally, the IMF provides special concessional loans to low-income countries to support their poverty-reduction strategies. The loans are provided at a low rate of interest or no interest at all and they are financed primarily by voluntary bilateral contributions from the IMF member countries. The loans are administered as a separate trust. By end-October 2009, the IMF had provided concessional loans totalling 3 billion SDR to 29 countries.

FINANCING OF THE IMF'S ORDINARY LENDING

The IMF's ordinary lending is based on an exchange system. When a country draws on IMF resources, the borrowing country pays an amount in its own currency to the IMF in exchange for hard currency that the IMF acquires from another member country. Hard currency is defined as easily tradable currency from a country with a sound economy and a strong balance-of-payments position, e.g. dollars, euro or kroner.

This gives the country providing hard currency a claim on the IMF. The claim accrues interest at the SDR interest rate less a deduction. Similarly, loans from the IMF accrue interest at the SDR interest rate plus a premium. The interest margin that the IMF earns by providing loans from creditor to debtor countries is spent on financing IMF operations as well as on building up reserves against credit losses.[1]

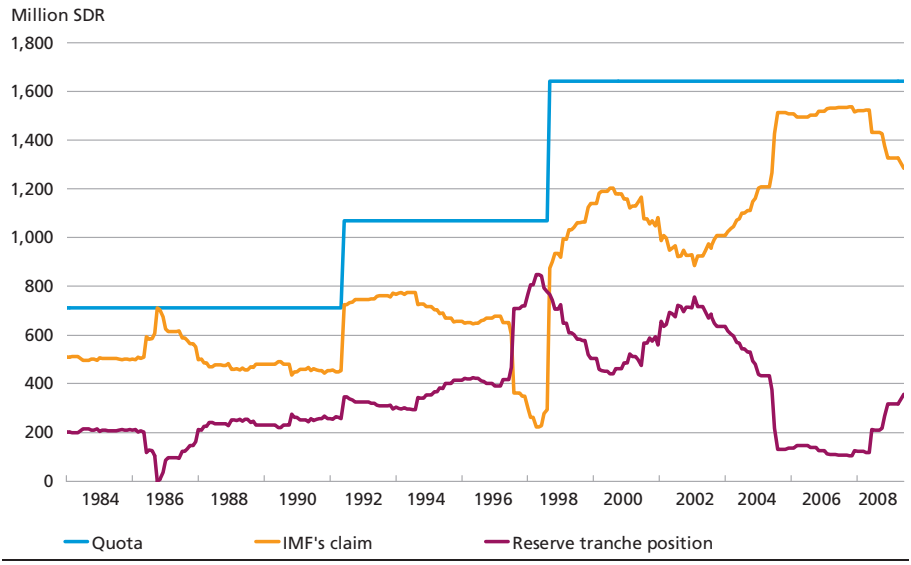
The quota

Lending to member countries experiencing economic difficulties is financed primarily by quotas. The quotas are the countries' membership contributions and account for the majority of IMF financing. Each member country is assigned a quota based on its relative size in the world economy.

The quota determines the country's voting power in the IMF, its contribution to IMF lending activities and its access to economic assistance from the IMF. Furthermore, the quota determines the allocation of SDRs to participants in the SDR system.

[1] See Bohn-Jespersen (2008) for a description of the IMF revenue reform of 2008.

DENMARK'S QUOTA AND RESERVE TRANCHE POSITION SINCE 1984 Chart 3



Source: IMF.

Each country initially pays a fourth of the quota to the IMF in hard currency, depositing the remaining three quarters in its own currency in an account made available to the IMF. If the IMF needs currency in connection with its ordinary lending, it can draw currency on a member country against having its claim written down by an equivalent amount.

Conversely, the IMF can repay currency to a member country and have its account written up by an equivalent amount. As the IMF can only draw currency on a member country if the Fund still has a claim on its account, the quota determines the member's maximum financial commitment to the IMF.[1]

The difference between a member country's quota and the IMF's claim is called the member country's reserve tranche position. The reserve tranche position is an asset for the member country as it is an expression of the member's net claim on the IMF. At 31 October 2009, Denmark's quota was 1,642.8 million SDR, and the IMF's claim amounted to 1,286.3 million SDR. The reserve tranche position thus amounted to 356.5 million SDR, cf. Chart 3.

Denmark's quota is paid by Danmarks Nationalbank. The part of the quota that is paid in currency (corresponding to the reserve tranche position) is taken from the foreign-exchange reserve. As the reserve tranche position is included in the foreign-exchange reserve, transactions via the

[1] A country can contribute amounts in excess of the quota if it participates in one or more of the IMF's voluntary lending facilities.

EXAMPLE OF DRAWING VIA THE QUOTA — Box 1

If the IMF wants to draw kr. 1 billion in euro via the quota, the IMF will ask Danmarks Nationalbank to deposit this amount in a given bank account on a given date. The IMF will also ask Danmarks Nationalbank to debit the account for the IMF claim by kr. 1 billion.

The two transactions are executed at the same time on the day of value. Following the transactions, Danmarks Nationalbank's euro holding will be reduced on the assets side, and the IMF claim in kroner will be equally reduced on the liabilities side, cf. Table 1[1]. As a result, transactions via the quota will not change the size of the foreign-exchange reserve, as the decline in the euro holding is offset by the increase in the reserve tranche position, cf. Table 2.[1]

BALANCE SHEET CHANGES BY DRAWING OF KR. 1 BILLION IN EURO VIA THE QUOTA — Table 1

Kr. billion

Assets		**Liabilities**	
Quota	0	IMF claim	-1
Euro holding	-1		

FOREIGN-EXCHANGE-RESERVE CHANGES BY DRAWING OF KR. 1 BILLION IN EURO VIA THE QUOTA — Table 2

Kr. billion

Quota	0
Reserve tranche position	1
Euro holding	-1
Foreign-exchange reserve, net	0

[1] See also Mogensen (2003).

quota do not affect the size of the foreign-exchange reserve, cf. Box 1, because IMF drawings on the foreign-exchange reserve are offset by an equivalent increase in the reserve tranche position. Similarly, repayment of currency by the IMF will be offset by a decline in the reserve tranche position.

The IMF seeks to spread the financing burden of its lending on member countries which, in the Fund's assessment, have a sufficiently strong balance-of-payments and currency position. The IMF publishes a quarterly overview of its planned drawings via the quotas. The preparation of this financing plan aims to ensure adequate burden sharing among the contributing countries over time. The need for additional financing via the IMF's supplementary credit arrangements is estimated in this connection.

The IMF's supplementary borrowing facilities

If the quota resources are inadequate, the IMF may borrow supplementary capital through a number of voluntary arrangements with the member countries.

So far, the IMF has had two voluntary borrowing arrangements: the *General Arrangements to Borrow*, GAB, and the *New Arrangements to Borrow*, NAB. The GAB, which comprises the G10 countries, was established in 1962 and gives the IMF access to borrow 17 billion SDR. The NAB was established in 1997 in connection with the Asian crisis as a supplement to the GAB. The two borrowing arrangements consist of a number of standing loan agreements between the IMF and 26 voluntary member countries and institutions. If it is necessary to supplement the quota resources in order to avoid international monetary instability, the IMF can borrow up to 34 billion SDR under the two arrangements. Denmark has participated in the NAB since its introduction in 1997 with a loan commitment of 367 million SDR.

The economic crisis has led to increasing demand for IMF loans. Accordingly, to ensure adequate lending resources, the international community, under the auspices of the G20, has decided to mobilise further funds for the IMF. In the short term, the IMF will get access to 250 billion dollars in the form of bilateral loans from the member countries. In the slightly longer term, the NAB arrangement is to be increased by up to 600 billion dollars, e.g. by including new member countries in the facility. Against this background, the EU member states have decided to commit to making contributions totalling 75 billion euro in bilateral loan facilities and a further 50 billion euro in connection with a new, extended NAB arrangement. Overall, commitments have been announced for the provision of additional lending resources in the amount of just over 500 billion dollars, cf. Table 3.

Chart 4 illustrates the necessity of providing liquidity to the IMF. From a very high level in 2005-07, the IMF's lending capacity was heavily reduced at the end of 2008 and in the 1st half of 2009. Without further capital injections its lending capacity would have been as low as 29 billion SDR in September 2009. With the loan agreements concluded, the IMF continues to have ample lending capacity.

In November 2009, Danmarks Nationalbank concluded a bilateral loan agreement with the IMF for 1.95 billion euro as part of Denmark's contribution to the common EU commitment. Shortly after the conclusion of the agreement, the IMF drew 57 million SDR on the loan agreement.

In the medium term, the loan agreement will be transferred to an extended NAB arrangement when that arrangement is implemented. Overall, Denmark's share of the new NAB agreement is expected to in-

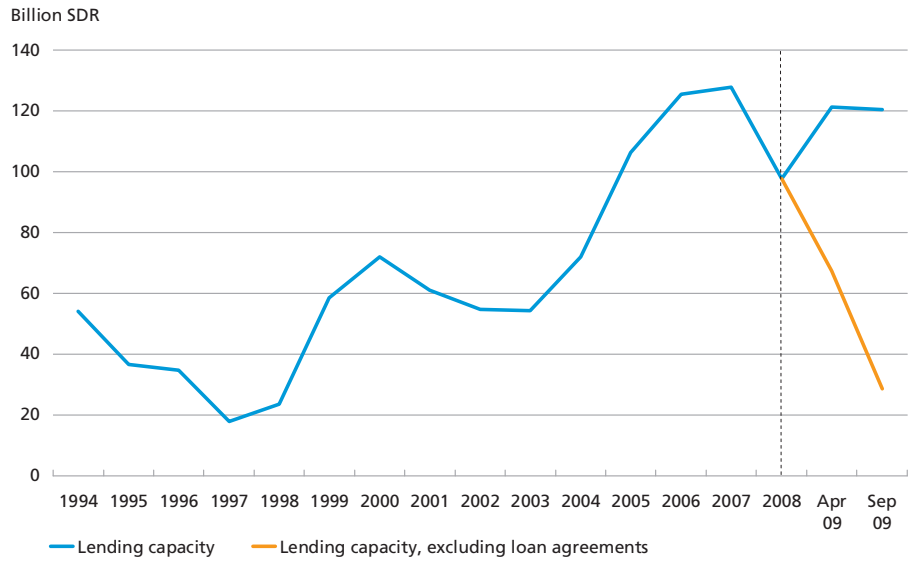
FOLLOW-UP ON G20 COMMITMENT FOR PROVISION OF RESOURCES TO THE IMF Table 3

Billion dollars	New commitment	Extended NAB
EU	175.0	200.0
USA	100.0	110.6
Japan	100.0	105.6
China	51.3	51.3
Switzerland	10.0	12.5
Canada	10.0	12.2
Korea	10.0	10.5
Brazil	10.0	10.0
India	10.0	10.0
Russia	10.0	10.0
Australia	5.7	7.0
Norway	4.8	5.4
Other countries	3.1	9.2
Total	499.9	554.3

Note: The amounts are calculated at exchange rates at 24 November 2009.
Source: IMF.

crease to just over 5 billion dollars. The new agreement is still being negotiated, however. The crisis has also accelerated the need to assess the IMF's long-term resource requirements, which is one of the reasons why the 14th IMF quota revision has been brought forward to January 2011.

THE IMF'S LENDING CAPACITY Chart 4



Note: The IMF calculates its one-year lending capacity (Forward Commitment Capacity) as an overview of applicable (strong) currencies less commitments already made plus funds under activated loan agreements and planned repayments in the coming year. The sum does not include the SDR 34 billion available under the NAB from 1997, as this arrangement is not active at present.
Source: IMF.

Any drawings via the special credit arrangements will be used to finance the same loans that are financed via the quota resources. The loans are thus covered by the IMF's reserves and agreements to cover any losses.

Drawings via the special credit arrangements do not affect the size of the foreign-exchange reserve. As is the case with the quota, Danmarks Nationalbank will finance any drawings via the special credit arrangements by taking the funds from the foreign-exchange reserve. However, Danmarks Nationalbank will get an equivalent claim on the IMF, which is included in the foreign-exchange reserve.

IMF LENDING TO LOW-INCOME COUNTRIES

The IMF has a number of different lending facilities aimed at low-income countries. The purpose of the loans is to help those countries reduce poverty or manage natural disasters. The loans are provided at a low rate of interest or no interest at all.

Financing of the loans is kept separate from the IMF's ordinary resources in special funds called Trust Accounts. The interest subsidy is financed primarily via bilateral assistance from the member countries, and the credit is made available to the Trust Accounts through loans from the member countries.

From Denmark, Danida has previously made contributions to subsidy resources (for loans at very low interest rates) or debt relief. In addition, Danmarks Nationalbank, with a guarantee from the Danish government, has provided loans in the amount of 100 million SDR to the IMF's lending resources in the *Poverty Reduction and Growth Facility,* PRGF. These loans were used to finance lending to low-income countries and were repaid in connection with the Multilateral Debt Relief Initiative in 2006.

In July 2009, the IMF's Executive Board adopted a reform of the lending facilities for low-income countries. A new trust, the *Poverty Reduction and Growth Trust*, PRGT, is established as part of this reform with the aim of financing and "housing" all IMF concessional loans. Replacing the PRGF, this trust is to remain economically independent of the rest of the IMF organisation and to be financed by bilateral contributions from donor countries.

The PRGT will continue to contain separate lending and subsidy resources. The subsidy resources are used to ensure lower interest rates for borrowers and are to be financed by the IMF's own funds and contributions from the donor countries. Denmark is also expected to contribute to the PRGT by providing subsidy contributions financed by development aid funds and contributions to lending resources financed by Danmarks Nationalbank. The loan commitment of Danmarks Nationalbank will

amount to about 200 million SDR and will be guaranteed by the Danish government. The reason for the government guarantee is that the credit risk on these loans is higher than on ordinary IMF lending, and that any credit losses must be covered by the PRGT's own reserves as they are not comprised by the IMF's general reserves.

As is the case with the quota and the special credit arrangements, Danmarks Nationalbank will finance the loan to the PRGT by taking the funds from the foreign-exchange reserve. The loan will not affect the size of the foreign-exchange reserve, however, as Danmarks Nationalbank will get an equivalent claim on the PRGT, which is included in the foreign-exchange reserve.

THE SDR SYSTEM

As part of the international community's response to the economic crisis, the IMF decided, at the request of the G20 summit in London in April 2009, to allocate SDRs in the amount of 291 billion dollars to the member countries.[1] As a result, the total amount of SDRs allocated increased from 21.4 billion SDR to 204.1 billion SDR in August and September 2009.

The SDR is a key IMF concept. The SDR serves as the unit of account of the IMF used internally by the IMF and vis-à-vis its member countries, cf. Box 2. The SDR is also an asset that can be used as legal tender within the IMF.

The SDR can be described as a potential claim for hard currency on the other members of the SDR system. The SDR is *not* a currency, but for the sake of clarity it can be seen as a currency that can be used to make payments or be exchanged for hard currency within the IMF. The SDR is created by the IMF and allocated to member countries in proportion to their quotas.

The SDR system serves as a sort of bilateral overdraft facility allowing member countries to obtain hard reserve currency by selling (exchanging) their SDR holdings against hard currency from member countries with a strong balance of payments and a good currency position, including Denmark. If a country holds fewer SDRs than allocated, interest is charged on the shortfall. Conversely, if a country's SDR holdings rise above its allocation, it earns interest on the excess.

The SDR system creates international foreign-exchange reserve liquidity for the member countries. SDR allocations give countries (with a strong balance of payments) an obligation to buy SDRs up to the point

[1] A small part of this allocation (34 billion dollars) was due to execution of a decision from 1997 to allocate SDRs to countries that had become members of the IMF after 1981 and therefore never been allocated SDRs.

SPECIAL DRAWING RIGHTS, SDRs Box 2

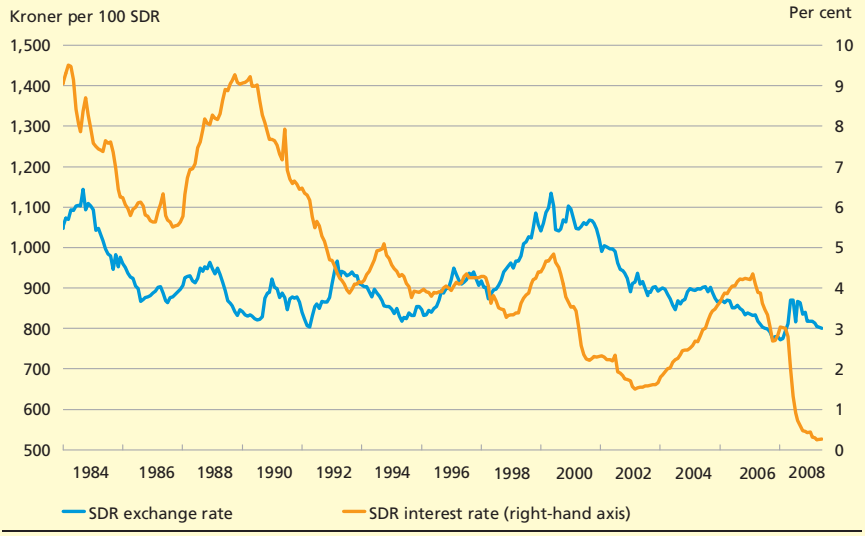
Special Drawing Rights, SDRs, were created in 1969 with the purpose of promoting international reserve liquidity, thereby supporting the *Bretton Woods* fixed-exchange-rate system.

The value of the SDR was originally defined relative to gold, as the Bretton Woods system was ultimately based on the convertibility of the dollar to gold. After the collapse of the Bretton Woods system, the SDR was redefined as a basket of currencies, today consisting of the dollar, the euro, the yen and the pound. The basket composition is reviewed every five years, most recently in November 2005. The weights of the currencies are based on the value of the exports of goods and services and the amount of reserves denominated in the respective currencies which are held by other members of the IMF. In the current basket composition, 1 SDR consists of 0.41 euro, 18.4 yen, 0.0903 pounds sterling and 0.632 dollars. The market exchange rate of the SDR is calculated on the basis of the market exchange rate of these four currencies against the dollar. At 30 October 2009, 100 SDR was equivalent to kr. 799.90, cf. Chart 5.

The SDR interest rate is determined weekly and is based on a weighted average of representative money-market interest rates in the four currencies constituting the SDR basket. The SDR interest rate forms the basis for the interest charged on the IMF's normal lending, the interest paid or charged on the difference between the SDR allocation and holding, and the interest paid on part of the member countries' quota resources. At 30 October 2009, the SDR interest rate was 0.27 per cent.

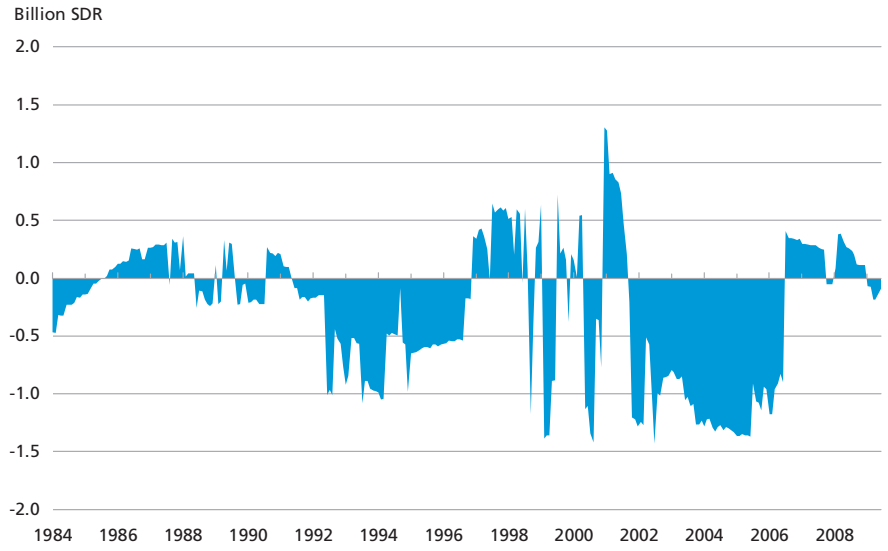
The SDR also serves as the unit of account of the IMF. The IMF's financial balance sheet and accounts are thus calculated in SDR. In addition, the IMF's financial accounts with the member countries, e.g. the quota and the special credit arrangements, are also calculated in SDR.

SDR EXCHANGE AND INTEREST RATES SINCE 1984 Chart 5



Source: IMF and Danmarks Nationalbank.

DANMARKS NATIONALBANK'S NET HOLDINGS OF SDRs SINCE 1984 Chart 6



Note: The Chart shows Danmarks Nationalbank's net holdings of SDRs. The net holdings are calculated as Danmarks Nationalbank's actual holdings of SDRs less Danmarks Nationalbank's accumulated allocation of SDRs.
Source: IMF.

where their SDR holdings are three times their allocations. In practice, however, the system has been executed through voluntary transactions for over two decades. A number of countries, including Denmark, have entered into a voluntary agreement to buy or sell foreign exchange against SDRs. Danmarks Nationalbank thus contributes to supporting liquidity in the SDR system, cf. Chart 6.

Until 2009, the SDR system played a limited role, as the allocated amount of SDRs was small compared to the world economy. In addition, the largest share was allocated to advanced economies with access to the international financial markets and therefore rarely in need of such additional foreign-exchange reserves.

The SDR system may get to play a more important role in the future, however. As mentioned above, total SDR allocations increased by 183 billion SDR in 2009 in connection with international crisis management. About 20 per cent thereof was allocated to countries with limited reserves. The extent to which those countries will seek to exchange the SDRs for hard reserve currency is uncertain, but potentially, SDRs provide important access to international liquidity for a number of low-income countries.[1]

[1] So far, the SDR system is still executed through voluntary transactions, as the IMF has concluded sufficient voluntary agreements on the purchase and sale of SDRs.

CHANGES IN DANMARKS NATIONALBANK'S BALANCE SHEET ON ALLOCATION OF SDRs IN 2009 Table 4

Billion SDR

Assets		Liabilities	
SDR holding	1.4	Counterpart of SDRs allocated	1.4

Note: The table shows how Danmarks Nationalbank's balance sheet is affected by its allocation of 1.4 billion SDR in August and September 2009.

In addition, several emerging market economies want SDRs to play a greater role as an international reserve currency. This reflects their desire for increased representation in international monetary cooperation.

Danmarks Nationalbank's share of the SDR allocation amounted to 1.4 billion SDR, bringing its accumulated allocation to 1.5 billion SDR. The allocation affected both assets and liabilities on Danmarks Nationalbank's balance sheet. As SDRs constitute potential claims on freely usable currency, SDR holdings are an asset to Danmarks Nationalbank. But as SDRs are created "artificially" and thus can be cancelled by the IMF, the accumulated allocation is a liability, cf. Table 4. Overall, Danmarks Nationalbank's net capital is not affected by an SDR allocation.

However, it affects the size of the foreign-exchange reserve, because SDRs are created with the purpose of being a foreign-exchange reserve asset, and because the liability item (*Counterpart of SDRs allocated by the IMF*) is by definition not included in the foreign-exchange reserve. In connection with the latest allocation in August and September 2009, the foreign-exchange reserve grew by 1.4 billion SDR, cf. Table 5.

Purchase and sale of SDRs do not affect the size of the balance sheet or the foreign-exchange reserve. The reason is that the change in the SDR holding is offset by an equivalent change in the holding of hard currency.

CHANGES IN DANMARKS NATIONALBANK'S FOREIGN-EXCHANGE RESERVE ON ALLOCATION OF SDRs IN 2009 Table 5

Billion SDR

SDR holding	1.4
Foreign-exchange reserve, net	1.4

Note: The Table shows how Danmarks Nationalbank's foreign-exchange reserve is affected by its allocation of SDR 1.4 billion in August and September 2009.

RISK MANAGEMENT OF FINANCIAL ACCOUNTS WITH THE IMF

In simplified terms, the quota, the special credit arrangements and the SDR system can be seen as an IMF overdraft facility at Danmarks Nationalbank. This means that Danmarks Nationalbank has a credit exposure to the IMF. When the IMF draws on the overdraft facility, part of the foreign-exchange reserve from ordinary investments is converted to claims on the IMF. This affects Danmarks Nationalbank's interest-rate and foreign-exchange exposure, cf. Mogensen (2003).[1]

Foreign-exchange risk

In the event that the IMF has not drawn currency via the quota, the SDR system or the special credit arrangements, Danmarks Nationalbank has no foreign-exchange risk on its accounts with the IMF. The reason is that the quota and the SDR allocation, which are assets for Danmarks Nationalbank, are offset by two liability items on its balance sheet (*The IMF's drawing right* and *Counterpart of SDRs allocated by the IMF*). The liabilities are regulated by the SDR exchange rate, thereby serving as a hedge against exchange-rate fluctuations.

If the IMF draws on the quota or the special credit arrangements or instructs Danmarks Nationalbank to purchase SDRs, Danmarks Nationalbank faces a foreign-exchange risk on the accounts. The liabilities will no longer be equivalent to the assets, and Danmarks Nationalbank gets a net SDR-denominated claim on the IMF. At the end of October 2009, Danmarks Nationalbank's foreign-exchange exposure thus amounted to 0.3 billion SDR, cf. Table 6.

As the SDR is composed of a basket of the euro, the dollar, the pound sterling and the yen, there is an exposure to those currencies. Part of Danmarks Nationalbank's foreign-exchange exposure is thus converted from e.g. euro (if the IMF draws euro) to those four currencies, cf. Box 3. Danmarks Nationalbank manages the foreign-exchange risk by regarding the SDR claim as four separate claims in the four component currencies. The foreign-exchange exposure is then converted to euro exposure via forward exchange contracts. Danmarks Nationalbank's foreign-exchange risk can thus be kept unchanged.

Interest-rate risk

Danmarks Nationalbank receives interest on its net claim on the IMF. Interest is paid if the net claim is negative.

[1] For an overall description of Danmarks Nationalbank's risk management, see Danmarks Nationalbank (2003).

DANMARKS NATIONALBANK'S ACCOUNTS WITH THE IMF AT 31 OCTOBER 2009 Table 6

Billion SDR

Assets		**Liabilities**	
Quota	1.6	IMF claim	1.3
SDR holding	1.5	Counterpart of SDRs allocated by the IMF	1.5
NAB	0		
Bilateral loans	0		
PRGT	0		
Net claim on the IMF	0.3		

Note: Net claim on the IMF in the above Table deviates from the figure stated in Table 1 due to rounding.

MANAGEMENT OF FOREIGN-EXCHANGE RISK ON DRAWING OF SDR 1 BILLION VIA THE QUOTA Box 3

If the IMF draws foreign exchange via the quota, this will affect the foreign-exchange exposure in the foreign-exchange reserve. The example below illustrates how the exposure is affected by a drawing of 1 billion SDR in euro, and how Danmarks Nationalbank deals with the change in exposure. In the example it is assumed that the foreign-exchange reserve amounts to 50 billion euro.

The drawing of 1 billion SDR will reduce Danmarks Nationalbank's foreign-exchange holding by 1.1 billion euro, as payment to the IMF is made in euro, cf. Table 7. However, the drawing will be offset by an increase in the reserve tranche position of 1 billion SDR. As 1 billion SDR corresponds to 0.4 billion euro, 0.6 billion dollars, 0.1 billion pounds sterling and 18.4 billion yen, Danmarks Nationalbank will be similarly exposed to those four currencies.

The dollar, pound and yen exposure can be converted to euro by selling the 0.6 billion dollars, 0.1 billion pounds and 18.4 billion yen against euro on forward contracts. In this way the same foreign-exchange exposure as before the IMF drawing can be achieved.

MANAGEMENT OF FOREIGN-EXCHANGE RISK BY DRAWING OF SDR 1 BILLION VIA THE QUOTA Table 7

Billion currency	Euro	Dollars	Pounds	Yen
Foreign-exchange reserve (before IMF drawing)	50.0	0.0	0.0	0.0
IMF drawing via the quota	*-1.1*	*0.0*	*0.0*	*0.0*
Reserve tranche position	*0.4*	*0.6*	*0.1*	*18.4*
Foreign-exchange reserve (after IMF drawing)	49.3	0.6	0.1	18.4
Forward transactions	*0.7*	*-0.6*	*-0.1*	*-18.4*
Foreign-exchange reserve (after forward transactions)	50.0	0.0	0.0	0.0

Note: The SDR is a basket of the euro, the dollar, the pound and the yen, cf. Box 2. 1 billion SDR corresponds to 0.4 billion euro, 0.6 billion dollars, 0.1 billion pounds sterling and 18.4 billion yen. Danmarks Nationalbank's official exchange rates at 30 October 2009 were used for conversion between the currencies.

Interest payments are tied to the SDR interest rate, which is determined weekly as a weighted average of representative 3-month money-market interest rates in the four component currencies, cf. Box 2. The net claim is thus tied to a floating interest rate and does not entail any interest-rate risk.

Danmarks Nationalbank typically finances drawings by terminating short-term money-market holdings. Similarly, currency repaid by the IMF is placed in short-term money-market holdings. As such holdings do not entail any significant interest-rate risk, Danmarks Nationalbank's interest-rate risk remains largely unchanged in the event of IMF drawings.

Credit risk

The credit exposure to the IMF is calculated as the Fund's maximum drawing right on Danmarks Nationalbank.

When calculating the credit exposure, a distinction must be made between General Department, SDR Department and PRGT exposure, respectively. The three units are economically independent, and funds in one unit cannot be used to cover liabilities in another.

Danmarks Nationalbank's contribution to the IMF's ordinary lending accounts for its exposure to the General Department, which amounts to 3.8 billion SDR, cf. Table 8.

The exposure to the SDR Department is calculated as twice Denmark's SDR allocation, as Danmarks Nationalbank is under an obligation to buy up to twice the allocated amount of SDRs. This exposure is 3.1 billion SDR.

In principle, the PRGT exposure is made up of Danmarks Nationalbank's loan commitment to the PRGT. The loan commitment is currently zero, but it is expected to increase to 200 million SDR. As the loan commitment will be guaranteed by the Danish government, Danmarks Nationalbank's credit exposure to the PRGT will be zero, however.

DANMARKS NATIONALBANK'S CREDIT EXPOSURE AT 30 NOVEMBER 2009 Table 8

	Billion SDR	Kr. billion
General Department		
Quota	1.6	13.1
NAB	0.4	2.9
Bilateral loans	1.8	14.5
SDR Department		
Obligation to buy SDRs	3.1	24.4
Poverty Reduction and Growth Trust, PRGT	-	-
Credit exposure in total	6.9	54.9

Danmarks Nationalbank has a considerable credit exposure to the IMF. The IMF's credit standing is very high, however, and the credit risk is therefore assessed to be very low. The IMF has considerable reserves to cover any losses on loans. No country has ever experienced credit losses on the IMF. Overall, Danmarks Nationalbank's credit risk is therefore assessed to be very low.

As described above, one of Danmarks Nationalbank's tasks is to provide loans to the IMF. It is important to emphasise that Danmarks Nationalbank has no credit exposure to the member countries to which the IMF provides loans. Any losses on loans are covered by the IMF's reserves, and Danmarks Nationalbank risks incurring losses only if the reserves are inadequate.

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SEPA Direct Debit – a New European Payment Instrument

Anders Mølgaard Pedersen, Payment Systems

INTRODUCTION

On 2 November 2009, banks in Europe introduced a new instrument for payments in euro, called SEPA Direct Debit. This is comparable to Betalingsservice in Denmark and enables pre-authorised direct debit of a payer's bank account. It is particularly well suited for the payment of recurring invoices, such as rent and mortgage, telephone, electricity and heating bills and newspaper subscriptions, etc.

SEPA Direct Debit is the banks' latest initiative to dismantle country-specific infrastructures for the handling of retail payments in euro. Studies have shown that this will generate large cost savings for the economy as a whole. However, although work has been underway for several years, there is still some way to go for the project to succeed.

In the preparatory stages of SEPA Direct Debit, uncertainty surrounded its launch, mainly related to the acceptable fee structure. This issue was not resolved until the spring of 2009 with a joint statement by the European Commission and the European Central Bank. The European Council and the European Parliament subsequently adopted a Regulation which will require banks to introduce SEPA Direct Debit.

Danish banks also offer SEPA Direct Debit to their customers. To this end, Danmarks Nationalbank participates in a pan-European payment system for the new instrument, called STEP2, on behalf of the banks. All banks in Denmark are invited to participate in this arrangement which, as planned, went into operation on the same date as the European launch of SEPA Direct Debit.

STATUS OF SEPA

SEPA – the Single Euro Payments Area – crystallises the vision of a single euro retail payments area. In SEPA, the cross-border payments of citizens and business enterprises are to be effected on the same terms and as efficiently as national payments. SEPA currently comprises 32 countries:

the 27 EU member states, Switzerland, Norway, Iceland, Liechtenstein and Monaco.[1]

The SEPA-related work of the European banks is coordinated by the European Payments Council, EPC, established in 2002. The EPC currently has 74 members in the form of banks and national and European banking associations. The Danish EPC members are the Danish Bankers Association, representing Danish banks, and Danske Bank. The EPC's supreme decision-making body is the Plenary, which meets on a quarterly basis.

The EPC's main focus has been on laying down rules for two new instruments for payments in euro: SEPA Direct Debit and a harmonised instrument for credit transfers, SEPA Credit Transfer, introduced in January 2008. The banks have also agreed on the main principles for card payments in SEPA, but, so far, have refrained from establishing a pan-European payment card.

Work is also in progress to develop these instruments for mobile phone payments and online purchases. Moreover, the EPC is represented in an expert group under the auspices of the Commission, which is to present a plan for the development of electronic invoicing in Europe based on the SEPA instruments.

The Payment Services Directive, adopted in 2007, is a cornerstone of SEPA. The Directive harmonises the EU member states' legislation on retail payments. Since the adoption of the Directive, the EU member states have striven to transpose it into national law before the deadline, which was set to 1 November 2009. In Denmark, the Directive has been transposed into the Danish Payment Services Act, adopted by the Folketing (Parliament) in the spring of 2009.

Financial impact

Retail payments involve substantial costs. According to studies conducted in European countries, for national payments alone these costs may amount to 0.5-1 per cent of the gross domestic product, GDP. To this should be added the costs of cross-border payments, which are typically significantly higher for each transaction. This is also the case in Europe, which previously did not have an infrastructure for these payments.

Realisation of SEPA will serve to reduce these costs. Savings are generated through simpler administration of payments by banks and customers but may, however, to some extent be offset by the extensive investment costs of the project. In addition, more intense competition among the banks – another consequence of SEPA – will reduce payment fees, though this is not a cost reduction for the economy as a whole.

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[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.

At the request of the Commission, Capgemini Consulting has prepared a report on the economic effects of SEPA, cf. Box 1. The report concludes that the impact depends on how fast national instruments are replaced by new SEPA instruments. The faster the migration, i.e. the shorter the period with "double costs" for two sets of instruments, the greater the economic benefits of SEPA.

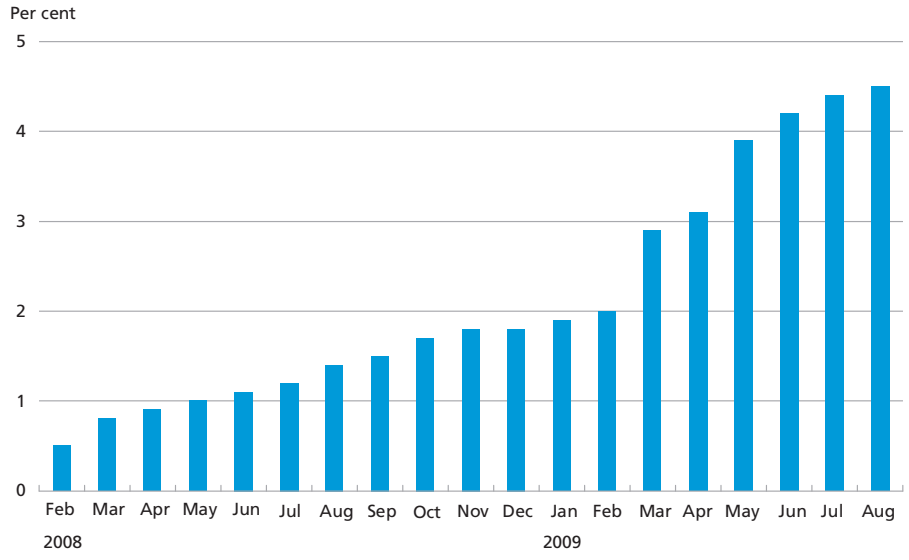
A regulated end date

The use of SEPA Credit Transfer has increased less than forecast e.g. in Capgemini's most positive projections. In August 2009, the instrument accounted for less than 5 per cent of all credit transfers in the euro area, cf. Chart 1. The reason is that domestic credit transfers are still mainly effected using national instruments, while SEPA Credit Transfer is used only for cross-border transfers.

2010 is expected to see a significant rise in the use of SEPA Credit Transfer, as several business enterprises have postponed the migration to this instrument until the introduction of SEPA Direct Debit. Moreover, the public authorities of a number of countries have announced that they are now ready to adopt the new SEPA instruments. In most European countries, public-sector payments account for a large proportion of total payments.

SEPA CREDIT TRANSFER – PERCENTAGE OF CREDIT TRANSFERS IN THE EURO AREA

Chart 1



Note: The Chart shows the percentage of euro credit transfers in the euro area carried out as a SEPA Credit Transfers.
Source: European Central Bank.

THE ECONOMIC IMPACT OF SEPA Box 1

In 2008, Capgemini published a report on the economic impact of SEPA.[1] The report, prepared at the request of the Commission, covered the euro area member states, the UK, Sweden and Poland and is today the most frequently quoted study of the quantitative effects of SEPA.

The report calculates the impact of SEPA for the operational costs and investment costs of banks and customers and on bank fees, i.e. the direct effects. The report, on the other hand, does not provide an estimate of indirect effects, e.g. the impact of the banks' interest expenses on deposits and costs associated with cash handling.

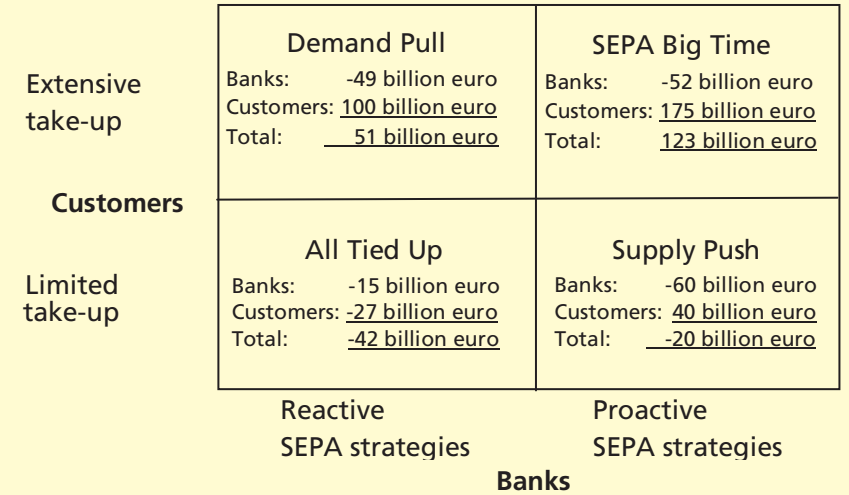
Capgemini assesses the impact of SEPA under four scenarios, cf. Chart 2. The scenarios differ from each other depending on whether the banks adopt proactive or reactive SEPA strategies and whether customer take-up is extensive or limited. Under each scenario, assumptions are made as to the development of fees, operational costs and investments.

For society as a whole, the best scenario is when the banks adopt proactive SEPA strategies and customer take-up is high, referred to as SEPA Big Time. Under this scenario, Capgemini calculates the total accumulated effect for the period 2006-12 at 123 billion euro.

The worst scenario is the opposite, referred to as All Tied Up. Under this scenario, customers' operational costs rise sharply because they have to handle two sets of instruments for a long period of time. Instead of a net benefit society as a whole incurs an estimated loss of 42 billion euro in total.

The report also illustrates a serious incentive problem in terms of SEPA, as the banks, which are to drive the project forward, will incur losses under all 4 scenarios. The All Tied Up scenario yields the smallest loss, however, reflecting that bank fees are reduced more under the other scenarios due to intensified competition.

ACCUMULATED EFFECTS UNDER 4 SCENARIOS, 2006-12 Chart 2



Source: Capgemini Consulting.

[1] Capgemini Consulting, SEPA: potential benefits at stake, January 2008.

Despite the expected rise in SEPA Credit Transfer and the launch of SEPA Direct Debit, it is being considered, at the European level, to establish a formal end date for national instruments. An end date will encourage banks and customers to adopt the new SEPA instruments more quickly – not only because an ultimate date is set for the discontinuation of national instruments, but also because it provides certainty about the migration.

A public consultation undertaken by the Commission in the summer of 2009 showed support for setting a regulated end date for the SEPA migration. More recently, the Ecofin Council has requested an analysis of the need for setting an end date and a proposal for a legal act. The Ecofin Council also envisaged a distinction between credit transfers and direct debit, as well as different end dates for euro area member states and other EU member states.

SEPA DIRECT DEBIT

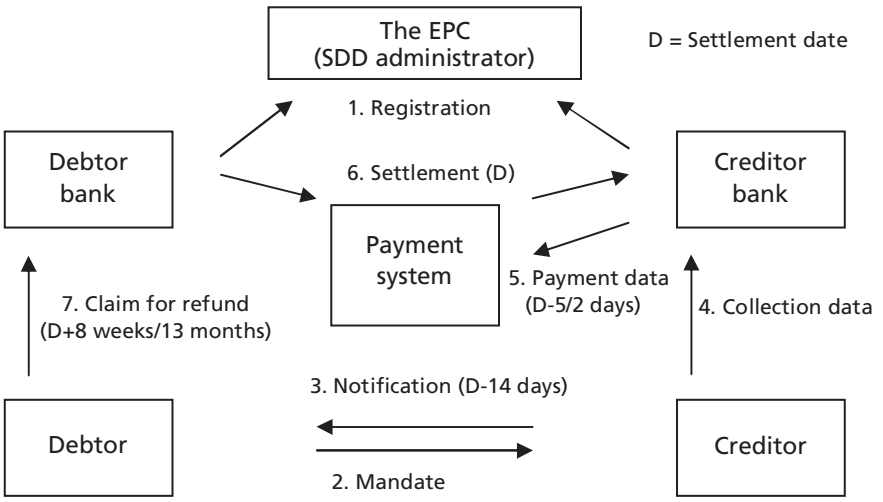
SEPA Direct Debit is the first instrument for handling cross-border direct debits in Europe. There are two versions of SEPA Direct Debit. In its pure form, known as SDD Core, the instrument caters mainly to consumers for the payment of invoices to business enterprises or public authorities. Subsequently, the payer of an invoice will be referred to as the debtor and the receiver of the payment, the payee, as the creditor.

Chart 3 shows the procedures for SDD Core. If a debtor wishes to pay a creditor via SDD Core, the banks of both parties must have adhered to the scheme. If both banks are scheme participants, the first step in the process is for the debtor to sign a mandate, which is forwarded to the creditor. The mandate authorises the creditor, through his bank, to debit the debtor’s account for the amount in question and, possibly, future payments.

Unless otherwise agreed, the creditor must notify the debtor of the payment, referred to as notification, before the first transaction, at no less than two weeks' notice. The creditor's bank must also send the transaction to an appropriate payment system or directly to the debtor's bank within 5 days of the settlement date. The time limit for recurring payments is 2 days before the settlement date.

When a payment has been effected, an unconditional "no-questions-asked" refund procedure is available to the debtor within 8 weeks of the debit date. If, in the meantime, the creditor has become insolvent, this obligation rests with the creditor's bank. For unauthorised transactions (i.e. if a payment has been debited without a signed mandate), refunds may be claimed by the debtor within 13 months of the debit date.

PROCEDURES FOR SEPA DIRECT DEBIT CORE Chart 3



Note: The SDD Core procedures can be divided into the following steps: 1. The debtor and creditor banks must be registered as SDD Core participants with the EPC. 2. The debtor signs a mandate, which is forwarded to the creditor. 3. Unless otherwise agreed, the creditor notifies the debtor of the collection within 14 days of the first payment. 4. The creditor sends collection data to his bank on an ongoing basis. 5. The creditor bank sends payment data to a payment system within 5 days (2 days for recurring payments) of the settlement date. 6. The payment is settled. 7. A refund period is available to the debtor within 8 weeks (13 months for unauthorised transactions) of the debit date.
Source: EPC.

The EPC has also developed a version of the instrument for payments between business enterprises, known as SDD B2B (Business-to-Business). This version deviates from SDD Core in that a refund procedure is not available to the debtor for authorised transactions. The debtor can then make demands as to his bank's checking of payments against mandate instructions. Moreover, time limits are generally shorter than for SDD Core.

In Denmark, SDD Core is most similar to Betalingsservice, while SDD B2B is similar to Leverandørservice. Both Danish instruments have existed for a number of years and are managed by PBS. There are differences, however, between the SEPA Direct Debit instruments and Betalingsservice and Leverandørservice. The most significant deviations between SDD Core and Betalingsservice are described in Box 2.

Launch of the instrument

In the preparatory stages of SEPA Direct Debit, uncertainty surrounded the launch for some time. Part of it was related to public authorities' acceptable fee structure, a key factor in bank earnings. Clarity on this was achieved with a joint statement delivered by the Commission and the European Central Bank. The issue of SEPA Direct Debit fees is described in detail below.

BETALINGSSERVICE (DANISH DIRECT DEBIT PRODUCT) Box 2

Betalingsservice is the Danish direct debit instrument for the collection of consumer payments. This instrument, which is managed by PBS and settled via the Sumclearing, was launched in 1974. Since then the functions supporting Betalingsservice, e.g. the information which can be included in a collection, have been extended significantly, but the instrument basically remains the same.

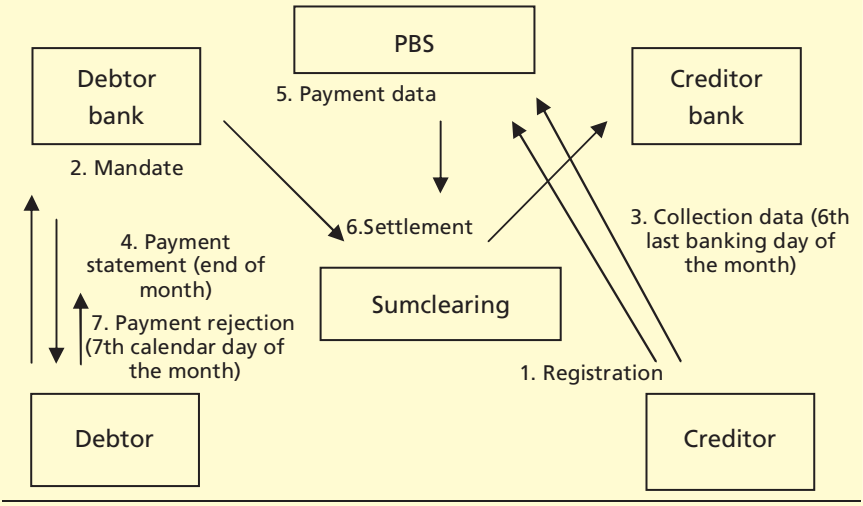
SEPA Direct Debit Core and Betalingsservice differ in several respects. Firstly, the creditor's possible counterparty is not the same. In Betalingsservice, the creditor enters into an agreement with PBS, cf. Chart 4. In SEPA Direct Debit, the creditor may enter into an agreement with any bank in SEPA offering the instrument. However, as far as the joint Danish solution for SEPA Direct Debit is concerned, cf. below, the creditor's counterparty is PBS.

Secondly, the procedures for processing the debtor's payment authorisation differ. Under SEPA Direct Debit, the debtor, as already mentioned, forwards the mandate to the creditor. Under Betalingsservice, the debtor concludes a mandate by authorising his bank to make transfers to the creditor's account, i.e. the authorisation is, in principle, stored by the debtor's bank.

Thirdly, a regular monthly procedure applies to Betalingsservice, starting with the creditor's submission of collection data to PBS on the 6th last banking day, at the latest, of any month. Before the expiry of the month in question, PBS sends payment statements to debtors. The debtor may cancel a mandate within 2 banking days of the payment date and reject individual payments until the 7th calendar day of the month.

SEPA Direct Debit does not follow a similar monthly cycle. Creditors may send collections to their banks on an ongoing basis and the creditor's bank forwards the collections to the debtor's bank. When a payment has been effected, a refund procedure is available to the debtor for at least 8 weeks. The long period reflects that the creditor stores the mandate and that, generally, the debtor's bank does not check the collection against the mandate instructions.

BETALINGSSERVICE PROCEDURES Chart 4



Source: PBS.

Customer interest in the new instrument was also questioned and there was doubt as to the EU member states' implementation of the Payment Services Directive, including whether implementation was feasible within the deadline. All EU member states managed to meet the deadline, with just a few exceptions. The member states missing the deadline have announced that the Directive will be implemented in early 2010.

In practice, the uncertainty was resolved following an EPC Plenary meeting in March 2009 when the European banks confirmed their intention to introduce SEPA Direct Debit on 2 November this year as originally planned. The roll-out will be gradual, however, as some national banking associations have declared that they will not be ready from that date. For example, French banks have announced that they will not start offering SEPA Direct Debit until 1 November 2010.

Policymakers have shown strong interest in supporting the availability of SEPA Direct Debit. In a revision of the EU Regulation on cross-border payments in euro, an article was added which de facto requires banks in the euro area that currently offer direct debit to offer SEPA Direct Debit from 1 November 2010. The revised Regulation was adopted by the Council and the European Parliament in the spring of 2009.

SEPA Direct Debit was launched on the announced date with the participation of approximately 2,600 banks. This figure is likely to increase, given that more than 4,400 banks currently offer SEPA Credit Transfer. Initially, the use of SEPA Direct Debit will be relatively modest. Moreover, without a regulated end date for national payment instruments, the migration to the new instrument is expected to take several years.

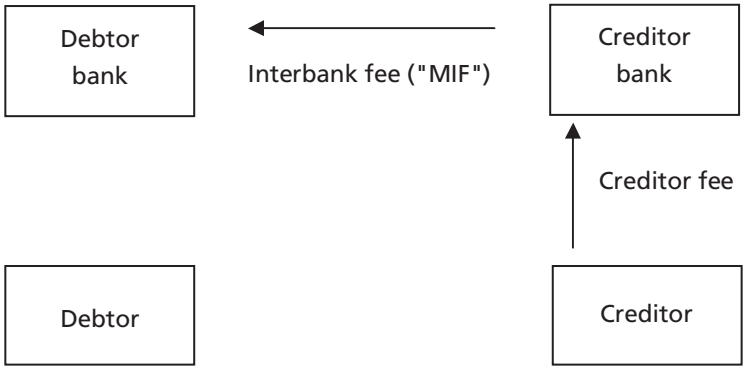
THE FEE STRUCTURE

During the preparatory phase for SEPA Direct Debit the fee structure was a key issue which, at some point, called into question whether the instrument would be introduced. On the one hand, the authorities acknowledged that, in order to offer SEPA Direct Debit, the banks needed to attain satisfactory earnings. On the other, they were concerned that the new instrument could lead to higher fees for creditors and debtors.

The authorities' weighing of concerns can be understood from Chart 5, showing the fees of a typical direct debit system. In most of these systems in Europe, the creditor's bank pays a fee per transaction to the debtor's bank, known as an interbank fee. The creditor's bank charges a similar – or possibly a higher – fee to the creditor, referred to as a creditor fee in the Chart.

The interbank fee is usually determined multilaterally, i.e. collectively, by the participating banks. This is known as a Multilateral Interchange

FEES IN A TYPICAL DIRECT DEBIT SYSTEM Chart 5



Note: If the interbank fee is determined jointly by the banks, it is referred to as a Multilateral Interchange Fee, MIF.

Fee, MIF. In many countries, such fees are regulated by the competition authorities, because, de facto, the banks jointly agree on a minimum creditor fee, as creditor banks are usually not willing to accept a fee lower than the agreed MIF.

SEPA Direct Debit fees

In relation to SEPA Direct Debit, the European banks in 2007 agreed on a MIF of 9.3 euro cents per transaction, based on calculations of the banks' costs. The banks subsequently negotiated with the Commission on the size of this fee. Fundamentally, the Commission believed that the agreed MIF was in conflict with EU competition rules and required documentation for its justification.

After lengthy discussions with banks, the Commission, in a joint statement with the European Central Bank, announced that it would accept a MIF for national SEPA Direct Debit transactions in a transitional phase.[1] However, this applies only to countries that already have a MIF in their national direct debit system, the objective being to ensure that also banks in these countries will offer the new instrument. Furthermore, the SEPA Direct Debit fee must not exceed the existing MIF.

Moreover, the Commission established that, also during a transitional period, it will accept a MIF for cross-border SEPA Direct Debit transactions. However, after the expiry of the transitional period, the Commission will no longer tolerate any MIF, neither for national nor cross-border SEPA Direct Debit transactions, and the banks must consider other fee structures.

[1] See the European Commission and the European Central Bank, Joint statement by the European Commission and the European Central Bank clarifying certain principles underlying the SEPA direct debit (SDD) business model, 24 March 2009.

The statement from the Commission and the ECB has subsequently been confirmed by the revised Regulation on cross-border payments in euro. The Regulation also establishes that the transitional period will expire on 1 November 2012 and forbids, after this date, MIFs in direct debit systems in the EU. Moreover, the Regulation provides that until this date, the MIF charged for cross-border SEPA Direct Debit transactions must not exceed 8.8 euro cents.

THE ROLE OF DANMARKS NATIONALBANK

At the request of the associations of local and regional banks in Denmark, Danmarks Nationalbank has decided to assist the Danish banks in the settlement of SEPA Direct Debit transactions. In practice, Danmarks Nationalbank, on behalf of the banks, acts as a direct participant in the Euro Banking Association's clearing system for retail payments, STEP2. Danmarks Nationalbank also undertakes the overall cash settlement for the participants in TARGET2.

A similar arrangement exists in other European countries. Danmarks Nationalbank's decision to accept the banks' request is based on a wish to assist in the development of SEPA and more efficient retail payments in Europe. Furthermore, by undertaking this task Danmarks Nationalbank supports the joint infrastructure for retail payments in Denmark, which, in the opinion of Danmarks Nationalbank, entails several advantages.

Danmarks Nationalbank has listed a number of general conditions that are to be met. Firstly, Danmarks Nationalbank must not incur any risk through participation in the arrangement. Secondly, all costs must be borne by the participating banks. In addition, all Danish banks must have access to participate on the same terms.

The systems solution has been developed in cooperation with PBS, which also performs a number of operational functions. For instance, PBS has the task of forwarding retail transactions between the banks and STEP2 and of notifying the banks of their total net positions in the settlement cycle. Box 3 outlines the Danish clearing and settlement solution for SEPA Direct Debit.

The joint Danish SEPA Direct Debit solution was implemented on 2 November this year, i.e. on the date of the official launch of the new instrument in Europe. So far, 94 banks have joined the arrangement. Initially, few Danish SEPA Direct Debit payments are expected. In the longer term, the number of payments may increase. This could be the case if e.g. regular domestic collections euro mortgage payments are included.

THE DANISH CLEARING AND SETTLEMENT SOLUTION FOR SEPA DIRECT DEBIT — Box 3

Participants

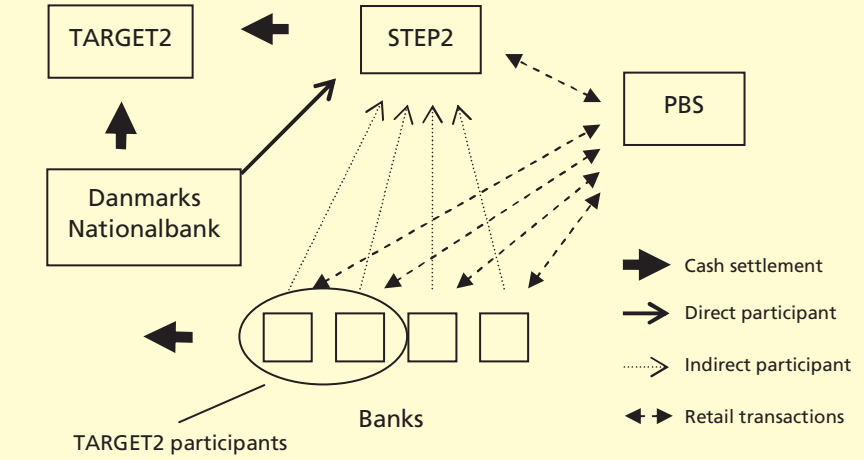
Chart 6 shows the participants of the joint Danish clearing and settlement solution for SEPA Direct Debit. As already mentioned, Danmarks Nationalbank has accepted to act as a direct participant in the STEP2 clearing system on behalf of the scheme participating banks. The banks are registered as indirect STEP2 participants.

Danmarks Nationalbank also undertakes the overall cash settlement on behalf of the participants. This settlement is effected in TARGET2, the European central banks' payment system for large, time-critical euro payments in which Danmarks Nationalbank's account is debited or credited with the Danish participants' net position at a fixed time every day.

The banks need to reserve liquidity for settlement in advance. To that end, banks participating directly in TARGET2 transfer amounts to special SEPA accounts from which the reserved liquidity is transferred to Danmarks Nationalbank's account on the TARGET2 platform.

In addition, PBS performs a number of important operational functions. For example, PBS has the task of forwarding retail transactions between the banks and STEP2 and of notifying participants of their total net positions in the settlement cycle. PBS also enters into agreements with creditors on registration for the system (similar to the Betalingsservice procedures).

PARTICIPANTS IN THE JOINT DANISH INFRASTRUCTURE FOR SEPA DIRECT DEBIT — Chart 6



Daily settlement procedure

At the start of a normal settlement day, PBS, based on STEP2 information, issues a preliminary statement of the banks' net positions for settlement on the day in question. Deviations may occur relative to the final net position as a result of e.g. reversal of earlier payments received subsequently for settlement on the same day.

The banks then reserve liquidity for the settlement of payments. Subject to agreement, the banks must transfer an amount larger than their calculated net position. The difference, referred to as excess cover, is to ensure that sufficient liquidity has been reserved to cover any reversed payments.

CONTINUED Box 3

Subsequently it is checked whether each bank has reserved sufficient liquidity. If this is not the case, the bank is given another opportunity to transfer the deficit. If this is not done within the deadline, the bank's payments may be excluded from the settlement – with the exception of reversed payments, which can not be cancelled.

Information is then received from STEP2 on the direct participant's, i.e. Danmarks Nationalbank's, final net position on behalf of the banks. In theory, a large number of reversals could mean that there are insufficient funds reserved for settlement. In that case, an agreement has been made with two banks on the provision of supplementary liquidity.

The banks reserve liquidity, as described above, in the morning, while the settlement in TARGET2 accounts takes place between 11:45 am and 1:15 pm. Settlement is separate for the two SEPA instruments, SDD Core and SDD B2B.

After the settlement, excess liquidity resulting from the excess cover and liquidity received must be distributed to the relevant banks. To that end, the total amount is transferred from Danmarks Nationalbank's TARGET2 account to the SEPA accounts and subsequently the amounts in these accounts are transferred to the participants' TARGET2 accounts.

A New European Supervisory Architecture

Birgitte Bundgaard Madsen and Louise Caroline Mogensen, Financial Markets

In the wake of the financial crisis, the EU is working on a number of initiatives to strengthen the European regulatory and supervisory effort in respect of financial institutions and markets.

On 23 September 2009, the European Commission presented a proposal for a new European supervisory architecture to strengthen the supervision of the financial sector in Europe with the objective of supporting financial stability in the EU as a whole.

The proposal is based on recommendations in the Larosière Report, which was published on 25 February 2009 by a group of high level experts[1] established by the Commission at the end of 2008, chaired by Jacques de Larosière. The group presented 31 recommendations for strengthening the European system for supervision, financial stability, early risk warning and crisis management. The Commission followed up the report with a communication of 27 May 2009, which met with support at the Ecofin meeting on 6 June 2009 and the European Council on 18-19 June 2009.

The proposals have not yet been adopted, but are envisaged to be adopted before the end of 2009 by the European Council and subsequently by the European Parliament.[2]

PROPOSAL FOR A NEW EUROPEAN SUPERVISORY ARCHITECTURE

The proposal for a new European supervisory architecture aims to improve both macro-prudential and micro-prudential supervision by establishing two new institutions:

- **The European Systemic Risk Board, ESRB,** is to monitor and assess risks to the financial system as a whole (macro-prudential supervision). The ESRB is to provide a system for early warning of system-wide risks and, where necessary, issue recommendations for action to deal with these risks. The ESRB is to be established under the auspices of the European

1 The High-Level Group on Financial Supervision in the EU.
2 The Ecofin meeting on 2 December 2009 agreed on a compromise, which will subsequently be tabled for adoption by the European Council and the European Parliament.

Central Bank, ECB, with the participation of EU central banks and supervisory authorities, among others.

- **The European System of Financial Supervisors, ESFS,** is to undertake supervision of credit institutions (micro-prudential supervision). It is to consist of a network of national financial supervisors working in tandem with new European Supervisory Authorities, ESAs, created by transforming the existing supervisory committees[1] in the areas of banking, insurance and securities markets into the European Banking Authority, EBA, the European Securities and Markets Authority, ESMA, and the European Insurance and Occupational Pensions Authority, EIOPA.

The links between the ESRB and ESFS are illustrated in Box 1.

The Commission's proposal will be tabled for adoption at the European Council in December 2009 and subsequently by the European Parliament for entry into force in 2010.

THE EUROPEAN SYSTEMIC RISK BOARD, ESRB

The proposal consists of two draft legal acts, i.e. a Council Regulation establishing the ESRB and a Council Decision instructing the ECB to provide secretarial services to the ESRB within the ECB's own budget.

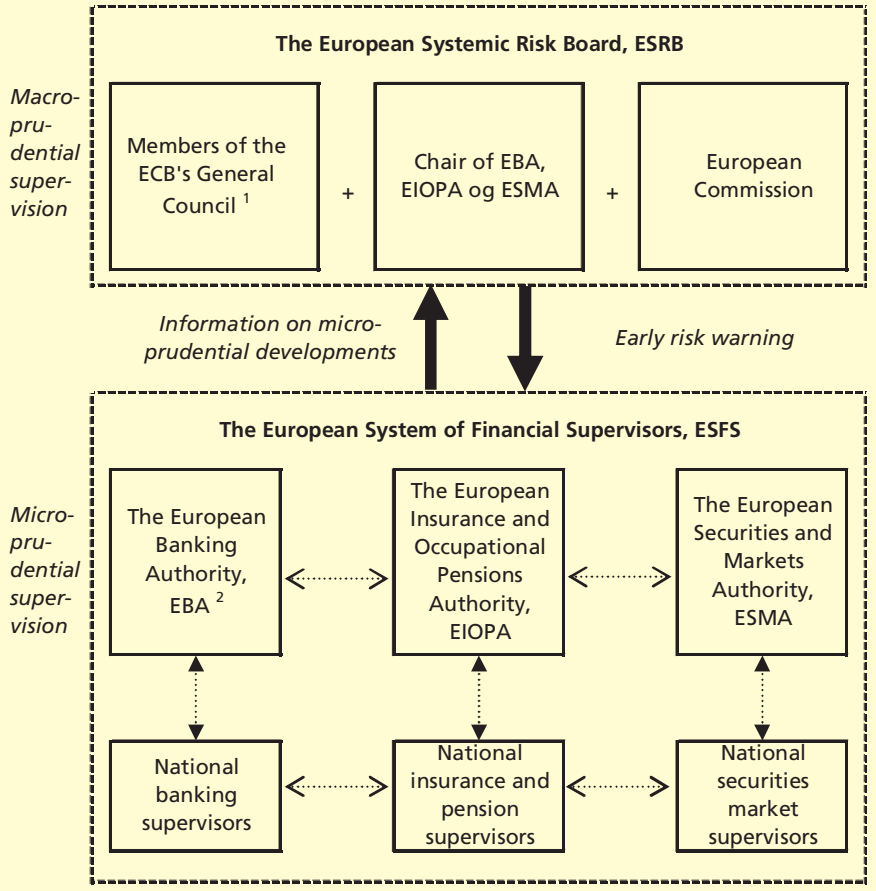
Objective and tasks

The ESRB is to be responsible for macro-prudential supervision of the financial system in the EU. Its objective will be to prevent and mitigate systemic risks, avoid financial turmoil and contribute to the smooth functioning of the internal market.

Bearing the objective in mind, the ESRB's task is to collect and analyse all relevant information and issue warnings if substantial risks are identified. In addition, the ESRB may make recommendations to remedy these risks. Warnings and recommendations may be issued to the EU, one or more member states, one or more of the new European Supervisory Authorities (EBA, ESMA and EIOPA), or one or more national supervisors. Recommendations must contain a schedule for follow-up and must be based on the "comply-or-explain" principle, i.e. the addressee is expected to comply with the recommendation in full or else properly explain the deviation. If the ESRB finds that the addressee fails to comply with the recommendations, the ESRB must call attention to this and inform the Ecofin Council and possibly the relevant ESA accordingly. Warnings and

[1] Committee of European Banking Supervisors, CEBS, Committee of European Insurance and Occupational Pensions Supervisors, CEIOPS, and Committee of European Securities Regulators, CESR.

PROPOSAL FOR A NEW EUROPEAN SUPERVISORY ARCHITECTURE Box 1



Source: The High-Level Group on Financial Supervision in the EU, chaired by Jacques de Larosière, February 2009. The Chart has been updated to include changes after the Ecofin meeting on 20 October 2009.

[1] One representative of each national supervisory authority and the President of the Economic and Financial Committee, EFC, will participate as observers on the ESRB's General Board.

[2] Central banks with no supervisory responsibilities participate as observers in the EBA.

recommendations may be published, subject to decision by a qualified majority of two thirds of the ESRB's General Board and consultation of the Ecofin Council.

In order to avoid double reporting of data, the ESRB will, where possible, make use of statistics already compiled through the European System of Central Banks, ESCB, or the European System of Statistics, ESS. Moreover, the ESRB may, where necessary, request data from the European Supervisory Authorities, EBA, ESMA and EIOPA. A detailed request must be submitted for data in non-summary form. Finally, the ESRB may

use information from national authorities (supervisors, central banks and statistical agencies).

The ESRB is expected to work closely with the new European Supervisory Authorities as well as other international institutions responsible for macro-financial stability, including the International Monetary Fund, IMF, and the Financial Stability Board, FSB.

Organisation

The organisation of the ESRB is to comprise a General Board, a Steering Committee, a Secretariat and an Advisory Technical Committee. The proposal envisages that the Chairperson of the ESRB is elected for a 5-year term from among the members of the General Council of the ECB. The Chairperson may be re-elected once.

The ESRB's General Board meets at least four times a year. The members with voting rights are:

- The President of the ECB (and the Vice-President of the ECB if the President is elected Chairperson of the ESRB)
- The governors of all EU central banks
- A member of the Commission
- The three Chairpersons of the EBA, ESMA and EIOPA, respectively.

The members without voting rights are:

- One high-level representative per member state of the national supervisory authorities
- The President of the Economic and Financial Committee, EFC.

According to the current proposal, the General Board of the ESRB has 61 members, of whom 33 have voting rights if the membership includes both the President and the Vice-President of the ECB. Decisions are made by simple majority, but a qualified majority of two thirds is required for decisions on recommendations or publication of warnings or recommendations.

The Steering Commitee of the ESRB comprises the Chairperson and Vice-Chairperson of the ESRB and five central-bank governors, three from euro area member states and two from non-euro area member states. Other members are a representative of the Commission, the President of the EFC and the three Chairpersons of the new European Supervisory Authorities. The Steering Committee, with 12 members in total, prepares the meetings of the ESRB General Board.

The Advisory Technical Committee's task is to provide advice and assistance on technical matters in relation to the ESRB's work. The Committee comprises one representative of each national central bank in the

EU, one representative of the ECB, one representative of each national supervisory authority, one representative of each of the three new European Supervisory Authorities, two representatives of the Commission and one representative of the EFC.

The ECB provides secretarial assistance to the ESRB, including analytical, statistical, administrative and logistics assistance.

THE EUROPEAN SYSTEM OF FINANCIAL SUPERVISORS, ESFS

Network of supervisors

The proposal comprises three Regulations establishing the ESFS, which will be a network of national supervisors working in tandem with three European Supervisory Authorities, ESAs, i.e. the European Banking Authority, EBA, the European Securities Market Authority, ESMA, and the European Insurance and Occupational Pensions Authority, EIOPA.

In addition, the network comprises the Joint Committee of European Supervisory Authorities, which deals with matters concerning conglomerates.

The national supervisory authorities will still be responsible for direct supervision of financial institutions. In most member states, the supervisory authority is part of the central bank, but this is not always the case, cf. Box 2. Several member states operate with a split system where the central bank undertakes part of the supervisory work. Supervision of groups is the responsibility of the national supervisory authorities in cooperation with other relevant national supervisory authorities in colleges of supervisors.

Establishment of European Supervisory Authorities, ESAs

The ESAs will be established under Article 14 of the Treaty (after Lisbon) as Community bodies with legal personality to contribute to the implementation of the internal market in collaboration with the Commission. The ESAs must be operationally independent of the Commission, but the Commission will participate in the network as regards regulation and implementation of Community law.

The objectives of the three ESAs shall be:

- To improve the functioning of the internal market, including in particular a high, effective and consistent level of financial regulation and supervision
- To protect depositors, investors, policyholders and other beneficiaries
- To ensure the integrity, efficiency and orderly functioning of financial markets
- To safeguard the stability of the financial system
- To strengthen international supervisory coordination.

DIVISION OF RESPONSIBILITIES BETWEEN SUPERVISORY AUTHORITIES AND CENTRAL BANKS — Box 2

The forthcoming European System of Financial Supervisors, EFSF, will be a network of national supervisors and the three European Supervisory Authorities, ESAs. The division of responsibilities between supervisors and central banks varies across the member states.

The EU member states operate with three main models for cooperation between the central bank and the supervisory authority:

1. The central bank is the supervisor or one of the supervisors
2. The central bank has limited supervisory responsibilities
3. The central bank is not involved in financial supervision.

In the first group, the central bank undertakes operational supervision. In several cases, the central bank is responsible for supervision of the banking sector only, while a separate authority is responsible for supervision of the insurance and securities sectors.

In the second group, the central bank has some supervisory tasks or is indirectly involved in supervision to a limited extent. In these cases, the supervisory authority may be an independent entity which is part of the central bank in organisational and administrative terms. Or the central bank and the supervisory authority may be two separate institutions, and the central bank is involved in the management of the supervisory authority or performs some supervisory tasks.

In the third group, the supervisory responsibilities lie with an authority independent of the central bank.

Table 1 groups the member states.

EU MEMBER STATES DIVIDED INTO THE THREE GROUPS — Table 1

Group 1	Group 2	Group 3
Belgium[1]	Austria	Denmark
Bulgaria	Estonia	Hungary
Cyprus	Finland	Latvia
Czech Republic	France	Malta
Germany[2]	Luxembourg	Poland
Greece		Sweden
Ireland[3]		UK
Italy		
Lithuania		
Netherlands		
Portugal		
Romania		
Slovakia		
Slovenia		
Spain		

Source: ECB and national authority websites.

[1] Belgium is placed in group 1, which was announced in a press release of 13 October 2009, but the changes have not yet entered into force.

[2] Germany is placed in group 1, based on the new Coalition Agreement of October 2009.

[3] Ireland is placed in group 1, based on a press release of 19 October 2009, but the changes have not yet entered into force.

The financial crisis has increased the focus on financial stability and the division of responsibilities between the central bank and the supervisory authority. Some member states have changed their system accordingly, extending the responsibilities of the central bank.

CONTINUED Box 2

In October 2009, *Belgium* announced that in future its central bank would be responsible for the supervision of financial institutions, while the supervisory authority would be responsible for supervision of the securities markets (market supervision) with increased powers as regards consumer protection. The first step will be to establish a "Systemic Risk Committee", with representatives of both institutions, to ensure a smooth transition.

In *Finland*, the supervision of all financial institutions came together in the Finnish financial supervisory authority with effect from 1 January 2009, when the supervision of insurance and pension companies was transferred to the existing financial supervisory authority. In terms of organisation, the supervisory authority is associated with the central bank, but in operational terms it is an independent entity.

In *Ireland*, the Minister of Finance announced in early 2009 that the government intended to establish a fully integrated supervisory authority under the central bank. The head of the new authority was appointed in October 2009 with effect from January 2010. Currently, the central bank and financial supervisory authority are organised under the same name, although the supervisory authority is an independent entity.

In October 2009, the new *German* government announced that supervision of the banking sector would in future be merged into the central bank.

Since October 2008, the central bank of *Luxembourg* has been responsible for monitoring the general liquidity situation in the markets and for evaluating the market players accordingly.

In 2008, *Austria* reformed its supervisory system, one of the main objectives being to specify the responsibilities of the central bank and the supervisory authority. The central bank and the supervisory authority have access to the same information. Under the new, dual structure, the central bank is responsible for inspections, collection of information and risk assessment, while the supervisory authority is responsible for administrative procedures and has decision-making power in supervisory matters.

During the crisis, it became clear that none of the existing national supervisory models were satisfactory. This is the background for the Commission's proposal for a new European supervisory architecture aimed at strengthening the financial supervision effort. The crisis has also prompted several member states to change the division of responsibilities between central banks and supervisory authorities, cf. above. Evidently, a number of the international initiatives in the wake of the crisis require closer cooperation between supervisory authorities and central banks, more extensive exchange of information and overlapping responsibilities in certain areas. For example, a larger role is envisaged for systemic supervision of the financial system at the macro-prudential level. The results of the macro-prudential supervision are to be embedded in the daily micro-prudential supervision. Likewise, results of the micro-prudential supervision are to form the basis for the macro-prudential supervision. This can help throw light on the spreading of risk from institution level to systemic level. Exchange of information in itself will require enhanced cooperation. In addition, enhanced cooperation, including coordination of initiatives, will also be appropriate because it reduces the burden on the institutions subject to supervision.

Tasks

The new ESAs will take on the tasks of the existing supervisory committees, CEBS, CEIOPS and CESR, but also develop draft technical standards, settle disagreements between national supervisory authorities, participate in colleges of supervisors to ensure consistent implementation of Community law, undertake coordination and decision-making in crisis situations and collect any relevant information about the financial markets.

Draft technical standards

The objective is to prepare a single EU rule book to ensure consistent implementation of EU rules. To this end all differences stemming from inconsistent implementation of EU rules must be identified and removed.

As previously, the ESAs will be able to adopt non-binding standards and prepare draft technical standards of a binding nature.

Under the envisaged adoption procedure for binding standards, the Board of Supervisors, cf. the section on organisation below, adopts the standards by a qualified majority under Article 16(4) of the Treaty. The standards must then be endorsed by the Commission as regulations or decisions within three months to have legal effect. The Commission may decide to endorse the standards in part, or with amendments, or not at all.

The regulatory Lamfalussy procedure[1] will remain in existence: at Level 1, the basic principles of policy-related legislation will still be laid down; at Level 2, measures for the implementation of Level 1 legislation are adopted (corresponding to executive orders in the Danish legislative process); and at Level 3 (the new ESAs), draft technical standards are adopted, including detailed rules, corresponding to binding guidelines in the Danish process.

As previously, the rules and standards adopted at Level 3 must be consistent with Level 1 and 2 rules and standards, be of a technical nature and have no policy-related content.

It will appear from the sectoral legislation which areas may be subject to Level 3 regulation. To be binding, existing standards and rules at Level 3 must be reviewed and adopted under the new procedure.

Power to ensure consistent application of Community legislation

The ESAs should also have a general power to contribute to coherent application of Community legislation. Each ESA should establish a mech-

[1] The Lamfalussy procedure was adopted in 2001 as a new procedure for adoption of financial regulation in the EU. It comprises three Levels.

anism to address behaviour by national supervisory authorities considered to be diverging from Community legislation. The ESAs will investigate such cases and may adopt a recommendation. If the individual supervisory authority fails to comply with the recommendation, the Commission may instruct the authority to comply. The case may subsequently be heard in the EU system under the usual procedure.

Action in emergency situations

The ESAs will play a coordinating role between national supervisory authorities, particularly if the EU financial system is jeopardised. In exceptional cases, the ESAs may impose specific tasks on the individual supervisory authorities. This decision is subject to a safeguard clause whereby the supervisory authority can waive the task if it entails a financial burden on the member state in question.

Settlement of disagreements

Each ESA should establish a mechanism to settle disagreements between national supervisory authorities and within colleges of supervisors. This mechanism should seek to reconcile the parties. If this fails, the ESA has decision-making power.

This mechanism must be used only in exceptional cases and in cases where a decision or the absence of a decision is of material importance to the possibilities of protecting depositors, investors, policyholders and other beneficiaries.

Direct supervision of pan-European financial institutions

It is proposed to introduce direct supervision of credit rating agencies. This task will be assigned to ESMA, the European Securities and Markets Authority. The recently adopted Regulation on credit rating agencies will thus have to be amended to include a provision on central authorisation by ESMA. On-site supervision will be undertaken by ESMA in collaboration with the national supervisory authorities.

Organisation

Each ESA will comprise a Board of Supervisors, a Management Board, a Chairperson and an Executive Director. Moreover, a single Board of Appeal will be established for all three ESAs.

The *Board of Supervisors* will comprise the heads of the relevant national supervisory authorities, the Chairperson of the respective ESA, one representative of the Commission, one representative of the ESRB and one representative of each of the other two ESAs. As regards the

EBA, central banks with no supervisory responsibilities will participate as observers. The Board of Supervisors will be the main decision-making body of each ESA.

Basically, all decisions are made by simple majority except decisions on draft technical standards and guidelines and other special decisions that require a qualified majority.

The *Board of Appeal* will be a joint body of all three ESAs, consisting of six members and six deputy members elected by the three ESAs. Anyone, including legal entities, will be able to appeal against ESA decisions concerning application of Community legislation, action in emergency situations and decisions settling disagreements between supervisory authorities, cf. above.

FINAL POINTS

The proposal for a new supervisory architecture makes great demands on the European Supervisory Authorities and the central banks. They will be responsible for monitoring risks to the individual financial institutions (micro-prudential supervision) and to the financial system (macro-prudential supervision).

The establishment of the ESRB will formalise the central banks' responsibility for macro-prudential oversight of financial stability in the EU. It will also provide the central banks with a new tool, i.e. to issue warnings and recommendations.

The challenge for the central banks can be illustrated by a baseball player trying to hit the ball. He must be able to see the ball coming, he must have a bat, and he must have the courage to swing it at the right moment. Similarly, the central banks must be able to assess the outlook for financial instability; they must have the right instruments for intervention in order to lend operational effect to the assessments; and finally they must have the will to translate words into action.

As a new financial supervisory architecture, the ESFS will ensure coherent supervision of financial institutions operating in more than one EU member state. The idea behind the system is that the new European Supervisory Authorities are to monitor and coordinate the work of the national supervisors. The intention is for the ESAs to have the last word in the event of disagreement between national supervisors and to be able to instruct the national supervisors to act in crisis situations. Moreover, the efforts of the ESAs will be supported by common binding supervisory standards. Overall, this represents the first step towards "supervising the supervisors".

Central-Bank Measures and Balance Sheets during the Crisis

Niels Arne Dam and Lars Risbjerg, Economics

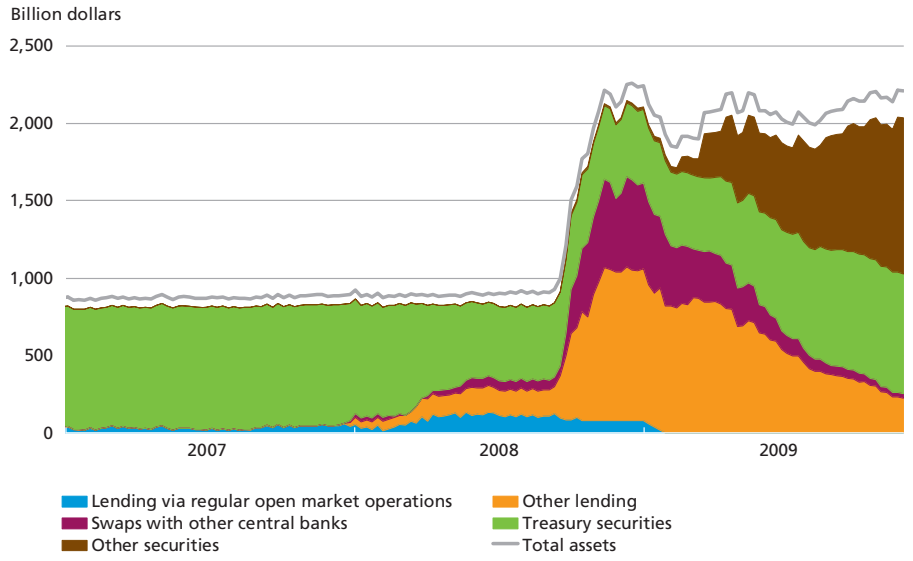
FROM LIQUIDITY CRISIS TO CREDIT CRISIS

The financial crisis has unfolded in stages. From the summer of 2007 until the summer of 2008, it was essentially a liquidity crisis in the banking sector. The banks still wanted to trade with each other, but were reluctant to exchange liquidity via the money market as overall demand for liquidity from the banks rose due to increased uncertainty and reduced risk appetite. In this period, central-bank measures focused on boosting confidence among the banks about the availability of liquidity. In addition, a dollar shortage arose not only in the USA, but also internationally. Against this background, swap lines were established under which the Federal Reserve offers dollar loans to other central banks, including the European Central Bank, ECB, that relend dollars to the banks.

The situation deteriorated gradually over the summer of 2008. Interbank confidence weakened as the problems in the financial sector became more and more evident. In mid-September 2008, the US investment bank Lehman Brothers filed for bankruptcy (Chapter 11). The situation then escalated from a liquidity crisis to a credit crisis in the banking system, with growing uncertainty about the banks' solvency and creditworthiness, bringing interbank transactions to a halt. The adverse effects of the financial crisis on the real economy quickly became evident.

Several central banks, including the ECB and the Federal Reserve, Fed, lowered their official interest rates to levels close to zero, which is the lower boundary for interest rates. At the same time, the credit crisis impeded the traditional monetary-policy transmission from short-term interest rates to the real economy. This prompted the central banks to influence the transmission mechanism more directly via new measures. The Fed's measures have to a large extent focused on improving credit conditions in selected key markets outside the banking sector through purchases of securities or special credit facilities targeted directly at borrowers or investors in these markets. These measures have led to significant changes in the Fed's balance sheet, cf. Chart 1. In contrast,

SELECTED ASSETS ON THE FEDERAL RESERVE'S BALANCE SHEET Chart 1



Note: Swaps with other central banks are the Federal Reserve's lending in dollars to other central banks under swap lines. Weekly observations.
Source: Federal Reserve.

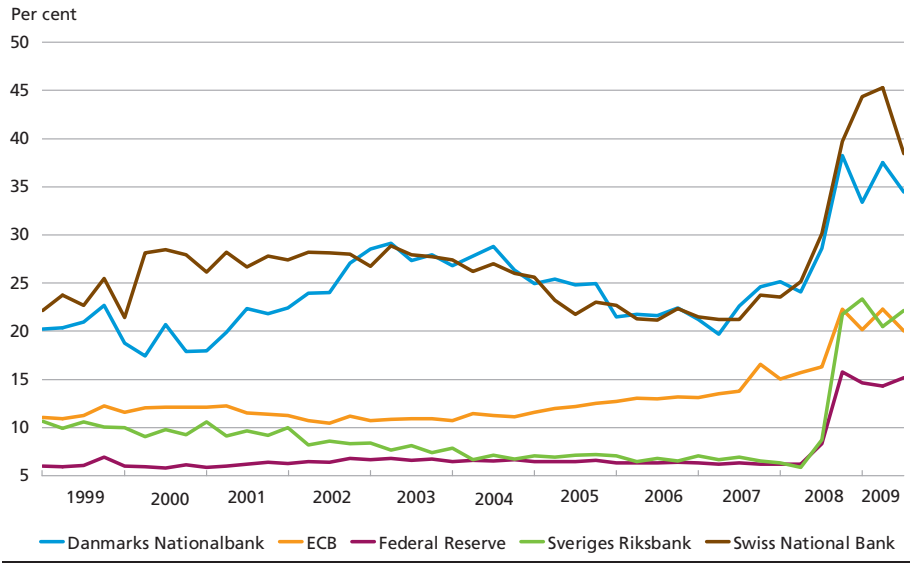
the ECB has primarily focused on extending the credit facilities offered to the banking system. This difference reflects that the financial system is predominantly bank-based in the euro area, while the US system relies more on the capital market.

As a result of the measures, foreign central banks have ventured into markets in which they normally do not operate. In a normal situation, the sole purpose of a central bank's open market operations is to ensure appropriate management of liquidity to support the level of short-term money-market interest rates that the central bank has signalled via its official interest rates. In this respect the central banks' measures during the crisis can be characterised as *unconventional*, cf. e.g. Smaghi (2009).

The balance-sheet effects of the central banks' measures are discussed in the following, with focus on the balance sheets of Danmarks Nationalbank and the ECB. The ECB's measures and liquidity conditions in the euro area are of great significance to monetary and foreign-exchange conditions in Denmark due to Denmark's fixed-exchange-rate policy.[1]

[1] Kjærgaard and Risbjerg (2008) compare the use of monetary-policy instruments by Danmarks Nationalbank and the ECB during the liquidity crisis until the beginning of 2008.

CENTRAL-BANK BALANCE SHEETS RELATIVE TO GDP Chart 2



Note: Total assets a ratio of GDP. Quarterly data. For Denmark, GDP in the 3rd quarter of 2009 is set as equal to GDP in the 2nd quarter of 2009.
Source: ECB, Reuters EcoWin and Danmarks Nationalbank.

CENTRAL-BANK BALANCE SHEETS DURING THE CRISIS

For several central banks, increased lending and purchases of securities have led to a considerable expansion of their balance sheets, cf. Chart 2.[1] Danmarks Nationalbank's balance sheet as a ratio of the gross domestic product, GDP, is higher than is the case for several other central banks. The fixed-exchange-rate policy thus implies a relatively larger foreign-exchange reserve than that of central banks not pursuing a fixed-exchange-rate policy. Another important factor could be Danmarks Nationalbank's role as banker to the central government, and the balance of the latter's account at Danmarks Nationalbank. In other countries, the central government may rely more on other banks besides the central bank. The percentage increase in Danmarks Nationalbank's balance sheet at the end of 2008, relative to the level before the turmoil started in the summer of 2007, is slightly stronger than the rise recorded for the ECB, but smaller than that posted by the Fed.

In a normal environment, Danmarks Nationalbank's balance sheet fluctuates more than that of the ECB, reflecting a relatively more pronounced effect of the autonomous factors in Denmark. As a result of the fixed-exchange-rate policy, the foreign-exchange reserve is affected by

[1] See e.g. BIS (2009), ECB (2009) and Cecchetti and Disyatat (2009) for descriptions of various central banks' measures and the effects on their balance sheets.

DANMARKS NATIONALBANK'S MONETARY-POLICY INSTRUMENTS AND BALANCE SHEET[1] Box 1

Danmarks Nationalbank conducts monetary policy via its monetary-policy instruments, i.e. the facilities used by Danmarks Nationalbank to manage and remunerate accounts (lending and deposits) with banks and mortgage-credit institutes – the monetary-policy counterparties. The monetary-policy counterparties have access to two facilities at Danmarks Nationalbank:

- Open market operations, in which the counterparties, on the last banking day of each week, have the option to borrow funds for 7 days against securities as collateral or deposit funds for 7 days by purchasing certificates of deposit.
- Current accounts, in which the counterparties can place liquidity on demand. The balance of a current account cannot be negative at the close of the day.

In the weekly open market operations, the monetary-policy counterparties normally manage their accounts with Danmarks Nationalbank so as to ensure that their total deposits in current accounts meet the banking sector's expected liquidity requirement in the subsequent week. If necessary, Danmarks Nationalbank conducts extraordinary open market operations, in which certificates of deposit are bought or sold, to offset liquidity fluctuations.

A ceiling (limit) has been set for the monetary-policy counterparties' total current-account deposits at the close of the day. The purpose of these limits is to prevent the build-up of large current-account deposits at Danmarks Nationalbank that may be used without notice for speculation in interest-rate and exchange-rate changes if the krone is under pressure. The counterparties may use the certificates of deposit to raise liquidity in connection with Danmarks Nationalbank's extraordinary open market operations.

The net position is the monetary-policy counterparties' total net account in kroner with Danmarks Nationalbank for monetary-policy purposes. It is defined as the counterparties' holdings of certificates of deposit and current-account deposits less monetary-policy loans. The monetary-policy counterparties' accounts with Danmarks Nationalbank are stated on Danmarks Nationalbank's balance sheet.

All other items on Danmarks Nationalbank's balance sheet – except for the items relating to the net position – are referred to as autonomous factors. The foreign-exchange reserve is the largest autonomous factor on the assets side. In addition, holdings of domestic securities constitute an investment asset for Danmarks Nationalbank. The liabilities side is dominated by banknotes and coins in circulation and the central government's deposits at Danmarks Nationalbank. In connection with the financial crisis, lending and deposits in foreign exchange under swap lines with the ECB and the Federal Reserve have been added on the assets and liabilities sides. Moreover, fluctuations in other lending to banks and mortgage-credit institutes have been stronger than usual, reflecting Danmarks Nationalbank's temporary liquidity support to individual institutions.

By definition, the autonomous factors on Danmarks Nationalbank's balance sheet match the net position of the monetary-policy counterparties vis-à-vis Danmarks Nationalbank. Changes in the autonomous factors are therefore reflected in equivalent changes in the net position. The impact of autonomous factors on the net position is often described by the factors impacting on liquidity. Particularly Danmarks Nationalbank's purchase and sale of foreign exchange and the central government's net payments affect the net position. Liquidity is provided e.g. in the event of disbursements by the central government or purchases of foreign exchange by Danmarks Nationalbank.

[1] For more details, see Danmarks Nationalbank (2009).

Danmarks Nationalbank's interventions in the foreign-exchange market, and this in turn impacts on Danmarks Nationalbank's balance sheet, cf. Box 1.

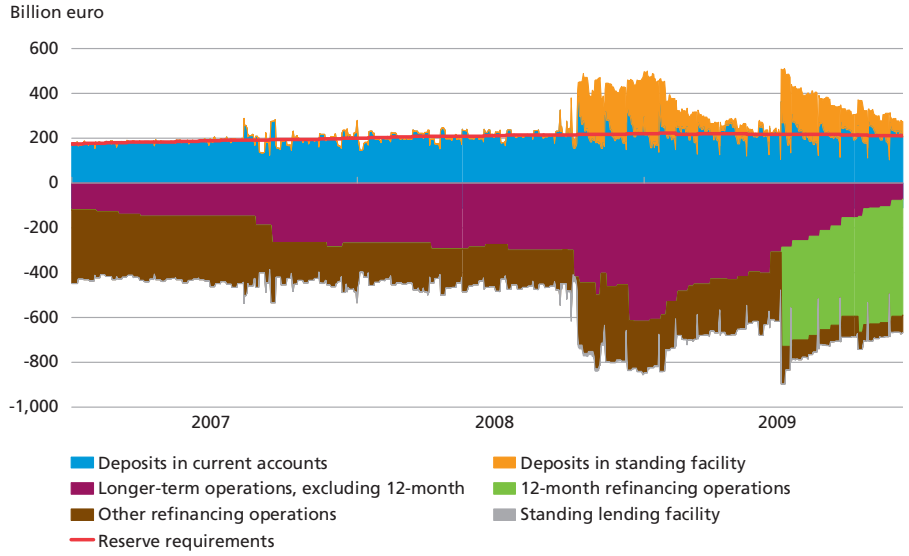
THE ECB's MEASURES AND BALANCE SHEET

The development in the ECB's balance sheet has primarily been driven by more extensive use of the monetary-policy instruments and extension of dollar loans under swap lines with the Fed.

Until the autumn of 2008, the ECB supported liquidity in the money market by increasing the frequency of its refinancing operations and the supply of loans with longer maturities than 7 days to reassure the banks about the availability of liquidity. The total supply of loans from the ECB was not increased, but the share of longer-term loans grew from around one third of total lending to around two thirds in September 2008, cf. Chart 3. Since then, it has increased further, and the share of longer-term loans has grown to more than 90 per cent of total lending.

In order to relieve the dollar shortage in the euro area, in December 2007 the ECB and the Fed established a swap line under which the Fed provides dollar loans to the ECB against collateral in euro, and the ECB relends dollars to banks in the euro area. The ECB's lending in dollars is

USE OF THE ECB'S MONETARY-POLICY INSTRUMENTS — Chart 3



Note: Daily observations. However, the breakdown into longer-term refinancing operations, excluding 12-month refinancing operations, and other refinancing operations is based on weekly observations. Other refinancing operations primarily comprise the ECB's weekly refinancing operations. Lending has a negative sign, deposits have a positive sign.

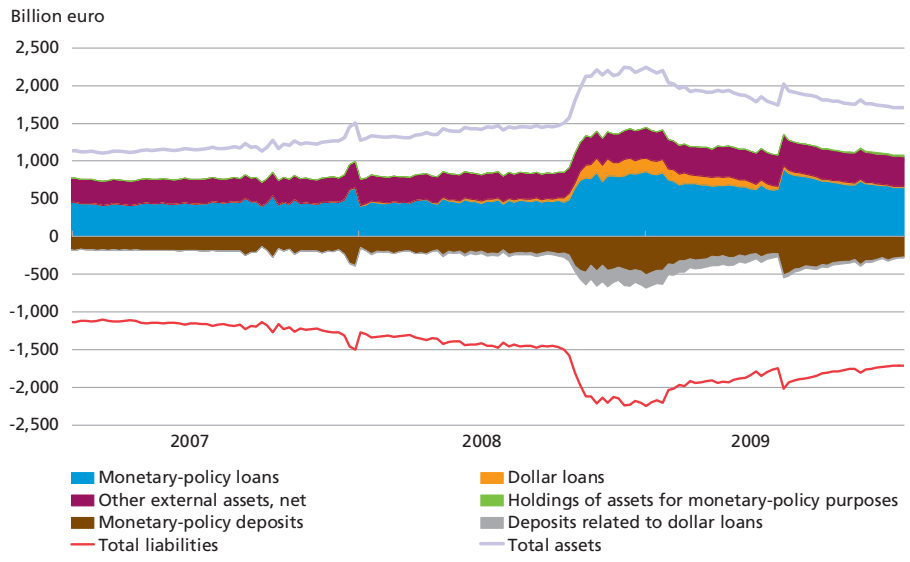
Source: ECB.

stated on the assets side of the balance sheet. The Fed places the euro amounts received at the ECB, which records them on the liabilities side, cf. Chart 4. The ECB has subsequently established swap lines with other central banks for euro loans, including with Danmarks Nationalbank in October 2008.

The ECB has implemented several measures since the financial crisis escalated in the autumn of 2008. The ECB expanded its total lending to the banks, particularly at longer maturities of 1-6 months. The supply of longer-term loans was increased to reassure the banks about the availability of liquidity. In October 2008, the ECB changed the allotment procedure for its weekly refinancing operations for 7-day maturities to full allotment of all bids at a fixed interest rate.

Money-market conditions in the euro area improved during 2009, and until the end of June the banks reduced their ECB loans. In June 2009, the ECB launched 12-month refinancing operations at a fixed interest rate with full allotment of all bids received. The purpose of this measure, which improved the banks' access to longer-term financing, was to support the banks' lending to the non-financial sector. The banks' borrowing from the ECB saw strong renewed growth after the launch of 12-month loans.

DEVELOPMENT IN SELECTED ITEMS ON THE ECB'S BALANCE SHEET Chart 4



Note: Weekly observations. Dollar loans is the ECB's lending under swap lines with the Federal Reserve, and deposits related to dollar loans reflect the ECB's liabilities to the Fed. Dollar loans are calculated on the basis of the ECB's refinancing operations for dollars. The balance sheet is adjusted for liabilities in foreign exchange, included in "Other external assets, net". Assets have a positive sign, liabilities have a negative sign.

Source: ECB.

As a result of the ECB's enhanced credit support measures, the supply of liquidity is vastly greater than the liquidity requirement warranted by the autonomous factors and the ECB's requirement of a certain average minimum balance on the banks' current accounts over a reserve maintenance period of approximately one month. This leads to large-scale placements in the ECB's standing deposit facility at a lower interest rate than the ECB's main refinancing rate, currently 0.75 percentage points lower. Consequently, while the short-term money-market interest rates normally mirror the ECB's lending rate, they have been somewhat lower since mid-October 2008. The liquidity conditions in the euro area have thus determined money-market interest rates in the euro area and also in Denmark due to the fixed-exchange-rate policy.

Trading volumes in the overnight money market in the euro area have declined in the context of ample liquidity. In January 2009, the ECB widened the interest-rate corridor for the standing facilities from 1.0 to 2.0 percentage points in order to support the money market. The interest-rate corridor was narrowed to 1.5 percentage points in May 2009, when the ECB lowered the lending rate on its main refinancing operations to 1 per cent. The rate of interest on the deposit facility thus remained above zero.

In July 2009, the ECB introduced a programme for purchases of covered bonds as a credit support measure. At end-November, the ECB had purchased covered bonds for 25 billion euro. Purchases of covered bonds are expected to total 60 billion euro by end-June 2010.

Furthermore, the ECB has expanded the list of assets eligible as collateral in the ECB's refinancing operations.

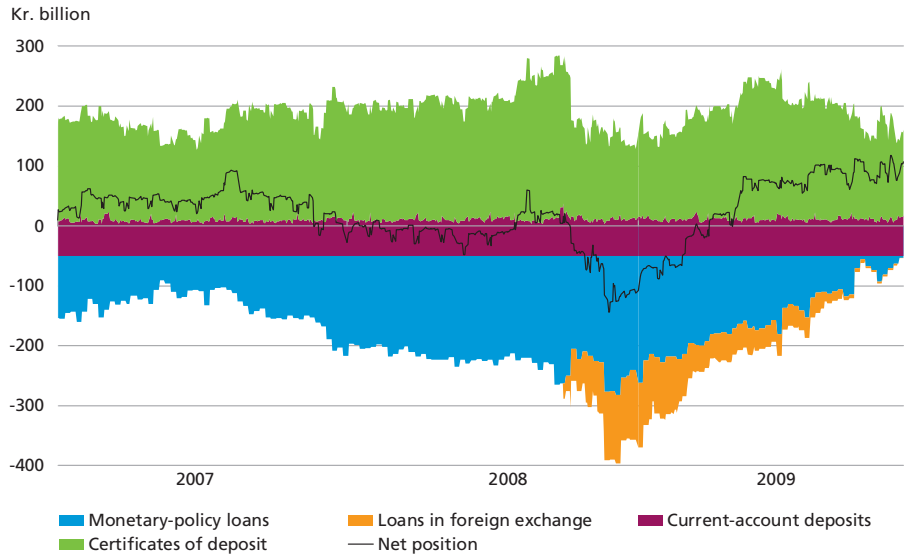
DANMARKS NATIONALBANK'S MEASURES AND BALANCE SHEET

Danmarks Nationalbank's balance sheet has also increased due to greater lending, including dollar and euro loans under the swap lines concluded with the Fed and the ECB in the autumn of 2008. Subsequently, purchases of foreign exchange and an increased foreign-exchange reserve have contributed strongly to maintaining the balance sheet at a high level. The movements in Danmarks Nationalbank's balance sheet attributable to the use of monetary-policy instruments and to autonomous factors are discussed below.

Monetary-policy instruments

In the period from the onset of the financial crisis in August 2007 until mid-September 2008, when it escalated, Danmarks Nationalbank's total monetary-policy lending rose by kr. 128 billion, cf. Chart 5. One factor

NET POSITION OF BANKS AND MORTGAGE-CREDIT INSTITUTES VIS-À-VIS DANMARKS NATIONALBANK — Chart 5



Note: Daily observations. Loans in foreign exchange are loans under swap lines with the ECB and the Federal Reserve. Loans in foreign exchange are not included in the net position.
Source: Danmarks Nationalbank.

behind the increased demand for loans was the drain on liquidity from the autonomous factors, which reduced the net position of the banks and mortgage-credit institutes vis-à-vis Danmarks Nationalbank by kr. 49 billion. The institutions' demand for loans from Danmarks Nationalbank thus exceeded the drain on liquidity from autonomous factors by kr. 79 billion. This is reflected in an equivalent increase in the institutions' liquidity reserves at Danmarks Nationalbank, primarily in the form of certificates of deposit. In gross terms, the institutions thus expanded their use of the monetary-policy instruments.

Danmarks Nationalbank uses an "open window" in its weekly open market operations, leaving banks and mortgage-credit institutes free to determine the volume of monetary-policy loans and certificates of deposit at the rates of interest fixed by Danmarks Nationalbank. The more extensive use of the monetary-policy facilities thus reflects stronger demand from the financial institutions. This contrasted with the situation in the euro area, where the ECB determined the volume of monetary-policy loans and generally did not increase the supply in the period until October 2008.

In the remainder of 2008, the banks and mortgage-credit institutes reduced their gross positions at Danmarks Nationalbank. This should be viewed in the light of the initiatives under Bank Rescue Package I. In

addition, the banks borrowed large amounts in foreign exchange under Danmarks Nationalbank's swap agreements with the Fed and the ECB, cf. below.

On 8 June 2009, Danmarks Nationalbank introduced a margin between the lending rate and the rate of interest on certificates of deposit.[1] The intention was to give the banks and mortgage-credit institutes a greater incentive to exchange liquidity in the money market rather than use Danmarks Nationalbank's facilities. The effect of this margin is difficult to quantify, but after its introduction the banks and mortgage-credit institutes taken as one have reduced their gross use of Danmarks Nationalbank's facilities.

Since the onset of the turmoil in the summer of 2007, the gross positions of the banks and mortgage-credit institutes have remained almost unchanged, taking into account the development in the net position. It should be borne in mind that in the years preceding the turmoil, the financial institutions had expanded their holdings of certificates of deposit due to such factors as the greater volume of refinancing payments.

In May 2008, Danmarks Nationalbank gave access to borrowing against a new type of bond, loan bills, in order to boost the exchange of liquidity in the money market. The loans bills can be issued by a bank or mortgage-credit institute in Denmark and sold to another institution, which can pledge them as collateral to Danmarks Nationalbank. In September 2008, Danmarks Nationalbank established a new temporary credit facility that enabled banks and mortgage-credit institutes to borrow on the basis of their excess capital adequacy, i.e. the difference between the base capital and the capital need. The purpose of this facility was to prevent liquidity problems for solvent institutions as a result of shortages of assets eligible as collateral for loans from Danmarks Nationalbank. The lending rate is higher than the rate of interest for Danmarks Nationalbank's open market operations. At the same time, the collateral base for the institutions' usual borrowing from Danmarks Nationalbank was temporarily expanded.

Banks and mortgage-credit institutes that buy the loan bills issued can include the loan bills in their liquidity, as is the case for the solvency-based credit lines, cf. Section 152 of the Danish Financial Business Act. No lending has taken place under the two facilities, which thus have had no impact on Danmarks Nationalbank's balance sheet. This can be primarily attributed to the government guarantee under Bank Rescue Package I, effective from October 2008, that guarantees full cover for all

[1] The margin was 0.1 percentage point and was widened to 0.25 percentage point on 29 September.

depositors and unsecured claims. This has resulted in renewed growth in interbank lending in the money market and reduced demand for credit from Danmarks Nationalbank. Likewise, use of the temporary collateral base has been rather limited.

These facilities have improved confidence among the banks and mortgage-credit institutes about the availability of liquidity as required. Ultimately, the success of central-bank measures depends on whether they can support interbank transactions. During the crisis there have been no clear trends in trading volumes in the overnight money market, which is primarily used by the institutions for liquidity management purposes. Trading volumes are at almost the same level as before the onset of the turmoil in the summer of 2007.

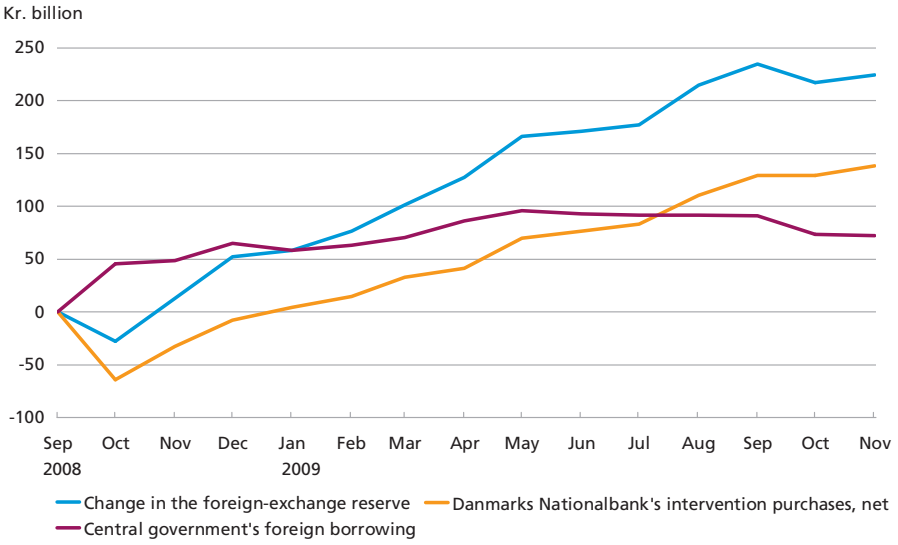
Danmarks Nationalbank's current-account limits constitute a ceiling for total liquidity. If customers of the monetary-policy counterparties wish to speculate against the krone for larger amounts than their current-account deposits, the excess amount must be funded by liquidity provided by Danmarks Nationalbank. This enables Danmarks Nationalbank to set the rate of interest for liquidity provision sufficiently high to eliminate any speculative gains. This monetary-policy instrument structure requires short-term monetary-policy loans. Consequently, the provision of longer-term loans is not compatible with the fixed-exchange-rate policy.

The foreign-exchange reserve and the central government's account

In the autumn of 2008, the krone came under pressure as the financial crisis escalated after the collapse of Lehman Brothers, and Danmarks Nationalbank had to sell foreign exchange for large amounts to prevent the krone from weakening against the euro. In October 2008, the foreign-exchange reserve was reduced by kr. 27.8 billion, cf. Chart 6. The reduction reflected Danmarks Nationalbank's net sales of foreign exchange for kr. 73.4 billion and the central government's net borrowing abroad for kr. 45.6 billion, which increased the balance of the central government's account with Danmarks Nationalbank, cf. Chart 7.

Danmarks Nationalbank raised its lending rate in October 2008, considerably widening the monetary-policy interest-rate spread to the euro area in order to dampen the pressure on the krone. Subsequently, Danmarks Nationalbank was able to buy back foreign exchange and increase the foreign-exchange reserve and the monetary-policy interest-rate spread was narrowed. Experience from the autumn of 2008 shows that very large amounts may be needed for intervention purposes if the krone is under pressure. A substantial foreign-exchange reserve is therefore necessary.

CHANGE IN THE FOREIGN-EXCHANGE RESERVE, ACCUMULATED INTERVENTION AND THE CENTRAL GOVERNMENT'S FOREIGN BORROWING SINCE SEPTEMBER 2008 Chart 6



Note: Monthly observations. Besides intervention purchases and the central government's foreign borrowing, the foreign-exchange reserve is also influenced by e.g. interest income on the foreign-exchange reserve, the central government's net payments in foreign exchange and changes in the banks' balances on accounts in euro at Danmarks Nationalbank.
Source: Danmarks Nationalbank.

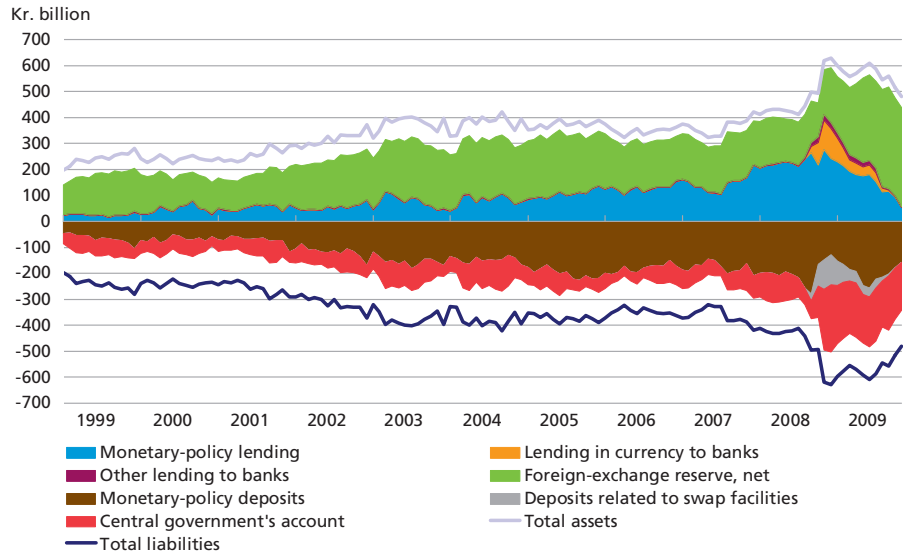
The balance of the central government's account at Danmarks Nationalbank rose substantially at the end of 2008 as the central government raised domestic debt exceeding the domestic financing requirement by just over kr. 100 billion in 2008, primarily by issuing 30-year government bonds. The excess financing was, inter alia, used for disbursements under Bank Rescue Package II, which gave all credit institutions domiciled in Denmark access to apply to the central government for injections of hybrid core capital.

Other items on the balance sheet

Moreover, Danmarks Nationalbank concluded swap agreements with the ECB and the Fed in October and September 2008, respectively, to boost the availability of euro and dollars in the banking system. In return for kroner the ECB lends euro and the Fed lends dollars to Danmarks Nationalbank, which relends foreign exchange to its monetary-policy counterparties against collateral. The ECB and the Fed place the kroner received with Danmarks Nationalbank. These loans appear on the assets side as other lending to counterparties in foreign exchange and on the liabilities side as deposits related to swap lines, reflecting

DEVELOPMENT IN SELECTED ITEMS ON DANMARKS NATIONALBANK'S BALANCE SHEET

Chart 7



Note: Monthly observations. Monetary-policy deposits are current-account deposits and certificates of deposit. "Other lending to banks and mortgage-credit institutes" includes net lending to Roskilde Bank. The balance sheet is adjusted for external liabilities included in "Foreign-exchange reserve, net". Assets have a positive sign, liabilities have a negative sign.

Source: Danmarks Nationalbank.

Danmarks Nationalbank's liabilities vis-à-vis the ECB and the Fed under the swap lines. The items on the assets and liabilities sides are equal in size, and the lending does not influence the liquidity conditions in kroner. The swap lines have contributed to alleviating the banks' difficulties in raising euro and dollar loans. Interest in these loans has diminished in step with the improvement of the international money markets. In light of the continued normalisation of the markets, Danmarks Nationalbank provides new lending only in response to actual demand.

In the summer of 2008, confidence among the banks weakened as the problems in the financial sector became more evident. The large deposit deficits of the Danish banks made them vulnerable to restrictions in the access to foreign funding. Danmarks Nationalbank assessed that financial stability was at risk as the liquidity problems of individual banks could affect other banks' access to foreign funding. In July 2008, Danmarks Nationalbank therefore concluded an agreement with Roskilde Bank concerning an unlimited credit facility. The liquidity facility entailed a significant increase in the item "Other lending to banks" on Danmarks Nationalbank's balance sheet. Danmarks Nationalbank also recorded equity investments, etc. in Roskilde Bank on the assets side of the balance sheet when Danmarks Nationalbank and the Danish Contin-

gency Association concluded an agreement on acquisition of Roskilde Bank in August 2008. Roskilde Bank and the credit facility were transferred to the Financial Stability Company in August 2009. Furthermore, Danmarks Nationalbank provided liquidity support to two other banks in September and October 2008.

Danmarks Nationalbank has not purchased securities for monetary-policy purposes. The last time Danmarks Nationalbank was seriously active in the bond market in order to influence interest-rate developments was in 1986, when it sought to curb interest-rate increases for a short period. As a result of the fixed-exchange-rate policy and free capital flows, intervention in the bond market can no longer be used as a means to influence Danish long-term interest rates, which are to a high degree determined by international factors. Today, Danmarks Nationalbank's portfolio of domestic bonds is merely an investment asset.

CONCLUSION

In line with the pattern observed for a number of other central banks, Danmarks Nationalbank's balance sheet increased considerably at the end of 2008. For several other central banks, the increase can be attributed primarily to higher lending and purchases of securities, while for Danmarks Nationalbank the principal reason for the balance sheet remaining elevated was the expansion of the foreign-exchange reserve. Experience from the autumn of 2008 shows that very large amounts may be needed for intervention purposes if the krone is under pressure. A substantial foreign-exchange reserve is therefore necessary. As a consequence of the fixed-exchange-rate policy, Danmarks Nationalbank (unlike the ECB) is unable to provide long-term lending to the banks, and bond purchases will not be an efficient means to influence Danish long-term interest rates, which are to a high degree determined by international factors.

Danmarks Nationalbank's temporary credit facilities in kroner have not been used to raise liquidity via Danmarks Nationalbank's monetary-policy instruments, so they have not had any impact on Danmarks Nationalbank's balance sheet. However, together with the government's bank rescue packages, they have instilled more confidence into the banks and mortgage-credit institutes about the availability of liquidity, and the measures may be included in the institutions' liquidity, cf. Section 152 of the Danish Financial Business Act. On the other hand, Danmarks Nationalbank's lending in foreign exchange under swap lines with the ECB and the Fed has left a clear temporary imprint on Danmarks Nationalbank's balance sheet.

Some of Danmarks Nationalbank's measures are designed to gradually render themselves obsolete in step with the normalisation of the financial markets, a case in point being the interest premium on loans against excess capital adequacy. Thus, banks and mortgage-credit institutes are encouraged to trade among themselves rather than to use Danmarks Nationalbank's facilities as soon as the conditions in the money market allow it. For example, the foreign-exchange markets have now improved to the extent that demand for Danmarks Nationalbank's credit facilities in dollars and euro has ceased.

Ultimately, the success of central-bank measures depends on whether they can support interbank transactions. In June 2009, Danmarks Nationalbank introduced an interest margin in order to support activity in the money market.

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The recession in the world economy seems to be over. Most OECD countries are returning to positive growth rates. World trade is slowly beginning to pick up again after its sharp downturn.

Turning to Denmark, we currently only have an overview of developments in the first half of the year. We still don't have a full picture of how things have evolved since the early summer, but in the assessment of Danmarks Nationalbank, Denmark is also gradually beginning to move out of the recession that set in around the turn of the year 2008.

It looks as if our aggregate output bottomed out in mid-2009 at a level of 7 per cent below the most recent peak in 2007.

Most forecasts show that the recovery will be slow, and in our assessment we will not be back at the 2007 output level until some time in 2013 at the earliest. The business sector has considerable spare capacity, and unemployment is therefore set to rise for another year or so.

Crucial factors will be consumer spending and the contribution from exports to growth. Right now the extensive stimulus packages launched in Denmark and abroad, as well as inventory adjustments, are the main factors that have halted the slowdown and are once again driving the economy forward. It remains to be seen whether this momentum will be self-sustaining once the stimulus packages and expansionary fiscal and monetary policies are phased out. The outlook for the coming years is particularly uncertain – much can go wrong – but we believe that the economy will gradually recover.

One of the current challenges is how to finance the large government deficits resulting from the expansionary fiscal policies in Denmark and abroad. If these policies are rolled back too late, fear of a debt spiral and inflation may push up interest rates. On the other hand, if they are rolled back too early, the financial markets may, once again, come under strong pressure. Further stimulus packages may be required.

This balancing act is very much about ensuring investor confidence in the sustainability of the future economic policy. Lack of confidence will cause interest rates to rise, which in turn could trigger a downward spiral of increasing budget deficits and interest costs. This risk could dampen growth, so we need to have a sustainable fiscal consolidation plan.

And a sustainable and credible plan requires agreement – not only on the objectives, but also on how to achieve them.

Now that the financial crisis is receding, it makes sense to put the course of events into perspective – and to draw some lessons from these events. This has been the most serious financial crisis since the 1930s, and its causes will be the subject of many thick, academic volumes of economic literature.

At this point I can only say that a strong economic upswing in the USA, initially boosted by tax cuts and highly accommodative monetary policy, spread to the rest of the world. At the same time, the Chinese economy gained a more prominent role.

The US economy rode on a wave of optimism and a strong propensity for consumers to buy, while the Chinese economy gained strength thanks to impressive export growth and massive business investment. A very substantial US current-account deficit was to a large extent financed by surpluses in China and in the oil-producing countries, which profited from the strong growth in the world economy. The global financial system had access to ample and inexpensive liquidity. The hunt for profit took on many shapes, and risk appetite was strong.

This also affected us here in Denmark. Being a small, open economy, we benefited from the international upswing. The ample supplies of liquidity in the international capital markets enabled banks to supplement traditional deposits with foreign loans for financing strong growth in lending. In addition to traditional corporate financing, this period was characterised by a boom in construction activity and refurbishment – not least in the housing sector. The favourable economic conditions also meant that transactions in the financial sector increasingly took on an international dimension, with acquisitions of banks to an extent not previously seen.

The mounting foreign debt burdens of many banks made the sector dependent on continued access to international liquidity.

The ample and inexpensive borrowing opportunities helped to fuel the upswing. The Danish upswing was driven by exports, private consumption and investment, while government spending also had a procyclical effect. The Danish economy reached its capacity limit towards the end of 2007, independently of the emerging financial crisis, and was already reversing when Lehmann Brothers collapsed in September 2008, sending shockwaves through the financial markets and triggering the economic crisis. The decisive financial blow came from abroad, but we had put ourselves in a vulnerable situation when the crisis struck. We cannot prevent new crises, but we can, and must, learn from experience.

Looking back over the last decade or so, it is evident that developments in the Danish property market amplified the economic fluctuations in both directions, thereby contributing to the difficulties we are now facing.

Danish house prices showed an almost constant upward trend from 1993 to 2007, particularly in 2005 and 2006. Until 2005, growth in property prices during the most recent upswing was to a large extent attributable to low interest rates – especially at the short end of the curve – deferred-amortisation loans, higher disposable incomes, falling unemployment and the tax freeze.

But the trend became self-fuelling. In the expectation that prices would continue to rise, new homes were purchased before the old ones were sold. Property became an object of speculative investment. Driven by expectations, combined with the economic upswing, prices of single-family and terraced houses soared by almost 25 per cent within one year from early 2005. The increase was even stronger in the Copenhagen area. A hike of that magnitude cannot merely be explained by the underlying economic conditions. Expectations also played a role.

The rising property prices added fuel to the upswing. Home equity increased, and consumers gained extra purchasing power. We witnessed a strong expansion in construction activities, with clear signs of overheating.

And last, but not least, lending growth was particularly strong for banks with large-scale commitments to the property sector.

It is characteristic that in the shadow of property-market developments activities took place that are now being investigated by the Danish fraud squad.

The rollback of these imbalances has amplified the impact of the international recession. Declining property prices have not only affected the building and construction sector, but have also exacerbated the fall in consumption when compared with other countries. As regards the financial sector, it is worth noting that the ailing banks are primarily found among those that previously displayed the most aggressive lending policies in the property market.

What does this tell us?

In a market economy, crises can never be avoided. We must accept economic downturns from time to time. As a small, open economy we cannot guard ourselves against a sudden drop in external demand, reducing exports by almost 20 per cent in six months, as we have witnessed.

But we can seek to conduct economic policy that does not in itself amplify economic fluctuations.

We have not been good at that. During the upswing, our economic policy was procyclical, contributing to the upward trend.

Too little was done to curb it. You might say that we put the economy into a higher gear in a situation when it was already running at a high speed, thanks to factors such as a low level of international interest rates. And, overall, we gave the housing market in Denmark too much leeway.

It is the imbalances created in Denmark and abroad during the boom that have brought on the current situation.

As you know, the government guarantee on all deposits with and loans to banks in Denmark will expire in just under one year. This scheme is the most extensive and necessary step taken in Denmark when the financial crisis really hit us in autumn 2008. Guarantees of this size must inherently be short-lived, and we must now prepare for the time after its expiry. Don't count on an extension of the scheme. It will be replaced by an increased deposit guarantee of kr. 750,000, and until the end of next year its will be possible to subscribe to guarantees for individual loans applying until the end of 2013. This deposit guarantee of kr. 750,000 will cover the vast majority of all private individuals making bank deposits.

The temporary guarantee scheme for individual issuances is essentially mainly available to large banks. Danmarks Nationalbank is aware that the sector is working on umbrella schemes that will enable several smaller banks to make joint issues based on government guarantees. Danmarks Nationalbank takes a positive approach to these initiatives and the possibility of accepting them as part of our collateral basis.

As far as we can see, larger deposits and other financing have to some extent made their way to some banks under cover of the general government guarantee. Some degree of adaptation must be expected when this guarantee expires. For the credit extension system overall, it is, however, important that the relevant financial institutions take timely action to procure financing elsewhere or reduce their lending surplus. The larger banks must take their share of responsibility for restoring the smooth operation of the money market. The financial crisis has clearly demonstrated that banking is not just another sector of the economy. In return for the extensive bank rescue packages I expect the banks to face up to their social responsibility and role and to contribute actively to the functioning of the markets without government guarantees.

The future financial architecture in Denmark also involves the expiry of the legislation allowing "the Financial Stability Company" to acquire banks when the general government guarantee expires. As far as I can see, the government's acquisition of ailing banks has had the desired

effect, i.e. banking transactions with traditional customers have, as far as possible, continued although share capital and other liable capital has been lost.

The Financial Stability Company should still be empowered to make acquisitions – but without any other guarantee than the statutory deposit guarantee. If the financial system is to function without excessive assumption of risk, not only owners of liable capital should potentially be exposed to losses – but also large investors and other unsecured creditors. What matters is not whether a bank will survive, but whether its activities will be continued. In future the Financial Stability Company should, in a specific situation, be able to carry out appropriate restructuring, taking the above aspects into consideration. In future the sector should make regular contributions to the deposit guarantee scheme by way of insurance, and in such a manner that the bill for aggressive financial behaviour is footed by those responsible. Action should be taken in this area, with a view to introducing new legislation before the summer holiday so that the scheme can take effect when the current legislation expires next autumn.

Finally, I would like to thank the retiring chairman and the Danish Bankers Association for good cooperation based on mutual trust in a difficult situation. I would also like to say welcome back to the newly appointed chairman. I look forward to continuing our fruitful cooperation.

Press Releases

24 SEPTEMBER 2009: THE MERGER BETWEEN NORDITO AND PBS

Danmarks Nationalbank supports the plans for a merger between Nordito AS and PBS Holding A/S.

In connection with the purchase of shares in PBS in 2003, Danmarks Nationalbank emphasised the importance of maintaining the common, open infrastructure in the payment system area. This aspect has also been decisive for Danmarks Nationalbank in the negotiations between Nordito and PBS.

It is of great importance to Danmarks Nationalbank that the regulations of the new company secure that the common, open infrastructure is maintained and further developed. On the product side this implies that the Dankort and Betalingsservice are maintained as common sector products and are further developed.

24 SEPTEMBER 2009: INTEREST-RATE REDUCTION

Danmarks Nationalbank's lending rate is lowered by 0.1 percentage point to 1.25 per cent with effect as from 25 September 2009. The reduction is a consequence of purchases of foreign exchange in the market.

The rate of interest on certificates of deposits is lowered by 0.1 percentage point to 1.15 per cent. The discount rate and the interest rate on the banks' current accounts are maintained at 1.0 per cent.

28 SEPTEMBER 2009: REDUCTION OF DANMARKS NATIONALBANK'S DEPOSIT RATES

Effective from 29 September 2009, Danmarks Nationalbank's rate of interest on certificates of deposit is reduced by 0.15 percentage point to 1.0 per cent, and the current-account rate is reduced by 0.10 percentage point to 0.9 per cent. The lending rate is maintained at 1.25 per cent, and 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: 1.25 per cent
Rate of interest on certificates of deposit: 1.0 per cent
Discount rate: 1.0 per cent
Current-account rate: 0.90 per cent

29 OCTOBER 2009: NEW SHIP COIN WITH FAROESE BOAT

On 2 November 2009, Danmarks Nationalbank issues a new 20-krone coin with a Faroese boat as its motif. This is the seventh coin in the ship series.

The Faroese boat is a light, clinker-built, slender and very seaworthy open wooden boat. Its characteristics include a curved sheer line with a high bow and stern. It also bears some resemblance to a Viking ship. Over time it has been developed into a unique construction not found elsewhere in the world.

The motif for the new ship coin was designed by the sculptor Hans Pauli Olsen, who is Faroese himself. He is also the artist behind several previous thematic coins, including the ship coin with the Frigate Jylland and the Christiansborg Palace tower coin.

The coin with the Faroese boat will be issued in an edition of 0.9 million coins in ordinary circulation. In addition, a limited number of collector's coins, only 1,500, will be minted in the very fine proof quality. This quality is minted using extremely well-polished dies and with extra strokes, which provides a silky smooth, clearly embossed motif.

The new ship coin will be available from most banks from 2 November 2009, when it is put into circulation.

However, the proof version can only be purchased from the website of Royal Danish Mint, www.royalmint.dk.

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

INTEREST RATES AND SHARE-PRICE INDEX — Table 1

Effective end-of-year/ from	Danmarks Nationalbank's interest rates: 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 25 Sep	1.00	1.25	1.15	1.00					
29 Sep	1.00	1.25	1.00	1.00	Jun 09	1.50	3.62	5.42	290.70
11 Dec	1.00	1.20	0.95	1.00	Jul 09	1.35	3.66	5.28	311.23
2010 8 Jan	1.00	1.15	0.90	1.00	Aug 09	1.40	3.54	5.18	335.03
15 Jan	0.75	1.05	0.80	1.00	Sep 09	1.15	3.53	5.19	335.03
	|	|	|	|	Oct 09	1.05	3.65	5.28	324.16
20 Jan	0.75	1.05	0.80	1.00	Nov 09	1.05	3.53	5.21	327.20
					Dec 09	0.85	3.62	5.19	336.69

[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						
2004	217.6	52.0	60.8	160.4	6.9	72.6	94.6
2005	212.3	56.2	56.4	207.6	12.8	135.3	85.1
2006	171.7	59.8	73.8	163.2	8.8	153.7	18.2
2007	168.8	61.6	89.9	200.5	9.4	216.8	-6.9
2008	211.7	61.3	262.8	118.5	9.7	240.9	-112.7
Jul 09	336.4	60.2	204.1	216.6	6.5	153.3	69.9
Aug 09	374.1	59.4	177.7	206.9	8.1	113.2	101.9
Sep 09	393.8	59.1	210.0	187.6	15.7	114.5	88.7
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

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	...
Jul 09	4.6	18.6	-14.0	6.6	0.5	7.1	3.7	-2.3	-5.6	69.9
Aug 09	30.8	4.5	26.3	26.9	10.8	37.7	0.6	-32.7	32.0	101.9
Sep 09	-19.8	13.0	-32.8	19.1	1.3	20.4	-0.1	-0.6	-13.1	88.7
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

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							
2004	3,684.5	97.5	2,246.2	100.8	46.3	848.9	1,222.1	-65.7
2005	4,228.2	107.8	2,584.2	75.9	53.5	971.3	1,318.2	-172.9
2006	4,672.7	116.8	2,953.6	51.8	60.3	1,077.0	1,433.4	-224.2
2007	5,497.4	117.5	3,356.1	43.3	63.5	1,219.7	1,505.2	-304.5
2008	6,286.4	131.6	3,721.8	40.6	56.7	1,487.5	1,508.4	-407.9
Jun 09	6,079.0	133.5	3,710.4	60.3	59.3	1,405.8	1,619.9	-409.1
Jul 09	6,046.7	135.6	3,677.4	63.5	58.4	1,444.1	1,623.6	-370.3
Aug 09	6,056.2	130.4	3,653.4	67.3	58.9	1,423.7	1,615.8	-380.8
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	1,630.4	-381.6
Nov 09	6,025.2	132.0	3,646.8	74.8	63.2	1,393.1	1,643.4	-416.0
	Change compared with previous year, per cent							
2004	...	8.8	8.9	-18.2	7.0	12.5	5.5	...
2005	...	10.6	15.0	-24.7	15.4	14.4	7.9	...
2006	...	8.3	14.3	-31.8	12.8	10.9	8.7	...
2007	...	0.6	13.6	-16.4	5.2	13.3	5.0	...
2008	...	12.0	10.9	-6.2	-10.7	22.0	0.2	...
Jun 09	...	8.3	5.0	51.2	-23.5	10.3	7.9	...
Jul 09	...	7.8	4.4	50.5	-25.7	12.9	7.0	...
Aug 09	...	7.5	3.1	143.9	-25.3	13.4	5.3	...
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	...	3.3	-1.1	60.7	11.7	-5.1	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								
2004	43.7	492.8	536.5	119.2	21.0	676.7	2.0	20.2	699.0
2005	47.3	596.3	643.5	114.1	18.4	776.0	14.2	8.4	798.7
2006	50.7	648.6	699.3	143.0	17.9	860.2	8.0	21.3	889.5
2007	51.9	703.2	755.1	199.7	18.0	972.8	6.2	61.5	1,040.6
2008	50.4	704.8	755.2	286.4	18.4	1,060.0	4.0	57.0	1,121.1
Jun 09	50.1	750.5	800.5	225.3	20.0	1,045.9	3.1	144.8	1,193.8
Jul 09	50.0	761.8	811.8	235.2	19.7	1,066.7	7.9	160.0	1,234.7
Aug 09	49.6	782.6	832.1	216.9	20.1	1,069.1	8.5	143.2	1,220.9
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	167.1	1,220.5
Nov 09	48.1	786.0	834.2	187.1	17.7	1,039.0	3.1	161.4	1,202.5
	Change compared with previous year, per cent								
2004	...	...	14.4	...	...	12.7	...	...	2.7
2005	...	...	19.9	...	...	14.7	...	...	14.3
2006	...	...	8.7	...	...	10.8	...	...	11.4
2007	...	...	8.0	...	...	13.1	...	...	17.0
2008	...	...	0.0	...	...	9.0	...	...	7.7
Jun 09	...	...	3.8	...	...	4.5	...	...	6.8
Jul 09	...	...	4.4	...	...	3.4	...	...	7.4
Aug 09	...	...	7.8	...	...	5.1	...	...	7.9
Sep 09	...	...	7.8	...	...	4.0	...	...	9.3
Oct 09	...	...	9.5	...	...	-1.5	...	...	4.5
Nov 09	...	...	9.5	...	...	-2.3	...	...	3.8

[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					Liabilities	
		Lending to MFIs	Domestic lending			Holdings of securities	Loans from MFIs	Deposits
			Total	of which:				
				Households, etc.	Non-financial companies			
	Kr. billion							
2004	2,418.4	495.6	754.8	324.8	309.6	780.3	823.1	908.0
2005	2,867.3	652.0	920.1	396.6	370.0	862.1	975.7	1,065.6
2006	3,242.0	715.0	1,124.3	475.0	458.0	889.6	1,133.8	1,148.3
2007	3,991.1	924.3	1,333.6	557.4	551.8	1,065.8	1,441.8	1,345.6
2008	4,568.5	974.6	1,546.3	586.8	603.3	1,092.1	1,444.2	1,424.2
Jun 09	4,403.8	835.3	1,462.1	569.9	556.3	1,339.1	1,380.0	1,408.9
Jul 09	4,290.1	828.8	1,419.4	560.3	535.9	1,293.1	1,230.6	1,441.8
Aug 09	4,240.6	802.6	1,378.6	556.5	530.7	1,286.5	1,123.1	1,455.8
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	1,071.9	1,443.5
Nov 09	4,170.0	861.8	1,355.7	559.2	529.3	1,204.9	1,152.5	1,432.3
	Change compared with previous year, per cent							
2004	...	5.6	13.8	19.6	8.4	2.1	-0.1	14.2
2005	...	31.7	21.9	22.1	19.5	10.5	18.5	17.3
2006	...	9.7	22.2	19.8	23.8	3.2	16.2	7.8
2007	...	29.9	18.9	17.4	21.0	20.1	27.8	17.2
2008	...	5.4	15.9	5.3	9.3	2.5	0.2	5.8
Jun 09	...	-14.4	2.7	-1.4	-4.9	17.7	-8.8	-1.1
Jul 09	...	-13.7	1.5	-2.5	-4.9	10.5	-17.9	0.9
Aug 09	...	-13.3	-1.7	-3.0	-7.5	3.7	-27.5	4.8
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	-0.1
Nov 09	...	-19.7	-10.2	-4.1	-11.7	0.3	-31.0	-0.9

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:				
				House-holds, etc.	Non-financial compa-nies			
	Kr. billion							
2004	2,097.4	91.2	1,489.9	1,141.3	307.9	481.2	26.1	1,952.5
2005	2,519.9	101.4	1,664.4	1,281.5	334.2	645.0	151.7	2,237.0
2006	2,699.9	245.1	1,834.8	1,420.2	358.2	574.1	226.5	2,297.9
2007	3,088.2	362.8	2,015.5	1,549.2	404.0	649.2	344.2	2,495.2
2008	3,322.7	428.5	2,164.6	1,629.6	467.4	633.5	474.4	2,582.3
Jun 09	3,032.0	449.4	2,236.8	1,676.5	489.8	262.7	441.0	2,376.5
Jul 09	2,995.0	390.6	2,248.0	1,684.3	493.9	265.8	427.2	2,369.3
Aug 09	3,063.9	402.3	2,259.6	1,691.0	498.8	300.1	447.9	2,414.1
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
	Change compared with previous year, per cent							
2004	...	-9.6	6.8	6.5	8.3	40.4	-19.9	12.9
2005	...	11.1	11.7	12.3	8.5	34.0	481.5	14.6
2006	...	141.7	10.2	10.8	7.2	-11.0	49.3	2.7
2007	...	48.0	9.9	9.1	12.8	13.1	52.0	8.6
2008	...	18.1	7.4	5.2	15.7	-2.4	37.8	3.5
Jun 09	...	27.7	6.4	5.0	13.2	54.5	51.2	13.7
Jul 09	...	16.3	6.2	4.9	13.2	51.1	36.9	11.8
Aug 09	...	16.6	6.3	4.9	13.4	76.3	42.6	12.3
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

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								
2004	2,276.0	1,466.1	741.0	786.0	324.8	426.8	1,489.9	1,141.3	314.2
2005	2,614.5	1,678.0	852.2	950.2	396.6	510.4	1,664.4	1,281.5	341.7
2006	3,000.8	1,895.2	1,002.6	1,166.0	475.0	636.9	1,834.8	1,420.2	365.7
2007	3,387.8	2,106.7	1,173.0	1,372.3	557.4	760.5	2,015.5	1,549.2	412.4
2008	3,787.5	2,216.4	1,457.1	1,622.9	586.8	978.3	2,164.6	1,629.6	478.8
Jun 09	3,755.2	2,246.5	1,394.3	1,518.3	569.9	889.7	2,236.8	1,676.5	504.7
Jul 09	3,712.8	2,244.6	1,354.2	1,464.7	560.3	845.5	2,248.0	1,684.3	508.7
Aug 09	3,683.5	2,247.5	1,328.3	1,423.8	556.5	814.7	2,259.6	1,691.0	513.6
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	3,673.7	2,261.2	1,304.1	1,402.6	562.5	785.6	2,271.1	1,698.7	518.5
Nov 09	3,679.9	2,264.1	1,306.5	1,401.0	559.2	786.3	2,278.9	1,704.9	520.2
	Change compared with previous year, per cent								
2004	9.0	9.1	8.5	13.4	19.6	8.8	6.8	6.5	8.0
2005	14.9	14.5	15.0	20.9	22.1	19.6	11.7	12.3	8.8
2006	14.8	12.9	17.7	22.7	19.8	24.8	10.2	10.8	7.0
2007	12.9	11.2	17.0	17.7	17.4	19.4	9.9	9.1	12.8
2008	11.8	5.2	24.2	18.3	5.3	28.6	7.4	5.2	16.1
Jun 09	5.1	3.3	9.1	3.3	-1.4	6.5	6.4	5.0	13.8
Jul 09	4.3	2.9	7.9	1.6	-2.5	4.6	6.2	4.9	13.8
Aug 09	3.1	2.8	4.7	-1.6	-3.0	-0.4	6.3	4.9	14.0
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	-4.0	-9.5	-4.3	-12.8	5.8	4.7	13.4
Nov 09	-1.8	2.3	-8.1	-11.7	-4.1	-17.0	5.6	4.6	9.8

Note: Including lending in Danish banks' units abroad.

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

End of period	Index-linked lending	Fixed-rate lending	Adjustable-rate lending		Total	of which:	
			Total	of which =<1 year		Lending in foreign currency	Instalment-free lending [1]
	Kr. billion						
2004	94.6	733.9	659.8	382.2	1,488.4	84.9	170.5
2005	88.6	720.3	853.9	616.0	1,662.8	80.5	315.5
2006	83.5	797.5	951.7	720.5	1,832.7	85.7	432.2
2007	77.9	889.2	1,045.6	796.6	2,012.7	123.8	547.3
2008	72.4	903.9	1,189.1	900.3	2,165.4	155.3	626.4
Jun 09	71.3	821.3	1,343.1	1,067.4	2,235.7	189.1	662.3
Jul 09	71.2	809.6	1,366.3	1,080.7	2,247.2	192.8	668.0
Aug 09	71.2	802.5	1,385.4	1,090.1	2,259.2	196.3	672.8
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

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				Deposits			
	All sectors	Households, etc.	Non-financial companies	Financial companies	All sectors	Households, etc.	Non-financial companies	Financial companies
	Per cent, per annum							
Q3 07	6.1	7.4	6.0	4.1	3.6	3.3	3.6	4.0
Q4 07	6.2	7.4	6.1	4.3	3.7	3.4	3.7	4.1
Q1 08	6.2	7.5	6.1	4.5	3.7	3.5	3.8	4.2
Q2 08	6.5	7.7	6.3	4.6	3.8	3.6	3.9	4.2
Q3 08	6.6	7.8	6.5	4.9	4.0	3.6	4.1	4.5
Q4 08	7.0	8.4	7.1	5.2	4.4	3.9	4.5	5.0
Q1 09	6.0	7.4	6.2	4.0	3.3	2.8	3.2	4.1
Q2 09	5.1	6.4	5.3	2.7	2.2	2.0	2.0	2.6
Q3 09	4.6	6.0	5.0	2.1	1.8	1.8	1.5	1.9
Jun 09	4.8	6.1	5.2	2.4	2.0	1.9	1.8	2.2
Jul 09	4.6	6.1	5.1	2.2	1.8	1.8	1.6	2.0
Aug 09	4.6	6.0	5.1	2.1	1.8	1.8	1.5	2.0
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	4.5	1.6	1.4	1.5	1.1	1.5

SELECTED ITEMS FROM THE BALANCE SHEET OF THE INVESTMENT ASSOCIATIONS

Table 11

End of period	Total balance	Assets		Liabilities			
		Holdings of securities		Certificates issued by investment associations by owner			
		Bonds, etc.	Shares, etc.	House-holds, etc.	Insurance compa-nies and pension funds	Other residents	Abroad
	Kr. billion						
2004	574.2	326.5	164.6	213.1	163.4	180.1	15.3
2005	794.7	412.1	286.4	265.7	236.5	263.0	24.4
2006	924.7	431.8	385.4	294.3	289.4	305.3	28.8
2007	1,020.7	477.9	411.6	295.2	336.8	322.1	29.2
2008	772.2	424.4	222.5	211.4	265.9	238.2	14.6
Q3 08	889.3	458.5	302.0	238.0	310.6	275.6	19.0
Q4 08	772.2	424.4	222.5	211.4	265.9	238.2	14.6
Q1 09	751.0	429.1	197.4	204.8	261.1	221.4	13.7
Q2 09	765.1	448.1	233.5	222.2	296.5	174.1	16.1
Q3 09	844.0	478.5	283.7	243.6	338.7	189.8	17.7
	Quarterly transactions, kr. billion						
Q3 08	...	-11.1	-11.8	-3.3	3.7	-20.5	-2.0
Q4 08	...	-18.2	-8.2	-4.6	-9.3	-7.3	-2.2
Q1 09	...	0.7	-8.6	-1.8	-2.8	-9.4	-0.1
Q2 09	...	8.1	0.5	3.3	10.5	-65.1	0.5
Q3 09	...	13.2	15.0	5.4	11.7	-3.4	0.2

SECURITIES ISSUED BY RESIDENTS BY OWNER'S HOME COUNTRY Table 12

End of period	Bonds, etc.						Shares	
	Total		of which:					
			Central-government securities		Mortgage-credit bonds			
	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad
	Market value, kr. billion							
2004	2,379.2	434.4	498.8	213.6	1,768.7	218.4	604.3	245.2
2005	2,559.7	461.2	434.9	205.1	2,002.9	252.5	845.2	300.5
2006	2,541.3	464.7	380.1	172.6	2,034.9	285.9	989.4	361.8
2007	2,701.2	475.8	301.9	176.2	2,247.1	287.7	996.1	445.4
2008	2,981.5	405.0	363.1	158.5	2,419.2	227.4	529.9	244.4
Jun 09	2,705.5	425.3	374.4	158.8	2,108.5	247.8	564.9	294.3
Jul 09	2,685.4	448.4	377.6	172.3	2,090.6	256.5	594.2	310.7
Aug 09	2,734.1	454.2	386.6	168.7	2,129.6	265.8	638.1	329.0
Sep 09	2,793.7	470.6	399.0	167.7	2,178.6	282.0	635.5	339.9
Oct 09	2,901.5	457.3	404.7	163.1	2,285.5	274.8	619.5	332.8
Nov 09	3,026.5	454.5	396.0	163.7	2,422.7	271.1	617.6	339.4

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							
2004	704	176	759	1,403	3,042	1,686	1,356	3,042
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	2,273	1,977	4,250
2008	900	180	782	1,785	3,646	2,429	1,217	3,646
Q3 08	914	199	1,071	1,723	3,906	2,384	1,522	3,906
Q4 08	900	180	782	1,785	3,646	2,429	1,217	3,646
Q1 09	912	167	687	1,781	3,547	2,460	1,086	3,547
Q2 09	913	171	803	1,795	3,681	2,472	1,210	3,681
Q3 09	908	172	885	1,883	3,848	2,518	1,330	3,848

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								
2004	686	161	1,469	2,315	1,203	142	2,245	-1,275	2,315
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	898	134	2,890	3,922	1,710	118	4,234	-2,139	3,923
2008	1,041	126	1,762	2,928	1,923	109	2,487	-1,590	2,928
Q3 08	999	130	2,354	3,483	1,862	113	3,355	-1,848	3,483
Q4 08	1,041	126	1,762	2,928	1,923	109	2,487	-1,590	2,928
Q1 09	1,024	124	1,586	2,735	1,933	107	2,173	-1,479	2,735
Q2 09	1,000	133	1,826	2,961	1,894	119	2,459	-1,511	2,961
Q3 09	973	140	1,927	3,039	1,856	122	2,571	-1,510	3,039

Note: Companies are defined as non-financial companies.

CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS (NET REVENUES) Table 15

	Goods (fob)	Services	Goods and services	Wages and property income	Current transfers	Total current account
	Kr. billion					
2004	54.5	19.8	74.4	-2.4	-27.7	44.2
2005	43.9	38.3	82.2	9.9	-25.0	67.1
2006	18.2	42.0	60.2	16.8	-28.4	48.6
2007	2.0	43.0	45.0	9.2	-29.3	25.0
2008	-3.7	51.0	47.3	19.8	-29.2	38.0
Dec 07 - Nov 08	-3.9	52.5	48.6	18.8	-28.7	38.7
Dec 08 - Nov 09	31.5	23.0	54.5	40.3	-32.1	62.7
Jun 09	5.2	0.1	5.3	4.0	-2.5	6.8
Jul 09	5.8	-0.1	5.7	3.1	-2.4	6.5
Aug 09	1.4	3.8	5.2	2.9	-2.0	6.1
Sep 09	5.6	3.1	8.7	4.3	-2.0	11.0
Oct 09	1.7	1.5	3.2	4.5	-2.5	5.2
Nov 09	5.3	2.3	7.6	4.1	-2.5	9.3

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

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

	Current account and capital account, etc., total	Capital import				Other[2]	Danmarks Nationalbank's transactions with abroad[3]
		Direct investments		Portfolio investments[1]	Other capital import		
		Danish abroad	Foreign in Denmark				
	Kr. billion						
2004	44.4	62.1	-62.6	-87.1	-22.5	59.4	-6.2
2005	70.0	-97.1	77.2	-68.8	23.2	-16.2	-11.8
2006	48.6	-50.2	16.1	-103.3	83.4	-33.0	-38.3
2007	25.2	-112.3	64.3	-32.2	56.5	-2.7	-1.2
2008	38.3	-70.9	13.9	60.9	-64.3	-49.2	-71.4
Dec 07 - Nov 08	39.1	-63.3	14.0	-34.9	18.5	-95.7	-122.5
Dec 08 - Nov 09	63.1	-93.9	46.7	172.1	147.8	-14.0	321.8
Jun 09	6.8	-14.8	7.3	13.8	5.4	-15.9	2.7
Jul 09	6.5	-0.4	7.3	39.0	-69.6	27.7	10.5
Aug 09	6.1	-7.1	2.6	2.9	34.2	6.6	45.3
Sep 09	11.0	-9.8	8.0	56.3	3.8	-40.4	28.9
Oct 09	5.3	-16.1	7.1	-27.0	-4.3	21.4	-13.6
Nov 09	9.3	-4.4	1.7	-28.2	57.8	-25.3	10.9

[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 and until end-December 2004 unrecorded trade credits.
[3] As from 2005 transactions on *all* Danmarks Nationalbank's accounts with abroad. Until end-2004 only transactions on accounts included by compilation of the foreign-exchange reserve, published by press release on the 2nd banking day of each month and included in Table 2 of this section.

PORTFOLIO INVESTMENTS OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 17

	Danish securities			Foreign securities		
	Krone-denominated bonds, etc.	Foreign currency denominated bonds, etc.	Shares	Bonds, etc.	Shares	Total[1]
	Kr. billion					
2004	-6.2	56.9	9.7	-104.4	-43.0	-87.1
2005	20.8	122.5	-18.9	-108.2	-85.0	-68.8
2006	16.3	70.0	-34.4	-21.5	-133.8	-103.3
2007	26.2	73.4	15.0	-96.7	-50.0	-32.2
2008	-59.1	141.2	11.4	-86.7	54.1	60.9
Jun 09	11.1	3.1	4.7	-9.5	4.5	13.8
Jul 09	10.4	35.0	1.0	6.3	-13.8	39.0
Aug 09	2.6	13.3	5.1	-8.9	-9.2	2.9
Sep 09	6.5	20.8	8.5	23.9	-3.4	56.3
Oct 09	-1.0	-8.7	0.9	-8.8	-9.4	-27.0
Nov 09	-12.8	-23.4	8.9	9.1	-9.9	-28.2

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										
2004	471	220	369	547	48	34	584	20	223	2,515
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
Q3 08	643	399	587	758	33	49	1,132	32	165	3,824
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	734	360	477	865	41	43	991	36	336	3,917
Q3 09	740	362	564	881	39	41	955	33	400	4,054
Liabilities										
2004	429	208	241	857	...	20	816	20	2	2,593
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
Q3 08	517	299	343	1,137	...	42	1,545	37	27	3,919
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	510	299	298	1,345	...	42	1,437	38	38	3,968
Q3 09	508	310	344	1,432	...	36	1,377	39	8	4,013
Net assets										
2004	42	12	128	-310	48	14	-233	0	221	-78
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
Q3 08	126	100	243	-379	33	7	-414	-5	138	-95
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	222	61	179	-480	41	1	-446	-3	298	-51
Q3 09	233	52	221	-550	39	6	-423	-6	392	42

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							
2004	1,466.2	707.2	389.0	285.0	13.5	1,394.8	665.0	593.6
2005	1,545.3	745.1	402.5	303.9	17.9	1,469.5	757.0	681.2
2006	1,631.7	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
Q3 08	435.7	207.4	116.7	90.3	3.5	417.9	248.9	231.0
Q4 08	440.2	213.7	121.9	93.0	2.1	430.6	233.0	223.5
Q1 09	405.6	199.5	118.0	81.5	-2.7	396.4	194.3	185.0
Q2 09	411.0	203.8	122.0	77.5	-5.9	397.3	191.7	178.0
Q3 09	414.7	200.4	123.3	74.1	-4.3	393.5	197.5	176.3
	Real growth compared with previous year, per cent							
2004	2.3	4.7	1.8	3.9	...	4.4	2.8	7.7
2005	2.4	3.8	1.3	4.7	...	3.5	8.0	11.1
2006	3.4	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
Q3 08	-0.7	-0.1	2.4	-2.0	...	-0.1	2.5	3.8
Q4 08	-3.6	-5.4	2.0	-9.3	...	-3.5	-0.9	0.0
Q1 09	-3.8	-6.0	2.6	-5.1	...	-5.4	-7.6	-11.1
Q2 09	-7.1	-7.1	2.0	-16.3	...	-8.6	-13.5	-16.8
Q3 09	-5.2	-4.4	2.4	-14.5	...	-6.3	-11.5	-14.2
	Real growth compared with previous quarter (seasonally adjusted), per cent							
Q3 08	-1.0	-1.8	0.7	-0.9	...	-1.0	-1.3	-2.2
Q4 08	-2.5	-3.0	0.8	-6.1	...	-2.7	-4.6	-3.4
Q1 09	-1.4	-1.3	0.2	1.1	...	-0.4	-4.7	-8.0
Q2 09	-2.3	-0.7	0.3	-10.1	...	-2.5	-3.4	-4.2
Q3 09	0.6	0.5	1.0	-0.1	...	0.5	0.9	0.6

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									
2004	0.9	2.6	-2.1	1.5	2.8	4.8	1.1	0.8	1.1	0.6
2005	1.7	7.6	1.0	1.0	2.4	3.2	0.6	0.7	3.4	-0.6
2006	1.9	5.3	2.2	1.2	2.1	0.9	1.1	1.3	3.1	0.4
2007	1.7	0.3	3.7	1.3	2.1	0.6	1.2	1.4	1.4	1.4
2008	3.6	7.7	6.7	2.1	2.8	3.5	1.9	2.1	4.0	1.1
Q1 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

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	100.0	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	150,664	-8	-7	-16	3
2009	...	...	...	4,140	...	-5	-17	-44	-13
				Seasonally adjusted					
Jul 09	3.7	88.6	97.1	326	9,075	-3	-12	-44	-10
Aug 09	3.7	86.7	97.1	377	9,239	-2	-8	-44	-11
Sep 09	4.0	85.9	95.7	356	9,528	-1	-8	-47	-12
Oct 09	4.2	84.9	96.7	424	9,787	-1	-8	-48	-8
Nov 09	4.4	86.0	96.3	390	9,761	-3	-3	-42	-2
Dec 09	...	...	...	426	...	-2	-4	-40	-4

[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			
2004	2,739	1,898	137.4	138.0	127.5	70.1
2005	2,767	1,924	141.4	141.7	130.7	82.3
2006	2,825	1,980	145.7	146.1	134.0	100.0
2007	2,908	2,066	151.3	152.0	138.0	104.9
2008	2,949	2,111	158.0	158.4	142.4	101.1
			Seasonally adjusted			
Q3 08	2,959	2,121	158.9	159.5	142.7	100.9
Q4 08	2,945	2,106	160.3	160.6	143.4	93.0
Q1 09	2,891	2,049	161.8	162.3	144.0	87.3
Q2 09	2,869	2,020	162.0	162.3	144.1	86.7
Q3 09	2,828	1,981	163.4	163.2	145.2	...
			Change compared with previous year, per cent			
2004	-0.6	-0.8	3.1	3.1	2.7	8.9
2005	1.0	1.4	2.9	2.7	2.6	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	3.2	-4.5
Q3 08	1.6	2.5	4.5	4.2	3.1	-4.6
Q4 08	0.9	1.3	4.2	3.8	2.6	-10.5
Q1 09	-2.1	-3.0	4.1	3.9	1.8	-15.1
Q2 09	-2.4	-4.0	2.9	2.7	1.4	-16.4
Q3 09	-4.4	-6.6	2.8	2.3	1.7	...

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
Jul 09	744.58	528.56	864.88	68.80	83.21	489.79	5.5959
Aug 09	744.40	521.75	863.04	72.83	85.96	488.58	5.5020
Sep 09	744.28	511.19	835.29	72.99	86.59	491.35	5.5906
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

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	113.0	104.4
2008	105.8	259.0	245.8	111.5	117.1	107.8
2009	107.8	262.4	...	...	...	108.1
Jul 09	107.9	262.2	246.2	115.4	...	107.8
Aug 09	107.4	262.9	246.7	114.8	...	108.1
Sep 09	108.0	263.3	246.8	115.5	120.6	108.2
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	...	...	...	108.9
	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	...	...	...	0.3
Jul 09	1.2	1.0	-0.7	3.5	...	-0.7
Aug 09	1.6	1.1	-0.4	3.4	...	-0.2
Sep 09	2.5	0.8	-0.6	4.0	2.6	-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	...	...	...	0.9

Note: The nominal effective krone rate index is a geometric weighting of the development in the Danish krone rate against currencies of Denmark's 27 most important trading partners. However, only 25 countries are included in the calculation of consumer prices abroad and the real effective krone rate based on consumer prices and hourly earnings, respectively.
The weights are based on trade in manufactured goods in 2002.
An increase in the index reflects a nominal or a real appreciation of the krone.

Danmarks Nationalbank's Statistical Publications

Periodical electronic publications
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:
nationalbanken.statbank.dk

Special Reports
Special Reports deal with statistics of a thematic character and are not prepared on a regular basis.

Release calendar
A release calendar for the statistical publications, covering the current month and the following quarter, is available on:
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