Danmarks Nationalbank

Monetary Review 4th Quarter Part 1

2011

DANMARKS NATIONAL BANK 2011

MONETARY REVIEW 4th QUARTER 2011

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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SUMMARY

The upswing in the world economy is abating. The unfolding of the euro area sovereign debt crisis and lack of political agreement on US fiscal policy are having a negative impact on consumer and business confidence. Growth in the euro area has been subdued in recent quarters with substantial differences among the member states. In the USA, growth has improved, but remains moderate, and in the largest emerging market economies the rates of growth are declining.

The debt crisis has increased uncertainty about the strength of the European banking sector, especially banks in member states directly involved in the sovereign debt crisis. Restraint on the part of investors reflects the risk that because the European banking sector has been weakened by losses due to, *inter alia*, the sovereign debt crisis in vulnerable member states, credit extension will be reduced, which will further weaken the real economy and public finances.

Economic activity in Denmark fell in the 3rd quarter, following sound growth in the preceding quarter. The decline in GDP was driven not only by a weak trend in private consumption and exports, but also by lower public consumption.

The current weak development is set to continue into 2012, with no prospects of renewed growth until the middle of the year. For 2012 overall, GDP growth in volume terms is expected to be just over 1 per cent, rising to 1.6 per cent in 2013. This implies slightly higher growth than in the euro area, partly because the latter is weighed down by member states with serious debt problems, partly because the downturn in the wake of the financial crisis was sharper in Denmark than in most other countries due to overheating of the Danish economy in the period 2006-08. Growth in public consumption is estimated to be low in the coming years. The decision to bring forward public investments will have a positive impact on next year's growth, but a contractive effect in 2013. Unemployment will rise a little over the next few quarters. After that it is expected to fall to a level close to its structural level by the end of 2013.

The Danish government plans to maintain a consistent medium-term fiscal stance. Combined with a subdued rate of wage increase, this will support the narrow yield spread to the euro area member states with the lowest yields.

THE INTERNATIONAL ECONOMY AND THE FINANCIAL MARKETS

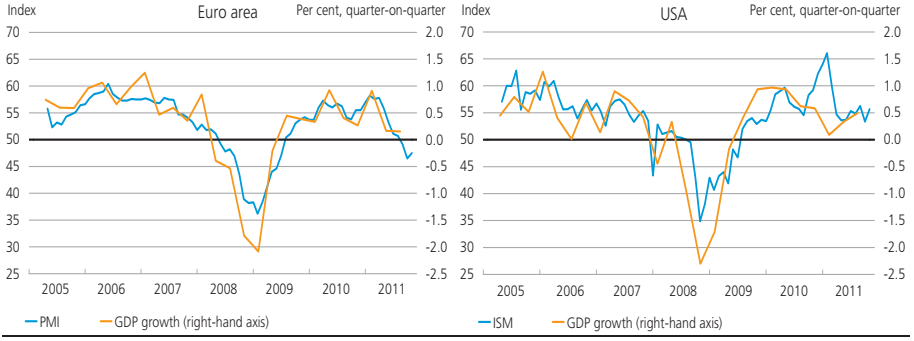
Cyclical developments

Economic growth in Europe has been subdued in the past six months with substantial differences among the member states. At the same time, US growth has picked up during 2011, cf. Chart 1, but remains dampened. The strength of the upswing in the largest emerging market economies has diminished, reflecting factors such as dampening of world trade and monetary-policy tightening in recent years in an attempt to curb the rapid rise in consumer prices.

There are several reasons for the slowdown in the global economy. Firstly, the spreading of the European sovereign debt crisis and uncertainty about the US medium-term fiscal plans have led to a marked decline in confidence in the financial markets and among private-sector agents. Secondly, households and firms are still consolidating in a number of key economies, and household wealth has been reduced by falling stock indices and house prices. Finally, fiscal policy is being tightened in many countries.

The positive signs in the euro area labour markets earlier this year seem to have vanished. Euro area unemployment has risen in recent months after having been relatively stable at around 10 per cent since the end of 2009, cf. Chart 2. There is a considerable spread among the member states, with unemployment ranging from 4.1 per cent in Austria to 22.8 per cent of the labour force in Spain in October. In Germany, unemployment has declined steadily since mid-2009, in stark contrast to the situation in e.g. Spain and Greece, where unemployment has soared.

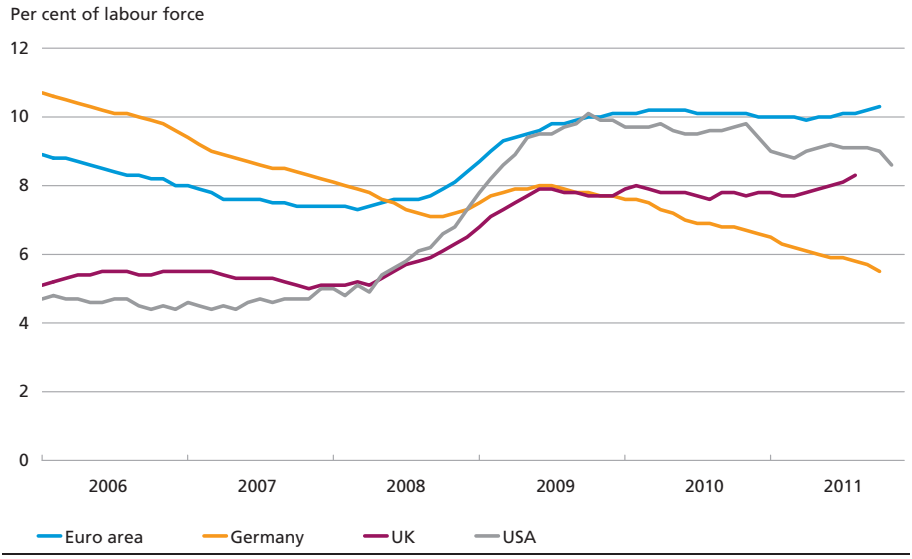
PMI/ISM AND GDP GROWTH IN THE EURO AREA AND THE USA, 2005-11 Chart 1



Note: The indicator applied for the euro area is the Purchasing Managers Index, PMI, composite indicator for manufacturing and services. For the USA, a weighted average is applied of ISM for the manufacturing and service sectors, respectively, based on the sectors' shares of value added in 2010. Both indicators are based on questionnaire surveys in which business managers assess the current situation in relation to the preceding month. A value of more (less) than 50 indicates expectations of economic expansion (contraction). The most recent observations for PMI/ISM are from November, while GDP figures are available until the 3rd quarter of 2011.

Source: Bloomberg and Reuters EcoWin.

UNEMPLOYMENT RATES IN SELECTED COUNTRIES, 2006-11 Chart 2



Note: Unemployment according to the Labour Force Survey for Europe.
Source: Eurostat and Reuters EcoWin.

Excluding Germany, euro area unemployment has been rising slightly since 2010. In the USA, unemployment as a ratio of the labour force has been around 9 per cent throughout 2011, falling to 8.6 per cent in November.

Inflation is high, given the spare capacity. Recent consumer price inflation of 3.5 per cent in the USA and 3.0 per cent in the euro area is considerably above the averages for the last few decades. The strongly accelerating euro area inflation from August to September – 0.5 percentage points – was partly attributable to higher energy prices, partly to the effect of a methodological change.[1] Rising energy prices until the summer play a major role in explaining the high rate of inflation. As these effects fade away, inflation in the advanced economies will, viewed in isolation, decline from the current high levels.

Real economic developments among Denmark's most important trading partners varied somewhat in the 3rd quarter. GDP growth in the euro area was unchanged at 0.2 per cent, masking considerable differences within the area. In a number of member states, including the

[1] The methodological change, which was introduced from 2011, dampened inflation in July and August by approximately 0.2 percentage points, cf. Eurostat. As a result, the rise in annual inflation from August to September was extraordinarily strong. The change relates to the calculation of price developments for seasonal goods such as fruit and clothing, which were not previously included in a uniform manner in the compilation of HICP for the individual member states. For some member states, this harmonisation has a substantial impact, e.g. for Spain, Italy, Luxembourg, Portugal and Greece, while other member states' previous methods resembled the new rules. Data from before 2011 has been compiled using the previous member-state-specific methods, except in the case of Spain, cf. the ECB's Monthly Bulletin April 2011 and Eurostat.

Netherlands, Greece and Portugal, GDP fell, while growth picked up in e.g. France and Germany, to 0.4 and 0.5 per cent, respectively, primarily due to higher private consumption and investment. The UK posted GDP growth of 0.5 per cent in the 3rd quarter, following several quarters of weak growth, and in Sweden GDP growth in the 3rd quarter surprisingly reached 1.6 per cent, up from 1.0 per cent in the 2nd quarter. In the USA, growth has been moderate, albeit rising, throughout 2011. In the 3rd quarter, GDP grew by 0.5 per cent, but this is not enough to reduce unemployment significantly. In the troubled EU member states growth is weak or negative.

The financial markets and the European sovereign debt crisis

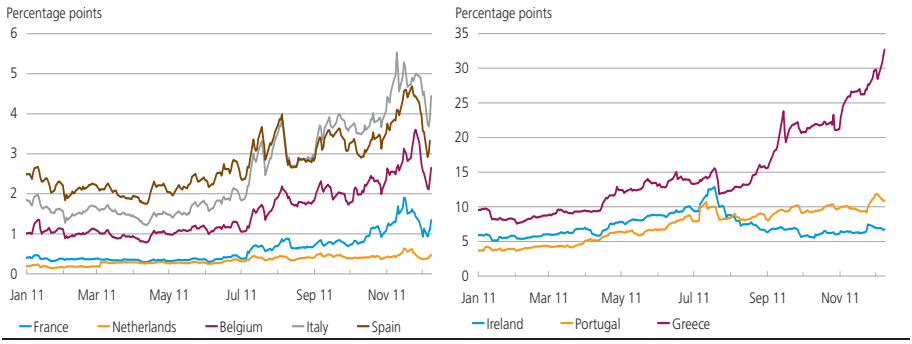
The capital markets were still characterised by turmoil in the autumn, after the European sovereign debt crisis had spread to more member states. The crisis has evolved from comprising a few small European economies to also including some of the large euro area member states, despite repeated efforts to reduce the wide yield spreads to Germany.

At the October and December summits, the heads of state or government of the euro area and the 27 EU member states, respectively, adopted several measures to attempt to halt the widening of yield spreads and the problems faced by the euro area banking sector, cf. Box 1. Risk appetite in the equity and bond markets increased in the period up to the October meetings, but in November lack of clarity about the agreements with Greece, uncertainty about the Italian government's willingness to implement the necessary fiscal consolidation and unresolved issues relating to the specific content of the summit resolutions led to doubts in the markets as to the sufficiency of the results. The seriousness of the situation was emphasised by changes of government in Greece, Italy and Spain.

The euro area member states' yield spreads to Germany vary considerably, ranging from approximately 0.5 percentage points for the Netherlands and Finland to 33 percentage points for 10-year Greek government securities, cf. Chart 3. The yields on 10-year Greek, Italian, Spanish and Belgian government securities rose sharply until mid-November, and the spreads to Germany widened. Subsequently they have, however, narrowed considerably, except in the case of Greece. Yield spreads to Germany for Ireland and Portugal – the two member states besides Greece that have IMF/EU borrowing programmes – have been relatively stable since mid-September.

Yields on 10-year US and German government securities fluctuated strongly during the autumn. Having ranged between 1.7 and 2.4 per cent in October and November, US and German yields were around 2.0

YIELD SPREADS FOR SELECTED EURO AREA MEMBER STATES Chart 3

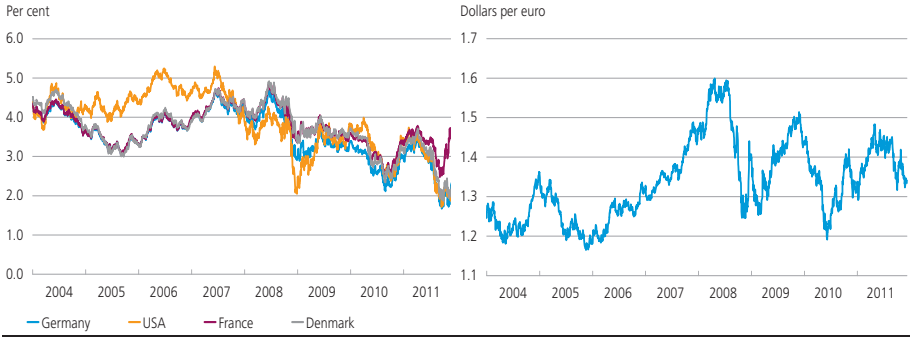


Note: Yield spreads to Germany for 10-year government bonds. Due to a data break in the Irish 10-year benchmark bond, it has been approximated by a 9-year benchmark bond. The most recent observations are from 8 December 2011.
Source: Bloomberg.

per cent in early December, cf. Chart 4 (left). Conversely, the yield on 10-year French government securities showed an almost unbroken upward trend until the end of November, when it was 3.7 per cent, i.e. the same level as before the debt crisis really spread. By early December it had declined to 3.4 per cent.

Higher government bond yields in vulnerable member states mean higher costs associated with maintaining new debt issued with the higher yields. The issuance requirement is determined by the debt maturing in the near future, the size of the current budget deficit and any liquid holdings. Stylised calculations by the OECD, taking into account the maturity profiles of government debt in Italy, Spain and Belgium, show that further consolidation in the magnitude of 2-3 per cent of GDP will be required in 2020 in order to neutralise the conse-

10-YEAR GOVERNMENT BOND YIELDS (LEFT) AND EXCHANGE RATE BETWEEN DOLLAR AND EURO, 2004-11 (RIGHT) Chart 4



Note: The most recent observations are from 8 December 2011. *Right:* Development in price of euro measured in dollars. An increase indicates strengthening of the euro against the dollar.
Source: Bloomberg and Danmarks Nationalbank.

SUMMIT DECISIONS ON THE DEBT CRISIS AND ECONOMIC COOPERATION IN THE EU — Box 1

At meetings during the autumn, the EU and euro area member states made a number of decisions aimed at containing the sovereign debt crisis. These decisions related to issues such as recapitalisation of the European banks, initiatives concerning euro area member states' financing facilities, increased economic cooperation and new measures vis-à-vis Greece.

At EU meetings in late October and November agreement was reached on a bank package comprising two elements. The first element concerns requirements for recapitalisation of the 71 largest European banks. The second element concerns a common approach to government guarantees for banks. The background is that many banks have not had access to normal funding in the markets since the summer so there is a risk of a genuine credit crunch. This risk may be amplified by higher, but necessary, capital requirements.

The heads of state or government have made it clear that the capital should first and foremost come from private-sector contributions or via restructuring of the capital base. If that is not possible, government capital injections should be an option. Finally, euro area member states that are unable to provide the necessary support themselves will have access to support via the temporary euro area financing facility, European Financial Stability Facility, EFSF.

For both elements of the package, a number of issues remain outstanding as regards the specific content. Work is underway to detail and implement these issues.

The euro area member states also agreed on a number of measures to extend the scope of the EFSF. Firstly, it was decided to enable the EFSF to provide limited loss guarantees to investors in the primary markets for government securities, corresponding to 20-30 per cent of the nominal value of the bonds. Secondly, one or several special funds may be set up under the EFSF which will be able to buy up euro area government securities on the basis of contributions from the private and public sectors.

Finally, agreement was reached on an adjustment of the July rescue package for Greece. In total the new package will amount to 130 billion euro. Furthermore, a voluntary agreement was made with representatives of the largest banks on halving the nominal value of the banking sector's portfolios of Greek government debt. This means that the Greek debt will probably be limited to 120 per cent of GDP in 2020. In early December, Greece received the sixth disbursement under its first IMF/EU loan package as Greece decided, after a long and complex series of events, to comply with the loan conditions.

At the meeting of the European Council on 8-9 December it was decided to tighten the fiscal rules for the euro area member states and other EU member states that decide to participate, and to strengthen the capacity to assist ailing member states.

The strengthened economic cooperation will be implemented in a fiscal compact under which the member states make a commitment, among other things, to ensure that the government budget is in balance or in surplus. This fiscal rule is to be incorporated in national legislation at the constitution level or similar, along with an automated mechanism to address any non-compliance. The sanctions under the EU's excessive deficit procedure will also be automated.

CONTINUED Box 1

The euro area heads of state or government also decided to bring forward the commencement of the permanent euro area lending mechanism, European Stability Mechanism, ESM, which is to have an effective loan capacity of 500 billion euro, to July 2012. The ESM's loan capacity will be reassessed in March 2012. In order to ensure that the International Monetary Fund, IMF, has sufficient funds to handle the crisis, the euro area member states and a number of other EU member states also gave their preliminary support for injecting up to 200 billion euro into the IMF by way of bilateral loans. On the part of Denmark it was indicated that Danmarks Nationalbank is ready to contribute a loan of kr. 40 billion to the IMF, corresponding to Denmark's share.

quences of a permanent rise in yields of 3.5 percentage points relative to a baseline scenario.[1]

Despite heightened volatility in the equity markets, particularly in the euro area, the benchmark US and European stock indices rose in the weeks up to the EU and euro area summits at the end of October, and again up to the December summits. By early December, stock indices in the euro area and the USA had risen by 6 and 13 per cent, respectively, compared with the level at the beginning of October, but nevertheless remain well below the level in the summer. Following considerable fluctuations in recent years, the euro strengthened vis-à-vis the dollar during October. Since then it has depreciated by 6 per cent against the dollar, cf. Chart 4 (right), and by 3 per cent against the pound sterling. While the exchange rate of the Swiss franc vis-à-vis the euro was relatively stable in this period, flows towards safer assets led to further appreciation of the Japanese yen, and the Bank of Japan intervened in the foreign-exchange market in an attempt to counter the market trend.

The debt crisis has increased uncertainty about the strength of the European banking sector, particularly the banks in member states directly affected by the sovereign debt crisis. There has been an impact via several channels. Firstly, the economic outlook has deteriorated considerably, which has reduced expectations of bank earnings. Secondly, large price drops for government securities or "haircuts" as part of a restructuring effort may lead to substantial losses for the banks. Since banks often hold large portfolios of domestic government securities, banks resident in the most severely affected member states are most vulnerable. Moreover, especially German and French banks hold large

[1] The estimates indicate the yield effect on the consolidation need of a permanent increase of 3.5 percentage points in the government yield relative to the baseline scenario in 2011-13 in the OECD's Economic Outlook from November 2011, and for the period until 2020 the long-term scenario presented in the OECD's Economic Outlook No. 89, May 2011.

portfolios of government securities from the hardest hit member states.[1] Thirdly, faith in several member states' capacity to support jeopardised banks has diminished in step with the weakening of public finances. The financial markets are concerned about a negative spiral in Europe. The banking sector, which plays an important role in the euro area, has weakened. This could lead to a reduction in the extension of credit, which in turn would weaken the real economy and public finances further.

On 26 October 2011, the EU heads of state or government agreed on a number of issues to ensure recapitalisation of the European banks, cf. Box 1. By July 2012, the largest banks in the EU member states must have Common Equity Tier 1 capital ratio[2] of 9 per cent. To ensure that the banks build up such buffers, the European Banking Authority, EBA, in cooperation with the national authorities in late October performed a capital test of European banks. The calculation of Common Equity Tier 1 assumes full inclusion of government exposures at market value so that losses incurred on these securities are taken into account.

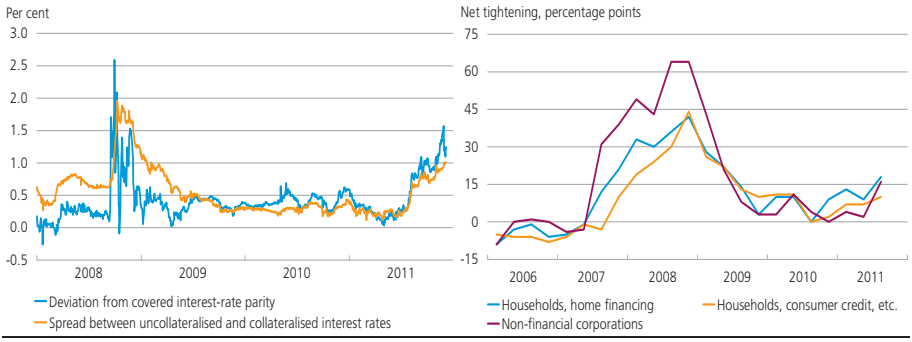
Over the last six months, US money-market funds, which are large-scale lenders in the financial sector, have reduced their lending to European banks. Lending is now at the lowest level since 2006, and lending to banks in several EU member states, including Greece, Portugal, Italy and Spain, has been discontinued, while lending by these funds to French banks has been more than halved since August. This has forced the European banks to raise dollar funding through other channels and has pushed up the price of dollar funding via FX swaps relative to direct dollar loans. In other words, the deviation from the covered interest-rate parity between dollars and euro has increased, cf. Chart 5 (left).

The ECB has held dollar auctions with 1-week maturity and dollar auctions with 3-month maturity in cooperation with other central banks. Bids in the weekly auctions have been limited, both in terms of the number of participating banks and the size of the loans. To ease the liquidity situation and mitigate the impact on credit extension to households and non-financial corporations, the central banks of six countries or regions (Canada, the UK, Japan, Switzerland, the USA and the euro area) on 30 November lowered the interest-rate margin at which banks can borrow dollars at the auctions from 100 basis points to 50 basis

[1] Typically, most of these portfolios are treated as ordinary bank lending in the banks' financial statements, and their valuation is higher than the current market value. Only a small part, relating to the banks' securities available for sale, is stated at market value. In this context Danish banks stand out, in that most of the government securities they hold are securities available for sale, stated at market value. At any rate the Danish banks' exposure to the government securities in question is very limited.

[2] The EBA's capital test also includes government Additional Tier 1 capital and new issues of callable instruments which meet the strict requirements laid down by the EBA.

DEVIATIONS FROM COVERED INTEREST-RATE PARITY BETWEEN EURO AND DOLLARS AND SPREAD BETWEEN UNCOLLATERALISED AND COLLATERALISED MONEY-MARKET INTEREST RATES IN THE EURO AREA (LEFT), AND CREDIT CONDITIONS IN THE EURO AREA (RIGHT) Chart 5



Note: *Left*: The deviation from the covered interest-rate parity is an expression of the difference between the costs of borrowing in euro combined with FX swaps from euro to dollars and direct borrowing in dollars. The most recent observations are from 8 December. *Right:* Credit conditions according to the ECB's Bank Lending Survey. The chart shows the net tightening of credit standards by the respondent banks stated as the percentage of the banks that have tightened considerably or tightened somewhat less the percentage that have eased somewhat or eased considerably. Positive values indicate that credit conditions are being tightened, while negative values indicate easing of credit conditions.
Source: Reuters EcoWin and Bloomberg.

points. At the following auction, lending reached approximately 51 billion dollars.

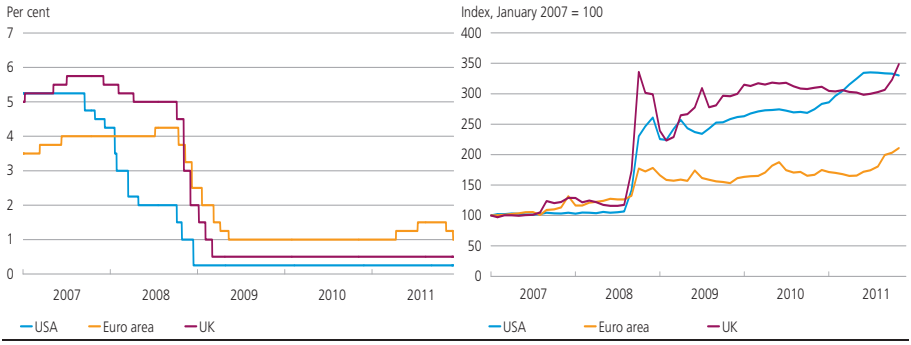
Due to uncertainty about counterparties' creditworthiness and their own liquidity, the banks have since the summer been hesitant to lend in the money market. Despite ample liquidity from the European Central Bank, ECB, this has led to widening of interest-rate spreads between uncollateralised and collateralised loans, cf. Chart 5, (left).

The European banks tightened credit conditions for households and non-financial corporations considerably in the 3rd quarter of 2011, cf. Chart 5 (right). The banks' lending to non-financial corporations continues to grow, while lending to households for home financing decreased in October. The worsening of financial conditions since the summer, including tighter credit conditions and wealth effects from lower asset prices, may contribute to dampening growth. On the other hand, low interest rates in some member states will support activity growth. OECD[1] calculations show that, viewed in isolation, financial developments since the summer will dampen GDP growth in the euro area and the USA by 1 and 0.5 percentage points, respectively, in 2012 and 0.5 and 0.25 percentage points in 2013.

Low monetary-policy interest rates in the advanced economies have compelled central banks to use other instruments than the interest-rate

[1] OECD Economic Outlook No. 90, November 2011.

MONETARY-POLICY INTEREST RATES (LEFT) AND CENTRAL BANK BALANCE SHEETS (RIGHT) IN SELECTED COUNTRIES, 2007-11 Chart 6



Note: *Left:* The US Federal Reserve (Fed) operates with a target interval of 0.0-0.25 per cent. The chart shows the upper band of the Fed's target interval. The most recent observations are from 8 December 2011.
Source: Reuters EcoWin.

instrument, cf. the article "Monetary-Policy Strategies and the Zero Lower Bound on Interest Rates" in this Monetary Review. The use of other instruments has increased the central banks' balance sheets. At the same time monetary-policy interest rates have been kept low, and in the case of the ECB lowered by 0.25 basis points in both November and December, cf. Chart 6.

Growth outlook

The most recent international growth forecasts point to a moderate upswing in the USA, while euro area GDP growth will, according to the OECD, be negative around the turn of the year. But there is considerable divergence among the euro area member states as regards growth expectations for the forecast years, cf. Table 1. In member states where growth was unsustainably high in the pre-crisis years and contributed to

INTERNATIONAL ORGANISATIONS' ESTIMATES OF GDP GROWTH Table 1

		OECD			European Commission		
Per cent	2010	2011	2012	2013	2011	2012	2013
USA	3.0	1.7	2.0	2.5	1.6	1.5	1.3
Euro area	1.8	1.6	0.2	1.4	1.5	0.5	1.3
Germany	3.6	3.0	0.6	1.9	2.9	0.8	1.5
France	1.4	1.6	0.3	1.4	1.6	0.6	1.4
Italy	1.5	0.7	-0.5	0.5	0.5	0.1	0.7
Spain	-0.1	0.7	0.3	1.3	0.7	0.7	1.4
UK	1.8	0.9	0.5	1.8	0.7	0.6	1.5
Sweden	5.4	4.1	1.3	2.3	4.0	1.4	2.1
Japan	4.1	-0.3	2.0	1.6	-0.4	1.8	1.0
China	10.4	9.3	8.5	9.5	9.2	8.6	8.2

Source: OECD, *Economic Outlook* No. 90, November 2011, and European Commission's autumn forecast, November 2011.

soaring house prices, loss of competitiveness and increasing current-account deficits, imbalances need to be brought down and public finances consolidated, which will put a damper on activity. Conversely, the growth potential is greater in member states that have not accumulated large current-account deficits and where the housing market has not been overheated. Fiscal focus in Europe has been on observing the 3-per-cent limit stipulated in the Stability and Growth Pact and ensuring the medium-term sustainability of public finances. This means that fiscal policy is to a large extent procyclical in many advanced economies, but the alternative, namely higher interest rates, would be worse, also for the real economy. In the USA, a weak housing market and a still subdued trend in employment will dampen growth in private consumption. It is also necessary to tighten fiscal policy. In November, the "super committee" set up to find a compromise on consolidation of US public finances failed to reach agreement, and unless Congress can land a compromise during 2012, general savings will automatically take effect from 2013.

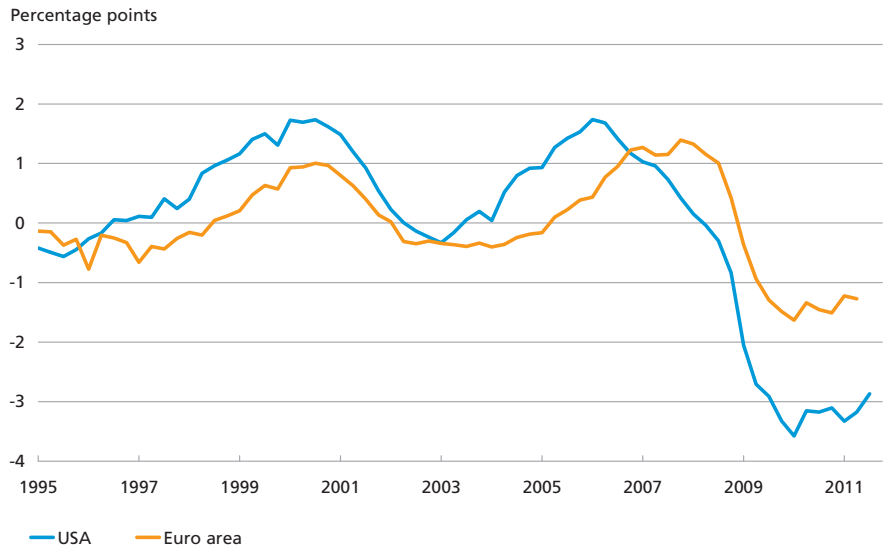
Uncertainty is extraordinarily high, and growth projections hinge very much on the development of the sovereign debt crisis, but also on US fiscal policy in the coming years, with major decisions yet to be taken. According to the OECD, considerable worsening of the sovereign debt crisis and the implications thereof would subtract 2-4 percentage points from GDP growth in 2012-13 in the USA and the euro area. On the other hand, effective management of the crisis, resulting in substantial narrowing of government yield spreads, could boost growth by 1-2 percentage points in 2012-13 in the two economies.

Firms have posted sound earnings, but have been reluctant to invest. This means that investment ratios in the USA and the euro area are somewhat below the average for the past 15 years, cf. Chart 7. A return to previous investment levels would contribute to growth. In countries still seen as safe havens, activity is supported by very low interest rates. The marked declines in confidence since the summer have taken place at a time when demand was already low in the private sector. Oil, which traded at around 108 dollars per barrel in early December, has fallen a little from the high levels seen in the spring. But so far prices have decreased only moderately despite the more dampened growth prospects for the world economy. Further falls could support growth in real income.

Economic policy challenges

The EU has taken a number of policy initiatives to contain the sovereign debt crisis, most recently in connection with the October and December

INVESTMENT RATIOS FOR THE USA AND THE EURO AREA, DEVIATION FROM AVERAGE, 1995-2011 Chart 7



Note: Investment ratios measured as deviations from the average for the period 1995-2011.
Source: Reuters EcoWin.

summits, cf. Box 1. So far, these initiatives have been insufficient to restore market confidence in government issues from the debt-ridden member states. It may take a while to reduce government yield spreads notably, but it is essential to keep yields below the levels at which fiscal policy becomes unsustainable.

The International Monetary Fund, IMF, plays a major role through loans to particularly heavily indebted member states such as Greece, Ireland and Portugal, which have problems meeting their international payment obligations. By involving the IMF in the solution of debt problems in vulnerable member states, it is ensured that the loan commitments go hand in hand with commitments by the member states in question to implement the necessary fiscal adjustments and structural reforms. Recently the IMF adjusted its lending instruments aimed at preventing crises so as to make access to IMF funds more flexible for countries with temporary pressure on their balances of payments.

In October the IMF's lending capacity was approximately 275 billion euro. With the agreement between the euro area member states and a number of other EU member states, including Denmark, cf. Box 1, this amount is set to be raised by 200 billion euro in the form of bilateral loans from EU member states. The IMF's governing body, the IMFC, has made it a priority to assess the adequacy of its resources before the spring of 2012 with a view to contributing to containing the sovereign

debt crisis. At the Cannes summit in early November, the G20 heads of state or government also made a commitment to mobilise extra resources for the IMF if necessary.

In addition to the IMF facilities, the capacity of the euro area's temporary lending facility, the European Financial Stability Facility, EFSF, has been increased, and the introduction of the permanent lending mechanism, the European Stability Mechanism, ESM, has been brought forward to 2012. At the October summit it was decided to enable the EFSF to provide limited loss guarantees to investors in the primary markets for government securities and to set up one or more special funds under the EFSF which would be able to purchase government securities that are under pressure on the basis of contributions from the private and public sectors.

A third option that has been mentioned is to ease pressure on the debt-ridden member states by letting the ECB continue to buy up government securities under the Securities Market Programme, SMP. Until now the reason given for such purchases from debt-ridden member states has been to ensure the monetary-policy transmission by intervening in important markets segments that were not functioning because of the crisis. A shift in the ECB's role towards becoming an actual lender of last resort for euro area member states would be contrary to the ECB's role and function as laid down in the EU Treaty.[1] Furthermore, it may lead to moral hazard problems and hence weaker fiscal discipline in member states.

For all the models described here, it applies that, jointly or separately, they will presumably only mitigate the impact of the sovereign debt crisis. In this context, the strength of IMF programmes for vulnerable member states is that loan commitments are given in combination with requirements to implement the necessary fiscal adjustments. Virtually none of the other proposals for financial assistance to these member states include any such direct approach to adjustment measures. For this reason the member states in question prefer alternatives to the IMF programmes. On the other hand, contributor member states are not ready to provide unconditional loans.

Restoring market confidence and ensuring sustainable developments in vulnerable member states will require fiscal adjustments that have a short-term effect and structural reforms that strengthen competitiveness and growth potential in the longer term. Political decision-making capacity ensures some control of the adjustment process, which is not the

[1] Cf. for example Article 123 of the Treaty on the Functioning of the European Union and Articles 2 and 21 of the Statute of the European System of Central Banks and of the ECB.

case if the adjustment is market-driven. The longer the required adjustments are postponed, the more it will probably take to convince the markets that the policies pursued are sustainable.

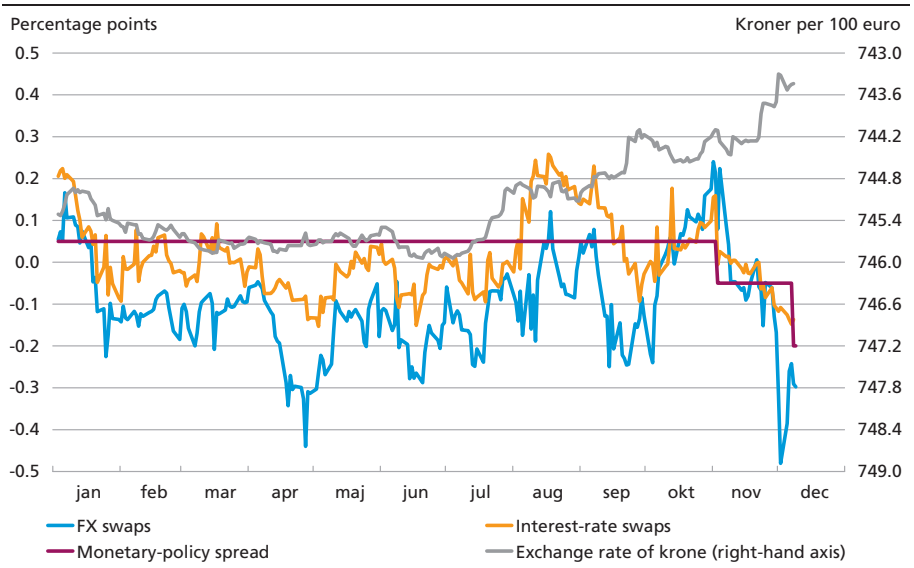
MONETARY AND EXCHANGE-RATE CONDITIONS

In connection with the turmoil in the international financial markets and despite narrowing of the spread between short-term money-market interest rates in Denmark and the euro area, the krone strengthened in September. In late November and early December the krone strengthened further, cf. Chart 8.

In September and November, Danmarks Nationalbank purchased foreign exchange for kr. 14.0 and 10.7 billion, respectively, through intervention. Danmarks Nationalbank did not intervene in the foreign-exchange market in October. At end-November the foreign-exchange reserve was kr. 467.7 billion.

In the euro area, recent months have seen several signs of tensions in the money market, cf. the section on the international economy. In October the ECB decided to continue conducting its main refinancing

INTEREST-RATE SPREADS BETWEEN DENMARK AND THE EURO AREA IN 2011 — Chart 8



Note: 1-month maturity for FX swaps and interest-rate swaps. Interest-rate swaps are the spread between Cita and Eonia. The monetary-policy spread is the difference between Danmarks Nationalbank's lending rate and the ECB's rate of interest in its weekly main refinancing operations. Changes in the monetary-policy interest rates are included from the date when they are announced. The most recent observations are from 9 December 2011.

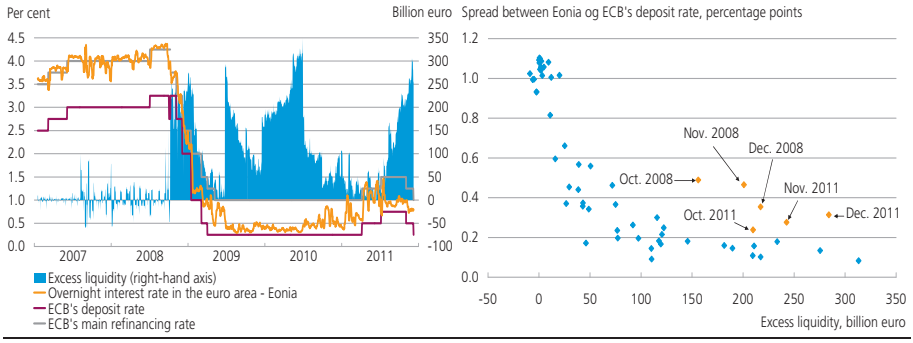
Source: Bloomberg and Danmarks Nationalbank.

operations as fixed rate tenders with full allotment for as long as necessary, and at least until 10 July 2012. At the same time the ECB announced a 12-month and a 13-month longer-term refinancing operation in October and December, respectively, as well as six 3-month operations with full allotment during 2012. According to the ECB's calculations, euro area banks have, overall, had excess liquidity in recent months, cf. Chart 9 (left). The spread between the short-term money-market interest rate, Eonia, and the ECB's deposit rate was wider than in the preceding periods with equivalent levels of excess liquidity, but narrower than in the autumn of 2008, cf. Chart 9 (right). The relatively high level of Eonia indicates that although aggregate excess liquidity was high, exchange of liquidity among the banks was sluggish and some euro area banks found it more difficult to obtain liquidity in the money market. Compared with previous months, the banks made more use of the ECB's overnight facility to raise liquidity; the rate of interest on this facility was around 1 percentage point higher than Eonia.

The tensions in the money market were also seen in Denmark in October and early November, when short-term money-market interest rates rose, resulting in a widening of the spread to the euro area. Money-market interest rates determine the exchange rate of the krone. In order to support the fixed-exchange-rate policy, Danmarks Nationalbank supplements its monetary-policy instruments with liquidity-adjusting deposit and lending operations in kroner which can be applied as and when required. The rates of interest and maturities of such operations will reflect market conditions. For a more detailed description, see the

RELATIONSHIP BETWEEN EXCESS LIQUIDITY AND OVERNIGHT INTEREST RATE IN THE EURO AREA

Chart 9



Note: Excess liquidity is the liquidity that exceeds the ECB's calculation of the banks' liquidity requirement. The latter is given by the ECB's reserve requirements for the banks and the autonomous factors such as banknotes in circulation and government deposits in the banks. The overnight interest rate in the euro area is Eonia. Changes in the monetary-policy interest rates are included from the date when they are announced. The left-hand chart is a 5-day moving average of daily observations. The right-hand chart is monthly averages. The most recent observations are from 8 December 2011.

Source: Reuters EcoWin and ECB.

article "Supplementary Instruments in Danmarks Nationalbank's Liquidity Management" in this Monetary Review.

When the ECB on 4 November announced that its monetary-policy interest rates would be lowered by 0.25 percentage points, Danmarks Nationalbank followed suit and lowered the rate of interest on certificates of deposit, the lending rate and the current-account rate by 0.35 percentage points each, to 0.65, 1.20 and 0.55 per cent, respectively. The discount rate was lowered by 0.25 percentage points to 1.00 per cent. The Danish interest-rate cuts took place against the background of prior purchases of foreign exchange in the market by Danmarks Nationalbank. Subsequently, the spread between short-term Danish and European money-market interest rates narrowed considerably, cf. Chart 8.

On 8 December, the ECB once again lowered its monetary-policy interest rates by 0.25 percentage points and announced four measures to ease the banks' liquidity situation and ensure the lending to households and non-financial corporations. The measures were: to extend the banks' access to pledge collateral, to reduce the reserve requirements, to stop the fine-tuning operations at the end of each reserve maintenance period, and to conduct two longer-term refinancing operations with maturities of 3 years each in December 2011 and February 2012, respectively. With effect from 9 December, Danmarks Nationalbank lowered its lending rate by 0.4 percentage points to 0.80 per cent and the rate of interest on certificates of deposit, the current-account rate and the discount rate by 0.25 percentage points each to 0.40, 0.30 and 0.75 per cent, respectively. The spread between the lending rate and the rate of interest on certificates of deposit was narrowed to reduce the possibility of fluctuations in short-term money-market interest rates. At the same time as the ECB, Danmarks Nationalbank also introduced the option of raising 3-year loans against collateral.

Capital markets

With effect from 1 October 2011, Danmarks Nationalbank expanded the collateral basis to include the banks' credit claims of good quality with a view to supplementing the banks' access to liquidity and facilitating the transition when the individual government guarantees expire in 2012-13. Within certain limits, the banks can include this access to loans from Danmarks Nationalbank in their liquidity, cf. section 152 of the Danish Financial Business Act, even though the loans have not been pledged to Danmarks Nationalbank. On the same occasion, Danmarks Nationalbank introduced a 6-month facility whereby the monetary-policy counterparties can raise loans against collateral. As already stated, Danmarks Nationalbank on 8 December also introduced a 3-year lending facility.

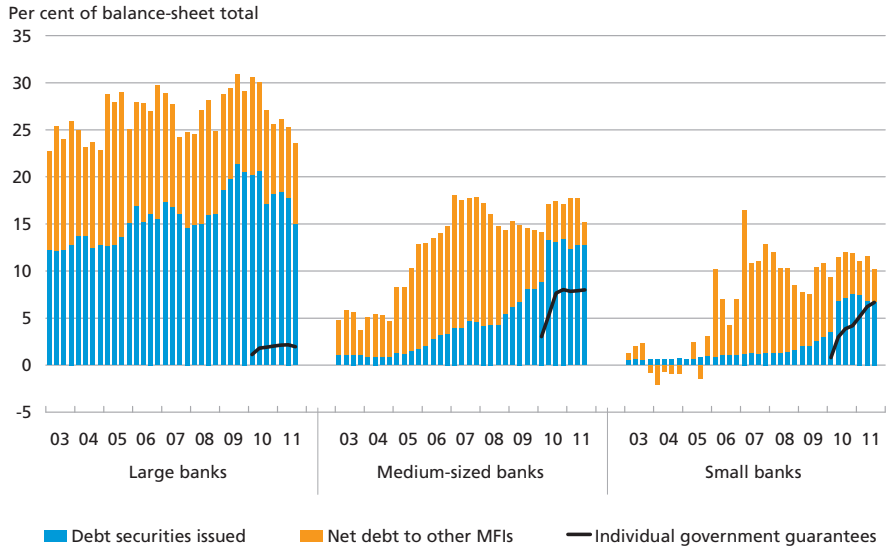
As in the weekly open market operations, the long-term loans operate with an open window, i.e. Danmarks Nationalbank fixes the rate of interest on the loans after which the counterparties are free to determine the volume of loans. The rate of interest on these loans is variable throughout the maturity of the loan, determined by Danmarks Nationalbank's 7-day lending rate in the weekly open market operations. The 6-month facility was launched on 28 October 2011 and is open on the last Friday of each month. The 3-year facility will be implemented following consultation with the banks and mortgage banks. The new lending facilities and the expansion of the collateral basis are described in more detail in the article "New Credit Facilities at Danmarks Nationalbank" in this Monetary Review.

From the end of the 2nd quarter to the end of the 3rd quarter 2011 the banks reduced their customer funding gap by kr. 44 billion to kr. 224 billion. The customer funding gap has been more than halved since the end of 2008.[1] In 2009 it was mainly narrowed by a decrease in lending, while the trend in the last 18 months mainly reflects an increase in deposits. The development in the customer funding gap is primarily driven by the large banks, but the medium-sized and small banks have also reduced the gap. Customer funding gaps are mainly financed by borrowing from other MFIs and by issuing debt securities. A substantial part of the funding, especially for the medium-sized and small banks, is covered by individual government guarantees, cf. Chart 10. Even though the banks overall have a customer funding gap, there is considerable variation between the banks, cf. Chart 11. Some have a customer funding gap, other have a surplus.

On 10 October 2011, Max Bank A/S filed a winding-up petition. This step was taken after the Danish Financial Supervisory Authority had found, in its routine survey of the bank, that there was a need for further write-down of the bank's commitments and an increase of the solvency requirement. Max Bank was unable to raise the necessary capital by the deadline given, and with effect from 8 October it transferred all assets and liabilities except subordinate capital to a new bank under the Financial Stability Company, which at the same time sold the healthy part of the bank to Sparekassen Sjælland. Sparekassen Sjælland took over all retail customers and certain business exposures, totalling kr. 3.8 billion in deposits and kr. 3.0 billion in loans. The transfer of Max Bank took place under the compensation scheme that was part of the political agreement on Bank Rescue Package 4. This was the first time these rules were applied. This solution meant that no unsecured creditors incurred

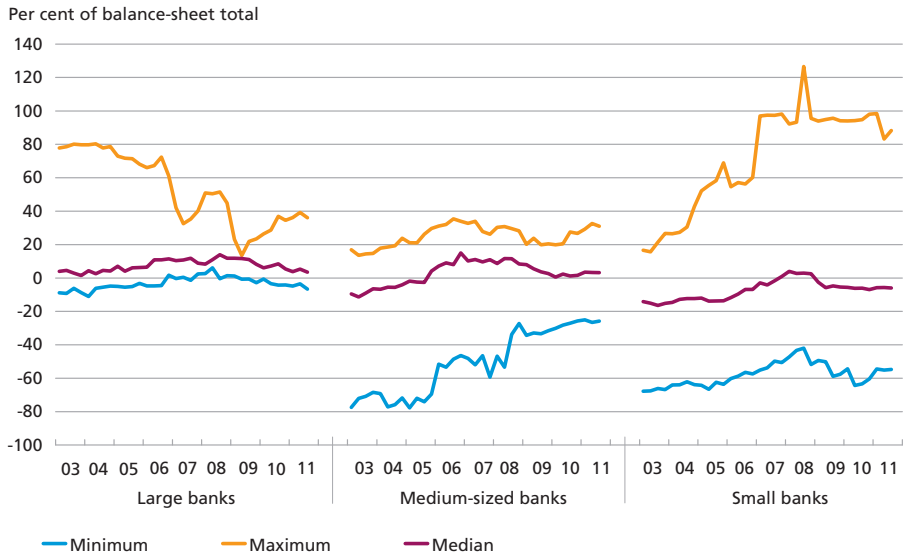
[1] Calculated exclusive of the banks acquired by the Financial Stability Company.

THE BANKS' FUNDING — Chart 10



Note: Consolidated with foreign branches. Large, medium-sized and small banks are the Danish Financial Supervisory Authority's groups 1, 2 and 3, excluding banks acquired by the Financial Stability Company. The most recent observations are from the 3rd quarter of 2011.
Source: Financial Stability Company and Danmarks Nationalbank.

SPREAD BETWEEN BANKS' CUSTOMER FUNDING GAPS — Chart 11



Note: Consolidated with foreign branches. Large, medium-sized and small banks are the Danish Financial Supervisory Authority's groups 1, 2 and 3, excluding banks acquired by the Financial Stability Company. For each period, the minimum and maximum are the banks with the smallest and largest customer funding gaps, respectively, measured as a percentage of the balance-sheet total. The most recent observations are from the 3rd quarter of 2011.
Source: Danmarks Nationalbank.

losses, and nor did creditors whose deposits exceeded the maximum of 100,000 euro, corresponding to approximately kr. 750,000, covered by the Guarantee Fund for Depositors and Investors. In connection with the transfer of Max Bank, the Financial Stability Company stated that shareholders and owners of subordinate liabilities would have to acknowledge that their investment was most likely lost.

The European Banking Authority, EBA, has conducted a capital test of European banks on the basis of data for the 3rd quarter of 2011, cf. the section on the international economy. From Denmark, Danske Bank, Jyske Bank, Sydbank and Nykredit participated. The results showed that the Danish banks' exposures to the vulnerable EU member states in southern Europe are limited, both in terms of direct exposure to sovereign bonds and indirectly in the form of CDS contracts for sovereign exposures. The test results also showed that the Danish banks participating in the test are well-capitalised, with Common Equity Tier 1 (Core Tier 1) ratios of between 12.34 and 14.04 per cent on full inclusion of government exposures at market value, i.e. well above the 9-per-cent threshold.

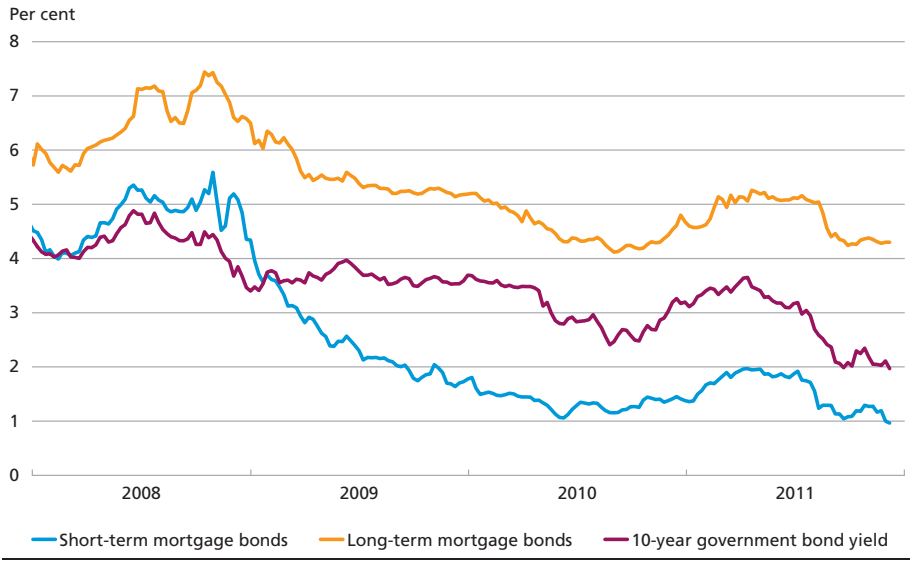
The European recapitalisation plan agreed on by the EU heads of state or government on 26 October 2011 allows member states to introduce voluntary government guarantee schemes for banks on uniform conditions, cf. the section on the international economy. In Denmark, the general government guarantee expired with Bank Rescue Package 1 at the end of September 2010, but there is still widespread government involvement in the Danish banking sector by way of government injections of Additional Tier 1 capital and the individual government guarantees, which will expire in 2012 and 2013. The Danish banks are well-capitalised and should generally be able to manage the transition to a situation without government guarantees. All the same, there may be a few that will find it more difficult to procure the necessary funding within the given time horizon. In the current situation the solution is not to introduce a new general government guarantee, although this is an option under the European recapitalisation plan.

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

The yields on both short-term and long-term mortgage bonds fell substantially from early July until late September, followed by small fluctuations. At the beginning of December, the yield on 1-year non-callable fixed-rate bullet bonds ("fixed bullets") used for financing adjustable-rate loans was 1.0 per cent, while the long-term yield was 4.3 per cent. For both short-term and long-term bonds this more or less corresponds to the level 18 months ago, cf. Chart 12. This year, the auctions for refinancing adjustable-rate loans ran from 21 November to 14 December.

YIELDS ON DANISH MORTGAGE BONDS AND 10-YEAR GOVERNMENT BOND YIELD

Chart 12



Note: The short-term yield is the 1-year yield on fixed bullets. The long-term yield is an average effective yield based on 30-year fixed-rate callable mortgage bonds. The most recent observations are from calendar week 49.
Source: Nordea Analytics, Association of Danish Mortgage Banks and Danmarks Nationalbank.

The mortgage banks had announced beforehand that they expected to have to refinance around kr. 510 billion, of which some kr. 130 billion was denominated in euro. The aggregate refinancing requirement was slightly lower than last year, reflecting the mortgage banks' efforts to spread auctions over the year so as to reduce the refinancing risk.

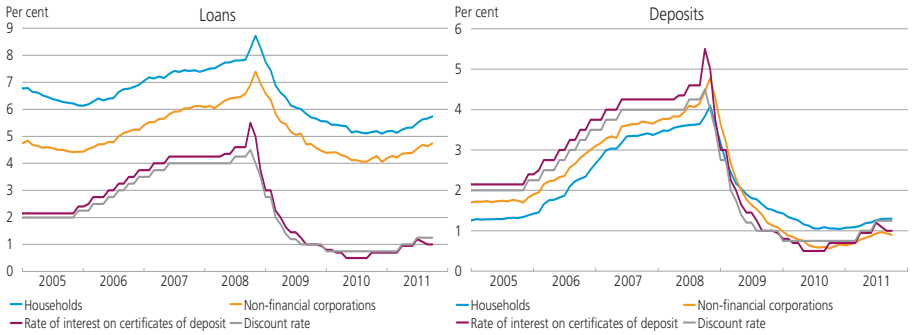
The spread of the sovereign debt crisis within the euro area has led to extraordinarily strong demand for highly rated government securities from non-euro area member states, including Denmark. The yield spread to Germany narrowed suddenly at the end of November and has now become negative for all maturity segments. In the first days of December the 10-year government bond yield fell below 2 per cent, cf. Chart 12. This is a historically low level.

High demand for Danish government bonds and the wish to reduce the refinancing risk meant that the central government began to finance its 2012 borrowing requirement in 2011. Excess sales of government bonds contributed to a large balance in the central government's account at Danmarks Nationalbank. This makes government debt policy more robust in a period of great uncertainty in the financial markets.

The banks' interest rates on loans to households and non-financial corporations rose by 0.4 and 0.3 percentage points, respectively, from end-June to end-October. In the same period deposit rates remained

THE BANKS' LENDING AND DEPOSIT RATES FOR HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS AND DANMARKS NATIONALBANK'S RATE OF INTEREST ON CERTIFICATES OF DEPOSIT AND DISCOUNT RATE

Chart 13



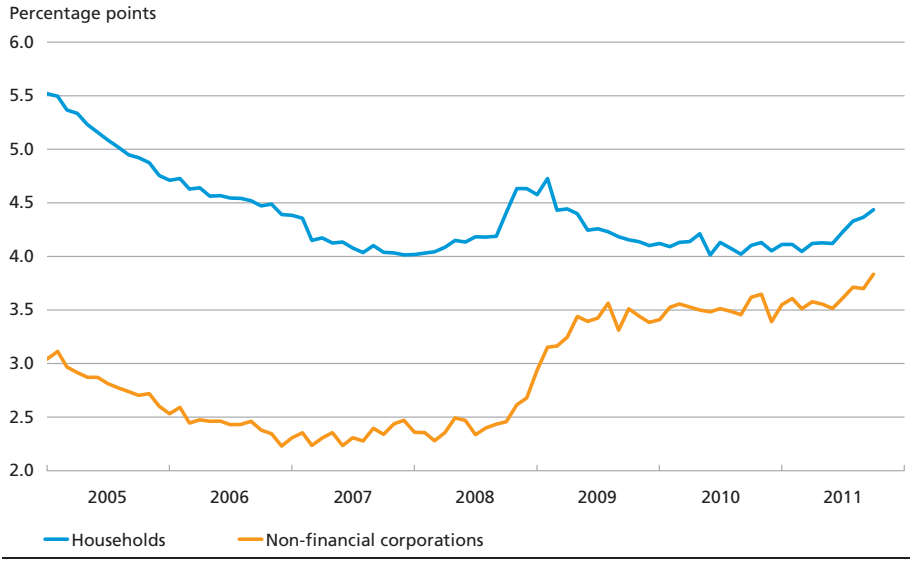
Note: Average effective interest rate on outstanding business. The most recent observations are from October 2011.
Source: Danmarks Nationalbank.

virtually unchanged. Seen over the year, the banks' interest rates have generally mirrored developments in monetary-policy interest rates, cf. Chart 13.

From end-June to end-October, the banks' interest-rate margin, i.e. the difference between lending and deposit rates, increased by 0.3 per cent for households and non-financial corporations after having been almost stable since the end of 2009, cf. Chart 14. The widening of the interest-rate margin is a natural and – in the current situation – necessary way

THE BANKS' INTEREST-RATE MARGINS FOR HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS

Chart 14



Note: The most recent observations are from October 2011.
Source: Danmarks Nationalbank.

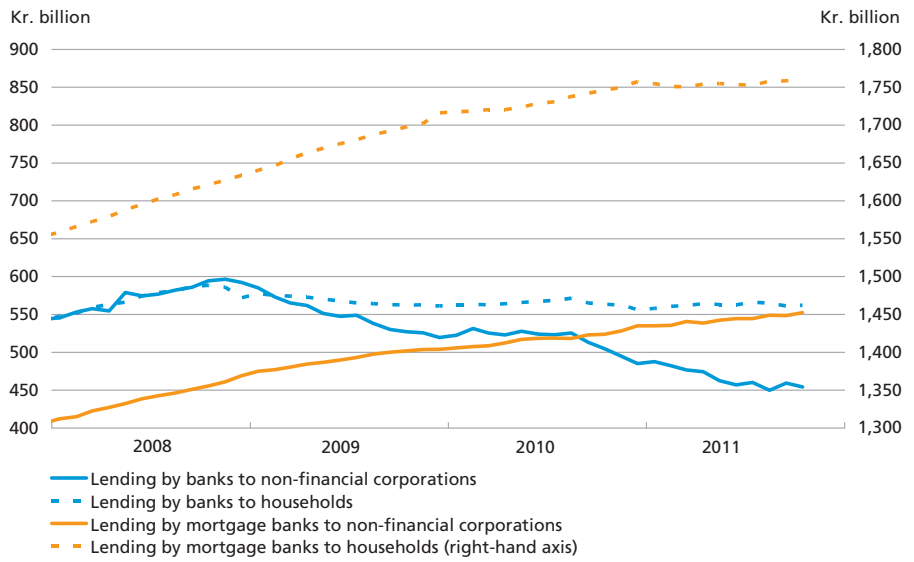
for the banks to increase earnings. Funding has become harder to come by and more expensive.

The large and medium-sized banks' margins differ considerably. Especially for households, the medium-sized banks' interest-rate margins have been considerably wider than those of the large banks since the autumn of 2008. The main reason for this difference is that the medium-sized banks have higher lending rates than the large banks. As regards corporate customers, the average deposit rate is, however, also higher in the medium-sized banks. In this context it should be borne in mind that the large and medium-sized banks may also differ in terms of products and customers.

Total lending by banks and mortgage banks to households and non-financial corporations has been more or less constant since the end of 2008, but there has been a shift, especially for corporate lending, from banks to mortgage banks, cf. Chart 15. From end-August to end-October 2011, total lending to households rose by kr. 1 billion to kr. 2,324 billion, while total lending to non-financial corporations rose by kr. 8 billion to kr. 1,007 billion.

In Danmarks Nationalbank's lending survey, the banks and mortgage banks stated that they tightened their credit standards somewhat in the

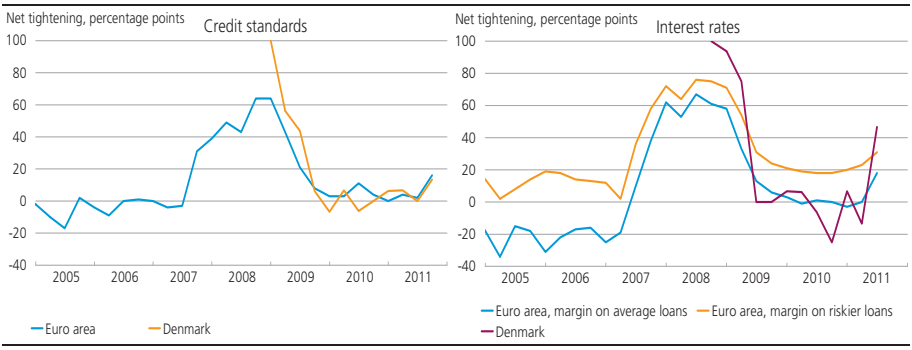
LENDING BY BANKS AND MORTGAGE BANKS TO HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS — Chart 15



Note: Seasonally adjusted lending. A large proportion of the last year's fall in lending by banks to non-financial corporations is attributable to special circumstances, including the change of the group structure of the Financial Stability Company, relocation of business abroad by a couple of banks and realised losses on loans. The most recent observations are from October 2011.

Source: Danmarks Nationalbank.

THE BANKS' CHANGES IN CREDIT STANDARDS, AND INTEREST RATES FOR CORPORATE CUSTOMERS IN THE EURO AREA AND DENMARK Chart 16



Note: Net tightening is calculated as the percentage of banks that have tightened considerably or tightened somewhat less the percentage that have eased somewhat or eased considerably. For the euro area, tightening via the price is specified as an increase relative to the rate of interest paid by the banks themselves for funding and broken down by average corporate loans and riskier loans.
Source: Danmarks Nationalbank.

3rd quarter of 2011 for both corporate and retail customers. According to their responses, this has been done via the price channel, i.e. higher interest rates, cf. Chart 16. The euro area banks also tightened their credit standards in the 3rd quarter, cf. the section on the international economy. In this case, it was done by tightening collateral requirements and increasing interest-rate margins.

According to the Danish banks and mortgage banks, the corporate sector's demand for loans was more or less unchanged in the 3rd quarter of 2011, but viewed over the last year the large banks and mortgage banks have seen declining demand for loans from the corporate sector, particularly from existing customers. The total demand for loans from retail customers fell in the 3rd quarter of 2011.

THE DANISH ECONOMY

GDP and demand components

Activity decreased by 0.8 per cent in the 3rd quarter, following sound growth of 1.2 per cent in the preceding quarter, cf. Table 2. Besides weak developments in private consumption and exports, the fall in GDP was driven by declining public consumption. Quarter-on-quarter growth in the Danish economy has generally been very uneven in recent years.

Despite moderate growth in disposable income, private consumption contracted in the 3rd quarter, with falls in both retail sales and households' car purchases. While the latter remains at a high level, retail sales are now back at the level seen at the end of 2004. Consumer confidence

KEY ECONOMIC VARIABLES Table 2

Real growth on previous year, per cent	2010	2011	2012	2013	2011 Q1	2011 Q2	2011 Q3
GDP	1.3	1.0	1.1	1.6	-0.1	1.2	-0.8
Private consumption	1.9	-0.7	1.1	1.7	-0.4	-0.4	-0.3
Public consumption	0.3	-0.1	0.8	0.4	-0.2	1.2	-1.6
Residential investment	-7.4	9.7	2.0	2.6	3.2	2.2	0.9
Public investment	8.5	6.6	10.0	-22.5	-12.7	22.5	-3.7
Business investment	-4.4	-5.0	4.8	6.8	-6.0	1.1	1.0
Inventory investment[1]	1.0	0.4	0.2	0.0	-0.9	1.0	0.1
Exports	3.2	7.3	1.8	3.3	4.5	0.8	0.4
Manufactured exports	4.6	7.6	3.1	5.3	3.4	7.1	-0.5
Imports	3.5	6.1	3.5	3.0	1.0	2.2	1.3
Employment, 1,000 persons	2,751	2,737	2,733	2,745	2,745	2,742	2,730
Gross unemployment, 1,000 persons	165	164	170	162	163	161	164
Net unemployment , 1,000 persons	114	110	119	114	109	107	110
Balance of payments, per cent of GDP	5.5	6.6	5.5	5.3	7.1	6.7	6.4
Government balance, per cent of GDP	-2.7	-3.8	-5.7	-2.9	-2.8	-3.7	-3.3
Cash prices, per cent year-on-year	2.8	-2.4	0.2	2.1	0.6	-1.3	-4.0
Consumer prices, per cent year-on-year	2.2	2.7	2.2	1.7	2.6	2.9	2.6
Hourly wages, per cent year-on-year	2.6	2.1	2.5	2.8	2.3	2.1	2.2

Note: National accounts data up to and including the 3rd quarter of 2011. Later figures are forecasts by Danmarks Nationalbank.

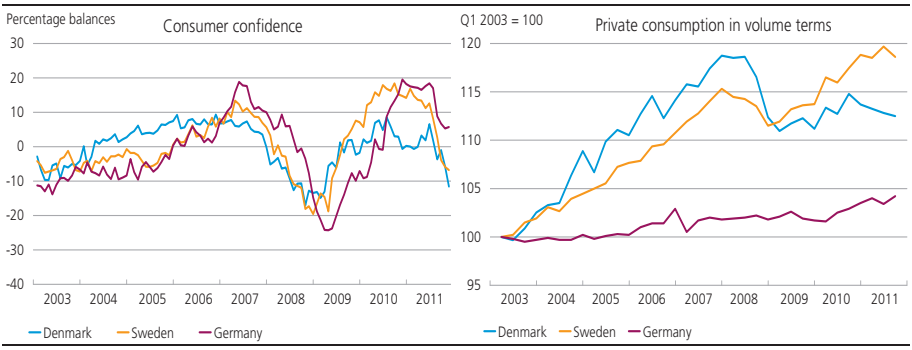
[1] Contribution to GDP growth.

deteriorated markedly during the autumn as the view on both the Danish economy and private finances has become more negative.

Consumer confidence has also deteriorated in Germany and Sweden, cf. Chart 17 (left). In recent years these two countries have posted stronger economic growth than Denmark. Whereas rising exports and investment were the main drivers of growth in Germany, private consumption has to a larger extent driven growth in Sweden, cf. Chart 17 (right). Sweden did not experience the same overheating of the economy as Denmark did in the period leading up to the financial crisis in the autumn of 2008, but in recent years private consumption and house prices have risen strongly, stimulated by a low level of interest rates in Sweden. German private consumption has grown only weakly since 2003, but has accelerated a little in the last couple of years. Consumption in Denmark has not been able to keep up since the financial crisis, but over the period as a whole the performance has not been too bad.

CONSUMER CONFIDENCE AND PRIVATE CONSUMPTION IN DENMARK, SWEDEN AND GERMANY

Chart 17

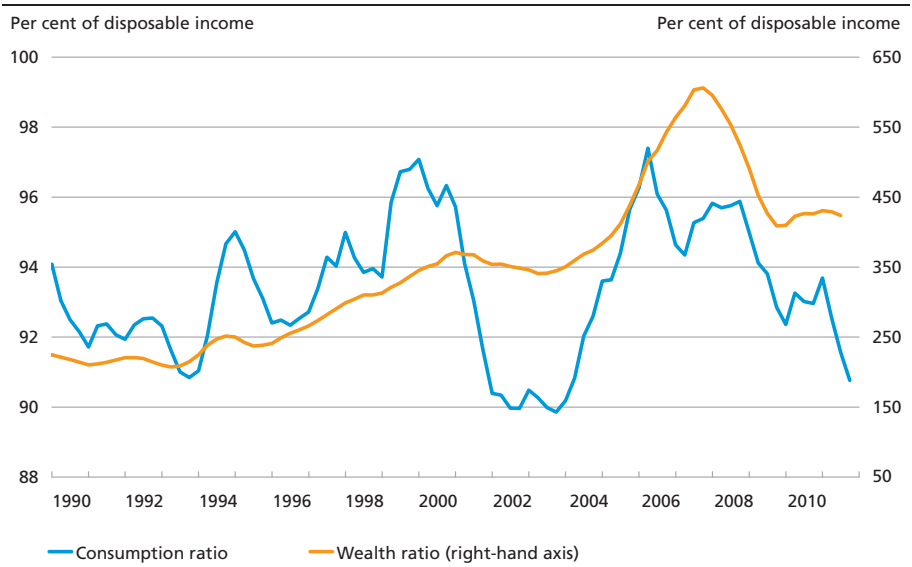


Source: EcoWin database.

The weak trend in consumption in recent years reflects that households are consolidating and that the savings ratio has risen to the same high level as in 2002, cf. Chart 18. This should be viewed in light of loss of wealth on owner-occupied housing and securities, as well as the considerable exposure of the households to future interest-rate rises, which may also have encouraged them to be more prudent. Net borrowing has fallen further in 2011, to the lowest level for more than 10 years. The labour market is scarcely likely to improve much over the coming year,

THE HOUSEHOLDS' CONSUMPTION AND WEALTH RATIOS

Chart 18



Note: 4-quarter moving averages. Disposable income including contributions to pension schemes. The most recent observations are partial estimates. Wealth stated exclusive of building plots, agricultural land and commercial properties and after taxation of pension wealth.

Source: Statistics Denmark and own calculations.

and the high savings level is expected to continue until 2013. This will lead to a subdued development in spending, and the consumption ratio will only slowly rise from the current low level.

Housing construction continued to grow in the 3rd quarter, especially subsidised housing. At the same time, business investment rose, but from a very low level. One of the reasons is that the substantial spare capacity which arose after the downturn has decreased. The biannual investment survey by Statistics Denmark shows that industrial firms are planning to increase their investments in 2012. Against that background, investment is expected gradually to contribute to growth in demand.

Exports of goods and services rose moderately in the 3rd quarter. Downward adjustment of expectations regarding activity in the euro area and among some of Denmark's other trading partners means that export markets will grow at a weak pace next year, cf. Appendix 1. Looking ahead, this will hit Danish exports. The impact is cushioned by the fact that large parts of Danish industrial and agricultural exports are not so cyclically sensitive, which means that an economic downturn abroad typically leads to favourable development in Danish market shares.

Imports have risen fairly strongly, particularly in view of the moderate trend in demand. The import ratio has increased to more or less the same level as in 2007-08, undoubtedly reflecting the re-establishment of many of the cross-border production chains that were interrupted in connection with the drop in global demand in the autumn of 2008. The import ratio will increase further in the coming years, and imports are expected to grow at a faster pace than exports next year, which will contribute to reducing the current-account surplus.

The weak development in the economy in the 2nd half of 2011 is set to continue into 2012 so that renewed growth will not be seen until the middle of the year[1]. Against this backdrop, GDP growth is estimated at around 1 per cent in both 2011 and 2012, rising to 1.6 per cent in 2013. Public investment will make a positive contribution to growth next year and a negative contribution the following year. The negative output gap is not expected to shrink in earnest until 2013. In spite of the modest growth, the outlook for next year is slightly better for Denmark than for the euro area, where high debts and large government deficits will necessitate substantial fiscal tightening.

The unresolved debt crisis in Europe, combined with the possibility of a rapid shift in consumer expectations, means that the forecast for the Danish economy over the next couple of years is subject to considerable uncertainty, cf. Box 2.

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[1] Calculations based on statistical information available up to and including 6 December 2011.

ALTERNATIVE SCENARIOS Box 2

The current deterioration of the economic outlook to a large extent reflects a marked confidence crisis triggered by the debt problems in southern Europe. The nature of the confidence crisis may shift rapidly, entailing a significant change in the economy. In other words, it may worsen if economic policy answers are not found that will provide a credible solution to the debt crisis. This situation with falling activity in the euro area is the basis for scenario 1. On the other hand, investment and consumption ratios are currently below their normal levels. This means that renewed faith in stable economic development can soon be converted into new investment and increased consumption. Scenario 2 is based on such a lift in confidence in the economy in Denmark.

Scenario 1 analyses the effect on the Danish economy of an international recession by way of a 4.3 per cent fall in demand for Danish goods in the international markets in the 1st half of 2012, which is gradually made up for subsequently. Interest rates are kept at the level at end-2011. This reflects the assumption that the recession will lead to a prolonged period of low monetary-policy interest rates, and also that further worsening of the debt problems in southern Europe is unlikely to have much of an effect on Danish government bond yields. The fall in exports reduces earnings in the export sector, which leads to lay-offs and deterioration of the balance of payments. The loss of income for the households leads to lower private consumption and a further fall in activity and employment. Hence, economic growth in 2012-13 will be 0.7-0.8 percentage points lower than in the forecast, while unemployment will rise to just under 150,000 by 2013, cf. Table 3.

ALTERNATIVE SCENARIOS Table 3

	Baseline scenario	1: Recession abroad	2: Renewed confidence among households
2012			
GDP, per cent year-on-year	1.1	0.3	1.8
Net unemployment, 1,000 persons	119	130	113
Balance of payments, kr. billion	102	93	87
HICP, per cent year-on-year	2.2	2.2	2.2
2013			
GDP, per cent year-on-year	1.6	0.9	2.1
Net unemployment, 1,000 persons	114	147	97
Balance of payments, kr. billion	100	87	73
HICP, per cent year-on-year	1.7	1.6	1.8

In scenario 2, increased faith in the economy is reflected in a lift in private household consumption and in corporate investment. Particularly construction investments are below their historical average in relation to value added in the non-agricultural sector, so it is mainly these investments that are lifted compared with the forecast. The higher domestic demand leads to increased output and employment; annual GDP growth is just over 0.5 percentage point higher in 2012-13 than in the forecast. At the same time, unemployment is reduced faster than in the forecast, falling below the structural level in 2013. The increased demand and activity in Denmark lead to higher prices and more imports, which in turn reduce the current-account surplus.

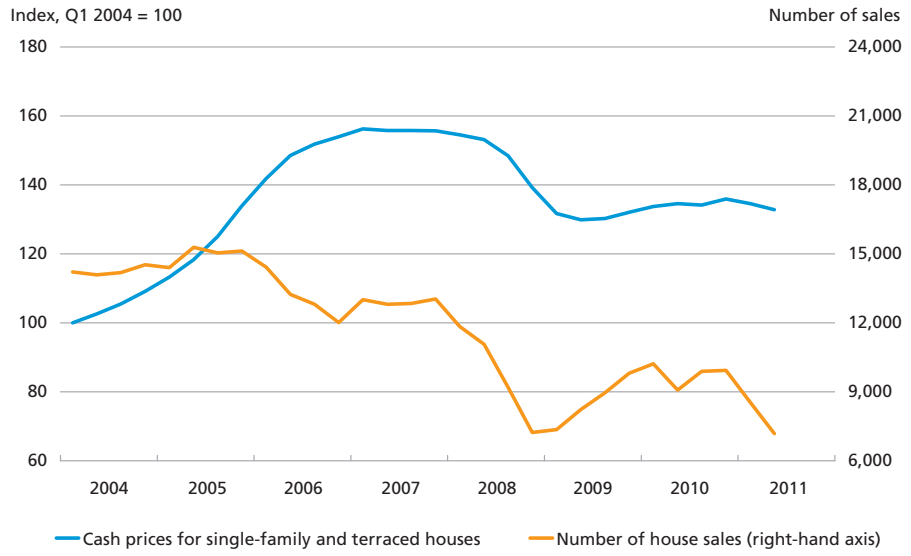
The housing market

Moderate growth in the 2nd half of 2009 and throughout 2010 made way for a weakening of the housing market in the 1st half of 2011, cf. Chart 19. According to Statistics Denmark, seasonally adjusted cash prices for single-family and terraced houses fell by 2.3 per cent from the 4th quarter of 2010 to the 2nd quarter of 2011, bringing them below the level one year earlier. Prices have been falling nationwide, also in the Copenhagen area. Indicators point to further declines over the summer and into the autumn.

Viewed in relation to the trough in 2009, house prices in the Capital Region remained approximately 10 per cent higher in the 2nd quarter of 2011, but prices in the rest of Denmark have been virtually flat in the last couple of years.

House sales contracted further in the 1st half of 2011, from an already low level. At the same time, the number of homes for sale remains high throughout Denmark. As a result, the time on market is long, averaging nine months at the national level, a little less for owner-occupied flats, but with considerable geographical variation. At just over five months for both houses and flats, the time on market is shortest in the Capital Region.

HOUSE PRICES AND NUMBER OF HOUSE SALES — Chart 19



Note: The number of registered sales is adjusted upwards with a lag as the transactions are registered, which they are when the buyer takes possession. The number of sales in the 2nd quarter, which is the most recent observation in the chart, can therefore be expected to be adjusted upwards – typically by around 1,000 sales – but a downward trend will still be seen. The most recent observations are from the 2nd quarter of 2011.

Source: Statistics Denmark.

Overall, the housing market remains weak. Prices are declining, turnover is low and the supply high, and buyers and sellers are still far apart. In the 2nd quarter, asking prices were still 11 per cent above the realised selling prices. The number of enforced sales rose by 10 per cent from October to November so that it is now only slightly below recent years' peak in the spring of 2010.

Both short-term and long-term interest rates are very low, and income is rising. This buoys up the housing market. All the same, uncertainty rules in the short term. Consequently, it is estimated that prices of single-family and terraced houses fell further in the 2nd half of 2011 and will recover only slowly in the coming years, with the prospect that real house prices will decline slightly over the next year or so.

In other words, uncertainty is currently exerting downward pressure on house prices. But in view of fundamentals such as the level of interest rates and household disposable income house prices are assessed to be close to their long-term sustainable level. Danish house prices are not overvalued, cf. the Monetary Review, 1st Quarter 2011, Part 2, which contains an extensive analysis of the Danish housing market.

Foreign trade

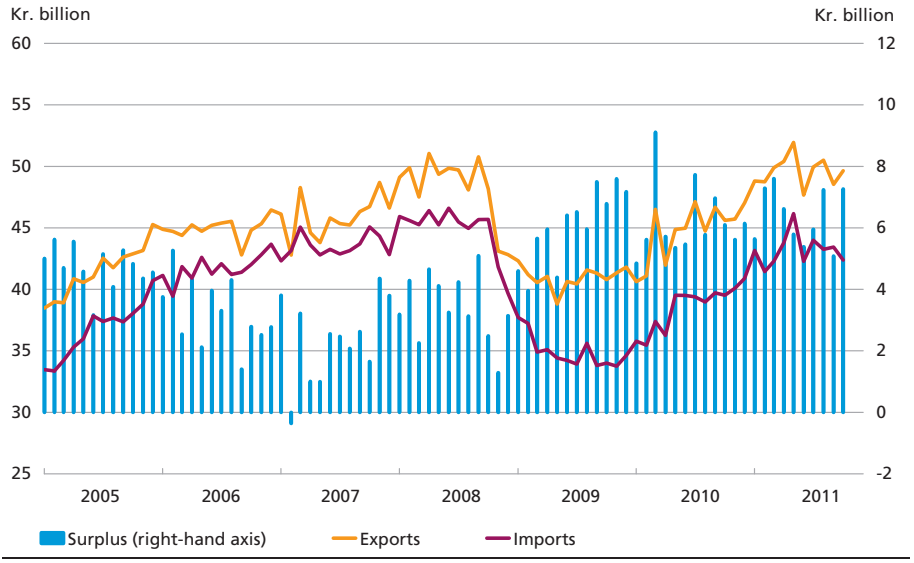
The international slowdown and flattening of world trade has affected Danish exports. In the three months up to and including October, seasonally adjusted exports of goods were slightly lower than in the preceding three months, but 8.5 per cent above the level one year earlier. Even exports to Germany and, especially, Sweden have declined, in the latter case mainly on account of lower energy exports.

The fall in exports to Germany and Sweden is surprising in view of the sound growth rates in these two economies in the 3rd quarter, Germany's GDP growing by 0.5 per cent and Sweden's by 1.6 per cent. German imports rose by 2.6 per cent in the 3rd quarter, while Swedish imports were flat, so the Danish industrial sectors have lost market shares, particularly in the German market. But on balance the decline in exports of goods has by no means been as sharp as during the financial crisis in the autumn of 2008, cf. Chart 20.

Imports of goods have fallen a little over the last six months, and the seasonally adjusted trade surplus excluding ships and aircraft, etc. rose to kr. 7.3 billion in October. This is above the average for the last three years.

In view of the deteriorating global economy and the expected slowdown also in Denmark's two largest export markets, Germany and Sweden, export growth in volume terms is expected to decline from 7.3 per cent in 2011 to 1.8 per cent in 2012.

FOREIGN TRADE IN GOODS — Chart 20



Note: The most recent observations are from October 2011.
Source: Statistics Denmark.

For the 12-month period up to end-October, the balance of payments showed an accumulated surplus of kr. 118 billion, which is approximately kr. 25 billion higher than in the preceding 12-month period. The improvement is mainly attributable to larger surpluses on investment income and trade in services.

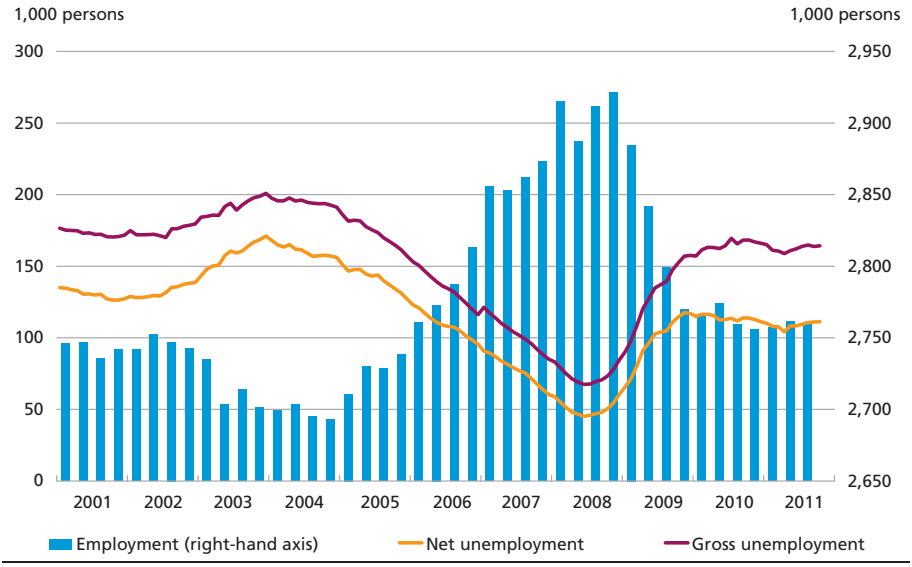
The contribution from investment income to the current-account surplus has increased over time, the reason being that Denmark has progressed from debtor nation to creditor nation as a result of an almost unbroken succession of current-account surpluses since 1988. It should be noted that Denmark's foreign assets entail greater risk than its liabilities, so in most years the assets yield a higher return than the liabilities, cf. the article "Foreign Investment Income" in this Monetary Review.

The current-account surplus is expected to fall a little in the coming years as growth in domestic demand picks up.

Labour market and capacity

Private-sector employment fell slightly in the 3rd quarter after having been virtually flat since the beginning of 2010, cf. Chart 21. Public-sector employment has also been declining. Recent quarters have seen rising employment in the construction sector. The projection operates with a small decrease in overall employment in the coming quarters, followed by a rise in the subsequent period as GDP growth becomes stronger.

EMPLOYMENT AND UNEMPLOYMENT Chart 21



Note: From January 2007, recipients of social benefits in active labour market schemes (ready for employment) are included in those in active labour market schemes. The most recent observations are from October 2011 for unemployment and from the 3rd quarter of 2011 for employment.
Source: Statistics Denmark and own calculations.

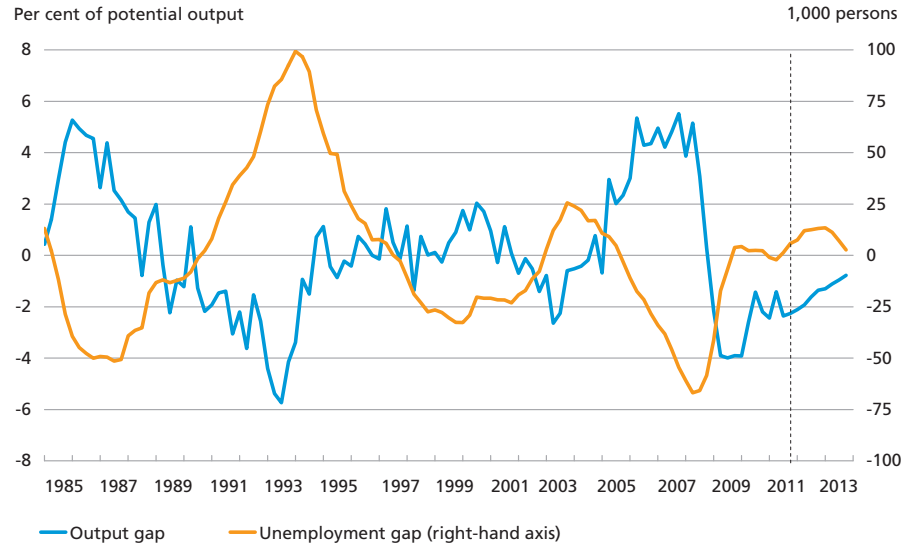
Assessments of capacity pressures in the economy are often based on a measure of the output gap[1]. The output gap indicates how much actual output deviates from potential output, defined as the output level that the economy can sustain without inflationary pressures arising. In a downturn, the output gap is negative. It has been estimated at approximately minus 2 per cent of potential GDP in the 3rd quarter of 2011. This is slightly more negative than in the September forecast, reflecting a downward adjustment of GDP. The same applies to potential output, albeit to a lesser extent. The gap is expected to close gradually over the coming years and will be almost gone by the end of 2013, cf. Chart 22.

The reason why the output gap narrows despite modest economic growth is that the underlying potential output in the Danish economy is increasing only slowly, primarily as a result of a period of low investment.

Seasonally adjusted gross unemployment has been flat in 2011, standing at 164,300 in October. This is equivalent to 6.2 per cent of the register-based labour force. Gross unemployment comprises people receiving unemployment benefits and those receiving social benefits who are ready for employment, known as net employment, as well as those in

[1] For a more detailed description of Danmarks Nationalbank's calculations of the output gap and its decomposition, see the article: Potential Output in Denmark, *Monetary Review*, Danmarks Nationalbank, 3rd Quarter 2011, Part 1.

OUTPUT AND UNEMPLOYMENT GAPS Chart 22



Source: Statistics Denmark and own calculations.

active labour market schemes who are ready for employment. According to the broader definition in the random-sample labour-force survey (*arbejdskraftsundersøgelse*, AKU), unemployment has risen in 2011 so far, to 224,000 in the 3rd quarter, or 7.6 per cent of the labour force.

Unemployment is only slightly above its structural level, cf. Chart 22. Youth unemployment has risen more strongly than total unemployment over the last year and is now at 11 per cent. The youth unemployment rate is typically higher than the overall rate. Nevertheless, youth unemployment in Denmark is still substantially below the level seen in most other European countries.

In the projection, unemployment rises a little towards the turn of the year and into 2012. After that, growth is expected to be sufficiently strong to generate a fall in unemployment, which will be close to its structural level towards the end of the forecast period, cf. Chart 22.

Wages

The dampening of private-sector wage inflation continued in the 3rd quarter, in which wages were 1.7 per cent higher than in the same period of the preceding year according to Statistics Denmark. This is the lowest growth rate since the statistics were introduced in 1994. There is a considerable spread across sectors. In the industrial sector wages rose by 2.2 per cent, while wages in building and construction rose by a mere 0.4 per cent.

Annual wage increases for employees in central, local and regional government were at practically the same low level in the 3rd quarter as in the preceding quarter. Central-government wage inflation was 0.7 per cent, while the corresponding figures for local and regional government were 0.2 and 0.3 per cent, respectively. Under the collective agreements, public-sector wage inflation mirrors that of the private sector with a certain lag. Currently, this means that public-sector wage inflation should be zero. Historically, central government wages have risen more than the reference index.

For a long time, wage inflation in the highly competitive industrial sector was higher in Denmark than abroad without a correspondingly higher rate of productivity growth. This has weakened the competitiveness of Danish firms. The wage inflation gap has narrowed in recent years, and over the last couple of quarters Danish wages have risen slightly less than those of foreign competitors. However, it will require a long period of lower wage inflation in Denmark than abroad before competitiveness is restored in earnest.

The rate of wage increase in the industrial sector is expected to be 2.1 per cent in 2011, rising to 2.5 per cent in 2012 and further to 2.8 per cent in 2013. This means that wage inflation will be moderate in the coming years, but higher than the expected price inflation. On the other hand, wage inflation will presumably not be so much lower than abroad that it will seriously make up for the preceding years' loss of competitiveness.

Over the last couple of years, the profit ratio has risen from a low level as the trend in real wages has been weaker than the trend in productivity. In the projection the profit ratio is expected to stabilise at around the average level for the last 30 years.

Prices

The year-on-year increase in the Harmonised Index of Consumer Prices, HICP, was 2.7 per cent in October, cf. Table 4. This is higher than in the preceding month, but still 0.4 percentage points below the peak in May this year. The index has mainly been pushed up by higher prices for various food items following the introduction of the fat tax in October. Prices excluding indirect taxes have been flat. Price inflation in the euro area was 3.0 per cent in October and the preliminary figure for November is also 3.0 per cent. Inflation in Denmark has been lower than in the euro area in recent months, after having been higher for some time.

Following a lift in the 1st half of 2011, core inflation, excluding the food and energy components of the consumer price index, has stabilised at around 1.2 per cent. In September and October it was lower than in

CONSUMER PRICES — Table 4

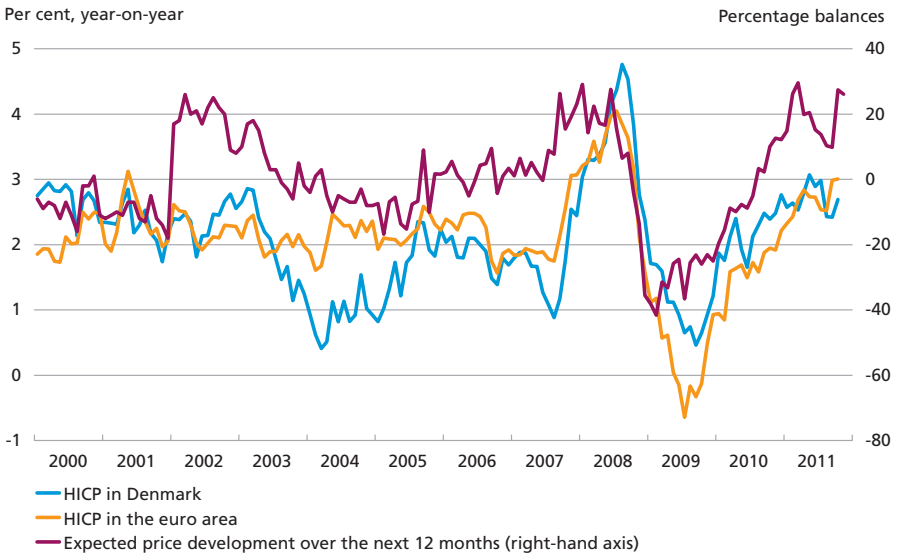
Per cent, year-on-year	Weight[1]	2010	2011	2012	2013	2011/12 Q3	Q4	Q1	Oct.	Nov.	Dec.
HICP		2.2	2.7	2.2	1.7	2.6	2.7	2.7	2.7	2.5	2.4
Index of net retail prices	100	2.0	2.6	1.8	1.5	2.7	2.3	2.1	2.5	2.4	2.1
Exogenous:											
Energy	7.1	12.3	12.8	7.1	0.4	13.5	11.9	8.7	13.9	12.9	8.8
Food	13.1	-0.2	3.7	1.2	1.4	3.9	3.0	2.4	3.4	2.9	2.5
Adm. prices	4.2	3.9	2.4	2.6	2.8	2.0	2.0	2.8	2.1	2.2	2.2
Rent	23.6	2.6	2.9	2.9	2.6	3.0	3.0	3.0	3.0	3.0	3.1
Excl. exogenous	52.0	0.6	0.5	0.4	1.1	0.5	0.3	0.4	0.2	0.3	0.4
Imports	15.6	0.8	3.9	0.3	1.9	3.3	2.6	0.7	2.8	2.7	2.4
IMI	36.4	0.5	-0.9	0.4	0.8	-0.7	-0.6	0.3	-0.9	-0.7	-0.5

Note: The most recent actual figures are from October 2011. Later figures are forecasts by Danmarks Nationalbank.
[1] Weight in the index of net retail prices, per cent.

the euro area. In other words, there are no strong underlying inflationary pressures in the Danish economy. Inflation expectations have risen sharply in recent months and were somewhat above their long-term average in October, cf. Chart 23. Inflation expectations typically match the current rate of inflation.

In the spring collective bargaining it is essential to competitiveness that wage formation is based on productivity developments and sales

PRICE DEVELOPMENTS AND INFLATION EXPECTATIONS — Chart 23



Note: HICP is the Harmonised Index of Consumer Prices. The most recent observations are from October 2011 for prices and from November 2011 for inflation expectations.
Source: Statistics Denmark.

opportunities. The subdued economy is assessed to mitigate the risk that the currently slightly high rate of inflation and inflation expectations will rub off on wages by way of second-round effects.

Prices for the domestic supply of goods, wholesale prices, have been falling slightly since the spring after having risen strongly for a while. Since October 2010, the overall index has risen by 5.5 per cent, primarily driven by higher energy prices. Goods produced in Denmark cost 7.4 per cent more than one year ago, while imported goods cost 4.3 per cent more.

Wholesale prices illustrate price developments in the first link of the sales chain. For imported goods this is the development in importers' purchase prices, while for Danish goods for the domestic market it is the development in manufacturers' sales prices. These prices affect prices later on in the production and sales chains and hence consumer prices and price pressures in the economy. But typically rising import prices are not immediately passed on to sales prices; instead profits are squeezed for a period. That is what we are witnessing at present.

Consumer price inflation is estimated to subside in the coming months, to 2.2 per cent in 2012 and 1.7 per cent in 2013. Viewed in isolation, higher taxes on a number of consumer goods will increase consumer prices by just over 0.3 per cent in 2012 and just under 0.2 per cent in 2013. All the same, the rate of price increase is expected to be moderate on account of low underlying inflation and considerable spare capacity. Furthermore, energy and food prices are expected to make a negative contribution to inflation in the forecast period.

Public finances

Real public consumption is estimated to decline by 0.1 per cent this year and then to grow by 0.8 per cent in 2012 and 0.4 per cent in 2013. These growth rates are low compared with those seen over the last decade. With effect from 2011, new and tighter sanctions have been introduced against local authorities that do not observe the spending limits agreed between the Danish government and Local Government Denmark. They seem to have had the intended effect in that public consumption in the 1st half of 2011 was at the agreed level.

Direct and indirect taxes will be raised by kr. 5 billion in 2012, which will be used to increase public spending. Higher public investment is also envisaged. However, a large part of this investment will be outside the area defined as the public sector, and hence it will not affect the government deficit. For example, subsidised housing will be renovated under the auspices of Landsbyggefonden and investments will be made by energy companies. Actual public investment will be increased by just

over kr. 7 billion in 2012 and 1 billion in 2013 as a result of these initiatives. These figures should be viewed in light of the already high level of public investment, at kr. 37 billion in 2010.

Overall, public finances are expected to show a deficit of kr. 105 billion in 2012, equivalent to 5.7 per cent of GDP, compared with an expected deficit in 2011 of 3.8 per cent of GDP. This is an increase of kr. 38 billion, of which kr. 17 billion is attributable to reimbursement of contributions to the early retirement scheme. Consequently, Denmark stands out as one of the few EU member states with a marked increase in the government deficit in 2012.

Looking ahead, the expected moderate economic improvement will have a positive impact on public finances. At the same time, underlying improvements are being planned by way of low growth in real public spending, a freeze on tax brackets, phasing-in of financing elements of the 2009 tax reform and low public-sector wage increases. Add to this the abolishment of the nominal freeze on indirect taxes. As a result, it is estimated that the deficit will fall to 2.9 per cent of GDP in 2013.

Economic policy

The intensifying sovereign debt crisis in Europe, with still more EU member states facing considerable yield spreads, emphasises the importance of ensuring confidence in fiscal policy. It is positive that the new Danish government also plans to comply with the EU recommendation to reduce the government deficit to less than 3 per cent of GDP in 2013 and to improve the structural balance by 1.5 per cent of GDP in 2011-13. The implementation of important labour-market reforms – the partial phasing-out of the early retirement scheme and reduction of the entitlement period for unemployment benefits from four to two years – are also very important contributions to anchoring stability in the medium term. This will contribute to increasing structural employment considerably, thereby countering the demographically driven reduction of the labour force. All in all the government plans to follow a prudent line, which is important in order to ensure fiscal sustainability.

It is evident that the 2012 Finance Act does not provide for any improvement of the structural government budget balance next year. This makes it even more important to tighten the reins as planned in 2013 in order to maintain the fiscal stance.

Relative to income, Danish households have a very large balance sheet, with considerable assets and large gross debt. This is not a new situation, but the steadily rising trend in assets and liabilities has been notable over the last 15 years, in step with developments such as the more widespread use of new mortgage loan types and increased pen-

sion savings. A larger balance sheet makes household finances more sensitive to interest rates, especially due to the prevalence of adjustable-rate mortgages. All the same, household wealth has increased during this period, and for Denmark overall the foreign debt seen previously has made way for wealth. Furthermore, unlike in many other countries, the public sector in Denmark has positive financial net wealth.

However, the high gross debt ratio accentuates the significance of economic policy. In order to limit the risks associated with a high gross debt ratio for the households, it is important that fiscal policy in particular ensures low government debt, sustainable government finances and continued current-account surpluses. Interest-rate sensitivity makes the economy extra vulnerable to rising interest rates, and together with the considerable uncertainty at present this calls for maintaining a substantial security margin in economic policy.

While the Danish economy currently meets the conditions for low interest rates, the Danish housing market is not very stable, partly as a result of previous decisions to decouple housing taxes from house values and to introduce deferred-amortisation loans. The resultant larger fluctuations in the housing market increase the need for prudent economic policy.

The spare capacity in the Danish economy leaves room for a sustainable increase in employment of approximately 50,000 compared with the current level. Further increases would require structural reforms such as the phasing-out of the early retirement scheme and reduction of the entitlement period for unemployment benefits. It has been agreed temporarily to prolong the latter again. This will pull in the opposite direction and will, viewed in isolation, reduce the level of employment that is sustainable in the long term.

For a number of years, Denmark's competitiveness has been deteriorating as a result of fairly strong wage inflation. In recent years, it has been brought down to the level seen in other countries. To keep wage increases at or below the level abroad, collective agreements are required that link increases in hourly wages to developments in productivity and the firms' sales opportunities.

A consistent fiscal policy and dampened collective agreements will support the narrow yield spread to the best performing euro area member states. This will buoy up the Danish economy and prevent unemployment from rising notably in a situation where uncertainty in the surrounding world is greater than it has been for a long time. In reality this is the best we can to until confidence has been restored within the private sector.

APPENDIX 1: ASSUMPTIONS IN THE FORECAST FOR THE DANISH ECONOMY

The forecast has been produced using the macroeconometric model MONA[1] and is based on available economic statistics, including Statistics Denmark's preliminary quarterly national accounts for the 3rd quarter of 2011.

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

The international economy

The outlook for the world economy has dampened in recent months and Denmark's most important trading partners are also expected to see lower growth. As a result, the assessment of Danish export market growth in 2012 has been adjusted downwards compared with the September forecast. The market for Danish exports is expected to grow by just under 7 per cent in 2011, after which the rate of growth is expected to fall to 4 per cent in 2012 and then to increase again, cf. Table 5.

Owing to the subdued growth, prices abroad are expected to be more or less unchanged in 2011, but to rise in the subsequent years. The same applies to price increases in the export markets. Wage inflation abroad is expected to be modest over the entire projection period on account of weak labour markets in most countries.

Interest rates, exchange rates and oil prices

In the forecast, the development in short-term and long-term interest rates is based on the expectations that can be derived from the term structure of interest rates in the financial markets. Short-term Danish interest rates are expected to mirror money-market interest rates in the euro area. At the beginning of December the 3-month money-market interest rate was 1.1 per cent, which is higher than at the time of preparation of the previous forecast. The short-term money-market interest rate is expected to rise slightly, to 1.4 per cent in 2013.

The average bond yield is defined as an average of the yields to maturity on outstanding government and mortgage bonds. The average bond yield was 2.1 per cent in early December and is expected to rise to just over 3 per cent during the projection period.

The effective exchange rate of the krone is a little weaker in 2012 and 2013 than in the September forecast. The reason is that the euro, and

[1] The model is described in Danmarks Nationalbank, MONA – a quarterly model of the Danish economy, 2003.

OVERVIEW OF FORECAST ASSUMPTIONS Table 5

	2010	2011	2012	2013
International economy:				
Export market growth, per cent year-on-year	11.1	6.7	4.0	6.1
Export market price[1], per cent year-on-year ..	-0.7	0.2	1.4	1.2
Foreign price[2], per cent year-on-year	-0.5	0.2	1.4	1.2
Foreign hourly wages, per cent year-on-year	2.6	2.4	2.2	2.7
Financial conditions, etc.:				
3-month money-market interest rate, per cent p.a.	0.6	1.0	1.1	1.4
Average bond yield, per cent p.a.	2.7	2.7	2.6	3.1
Effective krone rate, 1980 = 100	104.0	103.7	103.3	103.3
Dollar exchange rate, DKK per USD	5.6	5.4	5.5	5.5
Oil price, USD per barrel	80.3	111.1	108.2	103.4
Fiscal policy				
Public consumption, per cent year-on-year ...	0.3	-0.1	0.8	0.4
Public investment, per cent year-on-year	8.5	6.6	10.0	-22.5
Public-sector employment, 1,000 persons	840	831	837	840

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

hence also the Danish krone, has weakened slightly vis-à-vis the dollar and the pound. In the projection the dollar rate and the effective krone rate are assumed to remain constant at the level from early December.

At the time of forecasting, the price of oil was around 110 dollars per barrel. Oil prices are assumed to develop in line with futures prices, falling to around 103 dollars per barrel by 2013.

Fiscal assumptions

Fiscal policy in the forecast is based on the announced fiscal policy, including the agreements on the Finance Act 2012. In 2011 public spending is expected to fall marginally, followed by growth of 0.8 per cent in 2012 and 0.4 per cent in 2013. Public investment is expected to rise by just under 7 per cent in 2011 and 10 per cent in 2012 and then to drop sharply in 2013.

APPENDIX 2: REVISIONS IN RELATION TO THE PREVIOUS FORECAST

The estimated growth in GDP in 2011 and 2012 has been adjusted downwards relative to the September forecast, cf. Table 6, which shows a breakdown of the revisions to GDP and consumer prices by key factors. Downward adjustments for 2011 reflect developments that have already taken place.

The revised national accounts, which are now available in a preliminary version up to and including the 3rd quarter of 2011, show a different and weaker quarterly pattern, which in itself leads to a technical downward adjustment of estimated GDP growth by 0.5 percentage points in 2011 and 0.4 in 2012 relative to the September forecast. Furthermore, export market growth for 2012 is now expected to be lower than assumed in the September forecast. This contributes to the downward revision of GDP growth in 2013, but in relation to growth in 2012 it is offset by an upward adjustment of export market growth in recent quarters relative to the September forecast. The modest weakening of the effective exchange rate of the krone since September points to higher growth in 2012 and 2013. However, in the forecast the downward adjustment of GDP growth is primarily reflected in a weaker trend in private domestic demand in 2011-12. This applies particularly to private consumption, and the consumption ratio is expected to normalise more slowly than envisaged in the September forecast. These effects are included in *other factors* in Table 6.

Consumer price inflation has been revised a little upwards in 2011 and 2012. The weaker growth pattern in the projection dampens the underlying rate of price increase in the coming years, but in 2012 this is more than offset by higher indirect taxes and the impact of the slightly weaker krone.

REVISIONS IN RELATION TO PREVIOUS FORECAST Table 6

	GDP			Consumer prices, HICP		
Per cent, year-on-year	2011	2012	2013	2011	2012	2013
Forecast, September 2011	1.4	1.6	1.6	2.6	1.9	1.8
Contribution to revised estimate from:						
Export market growth	0.2	0.2	-0.2	0.0	0.0	0.0
Interest rates	0.0	0.0	0.0	0.0	0.0	0.0
Exchange rates	0.0	0.1	0.1	0.0	0.1	0.1
Oil prices	0.0	0.0	0.0	0.0	0.0	0.0
Other factors	-0.7	-0.9	0.0	0.1	0.2	-0.2
This forecast	1.0	1.1	1.6	2.7	2.2	1.7

Note: The transition from the previous to this forecast may not add up due to rounding. "Other factors" includes data revisions.

Supplementary Instruments in Danmarks Nationalbank's Liquidity Management

Danmarks Nationalbank manages liquidity in the banking system via regular weekly open market operations. In these operations, liquidity is allotted via loans against collateral, and liquidity is absorbed by selling certificates of deposit. In so far as it is necessary, Danmarks Nationalbank conducts extraordinary open market operations, at which liquidity is managed via purchase and sale of certificates of deposits. Banks and mortgage banks exchange liquidity in the money market to offset mutual differences in liquidity.

From time to time, financial market tensions have impeded the exchange of liquidity in the Danish money market as has been the case internationally. In Denmark, sluggishness in the exchange of liquidity in the money market has, from time to time, led to a rise in Danish short-term money-market interest rates. The money-market interest rates are determinative for the exchange rate of the krone.

To support the fixed-exchange-rate policy, Danmarks Nationalbank supplements its monetary-policy instruments with liquidity-adjusting deposit and lending operations in kroner. The operations can be applied to adjust the liquidity situation in the money market as and when required. The rate of interest and maturity of such operations will reflect market conditions. These operations may be deposits with Danmarks Nationalbank, loans against pledging of collateral included in Danmarks Nationalbank's collateral basis, or FX swaps, where foreign exchange is collateral. Danmarks Nationalbank may allocate or absorb liquidity in kroner by auction or by conducting bilateral transactions with individual counterparties. Such instruments are also used by other central banks in their liquidity management.

The modalities of such operations, including maturity and procedure, will be determined in connection with any deposits or loans.

New Credit Facilities at Danmarks Nationalbank

As of 1 October 2011, Danmarks Nationalbank expanded the banks' access to raise loans against collateral at Danmarks Nationalbank. Danmarks Nationalbank expanded the collateral basis, primarily consisting of government and mortgage bonds, to include the banks' own credit claims of good quality. Pledging banks' credit claims with central banks already occurs in a number of other European countries. At the same time, Danmarks Nationalbank introduced a 6-month credit facility. On 8 December Danmarks Nationalbank mirrored the ECB and introduced the possibility of raising 3-year loans. The new credit facilities were intended to give the banks supplementary access to liquidity and mitigate the expiry of individual government guarantees in 2012-13.

EXPANSION OF THE COLLATERAL BASIS

The banks' credit claims can be pledged with Danmarks Nationalbank, provided that they meet certain criteria, and their collateral value will subsequently be included in the general collateral basis for open market operations and day-to-day liquidity. Danmarks Nationalbank expects the arrangement to increase the collateral value by up to kr. 400 billion. The Danish Financial Supervisory Authority has stated that, within certain limits, the banks may include the access to loans at Danmarks Nationalbank in their statutory liquidity pursuant to section 152(2) of the Danish Financial Business Act, without having pledged the credit claims to Danmarks Nationalbank.

Criteria for eligible loans

For a credit claim to be included in a bank's collateral basis at Danmarks Nationalbank, certain criteria must be fulfilled. A loan or an overdraft facility must constitute an unsecured claim in Danish kroner or euro, which falls due for payment at least one month after the claim has been pledged as collateral. The debtor must be a non-financial corporation, a public authority or a household resident in Denmark. The amendments to the Securities Trading Act, providing the basis for pledging by using a list of pledged credit claims, have not come into force in Greenland.

Loans to Greenlandic debtors can therefore not be pledged under this arrangement for the time being.

Credit claims on one single debtor may, in net terms, not exceed 10 per cent of the loan portfolio pledged as collateral by the bank. A bank may not pledge credit claims if close links exist between the bank and the debtor.

The quality of the credit claim must comply with the Danish Financial Authority's definitions of credit claims belonging to quality category 3 or 2a. When assessing the credit quality of the credit claims, the banks' own assessments, which are subject to audit and to evaluation by the Danish Financial Supervisory Authority in connection with inspections, will apply.

Banks wishing to pledge credit claims or include the access to loans at Danmarks Nationalbank in their liquidity must send a request to Danmarks Nationalbank by submitting a number of documents, including a letter of request, a deed of pledge and a statement by auditors. If the bank wishes to pledge credit claims, a list containing information about the credit claims must be submitted.

The bank must subsequently on an annual basis hand in a statement by the management that it is capable of handling the pledging of credit claims with Danmarks Nationalbank. Moreover, the banks must, on a quarterly basis, submit statements from auditors, confirming the existence and quality of the credit claims as well as that the bank has the necessary routines and procedures in place.

Valuation and collateral value

Credit claims are valued at the current outstanding debt, and overdraft facilities at their current balance less 10 per cent. An additional 3 per cent is deducted from loans and overdraft facilities in euro. Furthermore, each debtor's access to netting, i.e. the debtor's claim on the bank, excluding special deposits, is deducted. The bank's aggregate collateral basis is the sum of the collateral basis per debtor. A 25 per cent haircut and a 10 per cent margin are deducted from the collateral basis to find the collateral value of the credit claims, which is the amount by which the drawing right on Danmarks Nationalbank is revalued when pledging the credit claims.

The bank ensures on an ongoing basis that the value of the credit claims pledged accounts for at least 95 per cent of the collateral basis at the time of pledging. If the value of the pledged credit claims, e.g. as a consequence of redemptions or deterioration of credit quality, falls below this amount, the bank must immediately pledge top-up collateral, i.e. credit claims meeting all the criteria mentioned above and

which are included in the credit claims covered by the auditor's statement.

Supervision
The Danish Financial Supervisory Authority will perform supervision of all banks that include the access to liquidity at Danmarks Nationalbank under section 152, at least once a year. The supervision will be performed regardless of whether the bank has pledged credit claims or not. Among other things, such supervision will focus on whether the credit claims included in the bank's list are in the Danish Financial Supervisory Authority's quality category 3 or 2a as required.

6-MONTH FACILITY

With the introduction of the 6-month facility, Danmarks Nationalbank supplemented its monetary-policy instruments. Monetary-policy counterparties can raise 6-month loans against collateral at a variable interest rate, reflecting Danmarks Nationalbank's rate in the weekly open market operations. The facility is open on the last Friday of the month.

3-YEAR FACILITY

Danmarks Nationalbank mirrored the ECB and expanded its range of monetary-policy instruments by 3-year loans with effect from 8 December. In line with the 7-day and 6-month loans, the long-term loans are conducted against collateral included in Danmarks Nationalbank's collateral basis. The rate of interest will be variable during the maturity of the loan, reflecting Danmarks Nationalbank's 7-day lending rate in the weekly open market operations. The lending facility will be implemented after discussions with banks and mortgage banks.

Household Balance Sheets and Debt – an International Country Study

Jacob Isaksen, Paul Lassenius Kramp, Louise Funch Sørensen and Søren Vester Sørensen, Economics

INTRODUCTION AND SUMMARY

What are the determinants of developments in the households' balance sheets for wealth and debt and household savings? What are the macroeconomic consequences of high gross debt for the households? These issues are the subject of an in-depth analysis in Part 2 of this Monetary Review. The most important findings of the analysis are summarised in this article.

As in most advanced economies, the net wealth of Danish households has grown considerably over the last 15 years, and in an international perspective household net wealth is at an average level. However, the development in net wealth masks a steep increase in both gross wealth and gross debt – known as balance-sheet build-up – which is somewhat higher than in other advanced economies.

The household sector should not be viewed in isolation from the rest of the economy due to the cross-sector interaction between savings, wealth and debt. If the public sector accumulates debt, households will, to a certain extent, see this as a sign of higher future taxes and raise their net wealth by increasing their savings. In Denmark, the public sector has positive net wealth, unlike many other countries. Moreover, the Danish economy overall has net external assets. Consequently, in an international perspective Denmark's overall financial balance-sheet position is favourable.

Household net wealth is a result of accumulated savings and value adjustments. In the last decades, value adjustments have been a main driver of increases in the net wealth of Danish households. Thus, in an international context, the savings ratio of Danish households is low. The same applies to the other Nordic countries, although to a lesser extent. An analysis of household saving behaviour shows that the low level of savings in Denmark and the other Nordic countries should be viewed in conjunction with high corporate savings. Other explanatory factors are a

larger public sector, a better government budget balance and a higher level of tax deductibility of interest expenses.

Another determinant of household gross debt is the degree of balance-sheet expansion, since the households own real and financial assets concurrently with having gross debt. The highly developed Danish mortgage-credit and pension systems have facilitated a higher level of gross debt. In an international perspective, the Danish institutional framework with a well-developed financial system, notably the mortgage-credit and pension systems, enables households to make relatively sophisticated decisions regarding the accumulation and composition of their assets and liabilities.

An econometric analysis demonstrates that the strong increase in the gross debt of Danish households is, to a large extent, offset by substantial growth in their pension wealth. One of the reasons is that more households save via pension schemes rather than reducing their gross debt. This has resulted in balance-sheet expansion with higher assets and liabilities. Lower real interest rates and unemployment have also contributed to expanding household gross debt as a result of better opportunities to service and obtain higher debt.

On the face of it, high gross debt entails more pronounced household sensitivity to interest-rate changes and shocks to the economy. Our results indicate greater fluctuations in private consumption in countries with a high level of household gross debt. Greater fluctuations in private consumption amplify cyclical fluctuations.

Based on an econometric analysis covering a number of EU member states, we find that there is no statistical relation across countries between the level of gross debt and household arrears. Arrears are at a very low level in Denmark, indicating that the high gross debt is offset by assets to such an extent that the financial sector has not suffered major losses on direct lending to the households.

The low level of losses on lending to the households should be seen in light of the current low level of interest rates. The high interest-rate sensitivity means that households will be more vulnerable to interest-rate increases, especially if such increases occur at a time of high unemployment and weak growth. Consequently, due to the substantial expansion of household balance sheets, it is essential for the robustness of the economy to ensure appropriate framework conditions for low interest rates, particularly robust government finances and a current-account surplus.

A comprehensive analysis of vulnerabilities with a view to assessing financial stability would require detailed data on the distribution of wealth and gross debt across individuals and the exposure of individual

financial institutions. Hence, the vulnerability depends on the extent to which gross debt is distributed on those households that have assets. A data set sufficient to compare housing wealth, financial assets and debt as well as pension savings across individuals has not yet been developed. This is a task for future analyses.

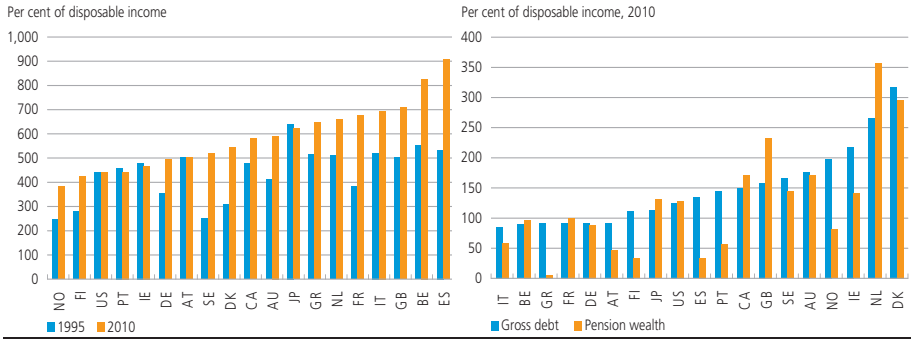
HOUSEHOLD WEALTH AND DEBT

In most OECD countries, households have expanded both their net wealth and their net wealth and debt over the last 15 years, cf. Chart 1. The net wealth of Danish households has thus risen by approximately 250 percentage points of disposable income since 1995, while in Sweden, France and Spain it has increased even more. In a few countries, including the USA, Japan, Portugal and Ireland, it has remained almost unchanged, however.

The development in gross wealth, gross debt and net wealth cannot be viewed in isolation. Household wealth consists primarily of housing wealth, pension wealth and other financial wealth, cf. Chart 2. Long-term loans against the home as collateral account for the greatest share of total gross debt. A comparison of household debt across countries shows a clear correlation in that countries with large gross debt typically also have large assets in the form of pension savings, cf. Chart 1 (right-hand side).

The growth in housing wealth has been a principal factor contributing to the development in net wealth since 1995. At the same time, the

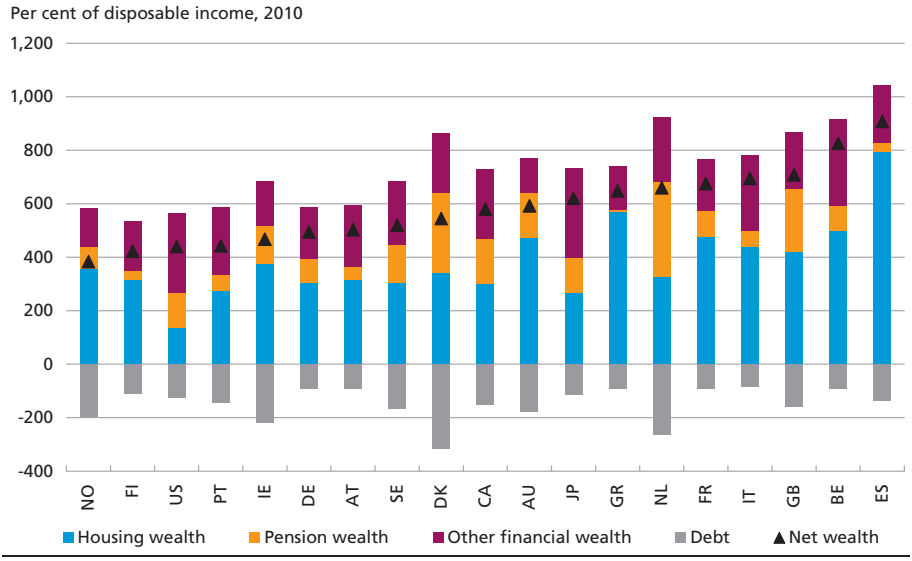
HOUSEHOLD NET WEALTH (LEFT-HAND SIDE), GROSS DEBT AND PENSION WEALTH (RIGHT-HAND SIDE) Chart 1



Note: Data for 2010 are partially estimated. In some countries, tax payments on pension savings pay-out reduce pension wealth after tax. The above data are shown before tax, as the current tax rate will not necessarily apply at the time of pay-out. Moreover, household wealth cannot be isolated from the rest of the economy, including government net wealth. Calculating net wealth after tax reduces the Danish households' net wealth by around 100 per cent of disposable income, resulting in a level that only just exceeds the level in Portugal. Conversely, the public sector's net wealth increases accordingly.

Source: OECD, national central banks and own calculations.

HOUSEHOLD WEALTH AND GROSS DEBT Chart 2



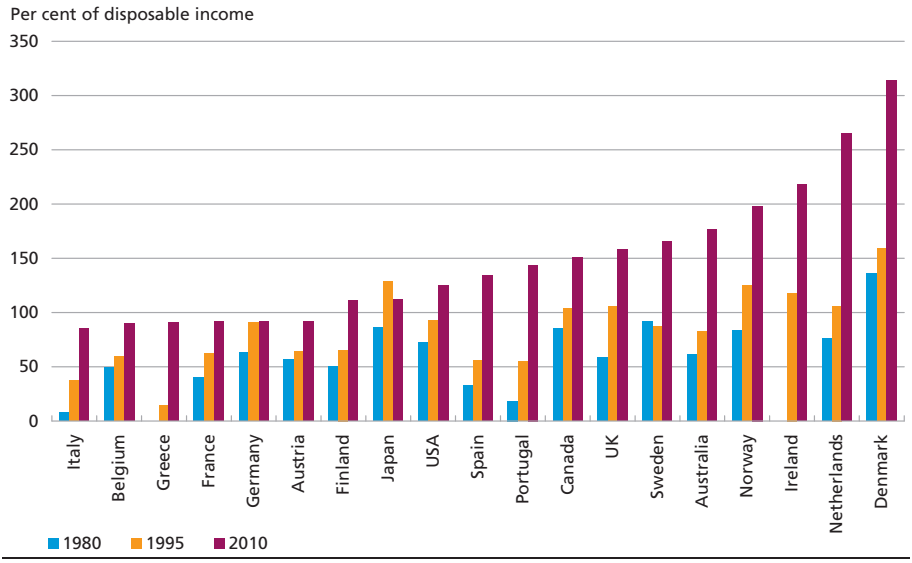
Note: See the note to Chart 1.
Source: OECD, national central banks and own calculations.

households have increased their gross debt in light of reduced costs of having debt and expanded credit facilities. This is partly attributable to falling interest rates and unemployment as well as considerable financial development in many countries. Consequently, housing wealth and gross debt have been pushed upwards by the same underlying factors, which has contributed to balance-sheet expansion (increase in both wealth and debt) for the household sector.

In some countries, including Denmark and the Netherlands, pension savings account for a large part of the wealth. In Denmark, one of the reasons is the widespread use of labour market pensions. Having substantial pension savings reduces the need to be free of debt before retirement. To the extent that households sustain a high level of gross debt for a prolonged period of life, saving under pension schemes instead, the debt ratio will increase for the household sector as a whole. Finally, pension savings are typically tax-advantaged, and interest expenses are tax-deductible. This may provide incentives for some households to borrow to finance their pension savings.

As a consequence, growing housing and pension wealth and financial development have contributed to considerable expansion of household balance sheets. Debt levels have risen strongly over the last 15 years, as gross debt ratios have doubled in many countries. The debt ratio is particularly high in Denmark, the Netherlands and Norway, while Italy, France and Germany are in the low range, cf. Chart 3. A remarkable fea-

HOUSEHOLD GROSS DEBT Chart 3



Note: For Germany 2010: The data refer to 2009. For Norway 1980: The data refer to 1987.
Source: OECD, Cecchetti et al. (2011) and national central banks.

ture is that quite a large number of the countries with high household gross debt also have low government debt, current-account surpluses and net external assets.

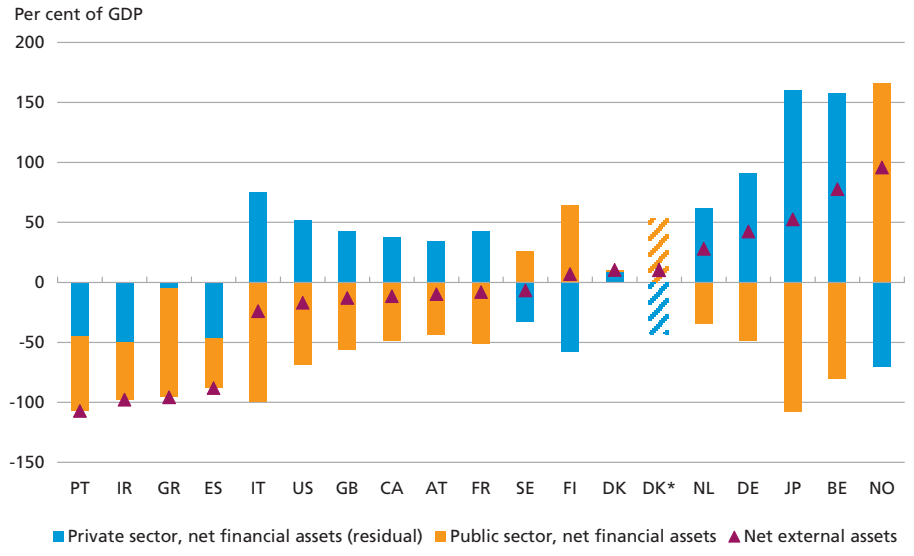
Household net wealth cannot be considered in isolation from the rest of the economy. If the public sector has substantial net debt, households must expect higher taxes and/or poorer public service in the future, while large corporate debt means that households must expect lower dividend payments. Both of these factors point to households building up greater net wealth through savings.

The net wealth for all sectors taken as one makes up a country's net external assets, also called the external debt. A country will accumulate external debt if it has persistent current-account deficits as a result of an overall savings deficit in the economy.

Denmark has gone from having considerable external debt in the 1980s to having net external assets of around 10 per cent of the gross domestic product, GDP, in 2010, cf. Chart 4, reflecting a prolonged period of sustained current-account surpluses.

In most countries, the public sector has net debt, while the private sector has net wealth. The Nordic countries are unique in that their public sectors have net financial wealth. In Denmark, the public sector has moderately positive net financial wealth when including holdings in various funds, among other factors. Allowing for the fact that part of household pension wealth is deferred tax accruing to the public sector on

EXTERNAL DEBT AND NET FINANCIAL ASSETS AT SECTOR LEVEL (2010) Chart 4



Note Due to lack of data, statistics for Italy, France, Germany, Japan and Ireland are from 2009. DK* indicates sector balance sheets for Denmark, adjusted for deferred tax on household pensions.
Source: IMF, Eurostat and OECD.

pension pay-out, however, the Danish public sector's net wealth is considerably higher.

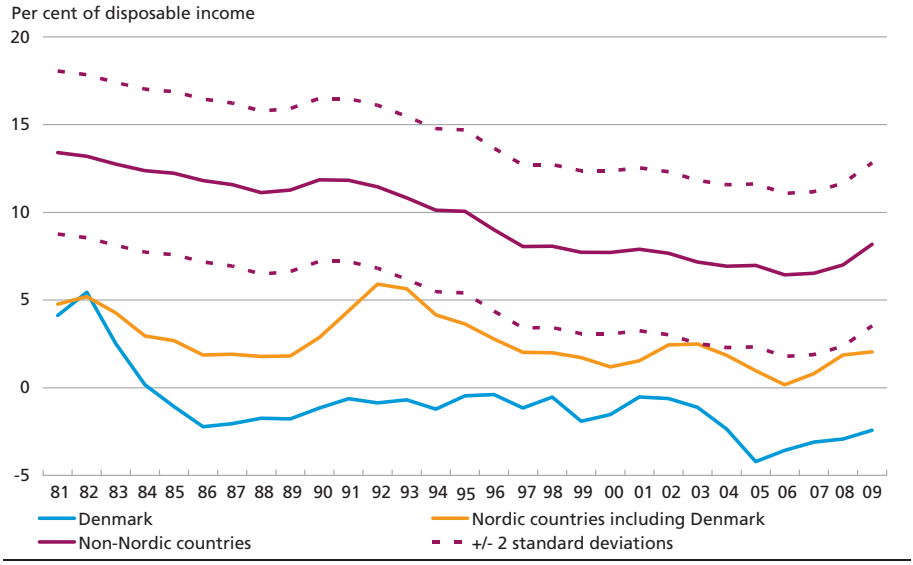
Consequently, the financial position of the Danish economy is relatively favourable overall, with public-sector net assets, a current-account surplus and net external assets.

ANALYSIS OF HOUSEHOLD SAVINGS

Household savings constitute one of the factors influencing the financial balance sheet of the households. In most countries by far, the savings ratio, i.e. household savings relative to disposable income, has either been reduced or has remained unchanged since 1980. In Denmark, it has generally been very low compared with the other OECD countries. The other Nordic countries and the Anglo-Saxon countries are also at the low end of the scale.

On the basis of an econometric analysis we find that in a broad group of OECD countries, the household savings ratio is explained by real interest rates after tax, demographics, corporate savings, the cyclically adjusted government budget balance and the size of the public sector. This is in line with previous studies. The analysis shows that the estimated savings ratio for Denmark is considerably lower than the average estimated savings ratio in the other countries, cf. Chart 5.

ESTIMATED NET SAVINGS RATIOS FOR THE HOUSEHOLD SECTOR Chart 5



Note: Estimation for 17 OECD countries in the period 1980-2008. Statistics for 2009 are based on an out-of-sample forecast.
Source: OECD, Eurostat, IMF and own calculations.

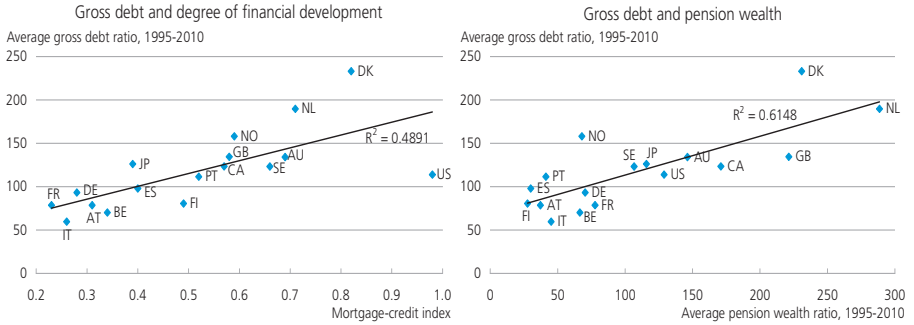
The analysis also shows that structural factors account for a considerable share of the difference in savings levels in Denmark and the other Nordic countries compared to the other advanced economies. In particular, this indicates that the high corporate savings, a larger public sector and a better cyclically adjusted government budget balance are the principal drivers of the reduction of the savings ratio. Moreover, the results indicate that interest deductibility may previously have played a role, especially for Denmark in the 1980s, but that it is not likely to be of key importance in relation to the current difference.

ANALYSIS OF HOUSEHOLD BALANCE SHEETS AND GROSS DEBT

There are two principal reasons for the observed increase in the gross debt ratio of Danish households. Firstly, both the costs of having debt and the credit constraints have probably been reduced as a result of financial innovation and liberalisation. This has contributed to the expansion of balance sheets via increased housing wealth and higher debt ratios. There is thus a clear relation between the gross debt ratio and financial development, cf. Chart 6 (left-hand side).

Secondly, having substantial pension wealth reduces the need to be free from debt before retirement. To the extent that households have gross debt for several years, e.g. when they save via pension schemes

FINANCIAL DEVELOPMENT, PENSION WEALTH AND GROSS DEBT Chart 6



Note: Data for 2010 are partially estimated. Left-hand chart: For a more detailed description of the mortgage-credit index, see Box 4.1 in the article in Part 2 of this Monetary Review. Right-hand chart: Pension wealth is calculated before tax.

Source: OECD, national central banks, IMF (2008) and own calculations.

rather than reducing their housing debt, the gross debt ratio for the household sector overall will rise. Thereby, a clear relation between the size of the pension wealth and the gross debt ratio emerges, cf. Chart 6 (right-hand side).

An econometric analysis partially confirms this conclusion.[1] According to the estimated model, the substantial increase in the gross debt ratio in Denmark is primarily attributable to the growth in pension wealth, which alone can explain around one third of the growth in the gross debt ratio from 1995 to 2010. The estimation shows that when the pension wealth rises by 1 per cent of disposable income, the gross debt will grow by approximately 0.4 per cent of disposable income.

Another contributing factor, although to a lesser extent, has been the reduction of the public sector's net debt, which has been replaced by net wealth. According to the estimation, a reduction of the public sector's net debt by 1 per cent of the households' disposable income will increase the households' gross debt ratio by 0.25 percentage points.

In addition to pension wealth, financial development and public net debt, we include a number of other variables, i.e. real interest rates, inflation and structural unemployment.[2] Together, these factors explain one fourth of the increase in the gross debt ratio since 1995.

1 According to the estimated model, financial development has only had relatively moderate influence on the increase in the debt ratio. The reason is probably that the applied index for the degree of financial development does not fully capture the real development or the cross-country differences (the mortgage-credit index, shown in Chart 6, is available for only one year).

2 Housing wealth has been excluded in the main model since it is found to be driven by the same underlying factors as the debt ratio, e.g. financial development. Including housing wealth would therefore entail underestimation of the estimated effects of the other explanatory variables.

CONSEQUENCES OF HIGH GROSS DEBT

Gross debt and losses in the financial sector

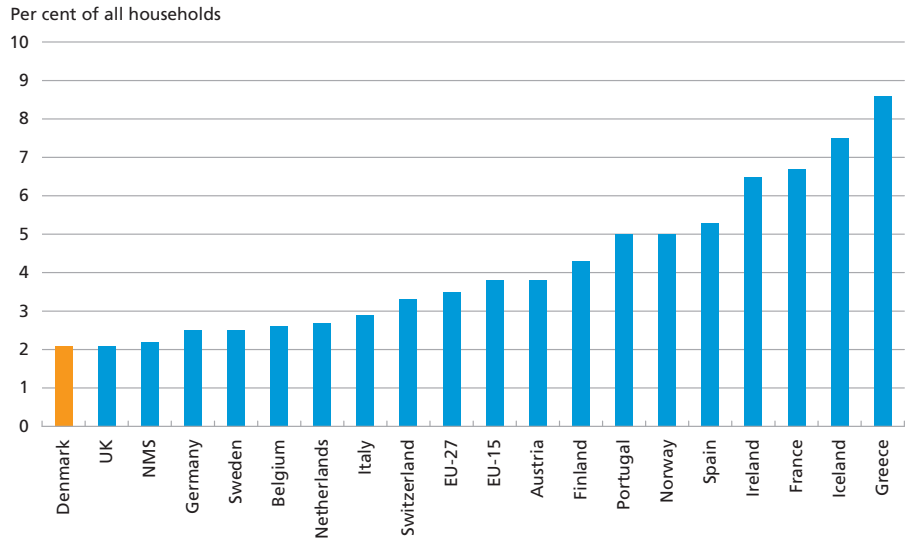
One concern as regards the high level of gross debt in Denmark is that it may lead to the financial sector suffering increased losses on lending to households during an economic slowdown or in the event of rising interest rates. A consequence of the higher gross debt is that is makes the Danish household sector more sensitive to changes in interest rates, particularly if the Danish business cycle is out of sync with that of the euro area, implying rising interest rates concurrently with high and/or increasing unemployment. But over the last 15 years, during which period the gross debt ratio has almost doubled, the financial sector in Denmark has suffered only moderate losses on lending to the household sector compared with the crisis in the early 1990s.

Even after the financial crisis, the losses of banks and mortgage banks on lending to the household sector have been relatively small, reflecting, among other factors, relatively low unemployment, very low interest rates and great household wealth. Households with high debt will typically have high wealth (both housing and pension wealth), since their homes are collateral for a large share of the debt.

Part of the increase in the gross debt ratio in Denmark can be explained by a higher number of households having gross debt for longer periods of time – because they raise deferred-amortisation home loans, among other factors – and by the higher number of households with debt as a result of better access to borrow. This indicates that the peak of the individual household's gross debt ratio over its life cycle has not risen as much as the gross debt ratio for the household sector as a whole.

As a consequence of Danish mortgage credit and insolvency legislation, Danish households will probably go to great lengths to avoid payment problems in relation to their home loans. The Danish mortgage credit system and its performance during the crisis are described in more detail in the article entitled "Danish Mortgage Credit" in this Monetary Review. The percentage of households in arrears with home loans or rent in 2009 is very low in Denmark compared to other European countries, cf. Chart 7. This indicates that the households' total balance sheet and the economic situation have not entailed major losses for the financial sector on lending directly to the households. An econometric analysis in Part 2 of this Monetary Review, based on data for nine countries in the period 1994-2009, confirms this conclusion. However, the low level of losses should be viewed in light of the current low level of interest rates. The high interest-rate sensitivity means that households

ARREARS WITH HOME LOANS OR RENT, 2009 Chart 7



Note: NMS: New member states.
Source: European Union Statistics on Income and Living Conditions.

will be more vulnerable to interest-rate increases, especially if such increases occur at a time of high unemployment and weak growth. A comprehensive analysis of vulnerabilities with a view to assessing financial stability would require detailed data on the distribution of wealth and gross debt on households and the exposure of individual financial institutions.

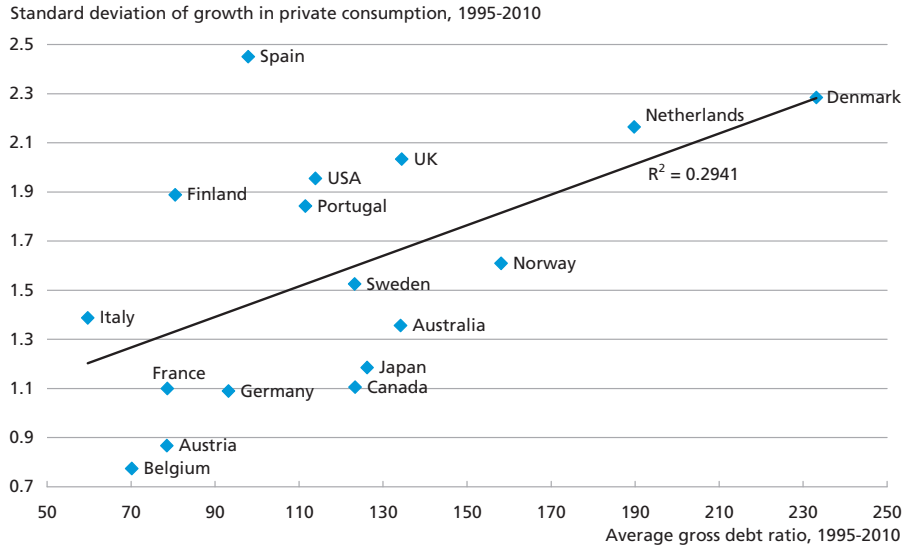
Despite the fact that the high gross debt ratio of the households does not seem to have a direct effect on the losses of the financial sector, there may be indirect effects. The reason is that large debt amplifies fluctuations in private consumption.

This may result in increased losses on lending to firms whose output is aimed at domestic private consumption. It is also possible that the high gross debt ratio has amplified the fall in house prices, thereby increasing the losses on lending to the construction sector.

Cyclical fluctuations and debt

Over the last 30 years, the fluctuations in private consumption have decreased even though the gross debt ratio has increased. This is related to the general tendency for cyclical fluctuations to be more moderate. Nevertheless, the stability of growth in private consumption varies across countries. Denmark is one of the countries with large fluctuations in private consumption, and the fluctuations are largest in countries where the households have high gross debt, cf. Chart 8.

HOUSEHOLD GROSS DEBT AND CONSUMPTION VOLATILITY Chart 8



Note: Data for 2010 are partially estimated. If Spain is excluded, R^2 will increase to 0.45.
Source: OECD, national central banks and own calculations.

An underlying factor is that higher gross debt tends to amplify the effect of shocks to the economy. Interest-rate increases reduce the disposable income of households with gross debt, especially those with substantial short-term debt, thereby reducing consumption. For households with wealth, interest-rate increases can reduce the value of housing. The net effects of interest-rate increases must be expected to be lower disposable income (and reduced wealth in the short term) and thus lower consumption. This effect is reinforced, the greater the gross debt of the individual household and the more households with gross debt.

For households with high gross debt that are temporarily hit by unemployment, consumption smoothing through increased borrowing will not be possible to the same degree as for households with low gross debt. As an alternative, the households may try to sell their assets in order to reduce their gross debt. This may lead to falling house prices, thereby reducing private consumption. An analysis based on 17 countries for the period 1995-2010 confirms that higher debt entails larger fluctuations in the economy, even when structural differences, general cyclical fluctuations and fluctuations in growth in net wealth are taken into account. This indicates that the high level of household gross debt has contributed to a larger decline in private consumption during the financial crisis in Denmark than would have been the case with a lower gross debt ratio.

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Danish Mortgage Credit

Poul Gundersen, Market Operations, Stig Secher Hesselberg and Sean Hove, Financial Markets

INTRODUCTION AND SUMMARY

Danish mortgage bonds have performed well during both the financial crisis and the sovereign debt crisis. During the debt crisis, they have traded at lower yields than many other comparable European bonds, and the yield spread between Danish government and mortgage bonds is narrow compared with the equivalent spreads in other countries. Negotiability in mortgage bonds has been maintained, even in the period when issuance of comparable European bonds fell sharply.

This reflects that the Danish economy is more resilient than those of other countries in several respects. Denmark has sustainable public finances and relatively low government debt given the size of the economy – two factors currently attracting market attention. These are probably some of the reasons why Danish mortgage bonds have displayed the same characteristics as assets considered to have safe-haven status during periods of financial turmoil.

However, this development would not have taken place if investors had not regarded Danish mortgage bonds as being among the safest assets. Low credit risk and high liquidity are preconditions to achieving safe-haven status. The low credit risk in the Danish mortgage-credit sector is supported by a large number of legal and institutional conditions set out in Danish legislation. These include the underlying collateral, requirements for the institutions and the legal framework in the event of e.g. a borrower's non-performance or the compulsory liquidation of a mortgage bank. Liquidity is underpinned by the direct match between the loans granted and the bonds issued and by mainly issuing mortgage bonds in large series.

At the same time, the mortgage-credit sector is facing challenges that have been revealed by the crisis. One challenge is linked to the funding of 30-year loans by bonds with maturities of only 1 year. The interest rate is paid in full by the borrower when the loan is refinanced, and the mortgage bank is therefore initially protected against risks ensuing from higher interest rates. However, the financial crisis has illustrated that

markets can cease to function. Interest rates can also rise so much that many borrowers will have difficulty servicing their debt, resulting in higher credit risk for the mortgage bank. The likelihood of such an event is very small, but the potential consequences can be substantial if many loans are affected at the same time. Another challenge is the legal obligation to provide top-up collateral for a large share of the bonds issued if the value of the underlying collateral no longer meets the maximum loan-to-value ratio. Funding may be relatively expensive, and requires the mortgage banks to have sound earnings. Moreover, credit rating agencies have on several occasions tightened conditions for maintaining their rating of mortgage bonds.

The sector has taken steps to address these challenges, but further adjustment of the business models and framework conditions of the mortgage banks should still be expected.

The section below describes market developments in recent years, followed by an outline of the composition of the mortgage bond market, including sizes, bond types and the conditions supporting liquidity. Subsequently, special regulation and business conditions aimed at ensuring low credit risk in the Danish mortgage credit system are described. The challenges faced by the sector and how they are tackled are described in the perspectives section at the end of this article.

DANISH MORTGAGE BONDS DURING THE FINANCIAL CRISIS AND THE SOVEREIGN DEBT CRISIS

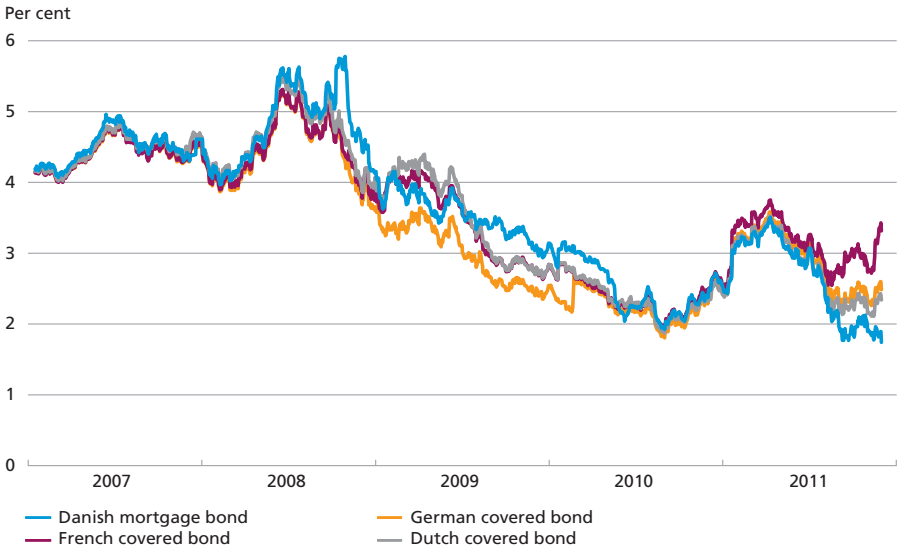
The Danish mortgage-credit market is among the largest in the world and has attracted international investors for many years. From their perspective, it is natural to compare Danish SDOs[1] and covered bonds from other European countries, which qualify for a low risk weight by meeting pan-European rules for capital adequacy.

Yields

In recent years, Danish mortgage bonds have offered low yields on a par with some of the most creditworthy issues from other European countries. Both during the financial crisis and during the ongoing sovereign debt crisis, bond yield spreads have widened, cf. Chart 1. Since early 2011, and especially since August 2011, yields on Danish mortgage bonds have generally been lower than yields on other comparable European bonds. Yields on bonds from some of the largest French and

[1] In the following, SDOs is used as a generic term for covered bonds, *særligt dækkede obligationer*, SDO, and covered mortgage bonds, *særligt dækkede realkreditobligationer*, SDRO. Moreover, the term mortgage bonds denotes traditional mortgage bonds without SDO status as well as SDRO and SDO issued by mortgage banks, unless otherwise stated.

YIELD LEVELS FOR MORTGAGE BONDS COMPARED WITH COVERED BONDS Chart 1



Note: The chart states the yield to maturity on large, fixed-rate, bullet loans issued by Realkredit Danmark, Eurohypo AG, CIE Financement Foncier and ABN Amro Bank NV. The individual time series are composed of several bonds to maintain a maturity of 4-5 years. Where no comparable bond exists with an appropriate remaining time to maturity, linear interpolation between bonds with longer and shorter maturities has been applied. The selected bonds are considered to reflect the general development. The Danish bonds have been issued in Danish kroner, the other bonds in euro.

Source: Bloomberg.

German issuers have thus been up to 1.5 and 0.7 per cent higher, respectively, than yields on equivalent Danish mortgage bonds.

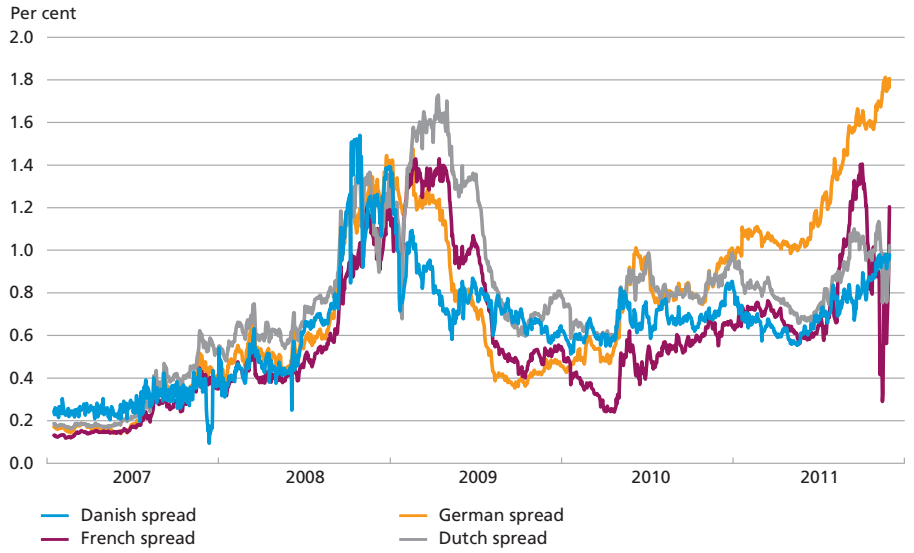
The spread between Danish mortgage and government bonds has been narrow in the past year compared with the corresponding spreads in Germany and France, cf. Chart 2. In countries with high ratings, the spread between mortgage and government bonds provides an indication of the market price of credit risk, to the extent that government bonds are considered almost risk-free. Lately, investors have required a higher risk premium for e.g. German and French bonds than for Danish mortgage bonds. The most recent spread narrowing for French covered bonds is partly due to French government bond yields having increased relative to e.g. their German equivalents in connection with the sovereign debt crisis.

Danish short-term mortgage bond yields were higher than comparable European bond yields from end-2008 to mid-2010. The higher yield on Danish mortgage bonds in this period was to some extent due to a higher monetary-policy interest rate in Denmark than in the euro area, which was also reflected in Danish short-term government bond yields.

The spread between Danish long-term mortgage bonds and government bonds also widened sharply in October 2008. A contributing factor

SPREADS OF MORTGAGE BONDS AND COVERED BONDS TO GOVERNMENT BONDS

Chart 2



Note: The yield spread is calculated as the differential between yields in Chart 1 and yields on government bonds from the same country and with corresponding maturities. Where no comparable bond exists with an appropriate remaining time to maturity, linear interpolation between the bonds with longer and shorter maturities has been applied.

Source: Bloomberg.

was foreign investors' sales of Danish mortgage bonds because the Danish market was still liquid compared with other markets. The spread widening and the increase in mortgage yields led to decoupling of mortgage yields from the interest rates applied for calculating the value of the liabilities of insurance and pension companies.[1] Consequently, long-term mortgage bonds could not be used to the same extent for hedging the liabilities of insurance and pension companies, and while the market value of Danish long-term mortgage bonds fell significantly, the value of the liabilities did not decrease correspondingly. This led to a risk that the insurance and pension sector would divest substantial volumes of mortgage bonds to avoid this basis risk. At the end of October 2008, the Pension Package was concluded. Among other things, this agreement entailed that the yield on mortgage bonds was temporarily to be included in the yield curve used by pension companies to calculate their liabilities. The parties have subsequently prolonged and adjusted the agreement. It is open-ended, as there was agreement that it ensures an appropriate transition to the new Solvency II rules governing the pension sector.

[1] The value of the pension companies' liabilities is calculated on the basis of a yield curve set by the Danish Financial Supervisory Authority, reflecting current market conditions.

The spread between government and mortgage bonds narrowed considerably just after the agreement, a trend that continued in the following months. For part of 2009, the spread was thus smaller than the corresponding spreads in Germany, France and the Netherlands.

Negotiability of mortgage bonds

Danish mortgage bonds maintained market access throughout the financial crisis. In the 2nd half of 2008 and the 1st half of 2009, issuance levels for European covered bonds fell substantially, while issuance of mortgage bonds remained unchanged. This was most pronounced when the financial crisis peaked in the last three months of 2008. During this period, issuance of jumbo[1] covered bonds accounted for only 2 per cent of the volume issued in the same period of the previous year, cf. Chart 3. The Danish issuance level in the same period (kr. 523 billion) was slightly higher than in the previous year (kr. 513 billion).

A significant share of the issuance was related to refinancing of adjustable-rate mortgage loans at auctions in November and December, which were completed without serious problems. The Social Pension Fund's purchase of short-term mortgage bonds worth kr. 27 billion in December 2008 has been mentioned as a contributing factor. The potential effect should be viewed in the perspective of the total issuance of mortgage bonds in the period.

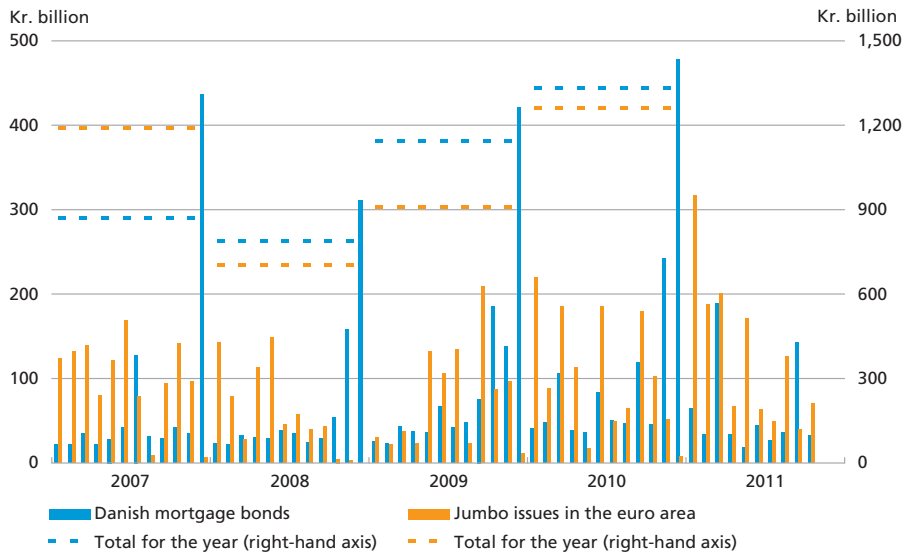
Danmarks Nationalbank has analysed liquidity in Danish mortgage bonds compared with Danish government bonds in the period from January 2005 to May 2010, cf. Buchholst et al. (2010). The analysis applies the Amihud liquidity measure, which is based on the price impact of executing transactions in the market. The analysis includes bonds with an outstanding volume equivalent to more than 1 billion euro and is based on transactions of kr. 10 million or more. The analysis shows that the liquidity of Danish mortgage bonds generally matches the liquidity of Danish government bonds in periods of financial market turmoil.

In recent months, Danish mortgage bonds have displayed the same characteristics as assets considered to have safe-haven status during periods of financial turmoil. An asset can obtain this status by maintaining stable value and high negotiability at times when the values of many other assets decline. An important explanation behind recent developments is probably that Denmark is viewed as a stable investment country, and that Danish bonds in the current situation are considered to be an attractive alternative by investors seeking a high degree of

[1] See note to Chart 4.

ISSUANCE OF MORTGAGE BONDS IN DENMARK AND JUMBO COVERED BONDS IN THE EURO AREA

Chart 3



Note: For the euro area only jumbo issues are included, i.e. issues with an outstanding volume of at least 1 billion euro, and which meet specific requirements for market making and bond type. Thus, jumbo issues do not include all covered bond issues in the euro area. SDOs issued by banks and a ship finance institution are not included.

Source: Danmarks Nationalbank and Credit Suisse First Boston.

safety. This has benefited Danish mortgage bonds as well as government bonds. However, this development would not have taken place if Danish mortgage bonds had not been regarded as being among the safest assets. The following describes the special conditions in the Danish mortgage-credit system which underpin the low credit risk and the high liquidity. This may help provide an understanding of why Danish mortgage bonds stand out as attractive in an international context.

A LARGE AND LIQUID MARKET

Market size and composition

The total outstanding volume of Danish mortgage bonds amounted to kr. 2,515 billion at the end of October 2011, cf. Table 1. The large outstanding volume reflects the widespread use of mortgage banks for property financing. At end-October 2011, mortgage loans accounted for 70 per cent of total lending by Danish banks and mortgage banks to households and non-financial corporations.

There are seven mortgage banks in Denmark, of which the five largest have issued more than 99 per cent of the outstanding mortgage bonds. The four largest mortgage banks offer loans to both households and enterprises, while the rest do not grant loans to households.

OUTSTANDING MORTGAGE BONDS, END-OCTOBER 2011 Table 1

Mortgage banks	Outstanding volume at market value, kr. billion	Per cent
Nykredit (incl. Totalkredit)	1,082	43.0
Realkredit Danmark	736	29.3
Nordea Kredit	339	13.5
BRFkredit	209	8.3
DLR Kredit	134	5.3
LR Realkredit	14	0.5
FIH Kredit[1]	0	0.0
Total	2,515	100.0

Source: Danmarks Nationalbank.
[1] FIH's outstanding bonds totalled kr. 250 million, corresponding to 0.01 per cent of the total outstanding volume.

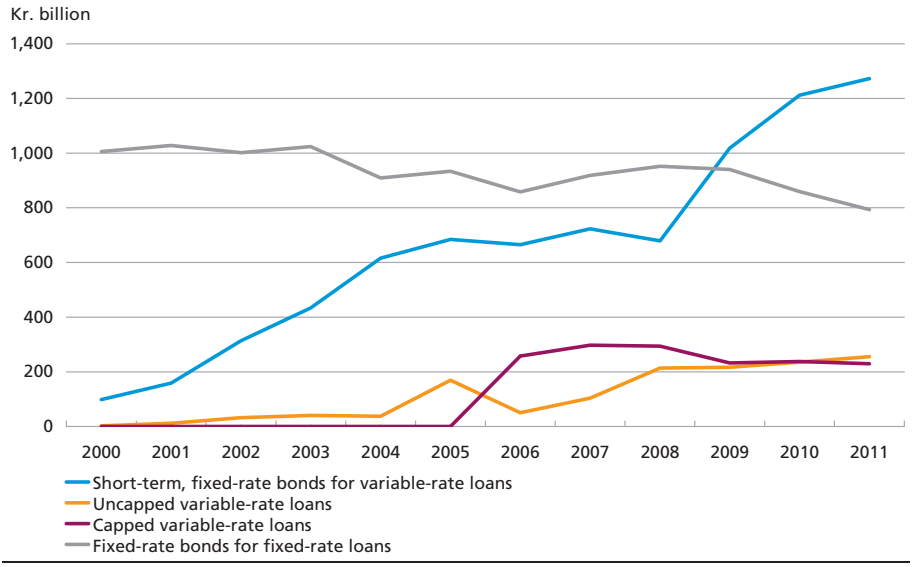
A distinctive feature of the Danish mortgage-credit system is that the conditions of the bonds issued precisely reflect the conditions of the loans granted, see below. The borrower's choice of loan type therefore determines the composition of the outstanding mortgage bonds.

Fixed-rate, callable bonds are typically 30-year bonds and give the borrower a right to redeem the loan at par. Before 2000, the mortgage bond market consisted almost entirely of bonds of this type.

In 1996, mortgage banks began to offer adjustable-rate mortgage loans based on short-term, fixed-rate bonds, which are refinanced every time the interest rate is reset, and since 2000 in particular, the share of these loans has increased sharply, cf. Chart 4. At the time of issuance, they often have a maturity of 1 year, but 3-year and 5-year bonds are also issued. A key reason for the rise in demand for adjustable-rate mortgage loans is that short-term interest rates have been substantially lower than their long-term equivalents. Borrowers have obtained a relatively low interest rate, partly because investors tie up liquidity for a short period only.

Moreover, a minor proportion of the mortgage-credit loans are financed by variable-rate bonds with maturities of up to 30 years. The interest rate is fixed e.g. semi-annually based on a reference rate. The bonds – and hence also the loans – can be with or without an interest rate cap. The outstanding volume increased most in the period 2004-08, but subsequently new issuance has been limited. As a result of the increased investor focus on liquidity and credit risk after the financial crisis, investors want higher compensation for tying up their funds for up to 30 years, and interest rates on variable-rate loans funded by longer-term bonds have therefore risen compared with adjustable-rate mortgages. Some mortgage banks are now offering 30-year loans based on 10-year capped variable-rate bonds.

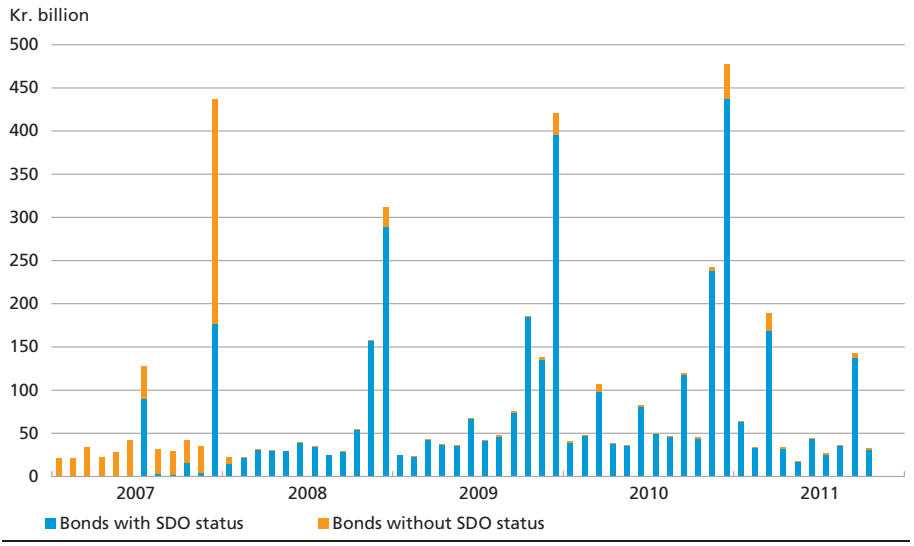
OUTSTANDING MORTGAGE BONDS BROKEN DOWN BY LOAN TYPE Chart 4



Note: Market value of outstanding volume at end-August. Before 2006, capped variable-rate loans are included under uncapped variable-rate loans.
Source: Danmarks Nationalbank.

As a consequence of new lending, remortgaging and loan refinancing, mortgage bonds are in practice being issued all year round, cf. Chart 5. However, issuance activity increases strongly towards year-end when many adjustable-rate mortgages are refinanced.

NEW ISSUANCE OF MORTGAGE BONDS WITH AND WITHOUT SDO STATUS Chart 5



Note: Stated at market value, end of month.
Source: Danmarks Nationalbank.

BONDS WITH SDO STATUS Box 1

Following the amendment to the Capital Requirements Directive, new legislation was passed in Denmark in 2007, giving the mortgage banks access to issuing bonds with SDO status. These bonds meet pan-European rules and can qualify for a lower risk weighting in credit institutions holding the bonds than bonds without this status.

The new Danish rules give the mortgage banks the possibility of issuing covered mortgage bonds, SDROs, and covered bonds, SDOs. When the mortgage banks issue this type of bonds, they are obliged to ensure that adequate top-up collateral is provided, e.g. if the market value of a property declines, or the market value of the bonds rises so much that the loan-to-value ratio is exceeded for the individual loan.

Before the amendments to the mortgage-credit legislation in July 2007, all mortgage banks' loans were financed by issuing mortgage bonds, for which the mortgage banks were not obliged to provide top-up collateral.

With the legislative amendment, the banks and a ship finance institution were also given access to issuing SDOs. The outstanding volume corresponds to about 3 per cent of the market for bonds issued by mortgage banks.

Legislation on SDOs entered into force in 2007, cf. Box 1. Since then, the majority of new bonds have had SDO status, cf. Chart 5. SDOs now account for around 65 per cent of the total outstanding mortgage bonds and their share is expected to rise in the coming years.

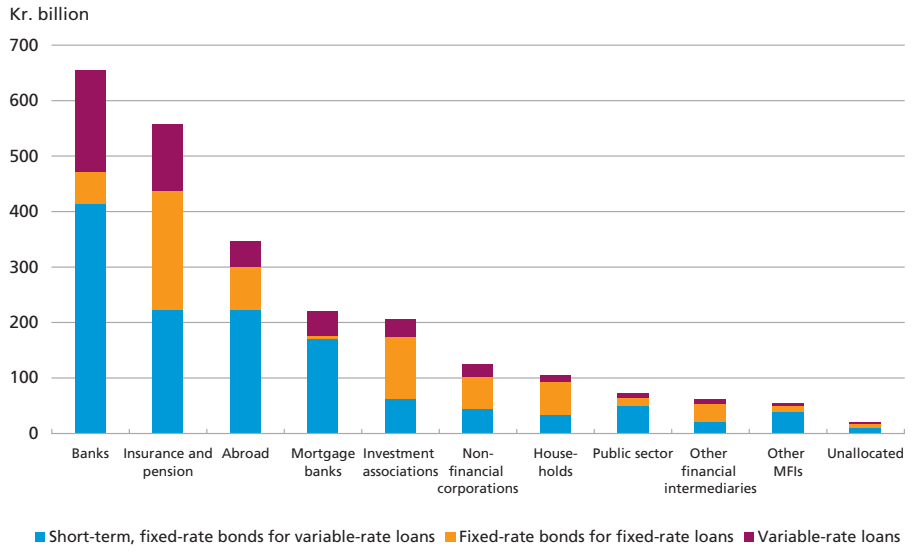
Investor base

The two dominant investor types are Danish banks and the insurance and pension sector, cf. Chart 6. Holdings of Danish mortgage bonds abroad total 14 per cent, and the demand thus stems primarily from a large Danish investor base. Mortgage bonds form an integral part of the financial system in Denmark. Banks, for instance, often use short-term mortgage bonds in their liquidity management and hold almost one third of all issued bonds underlying adjustable-rate mortgages. The insurance and pension sector as well as investment associations are the two largest investor segments for long-term, fixed-rate, callable bonds. The pension companies typically use the bonds for hedging the duration of their liabilities. The third largest domestic investor base is made up of mortgage banks, which to a large extent hold their own bonds.

Liquidity-supporting conditions

Liquidity in the Danish mortgage bond market is underpinned by mainly issuing in large series. Bond series of more than kr. 10 billion account for 59 per cent of the total outstanding volume, cf. Chart 7. Another 29 per cent of the total outstanding volume comprises issues of kr. 2-10 billion.

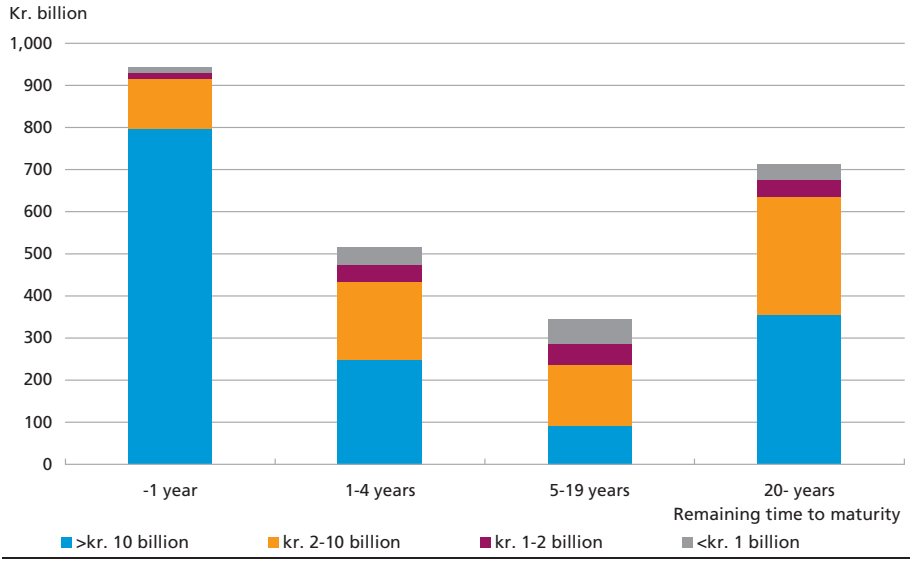
HOLDINGS OF MORTGAGE BONDS BY INVESTOR TYPE — Chart 6



Note: Stated at market value at end-October 2011. The insurance and pension sector includes investment associations which administer pension funds.
Source: Danmarks Nationalbank.

To obtain large series, the mortgage banks seek to use the same series as the basis for many loans. When adjustable-rate mortgages are refinanced, existing series are reused to the largest possible extent, so that

TOTAL OUTSTANDING VOLUME BY REMAINING TIME TO MATURITY AND SIZE OF SERIES — Chart 7



Note: Stated by market value at end-October 2011.
Source: Danmarks Nationalbank.

MARKET MAKING IN THE DANISH MORTGAGE-CREDIT MARKET Box 2

A market making agreement between market participants can help to support liquidity in the market by laying down requirements for the participants' price spreads and transaction sizes. Until 2008, market making in the Danish mortgage-credit market was based on quotation in bonds. In connection with the financial crisis in 2008, the market maker arrangement for long-term, callable mortgage bonds was suspended, while the arrangement for short-term mortgage bonds continued. As the market normalised, the market makers decided to work towards establishing market making in futures rather than resuming market making in long-term mortgage bonds. In October 2009, a futures contract on long-term mortgage bonds was introduced, and from the beginning market making in the futures contract was established. The positive experience from the futures contract on long-term mortgage bonds led the participants to establish a futures contract on medium-term mortgage bonds in November 2010. Market making was also established in this futures contract from the beginning.

The market maker arrangements in both futures remain in force as well as supplement market making in fixed-rate bonds with maturities of up to one year.

e.g. refinancing of a 1-year adjustable-rate mortgage loan is based on the bond used for refinancing 2-year adjustable-rate mortgages in the previous year.

Loans based on fixed-rate, callable bonds are granted on the basis of the same bond for up to 3 years. The remaining time to maturity of the bonds is approximately 33 years the first time it is issued, and the bond is open for 3 years until the remaining time to maturity has declined to 30 years.[1]

The average life of a mortgage-credit loan is 5 to 10 years, although the term stated in loan agreements is usually significantly longer. The reason is that a new loan is typically taken out when a home is sold and that many borrowers also remortgage before the end of the agreed term. Fixed-rate loans are typically callable, and if interest rates decline significantly, the borrower can profit from repaying the loan and taking out a new one. Remortgaging will often result in loans based on a more recent bond series. Investors benefit from the market activity ensuing from the ongoing borrowing and debt management.

The close similarity between the mortgage banks' loan products and hence between bonds issued by different mortgage banks also contributes to a more flexible mortgage-credit system. A certain substitution effect is obtained between otherwise identical bonds from different mortgage banks. At the same time, the market valuation of a highly liquid bond can contribute to simplifying the valuation of a similar, but smaller issue.

The existence of a relatively new futures market underpins the possibilities of hedging and thus the negotiability of the bonds, cf. Box 2. It is

[1] A bond series is only open for loan offers if the price of the bond is below par. The reason is that the borrower can redeem the loan at par.

possible to trade futures on medium-term, fixed-rate bonds underlying adjustable-rate mortgages, and on long-term, callable bonds.

Moreover, there is a repo market for Danish mortgage bonds, and these bonds are widely used as collateral for loans between professional investors, cf. Mindested et al. (2011). Around one third of all activity in the repo market is based on demand for specific securities, which e.g. makes it possible for recipients to sell mortgage bonds that they do not hold.

LOW CREDIT RISK

The significance of Danish mortgage credit entails that the sector attracts significant attention and that all relevant aspects of the mortgage-credit system are subject to financial regulation. The mortgage banks are specialised institutions holding specific licences and their main activity is to provide loans collateralised against real property and financed by issuing bonds. The largest Danish mortgage bonds are part of groups that also include banks. Groups are subject to rules regarding intra-group exposures, intended to limit the risk of contagion between group companies.[1] Like banks, mortgage banks must meet e.g. capital requirements as well as organisation and management requirements. Furthermore, the mortgage banks are subject to a number of specific rules on risk management, bond issuance, property valuation, registration of the collateral and liabilities, etc.

Five factors in particular ensure that mortgage bond investment is associated with very low credit risk and households and firms thereby have access to cheap financing of real property. First, the balance principle and the close link between loans and bonds mean that mortgage banks do not assume significant market risks. Second, the credit risk that the mortgage banks can assume is limited by fixed loan-to-value ratios and rules on valuation of the collateral. Third, they can strengthen their capital base on an ongoing basis by generally increasing their administration margins. Fourth, due to a strong legal framework they have reliable access to fast realisation of the collateral relating to a non-performing loan. Fifth, mortgage bond investors may file a claim against the mortgage bank and, in the event of compulsory liquidation, they

[1] Nykredit Realkredit and BRFkredit both have subsidiary banks, while Realkredit Danmark and Nordea Kredit are subsidiaries of Danske Bank and Nordea Bank Danmark, respectively. According to the rules on intra-group exposures, a financial corporation may not without prior permission from the Danish Financial Supervisory Authority have exposures to other companies within the same group, except for exposures to subsidiaries. This means that no intra-group exposures may be established between a parent company and its subsidiary without prior permission from the Danish Financial Supervisory Authority.

have priority over other investors in relation to the underlying collateral. Key elements of the regulation are outlined below.

The balance principle and match funding

The Danish mortgage-credit system is characterised by mortgage banks that assume only minor risks other than credit risk. This is attributable to the statutory balance principle, which sets the limits for the financial risks that mortgage banks can assume, including interest-rate, option, liquidity and exchange-rate risk. The balance principle is laid down in an executive order, and the Danish Financial Supervisory Authority supervises the mortgage banks' compliance with this principle.

Following the amendment of the Capital Requirements Directive in 2007, new legislation was passed in Denmark, enabling the mortgage banks to issue bonds with SDO status. These bonds meet pan-European rules and can qualify for a lower risk weighting than bonds without this status.

As a consequence of the legislative amendment, a new variant of the balance principle was introduced, the *general balance principle*. At the same time, the existing balance principle was, after minor adjustments, maintained as the *specific balance principle*.

Both balance principles impose strict limits on the relationship between payment flows for loans and their funding. The general balance principle allows a larger deviation between payment flows for loans and the bonds issued because the difference can be hedged by derivative instruments. The two balance principles also differ in the methods applied to calculate risk. The mortgage banks must decide whether they want to apply the specific balance principle or the general balance principle, and the balance principle chosen must be stated in the prospectus for the bonds issued. In principle, a mortgage bank can apply different balance principles in different capital centres, but in practice they have all decided to apply one balance principle. The specific balance principle is applied by five mortgage banks, while the general balance principle is applied by two mortgage banks. In practice, however, all mortgage banks are managed within the framework of the specific balance principle because all mortgage banks apply match funding.

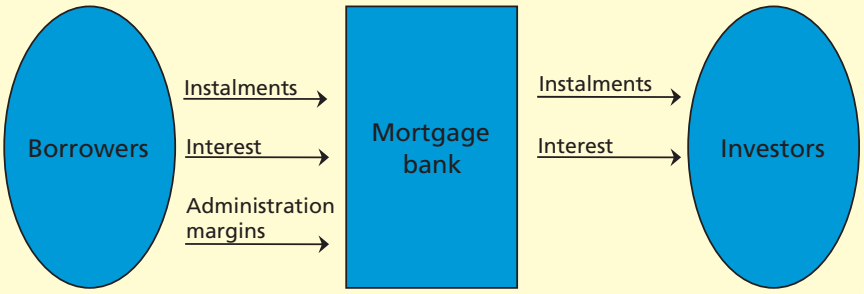
Match funding means that there is a direct link between the mortgage banks' lending and the bonds issued, implying that the fixing of interest rates and the prepayment options for the loan depend directly on the bonds issued, cf. Box 3. Therefore, the mortgage banks' choice of balance principle is of no practical significance to the market risk they assume when financing loans. Match funding is not a legal requirement,

MATCH FUNDING Box 3

In the Danish mortgage-credit system, all loans are in principle financed by issuing one or more specific mortgage bonds, implying that the cash flows (the sum of interest and instalments) on the loan and the bonds are identical, cf. Chart 8. This means that the net payment flows between the borrower and the mortgage bank on the one hand and between the mortgage bank and the investors on the other hand are matched throughout the duration of the loan. In addition, the borrower pays a margin to the mortgage bank for administration and for building up the capital base.

In this context, loans to be refinanced do not differ from loans that are not refinanced. The calculation of the future payment flows assumes that all refinancing takes place, and the interest to be paid on adjustable-rate mortgages is fixed as the effective yield on the bonds sold.

ILLUSTRATION OF PAYMENT FLOWS AFTER LOAN ORIGINATION Chart 8



As a general rule, the loan agreement allows the borrower to redeem a loan, fully or in part, at any time at the market rate by delivering the underlying bonds to the mortgage bank. In practice, the mortgage bank will typically buy the bonds for redemption on behalf of the borrower. Mortgage bonds are quoted on Nasdaq OMX, which gives the borrower access to information about current prices.

Furthermore, a callable loan can be redeemed, at the borrower's request, at the redemption price (typically par, although typically 105 for capped variable-rate loans). This takes place via mathematical drawing, distributing the redemption proportionately between investors.

but a practice developed by the sector. This practice is reflected in the link between bond issues and the agreements concluded between the mortgage banks and borrowers.

Due to the direct link, all mortgage loans can be redeemed at market price if the borrower repurchases the underlying bonds. With match funding, the mortgage bank avoids two significant risks. First, the interest-rate risk is assumed by the borrower as the borrower's interest rate reflects the yield on the bond financing the loan. Second, the investor assumes the risk that borrowers exercise their prepayment option for callable loans.

Refinancing risk on adjustable-rate mortgage loans

Adjustable-rate mortgages are financed by bonds with maturities of 1 to 10 years, while the term of the loan is up to 30 years. This means that the mortgage bank will have to refinance the adjustable-rate mortgage throughout the term of the loan. When loans are refinanced, the mortgage bank issues new bonds. In this case, match funding implies that the interest rate on the loan until the next refinancing is determined by the yield on the new bonds, and as a result the payments on the loan correspond to payments on a series of short-term bonds.

Match funding ensures that the mortgage bank is initially protected against risks in connection with the refinancing. However, the financial crisis has brought examples of otherwise well-functioning markets that have suddenly ceased to function.

Financial turmoil and general uncertainty can also cause the interest rate to be much higher at the time of refinancing. Initially, this risk is assumed by the borrowers, but over time the consequence may be that many borrowers would have difficulty servicing their debt, resulting in higher credit risk for the mortgage bank.

If these risks materialise for many loans at the same time, this may lead to financial instability. The likelihood is very small, but the consequences are potentially serious. The mortgage banks' efforts to reduce this risk by spreading the refinancing are described in detail at the end of this article.

Mortgage banks' credit risk

In practice, the balance principle means that the most significant risk for the mortgage banks is the credit risk on lending. Mortgage-credit loans are held on the mortgage banks' balance sheets, and the borrowers are subject to credit assessments. Credit assessments of customers and valuation of the mortgaged property can be carried out by the mortgage bank itself or on behalf of the mortgage bank by e.g. intra-group or partner institutions in accordance with prior instructions and with subsequent ongoing control. A loss guarantee or the like will often be provided by the intra-group or partner institution. These conditions give the institutions incentive to ensure that the loans have a high credit quality.

Loans can only be granted against collateral in the form of real property, and the requirements for the collateral underlying the loans, including loan-to-value ratios, valuation, etc., are laid down by statute. The maximum loan-to-value ratios are between 40 and 80 per cent of the value of the mortgaged property, depending on the type of property, cf. Table 2.

LOAN-TO-VALUE RATIOS FOR DANISH MORTGAGE BONDS Table 2

Loan purpose	Loan-to-value ratios, per cent
Owner-occupied housing, etc.[1]	80
Commercial properties, etc.[2]	60[3]
Summer cottages	60
Undeveloped sites	40

Source: Consolidated Danish Mortgage-Credit Loans and Mortgage-Credit Bonds etc. Act.

[1] The same loan-to-value ratio applies to private residential letting and private cooperative housing. However, special rules apply to new construction and establishment of social housing in existing properties.

[2] Commercial properties, etc. comprise office and retail property as well as industrial and crafts property. For loans to agricultural and forestry property as well as market gardens, the maximum loan-to-value ratio is 70 per cent.

[3] The loan-to-value ratio can be increased to 70 per cent for SDOs if top-up collateral is provided for at least 10 per cent of the part of the loan exceeding 60 per cent of the property value.

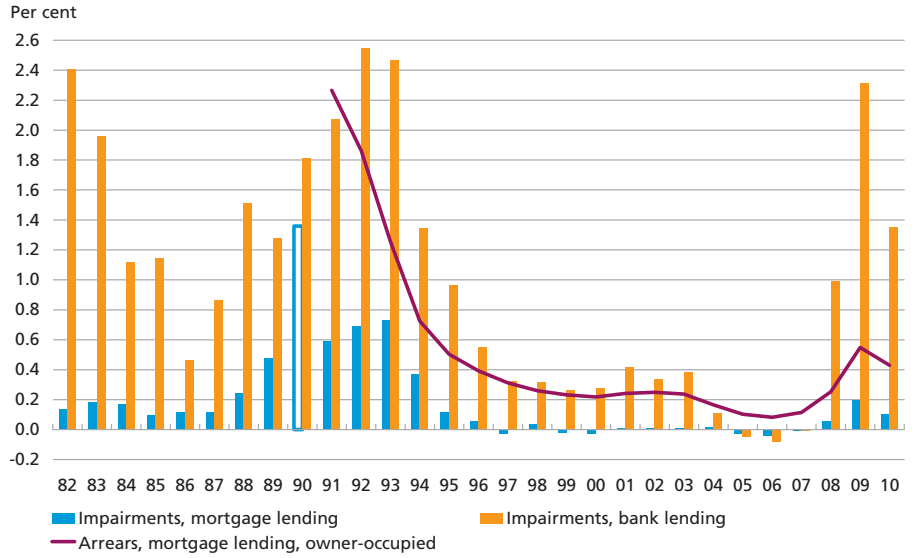
The valuation of the property may not exceed the market value. Hence, it cannot be based on the most recently traded price if this price is not assessed to be a realistic market price. If independent parties have concluded a transaction within the past six months, this traded price constitutes an upper limit for the valuation providing the basis for the loan granted.

All matters concerning property rights are entered into public registers, which underpins the mortgage banks' rights.[1] If a borrower defaults on a loan, the banks hold a strong position in terms of collecting the debt. The mortgage bank can call the loan and sell the mortgaged property as cover for its claim. The period from default on a loan until the mortgage bank may have sold the property is typically less than nine months. The relatively short period helps limit the mortgage bank's potential loss. If the mortgage bank's claim is not met, it retains a claim on the borrower. Consequently, the Danish mortgage-credit system gives the borrowers strong incentives to service their loans and avoid enforced sales.

The rules governing mortgage banks and borrowers are probably a key factor behind the low impairments on loans for many years, cf. Chart 9. The rules applying to valuation of collateral, loan-to-value ratios, fast access to enforced sales if the borrower defaults on loans as well as the borrower's personal liability all contribute to reducing the credit risk. During the prolonged economic slowdown in the early 1990s, impairments reached 0.6-0.8 per cent annually, but since then they have been considerably lower. Low interest rates and low unemployment, particularly in recent years, have probably contributed further to the low level of impairments. The more widespread use of variable-rate

[1] The cadastral register under the National Survey and Cadastre identifies all sites and buildings in Denmark, and the Land Registry includes a complete list of title and charges related to real property.

IMPAIRMENTS AND ARREARS AS PERCENTAGES OF LENDING Chart 9



Note: The mortgage banks' write-downs are stated as percentages of loans and guarantees. In 1990, the principles for impairments (losses and provisions) for mortgage banks were changed, so that provisions for probable losses were recognised according to a prudence concept and not only made for certain losses. In principle, part of the provisions in 1990 therefore concern previous years. Negative figures for impairments indicate that previous provisions are reversed as income. In 2005, the reversals for mortgage banks and banks partly include adjustments to new accounting principles as from 2005.

Source: Danmarks Nationalbank and Association of Danish Mortgage Banks.

loans has contributed to a relatively fast impact of the interest-rate decline. During the financial crisis, impairments reached a level of 0.2 per cent in 2009, from which they have subsequently declined. They have thus been very low, even though property prices are now lower than in 2007, with a higher risk of loss in the event of default as a consequence. The development in impairments on bank loans has followed the same pattern, albeit at a much higher level, which reflects the difference in the risk associated with loans in the two types of institution.

Mortgage banks' protection against losses

The mortgage bank's income from lending primarily consists of the administration margin paid on the loan on an ongoing basis. Additional income is generated by spreads and fees for establishing and remortgaging when loans are granted or changed. The income must cover the mortgage bank's costs and ensure an adequate capital base. The administration margin is usually calculated as a fixed share of the outstanding debt on the loan and is charged separately by the mortgage bank in addition to interest and instalments.

The mortgage banks can generally change the administration margin to be paid by borrowers. The loan agreement must state the conditions

that can lead to a change – e.g. higher costs.[1] The administration margin is the primary cost that the mortgage banks charge from borrowers and is therefore an important parameter for competition. The mortgage banks' choice of administration margins will therefore be a trade-off between the need to increase income and the potential competitive disadvantage. In 2009, several mortgage banks increased their administration margins for corporate loans. Since 2010, all mortgage banks granting loans to retail customers have also increased or announced increases of their administration margins for these loans as a consequence of rising costs, cf. Box 4.

According to the capital adequacy rules, mortgage banks must as a minimum hold a total capital corresponding to 8 per cent of risk-weighted items, i.e. the mortgage bank's assets in the form of e.g. loans and securities weighted according to risk. In addition, individual capital needs are laid down for each mortgage bank, taking the mortgage bank's specific risks into account. If an individual capital need is higher than the minimum solvency requirement, it constitutes the capital requirement of the mortgage bank, which must be met at all times.

At end-June 2011, the mortgage banks' total capital constituted between 12.3 and 34.9 per cent of risk-weighted items.[2] In the assessment of the capitalisation, the possibility for mortgage banks to raise their administration margins should be taken into consideration.

Investor security

Investors' claims on the mortgage bank are secured in the mortgage bank's lending with real property as collateral. In the event of compulsory liquidation, investors have priority over unsecured creditors in both the capital centre and subsequently, if relevant, in the estate in liquidation. The collateral is linked to the bonds in capital centres, which

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1 On the merger with Totalkredit, Nykredit made a number of commitments to the Danish Competition and Consumer Authority. Consequently, Nykredit can only raise administration margins for loans to retail customers by agreement with the Competition and Consumer Authority. On 30 November 2011, the Danish Competition Council decided that, for a 5-year period starting from 1 April 2012, Nykredit will have the possibility of raising the administration margin from 50 to 55 basis points for fixed-rate loans with amortisation and from 50 to 60 basis points for other loans (calculated when fully mortgaged). Nykredit has not made any commitments concerning administration margins on loans granted via Totalkredit. Nykredit has decided to bring the issue of whether the commitment applies indefinitely before the Maritime and Commercial Court, where the case is pending decision.

2 Calculated for the Nykredit Realkredit group (including Totalkredit and Nykredit Bank), Realkredit Danmark, Nordea Kredit, BRFkredit (including BRFkredit Bank) and DLR Kredit. The first four mortgage banks have obtained approval for applying the internal ratings-based approach to calculation of risk-weighted items, and are comprised by a transitional scheme, according to which they have to meet an increased capital requirement. Including the requirements of the transitional scheme, the excess capital adequacy is 5.2, 16.0, 2.2, 6.3 and 4.3 per cent, respectively. When assessing the mortgage banks' excess cover, it should be taken into account that some of them are part of large financial groups and therefore may have access to further capital from their parent companies.

ADMINISTRATION MARGINS Box 4

Administration margins for loans to retail customers are published by the mortgage banks, while they are usually negotiated individually with corporate customers. The administration margins applying to retail customers are differentiated according to the loan-to-value ratio and possibly loan type. The lowest administration margins are obtained for low loan-to-value ratios (typically less than 40 per cent of the value of the mortgaged property). Several mortgage banks have increased their administration margins in recent years, particularly for adjustable-rate mortgages and deferred-amortisation loans, and further increases have been announced, cf. Table 3. With the announced increases, the total administration margin at the maximum loan-to-value ratio will have been raised by up to 22 basis points since early 2010, depending on the loan type. Add to this that several mortgage banks have introduced a spread corresponding to around 5 basis points on refinancing of adjustable-rate mortgages. The new administration margins vary more, reflecting the loan-to-value ratio. Previously, borrowers often paid the same marginal administration margins for the entire 40-80 per cent range, while the new margins often differ for the 40-60 per cent and 60-80 per cent ranges, cf. Table 4.

AVERAGE ADMINISTRATION MARGINS FOR OWNER-OCCUPIED HOUSING BY LOAN-TO-VALUE RATIO AND LOAN TYPE Table 3

Average administration margin in basis points by loan-to-value ratio	Nykredit/ Totalkredit		Realkredit Danmark[1]		Nordea Kredit		BRFkredit	
	0-40	0-80	0-40	0-80	0-40	0-80	0-40	0-80
Margins, early 2010								
All loans	30.0	50.0	30.0	57.5	30.0	52.5	37.5	55.0
Most recently announced margins								
Fixed-rate, with amortisation	35.0	61.3	37.5	65.0	37.0	59.5	37.5	67.5
ARM, with amortisation	40.0	66.3	45.0	72.5	44.4	71.4	42.5	72.5
ARM, without amortisation	45.0	71.3	47.5	75.0	46.3	74.4	42.5	72.5

Note: The table comprises the mortgage banks' announcements up to and including November 2011. BRFkredit's most recent administration margins have been in force since March 2011. The new administration margins for Realkredit Danmark and Nordea Kredit apply from January 2012, while the new administration margins for Nykredit/Totalkredit will apply from April 2012. These margins will apply to new loans taken out via Totalkredit. On 30 November 2011, the Danish Competition Council decided that Nykredit, for a five-year period from 1 April 2012, will be allowed to increase the administration margin from 50 to 55 basis points for fixed-rate loans with amortisation and from 50 to 60 basis points for other loans. From 2012, Realkredit Danmark and Nordea will introduce a spread of 0.05 point on refinancing of adjustable-rate mortgages. In the case of annual refinancing at par, this corresponds to annual costs of 5 basis points. The administration margins stated do not reflect the spreads and other fees.

Source: Nykredit Realkredit, Realkredit Danmark, Nordea Kredit and BRFkredit.

[1] Realkredit Danmark's most recently announced administration margin is 5 basis points lower if the borrower makes monthly rather than quarterly payments, which most borrowers in Realkredit Danmark do.

are separated from the estate in liquidation in the event of compulsory liquidation. Each capital centre must meet the statutory capital adequacy requirement of 8 per cent of risk-weighted assets. It is a legal requirement that funds from the individual capital centre must be used

ADMINISTRATION MARGINS – CONTINUED Box 4

The mortgage banks have cited increased costs and stricter requirements for the collateral as the reasons for the increases. After 2007, impairments have risen, and house price declines have increased the mortgage banks' need to provide top-up collateral for loans if the underlying collateral no longer meets the maximum loan-to-value ratio.

Moreover, credit rating agencies have tightened conditions for maintaining their ratings on mortgage bonds. Among other things, this has led to a stronger need for overcapitalisation. Overcapitalisation implies that collateral for the bonds issued exceeds the statutory requirement. The tightened conditions were partly a result of one of the credit rating agencies attaching more weight to the refinancing risk on adjustable-rate mortgages than previously. Furthermore, the tightening was based on the mortgage banks' expected future earnings and expectations of rising costs for collateral in the capital centres.

MARGINAL ADMINISTRATION MARGINS FOR OWNER-OCCUPIED HOUSING BY LOAN-TO-VALUE RATIO AND LOAN TYPE Table 4

Marginal administration margins in basis points by loan-to-value ratio	Nykredit/ Totalkredit		Realkredit Danmark[1]		Nordea Kredit		BRFkredit	
	59-60	79-80	59-60	79-80	59-60	79-80	59-60	79-80
Margins, early 2010								
All loans	70.0	70.0	85.0	85.0	90.0	90.0	50.0	95.0
Most recently announced margins								
Fixed-rate, with amortisation	75.0	100.0	92.5	92.5	97.0	97.0	80.0	115.0
ARM, with amortisation	80.0	105.0	100.0	100.0	116.4	116.4	85.0	120.0
ARM, without amortisation	85.0	110.0	102.5	102.5	121.3	121.3	85.0	120.0

Note: In the 0-40 per cent range, the average and the marginal administration margins are identical. See also the note to Table 3.

Source: Nykredit Realkredit, Realkredit Danmark, Nordea Kredit and BRFkredit.

[1] Realkredit Danmark's most recently announced administration margin is 5 basis points lower if the borrower makes monthly rather than quarterly payments, which most borrowers in Realkredit Danmark do.

for meeting claims from the holders of mortgage bonds in the event of compulsory liquidation, cf. Box 5.

In this situation, the mortgage bank's capital centres are separated from the estate in liquidation. The administrator of the estate can continue the operation of the capital centres and is legally obliged and has extensive authority to meet the mortgage bank's obligations to bond holders and counterparties to financial instruments. Whenever possible, the administrator must ensure that the creditors receive timely payments, although it must be ensured that all creditors are treated equally. As the capital centre is being wound down, the administrator will not be able to originate new loans. The borrower's rights remain unchanged, meaning

CAPITAL CENTRES Box 5

The statutory framework for administration of capital centres offers bond holders a high degree of protection against losses in the event of compulsory liquidation of the issuer.

Today, new issuance of mortgage bonds is almost entirely done from the capital centres, as this is a statutory requirement for mortgage bonds with SDO status. In the capital centres, the bonds issued and the loans granted are matched, and the capital centres must also hold adequate capital to meet the 8 per cent capital adequacy requirement. The mortgage banks must, on an ongoing basis, ensure that the capital centre holds sufficient capital and must increase the capital in the capital centre, if necessary.

Moreover, the mortgage bank must provide sufficient top-up collateral in the SDO capital centres if e.g. the market value of the properties declines, or the market value of the SDOs increases so much that the loan-to-value ratio is exceeded for the individual loan. The mortgage bank can issue junior covered bonds for financing top-up collateral. The mortgage bank can also decide to add more assets to the capital centres for other reasons. The purpose might be to obtain a specific rating for a capital centre.

The rules on compulsory liquidation laid down in the mortgage-credit legislation have never been applied. If the situation should arise that payments are suspended or an insolvency order is issued against a mortgage bank, e.g. if the capital adequacy requirement has not been met, funds cannot subsequently be transferred from the capital centres to the mortgage bank. In the event of compulsory liquidation, the funds in the individual capital centre – after deduction of expenses for the administration of the estate in liquidation, etc. – are used for meeting claims from the mortgage bond holders and counterparties to financial instruments applied in the risk management. Then claims are met from any holders of junior covered bonds issued by the mortgage bank in connection with a capital centre to be able to provide top-up collateral. Surplus funds are transferred to the remaining part of the mortgage bank.

For the part of the mortgage bank not structured as a capital centre, the funds of the mortgage bank are distributed in the same order as those of the capital centres. If a capital centre lacks funds to meet the claims from mortgage bond holders, they have priority over unsecured creditors in the estate. Subsequently, other claims are paid in equal proportion.

that the loan cannot be cancelled by the mortgage bank/capital centre, whereas the borrower is free to redeem the loan.

SDO capital centres provide added security, as the mortgage bank has had to pledge top-up collateral for each loan exceeding the maximum loan-to-value ratio on an ongoing basis. This means that the bonds have a high credit quality even after the compulsory liquidation of the mortgage bank.

As bonds and loans are issued according to the match funding principle, interest and instalment payments on the loans will correspond to interest and instalment payments on the bonds, except for bonds maturing before the loan, which the administrator would have to replace

via refinancing. However, refinancing requires that funds for the creditors are expected to be sufficient after the issuance. Moreover, the administrator charges administration margins and can legally raise the administration margin if this is warranted by market conditions, and a need for further funds for the administration of the estate in liquidation has been ascertained. The capital centre can, if need be, be wound down over e.g. 30 years as the last loan agreement expires.

On approval by the appointed supervisor, the administrator can sell part of the capital centre to another mortgage bank. The extensive authority to continue operation of the capital centre ensures that the administrator has ample time to sell the capital centre and is not forced to realise assets quickly. At the same time, the administrator will, in so far as this is possible, seek to meet bond holders' claims. The value of the ongoing administration margin income on loans and other mortgage banks' possibility of acquiring a larger market share increase the likelihood that a capital centre is sold.

PERSPECTIVES

Like the rest of Europe, Denmark has been hit by the international economic slowdown, but the Danish economy is more resilient than those of other countries in several respects. This has probably contributed to the stable value and high negotiability of Danish mortgage bonds in recent months. These are characteristics of assets considered to have safe-haven status during periods of financial turmoil. This development would not have taken place if Danish mortgage bonds had not been regarded by investors as being among the safest assets, with low credit risk and high liquidity.

Confidence in the Danish mortgage-credit sector is important to the Danish economy. Following the financial crisis, the requirements for safe assets have increased. The background is that the financial crisis has unveiled a number of risks, including liquidity and refinancing risk. Add to this the economic repercussions of the financial crisis and the general uncertainty resulting from the sovereign debt crisis.

Danmarks Nationalbank has previously pointed out both the refinancing risk associated with adjustable-rate mortgage loans and the risk of a large need for top-up collateral in the event of sharp house price declines, cf. Danmarks Nationalbank (2011). The risks should be viewed in light of the important role of mortgage credit in the financial system in Denmark. Even a modest risk that the mentioned risks materialise should therefore be addressed. The mortgage banks are aware of the risks and have taken initiatives aimed at ensuring a sustainable system also in the future.

Initially, the mortgage banks have begun to spread the refinancing of adjustable-rate mortgages over the year with a view to reducing the refinancing risk. It has turned out to take a long time to spread the refinancing need, as the process of agreeing a different time of the year to refinance individual loans is very sluggish.

The work of ensuring a sustainable mortgage-credit system also includes changes in the mortgage banks' business models, including the phasing-in of new issuance structures with capital centres with different risk profiles. Some mortgage banks will place loans with refinancing risk, primarily adjustable-rate mortgages, in separate capital centres. Thus, the risk associated with refinancing will to a higher degree be reflected in loan costs. Differentiated administration margins, whereby the mortgage banks charge higher fees for loans associated with higher risk for the mortgage bank, may also contribute to appropriate price differentiation. These changes may give borrowers an incentive to take out loans with a lower refinancing risk. A single mortgage bank wishes to introduce a two-tier mortgage system, where loans against the first part of the collateral are financed by issuance from a capital centre issuing bonds with SDO status, while the top part of the loan is financed in a capital centre issuing bonds without SDO status. Two-tier mortgaging will lead to a reduction in the potential need for top-up collateral over time.

Looking ahead, the sector's framework conditions should also be reviewed. As mentioned above, the Danish economy is more resilient than other economies in several respects. The large gross balance sheets of the households – mainly comprising mortgage-credit loans on the liabilities side – increase the interest-rate sensitivity. Therefore, low deficits, sustainable public finances and robust current-account surpluses are essential framework conditions, also for household finances.

With more stable house prices, the economy would be even stronger. Danmarks Nationalbank has previously pointed out that fluctuations in the housing market could be curbed by restoring the link between property value tax and current house prices and by phasing out the access to deferred-amortisation loans for owner-occupied housing, cf. Dam et al. (2011). Another way of reducing future house price fluctuations could be to change the principles for valuation of property or the fixing of loan-to-value ratios, so that mortgaging options are limited in periods of sharp increases in house prices. The alternative to a more stable housing market could be to establish a larger, fixed safety margin against house price fluctuations, possibly by lowering the maximum loan-to-value ratio.

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Monetary-Policy Strategies at the Zero Lower Bound on Interest Rates

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INTRODUCTION AND SUMMARY

The outbreak of the financial crisis in 2007-08 triggered a downturn on a scale unprecedented since the Great Depression of the 1930s. The downturn has resulted in substantial spare capacity in the economies, all things being equal putting a damper on inflation. Most central banks operate with an inflation target in their monetary-policy planning. In other words, inflation may be too high, but it can also be too low. In response to the slowdown, central banks have lowered their interest rates to near zero to prevent inflation from falling too far below target.

Since the rates of interest paid by central banks to private banks on their deposits cannot fall below zero, many countries have exhausted their possibilities for providing further stimulus to the economy through conventional monetary-policy measures. But the severity of the economic downturn means that a number of central banks have wanted to ease monetary policy further. In this respect, they have been constrained by the zero lower bound on interest rates. Therefore, they have resorted to unconventional measures to provide further monetary-policy stimulus to the economy – either by way of communicating their expectations of future monetary-policy interest rates or by way of purchase and sale of securities in financial markets.

The communication strategy exploits the fact that private-sector demand is influenced primarily by longer-term interest rates. By announcing that they expect to keep monetary-policy interest rates low, central banks may potentially reduce longer-term market rates. Over the past few years, this strategy has been adopted by the US Federal Reserve and Bank of Canada, among others.

As an alternative to communication, central banks may choose to intervene in the financial markets through quantitative easing, credit easing or liquidity support. Quantitative easing is the purchase of securities with long maturities. This serves to reduce interest rates on these securities and increase the liquidity of private investors. Through rebal-

ancing of private investors' portfolios of financial assets, this could lead to a broader-based fall in interest rates.

Credit easing typically aims to address the situation in selected markets. For example, markets in which risk premia have been pushed up to a level that is at odds with the central bank's assessment of underlying economic conditions. The difference between quantitative easing and credit easing is that the latter is sterilised, meaning that the total supply of liquidity does not increase. By providing liquidity support, the central bank enhances liquidity through new and extended credit facilities, thereby reducing the part of risk premium associated with liquidity risk.

The Federal Reserve, Fed, the European Central Bank, ECB, and the Bank of England, BoE, have all purchased securities in the financial markets. But these purchases have been highly different in nature. The Bank of England has opted for conventional quantitative easing, purchasing mainly government bonds. The aim of this programme has been to ease monetary policy more than would have been possible by lowering the monetary-policy interest rate, thereby achieving the BoE's inflation target of 2 per cent. Although inflation is currently relatively high in the UK, it was projected that inflation would fall below target, if the programme was not implemented.

The Federal Reserve has implemented both quantitative easing and credit easing in order to sustain the economic recovery and the functioning of key credit markets. The ECB's purchases, in the form of credit easing, have aimed to safeguard the effectiveness of the monetary-policy transmission mechanism primarily to ensure that the lowering of monetary-policy interest rates would pass through to market rates. In other words, the ECB's purchases are a complement to, rather than a substitute for, lowering of monetary-policy interest rates.

Empirical studies indicate that both the Federal Reserve and the Bank of England have been successful in reducing market rates through their purchase programmes. Few analyses have been conducted of the real economic impacts of these programmes, but preliminary findings suggest that they have worked as intended. The ECB's measures are believed to have helped to safeguard the effectiveness of the monetary-policy transmission mechanism, which is its criterion of success.

MONETARY POLICY AT THE ZERO LOWER BOUND ON INTEREST RATES

The practice of recent decades has been for central banks to use the interest rates at which private banks can borrow and deposit funds as their primary monetary-policy instrument. These interest rates govern the market rates paid by households and firms. As described in Box 1,

MONETARY-POLICY INTEREST RATES AND MARKET RATES[1] Box 1

In the money market, the central bank manages short-term money-market rates through its monetary-policy rate and related market operations.[2] The monetary-policy rate, I_t, can be divided into two components: the real interest rate, i_t, and expected inflation, π_t^e.[3] This division is significant, as real interest rates form the basis for the decisions of households and firms to save and invest. The real interest rate can be expressed as follows:

$$i_t = I_t - \pi_t^e. \tag{1}$$

Households and firms borrow and invest money in the financial markets at a nominal market rate, R_t, which is typically higher than the monetary-policy interest rate. The reason is that a risk premium, σ_t, reflecting *inter alia* credit and liquidity risks, is to be added to the "safe" monetary-policy interest rate. Credit and liquidity risks, etc. vary with the special characteristics of market segments, industries and individual firms.

Short-term real market rates, r_t, have the following relationship with monetary-policy interest rates and inflation expectations:

$$\begin{aligned} &R_t = I_t + \sigma_t \Rightarrow \\ &r_t = R_t - \pi_t^e = \left(I_t - \pi_t^{\,e}\right) + \sigma_t, \quad \text{or} \\ &r_t = i_t + \sigma_t. \end{aligned}$$

In addition, most households and firms base major economic decisions on interest rates that are fixed for an extended period of time. This especially applies to investment in housing and business capital, which is extensively financed by mortgage loans in Denmark.

According to the expectation hypothesis, long-term yields may be calculated as an average of the expected short-term interest rates over the relevant time horizon plus a term premium to compensate the lender for the uncertainty as to real interest rate developments over the given period. This uncertainty increases with the length of the time horizon. Consequently, the term premium is typically higher, the longer interest rates are locked. Hence, a fixed real market rate for the following periods, r_t^k, may be revalued as follows:

$$\begin{aligned} r_t^k &= \sum_{j=0}^{k} r_{t,t+j}^e + \tau_t^j \Leftrightarrow \\ r_t^k &= \sum_{j=0}^{k} \left(i_{t+j}^e + \sigma_{t+j}^e\right) + \tau_t^k, \end{aligned} \tag{2}$$

where τ_t^k is the term premium for locking interest rates for k periods of time. Consequently, equation (2) expresses that real long-term market rates are comprised of investor expectations of the sum of future monetary-policy real interest rates and risk premia over the investment horizon with the addition of a term premium.

Over recent decades, the usual practice has been for monetary-policy interest rates to be the primary monetary-policy tool of central banks; monetary-policy interest rates are used to manage short-term market rates and thereby longer-term market rates in accordance with the relationship expressed in equation (2).

[1] This presentation is based on Amano and Shukayev (2010).

[2] This is a simplified approach. It is assumed that only one monetary-policy interest rate exists. In practice, Danmarks Nationalbank – like most other central banks – uses several monetary-policy interest rates. These rates and their interaction with market rates in the Danish money market are described in detail in Danmarks Nationalbank (2009).

[3] We adhere to the common practice in that the subscript is a time indication, while a superscript, *e*, denotes expectations formed at a point in time *t*. For simplicity, we leave out the time indication in the main text below.

long-term market rates comprise expectations of future monetary-policy rates, to which should be added risk premia, depending on the characteristics of the specific asset (covering e.g. liquidity and estimated default rate) and a term premium.

The central bank interest-rate instrument has the inherent limitation that the nominal interest rates which the central bank pays to private banks on deposits cannot fall below zero; otherwise, the individual bank would achieve a better return by simply holding cash than by depositing it with the central bank. This limitation is known as the *zero lower bound on interest rates*.[1]

The zero bound is rarely a problem; in normal cycles, inflation hovers at around 2 per cent, to which should be added a positive real return, cf. equation (1) in Box 1. This means that the central bank has the scope to vary nominal monetary-policy interest rates without getting too close to zero.

But in a severe recession, especially one accompanied by major financial tensions, even a monetary-policy rate close to zero could, in certain circumstances, result in excessively high market rates. In that case, the central bank needs to resort to tools other than monetary-policy interest rates.

Real interest rates are the rates determining the financial transactions of households and firms. If we compare equations (1) and (2) in Box 1, it is clear that even if the nominal monetary-policy interest rate *I* is pushed as close to zero as possible, the real interest rate on monetary-policy instruments, *i*, may be reduced further, if the central bank can contribute to increasing the expected rate of inflation, π^e .

The central bank may also influence long-term market rates, cf. equation (2) in Box 1. Long-term money-market rates depend on private sector expectations of future monetary-policy interest rates. Consequently, the central bank may influence long-term money-market rates by signalling its forward-looking intentions for monetary-policy rates. If the central bank is able to send a credible signal that it will keep interest rates at an unchanged low level for an extended period of time, bond yields will naturally fall, and inflation expectations could potentially rise. This will lead to lower and potentially negative *real interest rates*. In an economy with a floating exchange rate, other things being equal, this will cause the exchange rate to depreciate, thereby further stimulating the economy. But if many countries signal

[1] In practice, the rate of interest paid on deposits at central banks may become moderately negative, as deposits offer a number of advantages over cash that the banks are willing to pay for. In this article, we disregard this factor and the effective lower bound on interest rates is referred to as the zero bound on interest rates.

low interest rates, they will not all achieve depreciation at the same time.

Alternatively, the central bank may influence term and risk premia by purchasing and selling securities or through special credit facilities. Below, four different strategies are reviewed for reducing market rates when monetary-policy interest rates are at their lower bound: communication, quantitative easing, credit easing and liquidity support.

COMMUNICATION

At the zero bound, several central banks have communicated their expectations of future developments in monetary-policy interest rates. For example, the Bank of Canada announced from April 2009 that it expected to keep interest rates unchanged at 0.25 per cent until the end of the 2nd quarter of 2010, conditional on economic conditions. In June 2010, it raised interest rates. In March 2001, the Bank of Japan committed to keeping interest rates low (0 per cent) until inflation turned positive.

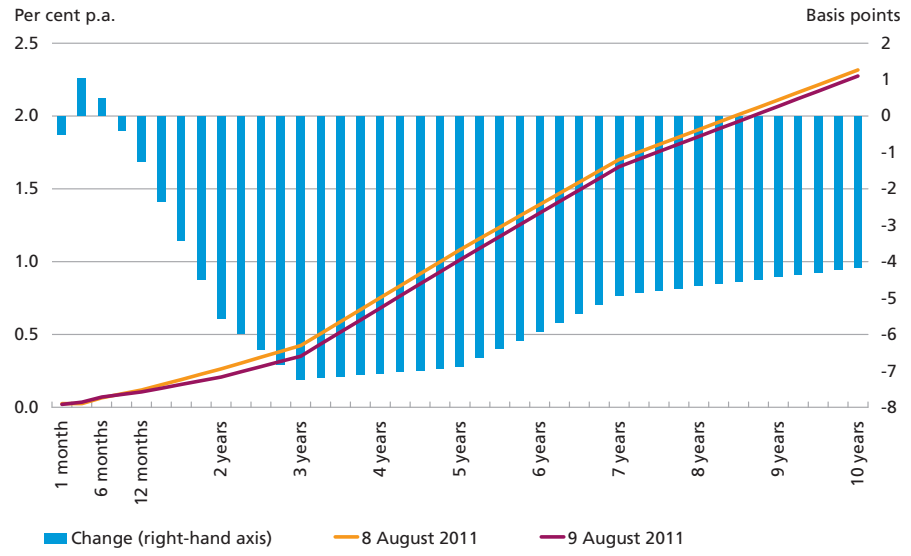
On 9 August 2011, the Federal Reserve announced that it was likely to keep interest rates unchanged between 0-0.25 per cent until mid-2013. Previously, the Federal Reserve had announced that it was likely to keep interest rates low for an *extended period*. The yield curve, reflecting the sum of expectations of future monetary-policy interest rates, I, the term premium, τ, and risk premia, σ, parallel-shifted downwards following the announcement, cf. Chart 1. However, it should be noted that the effect was relatively modest.

Central bank communication faces a particular challenge when monetary-policy interest rates are close to the zero lower bound. On the one hand, the central bank wants to keep interest rates low for an extended period to influence longer-term interest rates through communication. On the other hand, the central bank wants the flexibility to be able to raise interest rates before the announced time if required by macroeconomic factors.

Internally in the Federal Open Market Committee, FOMC, it has been debated to what extent the Federal Reserve should commit to keeping monetary-policy interest rates low. At the meeting on 9 August 2011, three FOMC members preferred not to communicate a specific date for when the Fed expected to raise interest rates. Another member, Evans (2011), advocated that the Federal Reserve should commit to keeping interest rates unchanged until the unemployment rate had been reduced to 7 per cent.

By committing to keeping interest rates unchanged for an extended period, the Fed risks that this communication will be perceived by the

US YIELD CURVE AROUND THE TIME OF THE FOMC ANNOUNCEMENT Chart 1



Note: The yield curve is a linear interpolation between individual points. Basis points are percentage points scaled up by a factor of 100.
Source: Reuters EcoWin.

market as a commitment rather than a conditional expectation. This means that the Fed could lose credibility if it fails to deliver on the expectation. Previous experience shows that the market seems to respond to both information from the central bank and other macroeconomic information, cf. Moessner and Nelson (2008). They conclude that central bank communication should not be interpreted as a commitment, but rather as a conditional expectation.

During recent years, a few central banks have begun to routinely publish their expectations of monetary-policy interest rates for the coming 2-3 years (interest-rate paths). This applies e.g. to New Zealand, Norway and Sweden, all of which have explicit inflation targets. By publishing an interest-rate path, the respective central banks seek to strengthen the private sector's understanding of the central bank's reaction function. A better understanding may help to improve the effectiveness of monetary policy, cf. e.g. Woodford (2005). The Federal Reserve does not publish interest-rate paths. However, since 2003, the Fed has explicitly signalled its forward-looking intentions in the press releases published after each FOMC meeting, thereby following the general trend of greater openness in policy-making.

However, interest-rate expectations may be difficult for central banks to communicate. For example, Sveriges Riksbank had difficulty "managing" market expectations in 2009. Although the market shared its

growth and inflation estimates, market expectations of monetary-policy interest rates were significantly higher than those of Sveriges Riksbank. Svensson (2010) explained this phenomenon by saying that, at a de facto zero rate, the market knows that interest rates cannot fall any lower. But there is a positive probability that interest rates will rise before Sveriges Riksbank expects them to do so. Consequently, average interest-rate expectations are higher than projected by the bank.

Liquidity trap and deflation

The communication strategy poses a particular risk if inflation has turned into deflation (generally falling prices); in that case, the economy may be caught in a *liquidity trap* where real interest rates are positive despite nominal interest rates of zero. This situation is described in more detail in Box 2.

Bullard (2010) discusses the particular challenges of central banks when faced with a liquidity trap. In that situation, he does not find the communication strategy appropriate. If the bank signals that it will keep interest rates very low for an extended period, this underpins the expectations of private players that the economy is in a regime of low interest rates and falling prices. Therefore, prospects of low nominal interest rates for an extended period do no contribute to reducing real interest rates; instead, the economy will be trapped in the inappropriate situation with declining prices. These have been the characteristics of Japan's economy in recent years, cf. Box 2.

DOES THE LIQUIDITY TRAP BIND AT THE ZERO LOWER BOUND ON INTEREST RATES? Box 2

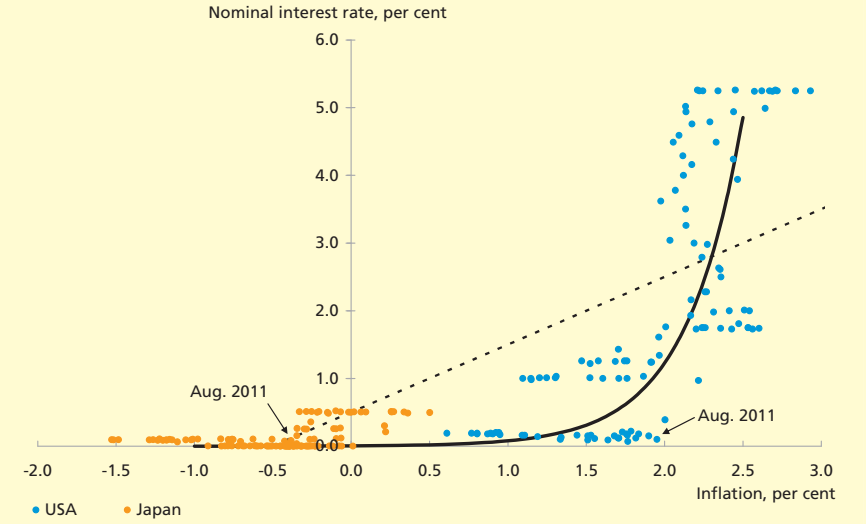
The special economic circumstances of the zero bound on interest rates imply the risk of falling into a *liquidity trap*, cf. the analysis in Benhabib et al. (2001). A liquidity trap occurs when the nominal interest rate is close to zero, while prices have stagnated or are even falling (deflation). In this situation, the central bank has lost not only its monetary-policy interest rate as an economic policy tool; deflation will also dampen economic growth and maintain the economy in an unhealthy state.

The state outlined, with interest rates close to zero and falling prices, closely mirrors developments in Japan over the past decade, cf. Chart 2. The yellow circles of the chart show inflation and nominal interest rate developments on a month-by-month basis from January 2002 to August 2011. It appears that the nominal interest rate has been moving between 0 and 0.5 per cent, while the rate of inflation has been primarily negative, with annual price falls of up to 1.5 per cent.

US interest rate and inflation developments over the same period are illustrated in Chart 2 with blue circles. US developments are in stark contrast to Japan – the annual rate of inflation is mainly running between 1.5 and 3 per cent and never falls below 0.6 per cent, while short-term interest rates clearly increase in step with inflation rates.

CONTINUED Box 2

INTEREST RATES AND INFLATION IN THE USA AND JAPAN Chart 2



Note: Monthly observations for the period January 2002 to August 2011. The dashed line shows the Fisher equation for a fixed real interest rate of 0.5 per cent. The full line illustrates a stylised interest-rate reaction function based on Bullard (2010).

Source: OECD and Bullard (2010).

The relationship between the two widely different situations in Japan and the USA can be explained by combining three economic relationships:

1. The fact that the return on an asset can be divided into a real interest rate and an expected rate of inflation, cf. equation (1) in Box 1. This relationship, also known as the Fisher equation, is illustrated in Chart 2 by the dashed line. For purposes of simplicity, we have assumed a constant real return of 0.5 per cent a year, cf. Bullard (2010).[1]
2. The zero lower bound on interest rates which is clearly illustrated by the chart.
3. The assumption that the central bank intends to pursue an *active interest-rate policy*, a fundamental principle of the inflation target regimes widely used as a monetary-policy strategy over recent decades, cf. Danmarks Nationalbank (2009, Chapter 1). According to this principle, the central bank is to respond by raising its monetary-policy interest rate even more if the rate of inflation is estimated to exceed the central bank's inflation target over a medium-term horizon.[2] This causes the real interest rate to rise, cf. equation (1) in Box 1, which, in turn, dampens economic activity and stops the expected increase in inflation.

The central bank's active monetary policy is illustrated in Chart 2 by a graph with a gradient greater than one – this captures that the central bank responds to fluctuations in inflation expectations with an interest-rate response greater than one-to-one. This monetary-policy response function is illustrated in Chart 2 by the full line where the slope is steeper than the slope for normal inflation levels.

The combination of relationships 1 and 3, in normal cycles, is illustrated by the cross between the dashed line and the full line in the upper right-hand corner of Chart 2.

CONTINUED Box 2

Here, the rate of inflation matches the central bank's target and the private agents' inflation expectations. This means that we have reached a long-term economic equilibrium; in normal cycles, the economy will fluctuate around this equilibrium.

But an important consequence of relationship 2, the zero lower bound on interest rates, is that the principle for active monetary policy cannot apply at all inflation levels. When inflation is sufficiently low, the central bank's interest-rate response will necessarily be lower than one; otherwise, it would fall below its zero bound, which is not possible. This relationship is illustrated in Chart 2 in that the interest-rate response function (the full line) bends and becomes horizontal for low inflation levels. In this case, monetary policy has become *passive*: It has lost its stabilising influence, which the private economic agents must also be expected to realise. This results in another kind of economic equilibrium, i.e. the cross between the two lines in the lower left-hand corner of the chart. In this case, the rate of inflation also matches that expected by the economic players and the central bank is unable to impact the rate of inflation through its monetary-policy rate. This situation is known as a liquidity trap.

[1] The actual real interest rate may show considerable fluctuations over time. In general, the real return on "safe" securities has been low during recent decades and especially during the illustrated period since 2002, which has been affected by several negative shocks to the global economy.

[2] This principle is also known as the Taylor principle after Taylor (1993 and 1999), cf. the extensive analysis in Woodford (2003).

According to Bullard, quantitative easing would be a far stronger instrument for creating positive inflation expectations in this situation. This would stimulate economic activity and bring the economy back to the desired equilibrium with moderately positive inflation rates. The central bank will again be able to use its official interest rates as an active instrument for economic stabilisation.

QUANTITATIVE EASING, CREDIT EASING AND LIQUIDITY SUPPORT

As an alternative to reducing expectations of future monetary-policy interest rates, central banks may seek to reduce the term premium, τ. One way of doing so is to purchase long-term securities, thereby increasing overall demand for these securities. This will push prices up and interest rates down. When the central bank does not otherwise intervene in the market, it also increases the liquidity of the investors from which it purchases securities.

Investors typically want to reinvest this liquidity in assets broadly similar to their previous assets. This extends the increased demand to a larger group of assets, sharing the characteristics of the securities initially purchased by the central bank. This effect of unsterilised purchases is known as the *portfolio balance effect*, cf. Joyce et al. (2011), reducing the term premium of a broad class of assets. This type of intervention is

known as *quantitative easing*.[1] Such intervention typically also impacts risk premia, σ, not least for the types of assets purchased by the central bank.

Central banks can also make targeted purchases of securities in special segments of the financial markets in which risk premia, σ, have been pushed up to a level that is at odds with the bank's assessment of underlying economic conditions. The purchases boost the overall demand for these securities, thereby reducing risk premia. The liquidity impact of the purchases is sterilised by the central bank's sale of securities in more efficient markets for a similar amount. Such interventions are referred to as *credit easing,* as they ease credit conditions without affecting the total supply of liquidity.[2]

Central banks may also seek to reduce risk premia during periods of crisis or stress in the financial markets. For example through a number of measures to ensure that solvent banks have access to the necessary liquidity when the money market freezes. During the financial crisis, liquidity in the financial markets has been challenged. This has increased the significance of the part of the risk premium associated with liquidity risk. Through new and extended credit facilities, central banks can improve liquidity, thereby reducing risk premia through a reduction of liquidity risk. Such measures are referred to as *liquidity support*.[3]

Quantitative easing, credit easing and liquidity support are all measures reserved for particularly difficult economic conditions. The reason is that they could lead to a situation where the return on financial assets does not reflect their actual risks, thereby distorting the incentives of investors to make excessively risky investments. When the economy normalises, these measures may be withdrawn immediately. Moreover, their impact on the economy is more uncertain than the effect of conventional adjustments of monetary-policy interest rates.

In practice, the strategies are interrelated

Asset purchases by central banks create increased demand for the selected types of assets. To the extent that the market regards the assets as risky, the purchases will reduce the risk premium – resulting in credit easing. If the central bank does not sterilise its purchases by selling a

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1 The concepts of quantitative easing and credit easing are used extensively in the literature of recent years, often with different meanings. In this article, we follow the terminology of the Bank of Canada (2009).

2 Note that the meaning of sterilisation is based on the assumption that the portfolio balance channel is active. When central banks engage in securities transactions with private banks, these are assumed subsequently to trade in the market to rebalance their portfolios with the associated implications for interest and exchange rates.

3 See Dam and Risbjerg (2009) for a review of liquidity support measures in Denmark and the euro area during the crisis.

similar amount of other securities, it increases the cash balance of the investors from which it purchases securities – resulting in quantitative easing. Unsterilised purchases of securities that are not regarded as "safe" constitute quantitative easing as well as credit easing.

The portfolio balance effect mentioned earlier also entails that assets sharing a number of characteristics with the ones purchased by the central bank are most affected. Therefore, the risk premium of these is especially reduced, while securities that are less similar are impacted through the broader term premium.

In addition to influencing long-term money-market rates through the term premium, quantitative easing typically also has a *signalling effect*. The reason is that, by engaging in quantitative easing, the central bank signals that it wants to reduce interest rates more than is possible through adjustment of monetary-policy interest rates. This underpins that the bank does not plan to raise interest rate in the foreseeable future. This signal will serve to keep market rates down and prevent inflation expectations from falling, which could lead to higher real interest rates. This, in turn, strengthens private demand. In other words, the signalling effect links the purchase strategies with the communication strategy.

Where assets are purchased directly by the banks, their reserves will also increase. This will enhance their lending capacity, which may have a beneficial impact on private demand through the *bank lending channel*, cf. Drejer at al. (2011).

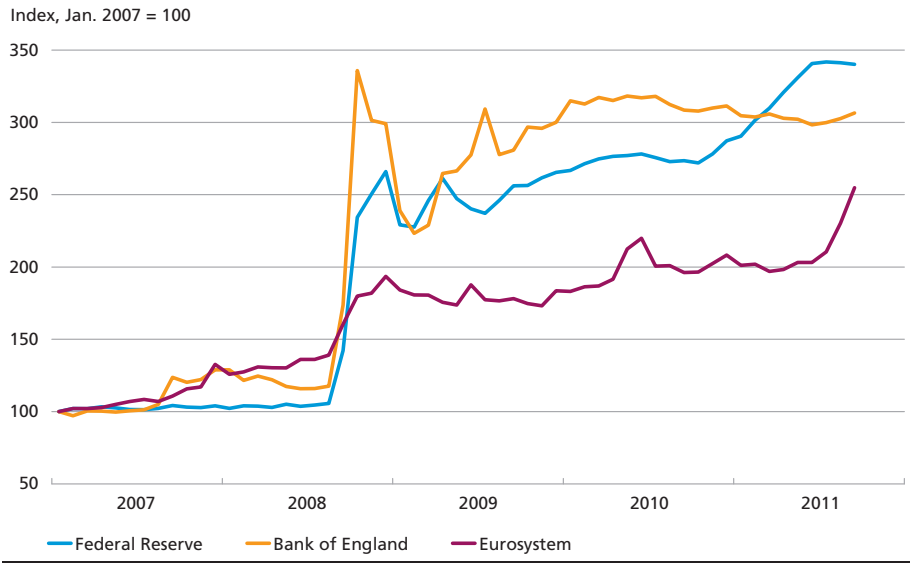
QUANTITATIVE EASING AND CREDIT EASING DURING THE CRISIS

The Federal Reserve, the Bank of England and the ECB have all reduced their monetary-policy interest rates to near zero. Moreover, they have used both quantitative easing and credit easing to reduce risk and term premia for market rates. As a result, central bank balance sheets have increased, cf. Chart 3. In addition to asset purchases, the central banks have also been acting as *lenders of last resort* by expanding lending to banks.

USA

The Federal Reserve, Fed, has implemented purchase programmes on several occasions, entailing both quantitative easing and credit easing. On 25 November 2008, the Fed announced its first purchase programme: the purchase of up to 600 billion dollars worth of mortgage bonds and Mortgage-Backed Securities, MBS, issued or guaranteed by the government-sponsored enterprises Freddie Mac and Fannie Mae. The Fed also

CENTRAL BANK BALANCE SHEETS Chart 3



Note: The Eurosystem comprises the ECB and the national central banks of the euro area member states.
Source: Reuters EcoWin.

launched a new facility, *Term Asset-Backed Securities Loan Facility,* TALF, with a limit of 200 billion dollars. The aim of expanding the Fed's collateral basis to include Asset-Backed Securities, ABS, based on new loans to small firms, student loans, car loans and credit-card loans, was to support this segment of the ABS market, which – according to the Fed – did not function. On 18 March 2009, the Fed announced plans to increase purchases of mortgage bonds and MBS by a further 850 billion dollars. These measures may be seen as credit easing, as they aimed to reduce the market risk premium. As the purchases were not sterilised, they also contained a quantitative element.

Moreover, on 18 March 2009, the Fed announced quantitative easing in the form of purchases worth 300 billion dollars of US government bonds, dubbed QE1, with a view to improving financial conditions in the economy. On 3 November 2010, the Fed announced plans to launch the purchase of US government bonds worth 600 billion dollars, dubbed QE2. The reason stated for this purchase, as opposed to previous purchases, was a poorer macroeconomic outlook and the wish to ensure that inflation was consistent with the Fed's mandate. Purchases would focus on 3-10-year government bonds.

On 21 September 2011, the Fed announced that it would increase the average maturity of the portfolio of government bonds. Specifically, the Fed would sell government bonds with a maturity of less than 3 years worth 400 billion dollars and reinvest the proceeds in government bonds

with a maturity of 6-30 years. Again, the aim was to reduce the term premium in order to sustain the economic upswing. These purchases fall outside this article's distinction between quantitative easing and credit easing, as the purchases are sterilised, but not targeted at specific credit markets. The purchases increase the duration of the Fed's portfolio of government bonds and will change the slope of the yield curve. On the day of the announcement, the 30-year government bond yield was reduced by 0.2 percentage points, while the 2-year government bond yield increased by 0.03 percentage points.

UK

The Bank of England's asset purchases have constituted quantitative easing. The BoE has mainly purchased UK government bonds. The purchase programme was launched on 5 March 2009, with the BoE's announcement of a 75 billion pound purchase. Although inflation has been relatively high over recent years, the BoE expected it to fall below the 2 per cent target in the mid-term due to weak capacity pressures. The BoE has subsequently increased the purchase programme. Most recently, on 6 October 2011, it was increased by 75 billion pounds to a total of 275 billion pounds. The reason stated for subsequent purchases has been weak inflation expectations.

The euro area

The rationale for the ECB's asset purchases has been to safeguard the monetary-policy transmission mechanism. In other words, the purchases have been in the form of credit easing. During the period from July 2009 to the end of June 2010, the ECB purchased covered bonds worth 60 billion euro. At the Governing Council meeting on 6 October 2011, it was decided to resume the purchase programme with a planned purchase worth 40 billion euro during the period from November 2011 until the end of October 2012. Moreover, through its Securities Markets Programme, SMP, launched on 10 May 2010, the ECB has had the opportunity to purchase private and government debt in markets that, according to the ECB, are dysfunctional. As at 2 December 2011, the ECB had purchased debt worth 206.9 billion euro. The liquidity impact has been sterilised.

EVALUATION OF THE PROGRAMMES

Empirical studies indicate that both the Federal Reserve and the Bank of England have been successful in reducing market rates through quantitative easing. Chung (2011) assesses that the Federal Reserve's purchases

in 2009 reduced 10-year government bond yields by approximately 0.50 percentage points. Based on a number of studies of the impact of quantitative easing on the yield curve, Williams (2011) argues that QE2 has reduced the yield curve by 0.15-0.20 percentage points.

According to Williams (2011) a reduction in monetary-policy interest rates of 0.75 percentage points is typically reflected in a fall of 0.15-0.20 percentage points in yields on long-term government securities, although the relationship between short-term and long-term interest rates is uncertain and depends on the situation. Chung (2011) assesses that the purchases already made and planned are equivalent to a reduction in short-term interest rates of 3 full percentage points. The total impact of QE1 and QE2 is a significant reduction of monetary-policy interest rates. It should be noted, however, that the yield on government securities is hardly the primary rate determining the demand of households and firms. But quantitative easing has affected the general level of interest rates in the economy, cf. the discussion above.

Joyce et al. (2011) find that the UK purchase programme has reduced yields on medium-term and long-term government bonds by about 1 percentage point. The impact on other market rates is more uncertain. The effect on private-sector wealth is also uncertain, but the programme is assumed to have increased household financial wealth by around 16 per cent. This masks the overall impact of higher prices of government and corporate bonds and higher equity prices.

Due to the crisis, the usual estimates of the interest-rate impact on the real economy cannot be applied directly. Few analyses exist of the real economic effects of the programmes. Chung et al. (2011) have conducted a model-based analysis of the economic impact of quantitative easing since 2008. They find that unemployment in 2012 is expected to be 1.5 percentage points lower than it would otherwise have been. Moreover, the easing has prevented deflation. According to estimates by the forecasting and consulting firm Macroeconomic Advisors, QE2 only caused the gross domestic product, GDP, to increase by 0.4 per cent and unemployment to fall by 0.2 percentage points, cf. Wen (2011).

Joyce et al. (2011) have estimated the impacts of the Bank of England's quantitative easing on GDP and inflation. They find that the programme has increased GDP by 1.5-2 per cent, while inflation, measured by the annual rate of increase in the Consumer Price Index, CPI, has been 0.75-1.5 percentage points higher than it would otherwise have been. The impact on inflation is roughly equivalent to what is achievable from a reduction of the monetary-policy interest rate by 1.5-3 percentage points.

In the euro area, the motivation for special monetary-policy measures has not been to boost demand, but to ensure the functioning of the

monetary-policy transmission mechanism during the crisis. The measures are found to have had the desired effect, cf. ECB (2011). It is also stressed, however, that the special measures need to be phased out at an appropriate time. Otherwise, they could distort the incentive for financial market players and delay the necessary balance sheet adjustments.

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Foreign Investment Income

Robert Wederkinck, Statistics

INTRODUCTION AND SUMMARY

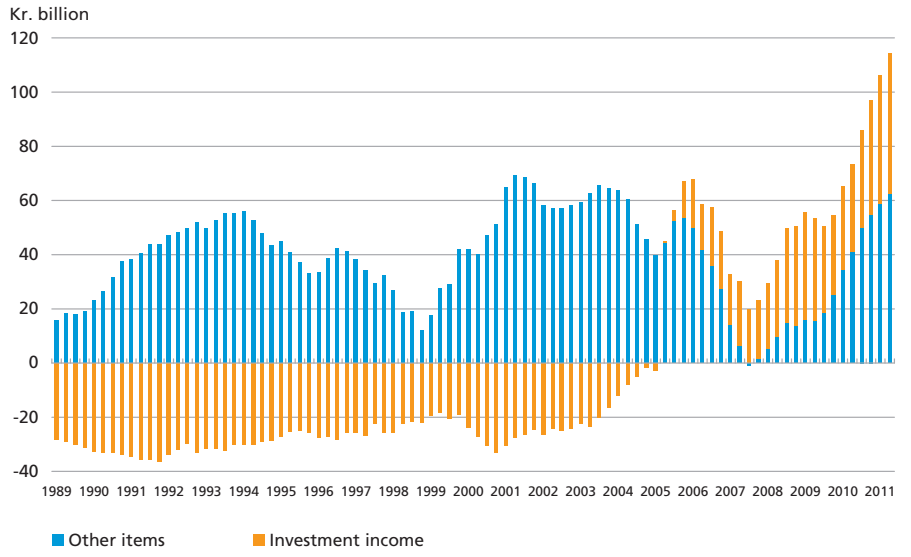
Since 2005, the balance-sheet item investment income has been significantly positive for Denmark, following many years in which expenses exceeded income. At the same time, Denmark has progressed from debtor nation to creditor nation as a result of an almost unbroken succession of current-account surpluses since 1988. Relative to the total current-account surplus, the significance of investment income has in fact increased substantially, cf. Chart 1. The positive and rising investment income means that the Danes' income, and hence their opportunity to consume, exceeds their income in terms of domestic value creation (Denmark's gross domestic product, GDP)[1]. In 2010, investment income contributed kr. 42 billion (net) to the Danish economy, corresponding to 2.4 per cent of GDP.

Denmark's foreign assets and liabilities amounted to kr. 4,537 billion and kr. 4,356 billion, respectively, at end-2010, i.e. Denmark's net worth was kr. 181 billion. If this figure is compared with the investment income, the result is a simple return of 23 per cent. To understand how this income arises, it is necessary to consider the elements that generate investment income. This article provides an overview of how Denmark's investment income is created and the investment types that make the largest contributions.

Basically, Denmark's relatively high investment income reflects that Denmark's foreign investment assets entail greater risk than our liabilities. As a result, the return on the assets in most years exceeds the return on the liabilities. For example, Denmark has net wealth in terms of foreign direct investment, and such investment entails greater risk and a greater expected return than bonds, in which category Denmark has net debt. Furthermore, the Danes' investments in less creditworthy bonds with longer maturities exceed non-residents' investments in equivalent Danish bonds.

[1] Besides net investment income, the difference between GNI and the gross national product, GNP, is made up of net wage income, which has been negative in recent years. In 2010, this item entailed net expenses of kr. 10 billion for Denmark.

CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS BROKEN DOWN BY INVESTMENT INCOME AND OTHER ITEMS – 4 QUARTERS ACCUMULATED Chart 1



Note: Other items are goods, services, wage income and current transfers.
Source: Statistics Denmark.

WHAT IS INVESTMENT INCOME?

In the context of the balance of payments, investment income is the return on the capital invested by Danes abroad and by non-residents in Denmark in the form of interest, dividend and undistributed profits, cf. Box 1. Hence the calculation includes both income and expenses.

Often there is a close link between, on the one hand, the international investment position and, on the other, investment income. If the former is negative, the country in question has foreign debt and typically investment income is negative. The opposite applies if the investment position is positive. On the whole, this link applies to Denmark, cf. Chart 2.

Basically, Denmark's international investment position changes as a result of current-account surpluses/deficits[1] or value adjustment of existing assets and liabilities. Over a long-term horizon such value adjustments typically cancel out each other, and hence wealth/debt is primarily determined by the accumulated current-account surplus/deficit, cf. Chart 3.

In 1988, Denmark's foreign debt amounted to 47 per cent of GDP and its investment income was -3,7 per cent, while the equivalent figures for the 1st half of 2011 were 15 per cent of GDP and 3.4 per cent of GDP,

[1] Strictly speaking, this is the development in Denmark's net borrowing/net lending, which is the sum of the current-account surplus and capital transfers, net. In Denmark's case, capital transfers, net, are traditionally insignificant.

DENMARK'S FOREIGN ASSETS AND LIABILITIES AND THE DERIVED INVESTMENT INCOME Box 1

Denmark's foreign financial assets and liabilities are calculated in accordance with the IMF's Balance of Payments Manual (BPM5) and show the value of Danish residents' aggregate claims on non-residents (gross wealth) and non-residents' claims on Denmark (gross debt). Denmark's net worth is calculated as gross wealth less gross debt. The calculation is distributed on domestic sectors and various financial instruments (investment types). The manual operates with the following categories:

- Direct investment
- Portfolio equities
- Bonds and notes
- Financial derivatives
- Other investment
- Reserve assets (central banks only).

For the individual investor, the return on investment comprises both interest, dividend and value adjustments (exchange-rate gains/losses and price changes). The calculation of investment income takes only the former two elements into account.

Direct investment comprises ownership of more than 10 per cent of a firm and can be broken down into the sub-items equity and intra-group loans. For equity investment, income from direct investment is calculated as the sum of distributed and undistributed dividend, i.e. the profits of subsidiaries. For intra-group loans, investment income is in the form of interest received.

Portfolio equities are ownership shares of less than 10 per cent, and in this category only distributed dividend is registered as investment income. Undistributed profits are included in the pricing of the equities and hence in the value of the portfolio, but not in the current calculation of investment income. Consequently, there is a tendency for income from portfolio equities to be underestimated relative to income from direct investment.

Bonds are interest-bearing debt instruments for which the investment income is in the form of interest. For zero-coupon bonds the distributed capital losses on issue are calculated, which are entered as interest on the bonds in question.

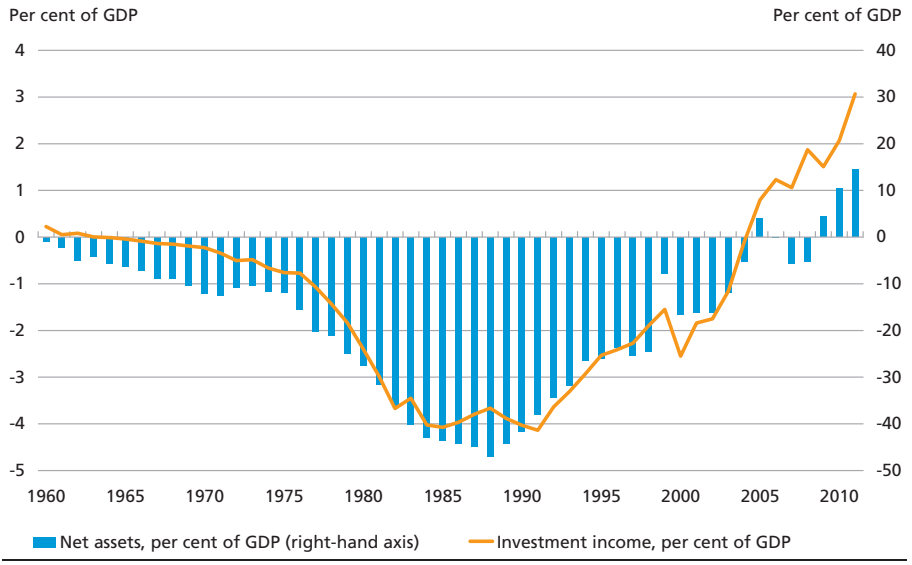
Financial derivatives are financial instruments for which the price depends on the price of the underlying asset(s), which could be equities, equity indices, commodities, exchange rates, etc. In a balance of payments context no investment income is earned from financial derivatives since all losses/gains are entered as value adjustments.

Other investment includes loans and deposits as well as trade credits, for which the investment income is in the form of interest.

Reserve assets are liquid foreign assets held by central banks and primarily comprise short-term deposits in foreign banks and bonds. Again, investment income is in the form of interest.

respectively, cf. Chart 2. So the ratio between, on the one hand, debt/wealth and, on the other, expenses/income has changed. The calculation is subject to some uncertainty as the gross amounts underlying these net amounts are very large.

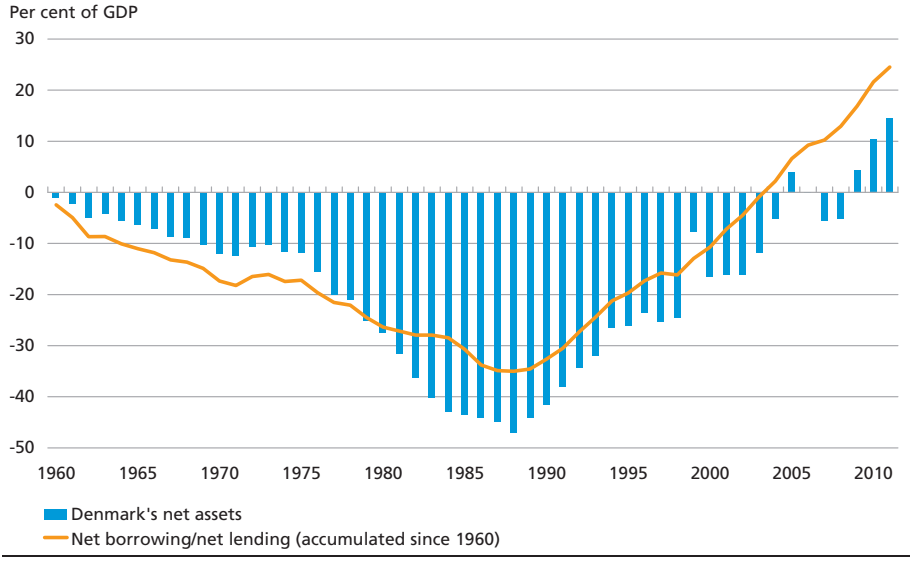
DENMARK'S NET FOREIGN ASSETS AND INVESTMENT INCOME — Chart 2



Source: Statistics Denmark and Danmarks Nationalbank. Data for Denmark's net assets for the period 1975-90 is based on calculations made by Christensen and Hald (2000).

The background to the shift is that the composition of Denmark's foreign assets and liabilities has changed, combined with today's significantly lower level of interest rates.

DENMARK'S NET FOREIGN ASSETS AND ACCUMULATED NET BORROWING/NET LENDING — Chart 3



Source: Statistics Denmark and Danmarks Nationalbank. Data for Denmark's net assets for the period 1975-90 is based on calculations made by Christensen and Hald (2000).

INVESTMENT INCOME – PORTFOLIO AND RATE-OF-RETURN EFFECTS Box 2

The return on invested capital and hence investment income is:

Investment income = Portfolio (stock)*rate of return (1)

If the portfolio of a given asset increases, investment income in kroner will therefore increase, even if the rate of return remains unchanged. Likewise, an unchanged portfolio combined with a rising rate of return will result in higher investment income in kroner.

In other words, the development in investment income from a given asset can be broken down into a portfolio effect and a rate-of-return effect.

The latter effect depends on the risk profile for the asset in question. According to basic financing theory, the risk-adjusted return on different investments should be the same, i.e. for investment types with different degrees of risk different rates of return should be observed. The higher the risk, the higher the expected rate of return.

DENMARK'S FOREIGN ASSETS AND LIABILITIES

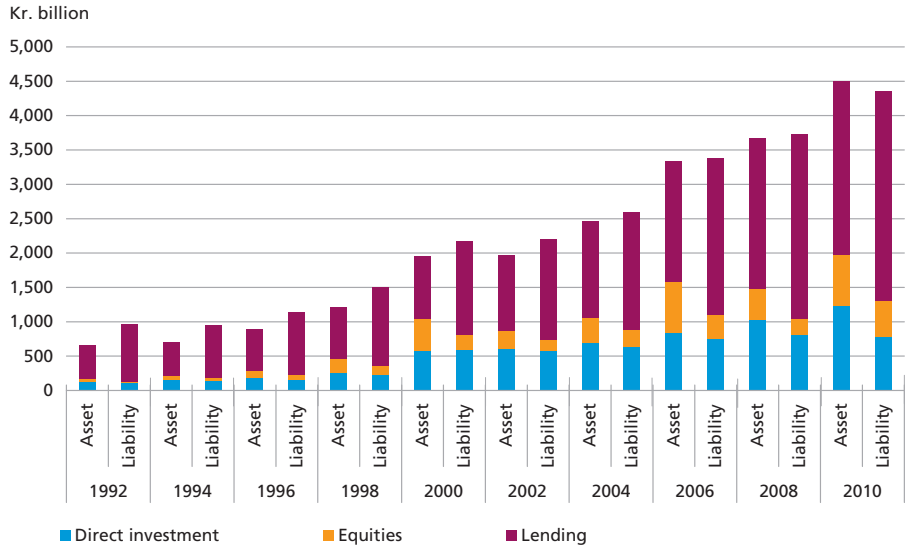
Denmark's foreign assets and liabilities comprise a number of different financial products (equities, bonds and loans/deposits in banks) with different risk profiles and expected returns. Differences between the instruments in which Denmark holds foreign wealth and debt, respectively, combined with differences in risk/return profiles, are the primary explanations for both the level of and development in aggregate investment income, cf. Box 2.

At the overall level, assets (and liabilities) can be grouped into three investment types. The first type is direct investment, for which the risk is high. The second type is portfolio investment in equities, for which the risk is also high[1], while the third type is lending[2], either by way of ordinary loans or via bond issuance. The first two types are characterised by the return being conditional upon the firm generating a profit, while lending yields current interest payments. Equity investment is more risky than bond investment.

Denmark's foreign assets and liabilities have grown from 72 and 106 per cent, respectively, of GDP in 1992 to 254 and 239 per cent of GDP at end-2010. This portfolio effect alone means that total income and expenses have grown substantially over the period in question. Together with a marked shift in the composition of both foreign assets and liabilities, cf. Chart 4, this provides the main explanation for Denmark's investment income.

[1] The reason for making a distinction between direct investment and portfolio investment in equities is that investment income is calculated in different ways for the two investment types, cf. Box 1.
[2] On the liabilities side, it is borrowing, not lending.

DENMARK'S FOREIGN ASSETS AND LIABILITIES Chart 4



Note: Exclusive of financial derivatives.
Source: Danmarks Nationalbank.

Until 2004, Denmark had foreign debt – mainly in the form of borrowing. Since 2005 Denmark has increased its assets more than its liabilities – reflecting considerable current-account surpluses – primarily placing funds in direct investment and other equity investment. Hence, Denmark still has debt by way of borrowing, but has accumulated wealth in respect of the other two investment types. Compared with previously, the risk profile of Denmark's assets has changed considerably, and it differs from the liabilities profile. The relationship between risk and return indicates a greater return on the assets than on the liabilities.

RETURN ON INVESTMENT

The rates of return on the various investment types are shown in Table 1. They are highest for direct investment – both on the income and expenses sides – and lowest for portfolio equities. The reason is that only the profits distributed (dividend) are included, cf. Box 1. In other words, capital gains do not count as investment income, but are purely seen as value adjustments of investments[1]. So rising equity prices as a result of undistributed profits will increase the value of the equity investment.

[1] According to Saabye (2003), distributed dividend typically corresponds to a return of 1-2 per cent.

FOREIGN INVESTMENT INCOME, NET, BROKEN DOWN BY PORTFOLIO AND RATE-OF-RETURN EFFECTS

Table 1

Kr. billion	Actual investment income	Portfolio effect			Rate-of-return effect		
		Direct investment	Equities	Lending	Direct investment	Equities	Lending
1999	-18.8	1.3	2.2	-17.2	1.1	-1.1	-5.1
2000	-33.0	1.2	3.5	-19.9	-12.8	-0.9	-4.1
2001	-24.6	0.6	3.2	-21.4	-1.7	0.4	-5.6
2002	-24.0	1.1	2.8	-16.6	-10.1	0.1	-1.2
2003	-16.2	1.0	2.0	-10.7	-0.3	-1.1	-7.2
2004	-1.5	2.0	2.5	-9.1	5.1	1.1	-3.0
2005	12.2	6.9	4.4	-10.8	7.9	-1.0	4.9
2006	20.1	6.6	10.7	-15.5	15.4	3.5	-0.7
2007	17.8	8.2	9.8	-21.8	7.8	11.4	2.4
2008	32.3	10.7	9.4	-21.1	17.3	8.3	7.8
2009	24.1	12.6	5.0	-11.6	8.1	4.1	5.8
2010	36.1	23.2	4.4	-9.7	3.8	8.0	6.4

Note: The calculations are exclusive of Statistics Denmark's compilation of investment income from building and construction as portfolios are not compiled for this item, so it is not possible to distinguish between the two effects. The effects have been calculated by considering what the investment income would be, had the rates of return and portfolios, respectively, been the same on the assets and liabilities sides.

Source: Statistics Denmark and Danmarks Nationalbank.

As a result, there is an indirect positive impact on investment income via a portfolio effect, cf. Box 2. For direct investment, the aggregate surplus/deficit is included.

Investment income can be broken down into a portfolio effect and a rate-of-return effect, cf. Box 2. The contributions to Denmark's net income from these two elements are shown in Table 1.

Especially for direct investment, the significance of the two effects fluctuates considerably from year to year. For lending there is a clear tendency for differences in the rate of return to have shifted in Denmark's favour. When Denmark borrows abroad, especially via sale of government and mortgage bonds, the rate of interest is now lower than for loans granted by Danes to non-residents.

For the various investment types, the risk is given by the uncertainty as to whether the actual return will deviate from the expected return. The greater the uncertainty, the greater the risk. It is also seen from Table 2 that the high return on direct investment goes hand in hand with higher risk than for the other investment types.

Since 2004, the return on Danish foreign direct investment has been greater than the return on foreign direct investment in Denmark. Part of the explanation is that the industry profiles differ, cf. Table 3. Hence, inward foreign investment in financing, etc. accounts for a substantially larger share than the equivalent outward investment. Due to the financial crisis, the return on such investment has been modest in recent years.

RATES OF RETURN ON DENMARK'S FOREIGN ASSETS AND LIABILITIES Table 2

Per cent	Income			Expenses		
	Direct investment	Equities	Lending	Direct investment	Equities	Borrowing
1999	5.6	1.2	4.4	5.2	1.7	4.9
2000	8.5	1.4	4.8	11.2	1.7	5.2
2001	5.5	1.5	4.6	5.8	1.4	5.0
2002	3.5	1.8	4.0	5.1	1.8	4.1
2003	4.9	1.5	2.8	4.9	1.9	3.3
2004	6.2	2.2	2.8	5.4	1.8	3.0
2005	10.4	2.2	3.4	9.4	2.5	3.1
2006	8.6	3.7	3.5	6.7	3.0	3.5
2007	8.5	3.6	4.0	7.5	1.6	3.9
2008	7.1	4.1	4.1	5.2	2.4	3.8
2009	5.2	2.6	2.4	4.3	1.6	2.2
2010	6.3	2.5	2.0	5.9	1.1	1.7
Average	6.7	2.4	3.6	6.4	1.9	3.6
Risk[1]	1.91	0.94	0.86	1.96	0.50	1.02

Note: The rates of return have been calculated exclusive of Statistics Denmark's compilation of investment income from building and construction as portfolios are not compiled for this item, so no rate of return can be calculated. See Damgaard et al. (2010).

Source: Statistics Denmark and Danmarks Nationalbank.

[1] Risk has been stated as the standard deviation.

On the other hand, investment in manufacturing accounts for 25 per cent of Danish foreign investment, but only just over 12 per cent of foreign investment in Denmark. Across industries, the registered return has generally been higher for Danish foreign investment than for foreign investment in Denmark.

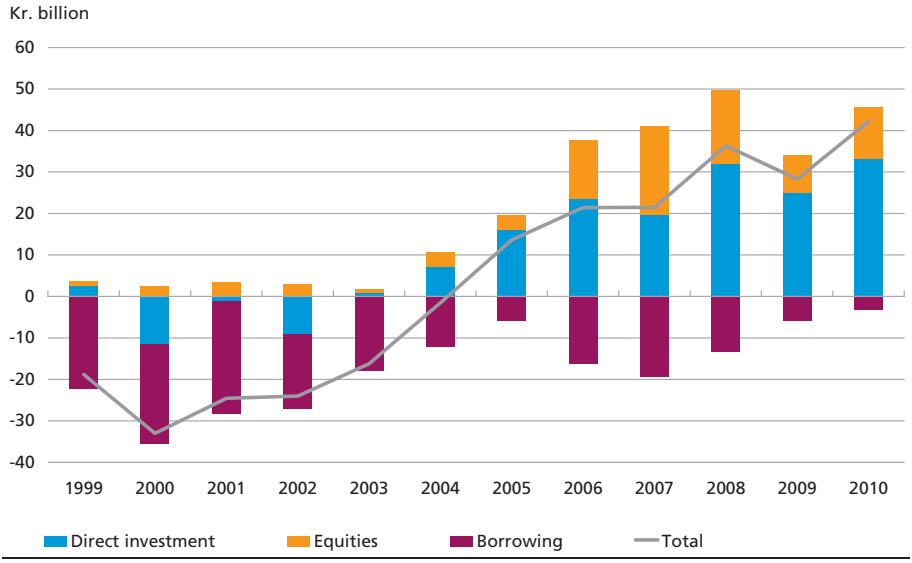
DIRECT INVESTMENT BROKEN DOWN BY INDUSTRY, AVERAGE SHARES OF PORTFOLIOS AND RATES OF RETURN Table 3

Per cent	Income		Expenses	
	Share	Return	Share	Return
Energy and water supplies, building and construction	1.0	6.3	2.5	0.3
Real estate, letting, business service, etc.	24.3	10.1	29.5	4.9
Financing, etc. and insurance and auxiliary services	11.2	8.0	20.2	6.5
Manufacturing	25.7	12.6	11.7	10.5
Trade, hotels and restaurants	6.5	11.6	11.7	9.8
Agriculture, fisheries and raw materials extraction	5.0	19.2	2.3	108.9
Public and personal services	0.5	18.2	0.3	17.1
Transport, storage and communication	10.7	10.5	6.0	3.0
Industry not stated	15.1	4.1	15.8	5.5

Note: Arithmetic mean for 2005-10. Excluding investment income from Statistics Denmark concerning building and construction as portfolios are not compiled for this item.

Source: Danmarks Nationalbank.

NET INVESTMENT INCOME BROKEN DOWN BY INSTRUMENT Chart 5



Source: Statistics Denmark and Danmarks Nationalbank.

In other words, the combination of risk-taking, industry composition and luck/skill contributes to explaining the higher Danish return overall.

The aggregate effect on investment income from the different compositions of foreign assets and liabilities and the resultant return/risk profiles are clearly illustrated in Chart 5. Net income from direct investment is very high compared with net expenses for borrowing, even though the two instruments numerically make up the same proportion of GDP. You could say that Denmark raises inexpensive loans abroad and invests the funds in high-yield assets, but also incurs a risk.

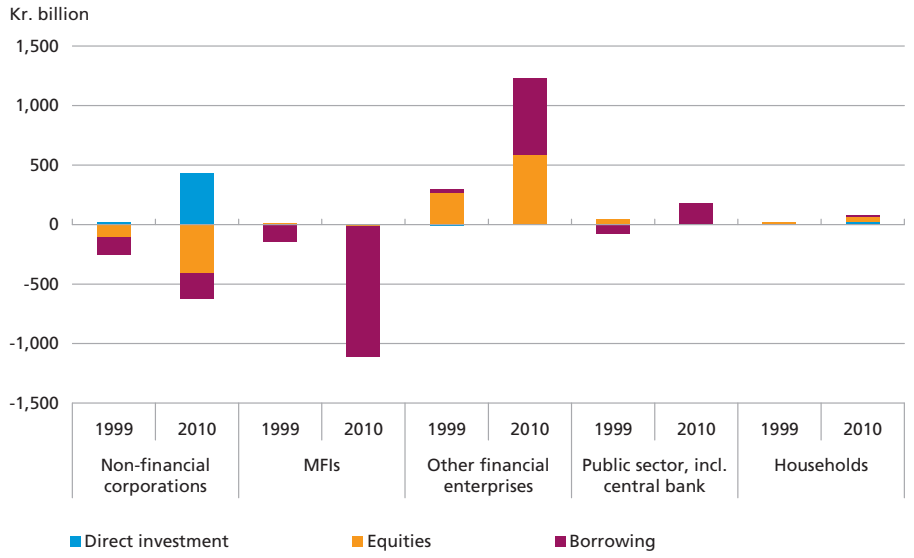
BORROWERS AND INVESTORS

Besides turning debt into wealth, Denmark has also built up large gross foreign positions over the last 20 years. This is mainly attributable to a change of behaviour among domestic sectors. From 1999 to 2010, Danish banks and mortgage banks (MFIs) increased their foreign borrowing by kr. 900 billion, cf. Chart 6. Other countries have seen similar developments, with the merging of global money and capital markets being followed by substantial borrowing and investment across national borders.

The banks and mortgage banks have to a large extent channelled the funds into pension and insurance companies and investment associations (other financial enterprises), which in turn have invested in foreign

DISTRIBUTION BY SECTOR AND INSTRUMENT OF DENMARK'S NET ASSETS AT END-1999 AND END-2010, RESPECTIVELY

Chart 6



Source: Statistics Denmark and Danmarks Nationalbank.

equities and bonds, cf. Chart 6. In addition, some of the funds borrowed have been used by Danish firms to invest in foreign subsidiaries (direct investment). Since Danish firms also raise loans abroad, their total foreign debt has not been reduced significantly, but the composition has changed in that they have increasingly channelled their investment abroad.[1]

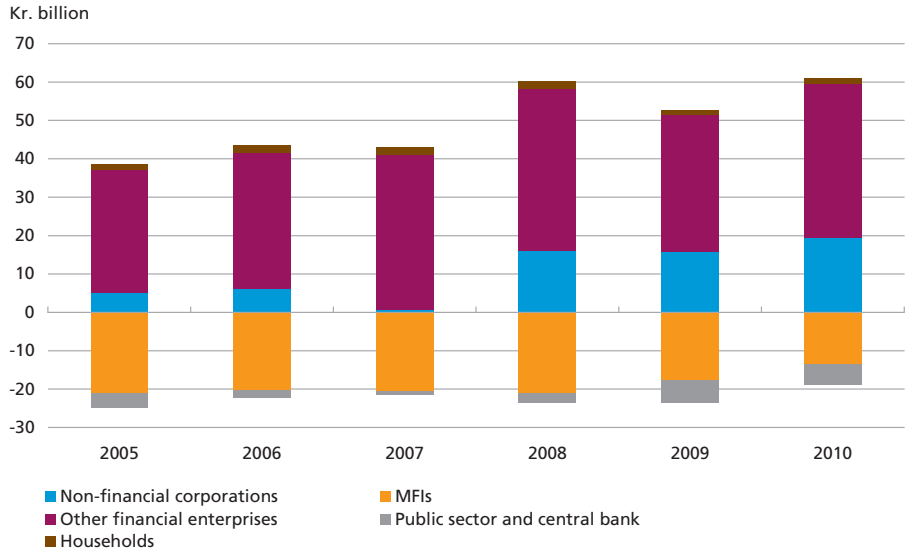
The changed composition of assets and liabilities is also reflected in foreign investment income, cf. Chart 7. The investment income is generated by pension companies, investment associations and non-financial corporations through their foreign investment. Such investment has been made possible by the banks' and mortgage banks' foreign borrowing. The non-financial corporations' income from high direct investment is to a certain extent offset by interest expenses on foreign borrowing, while pension companies and investment associations have virtually no foreign expenses.

Foreign borrowing and direct ownership of foreign assets by Danish households is very limited, cf. Chart 6.

Indirectly the households do, however, own a considerable share of Denmark's total foreign assets and liabilities and thereby earn investment income. Household wealth in insurance and pension companies accounts for 73 per cent of these companies' total assets.

[1] The net debt for equities reflects foreign interest in Danish firms such as Novo Nordisk.

INVESTMENT INCOME (NET INCOME) BROKEN DOWN BY SECTOR Chart 7



Note: Other financial enterprises include e.g. insurance and pension companies and investment associations.
Source: Danmarks Nationalbank.

At the same time, the households own 27 per cent of the Danish investment associations. This means that a large share of the investment income indirectly accrues to the household sector. On the other hand, non-resident investors owned Danish mortgage bonds for kr. 357 billion at end-2010, equivalent to an ownership share of 11 per cent. And lending to households accounted for 60 per cent of the mortgage banks' total lending. So in effect the households bear a substantial share of the foreign interest expenses that are initially paid by the mortgage banks.

The outlined development in Danish households' borrowing and investment and the resultant risk profile thus contribute to explaining Denmark's positive net foreign investment income. Household wealth and debt are described in more detail in another article in this Monetary Review, Isaksen et al. (2011).

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Speech by Nils Bernstein at the Annual Meeting of the Danisk Bankers Association on 5 December 2011

During the autumn, economic activity has dampened in the advanced economies, especially in the euro area, and the outlook has been adjusted downwards. But there are considerable differences from country to country. Generally, growth remains reasonable in countries with sound public finances and external balances, such as Germany and Sweden, while it is low in countries with large internal and external imbalances, particularly the debt-ridden countries in southern Europe.

The downward adjustment of growth prospects reflects several factors. Firstly, the European sovereign debt crisis has by no means been resolved, in fact it intensified over the summer, and in the USA there is great uncertainty about medium-term fiscal plans. Secondly, consumer and business confidence has declined in many countries. Households and firms continue to consolidate, partly in the light of falling stock indices and housing prices. Thirdly, the combination of sustained financial turmoil, lower growth expectations and pressure from the financial markets means that several countries have had to speed up fiscal consolidation.

Viewed in isolation, fiscal policy is procyclical at the moment, which means that it contributes to further dampening of growth. On the other hand, more expansionary fiscal policy would push up interest rates. Combined with large government debts this means that tightening is the only option. Many countries are now paying the price for their previous slack approach to economic policy. Among other things, this is reflected in an increase in unemployment to more than 10 per cent in the euro area and 9 per cent in the USA. In the hardest hit euro area member states unemployment now exceeds 20 per cent. Especially young people find it difficult to gain a foothold in the labour markets, which favour those who already have a job.

The near-term outlook is unusually uncertain. Lower confidence among households and firms and in the financial sector often points to a decline in activity. And indeed, the latest forecasts from the OECD and the EU predict only a moderate upswing in the USA, while the euro area overall is expected to stagnate, with a risk of growth at or below zero. Tackling the challenges in the heavily indebted member states is essen-

tial to dampening uncertainty and paving the way for growth in the euro area.

And now let me turn to the Danish economy. Growth was sound in the 2nd quarter, but according to preliminary data GDP dived in the 3rd quarter, to a level 0.3 per cent lower than in the same period of 2010. This reflected not only weak export growth, but also a decline in government spending as the public sector sought to balance its finances. The growth pattern has generally been very uneven in recent years, so data for a single quarter should be interpreted with caution.

Nevertheless, the overall picture is that the Danish economy, like the world economy, is slowing down. This situation is likely to continue well into 2012, and we do not expect growth in Denmark to pick up in earnest before 2013. Our forecast does not operate with a speedy resolution of the debt crisis. On the other hand, we do not foresee a total collapse either. In technical terms, we assume that Europe will muddle through somehow.

We should be careful not to paint too gloomy a picture of the Danish economy. Although we expect a small rise in unemployment in the near future, the Danish labour market is doing relatively well. Employment has declined a little since the beginning of 2010, and unemployment is only slightly above its structural level. Private consumption is weak, but this reflects consolidation rather than lack of funds in the households.

It is satisfactory that the new government is planning to reduce the government deficit to less than 3 per cent of GDP in 2013 and to improve the structural balance by 1.5 per cent of GDP in 2011-13, as the EU recommends. Add to this the support for important labour market reforms – the partial phasing-out of the early retirement scheme and reduction of the entitlement period for unemployment benefits. This will contribute to increasing structural employment considerably, thereby countering the demographically driven reduction of the labour force.

It is evident that the 2012 Finance Bill does not provide for any improvement of the structural government budget balance next year. This makes it even more important to tighten up in 2013 in order to maintain the fiscal stance.

Anyone who is interested in current affairs can see that the euro area is in an economic and political crisis. For almost two years the arrow has been pointing in the wrong direction. More and more member states are struggling with mounting debts and high interest rates. This reflects the market participants' lack of confidence in these member states' ability to set their own houses in order. Several member states have applied

for and received external financial assistance – on conditions that stretch social structures to the limit. In Greece and Italy, democratically based governments have been sidelined, and Belgium has been without a real government for more than one year – although this is for other reasons.

But what really gives cause for concern is that the solutions negotiated by the heads of government have, so far, not been able to halt an increasingly serious development, despite repeated promises to do whatever it takes. Time will show what that is – but the solutions agreed on are proving to be difficult to implement.

It is by no means easy. After all, it is about what and how soon each member state must deliver in return for support from the community. And indeed, is it at all possible to strike a balance that will be politically acceptable while also soothing the markets?

But let us get one thing straight. The necessary economic adjustments will take place, either through managed political processes or via relentless market demands if the politicians give up.

Personally I still believe that political solutions will be found. The alternative would be chaos, and the historic European project would come tumbling down. The judgement of future generations would be too harsh to bear.

Where does all this leave Denmark? Unfortunately, we cannot do much to stem the negative tide from the outside world. A small, open economy such as Denmark's is severely affected when export markets contract and fiscal options are limited. But thanks to relatively low government debt and broad political agreement to reduce the government deficit we have managed to weather the worst financial storms so far. In the short term, we cannot simply grow our way out of this situation. We can support our export potential through responsible economic policies combined with collective agreements to counter the prolonged loss of competitiveness, and we can introduce reforms that will provide a sound basis for the upswing which will come at some point. Finally, we must do our utmost to ensure that interest rates can remain low, as this cushions the weak economy.

Metaphorically speaking, we must do what small ships do in a gale: we must reef the sails and lie hove-to until the wind abates – and in the meantime we can do a little tidying up and clear the ship; that is the gentlest solution for the crew, the passengers and the vessel.

I am fully aware that this is not exactly a heroic approach. But we should bear in mind that the situation in Denmark, including the level of unemployment, is better than in most of the countries we usually compare ourselves with. So maintaining the current wealth level in the face of the crisis would be no mean feat. We should not harbour unrealistic

ambitions of growth that cannot be achieved in the present circumstances.

The sovereign debt crisis leaves its mark in practically all areas, and the European banks play a major role in the crisis. In the EU, the largest banks were stress tested in the summer of 2011, and in the autumn a capital test was performed of the banks with market valuation of government securities. The banks should have a Core Tier 1 ratio of 9 per cent as a buffer against the storm. If they do not meet this requirement, they should seek to raise capital and retain profits. Ultimately, government capital injections may be required.

Moreover, there is agreement in the EU that it should be possible for member states to decide to provide more individual government guarantees to their banks on uniform conditions, along the lines of the scheme we have applied in Denmark.

Indeed, Bank Rescue Package 2 means that there is still heavy government involvement in the Danish banking sector by way of both government capital injections and individual government-guaranteed bond loans. These measures are temporary and were intended to provide the necessary breathing space to adjust the capital base, sources of funding and business models.

Right now it looks as if the Danish banks will generally be able to stand on their own feet when the government guarantees expire. The banking sector is reasonably well capitalised. This is what Danmarks Nationalbank's stress test shows, and it is confirmed by the European stress and capital tests.

All the same, some banks still have a weaker point of departure and will find it difficult to obtain funding when the government-guaranteed loans expire. One reason could be that they still hold bad assets, combined with a weak capital base. This is where the Financial Stability Company could be relevant.

In Danmarks Nationalbank's view, Denmark should not address these specific problems by deciding to introduce general access to government guarantees, as provided for by the ECOFIN. This will merely extend the life of an unsustainable business model.

One element of a solution that does not involve new government guarantees is Danmarks Nationalbank's expansion of the collateral basis to include banks' lending of good quality. This will provide a last-resort funding opportunity for the banks. At the same time, this lending may be included in the banks' liquidity, even if it has not been pledged to Danmarks Nationalbank, provided that the requirements are met. In Danmarks Nationalbank's opinion new government guarantees should not be discussed before all existing possibilities have been exhausted.

Sector surveys in recent months have indicated that it has become harder for businesses to find funding.

Danmarks Nationalbank's lending survey also shows that credit policies have been tightened a little more lately – both for households and for the corporate sector. Notably, loan approval charges have been adjusted. The widening of the interest-rate margin is a natural and – in the current situation – necessary way for the banks to increase earnings. Funding has become harder to come by and more expensive. The markets have increased the capital requirements, and the risk of losses has increased.

Incidentally, it looks as if banks and mortgage banks have increasingly begun to differentiate between customer groups on the basis of risk profiles. So there is no doubt that certain firms and sectors are finding it harder to obtain loans.

Total lending by banks and mortgage banks to the corporate sector remains relatively high, and it would not be right to speak of a general credit crunch. The recent trend toward further tightening should be monitored closely.

Naturally, banks must perform the necessary credit assessments of projects, but good credit assessments are performed individually, not en bloc. I think you need to keep in mind that if a general credit crunch arises, this could lead to solutions that are not necessarily in your long-term interest.

Finally, I would like to touch upon a few technical issues. As you know, Danmarks Nationalbank primarily influences the money markets through its short-term monetary-policy instruments.

In the euro area, there have been several signs of tensions in the money markets in recent months. The same has been the case in Denmark, where the slightly longer money-market interest rates have at times risen due to sluggishness in the exchange of liquidity.

The money-market interest rates determine the exchange rate of the krone. So, to support the fixed-exchange-rate policy, Danmarks Nationalbank will now supplement its monetary-policy instruments with liquidity-adjusting lending in kroner. This instrument can be used as and when required. The rate of interest and maturity of such loans will reflect market conditions. Loans may be granted against pledging of assets included in Danmarks Nationalbank's collateral basis, or as FX swaps against foreign exchange as collateral. Danmarks Nationalbank may allocate liquidity by auction or conduct bilateral lending transactions with individual counterparties. Such instruments are also used by other central banks in their liquidity management.

The modalities of any such loans, including maturities and allocation procedure, will be determined when the loans are offered.

Finally, I would like to express my appreciation to the Danish Bankers Association and its members and chairman for our good and fruitful cooperation over the last year.

Thank you for your attention.

Press Releases

30 SEPTEMBER 2011: NEW CREDIT FACILITIES AT DANMARKS NATIONALBANK

Danmarks Nationalbank widens the banks' access to collateralised credit facilities at Danmarks Nationalbank by expanding the existing collateral basis – primarily government and mortgage bonds – to include the banks' credit claims of good quality.

Furthermore, Danmarks Nationalbank introduces 6-month loans in addition to the existing 7-day loans at a rate of interest that mirrors Danarks Nationalbank's lending rate, currently 1.55 per cent.

"The expansion of credit facilities is intended to supplement the banks' access to raise loans, thereby easing the transition to a situation without government guarantees when these guarantees expire in 2012 and 2013," says Governor Nils Bernstein, Danmarks Nationalbank.

3 NOVEMBER 2011: INTEREST RATE REDUCTION

Effective from 4 November 2011, Danmarks Nationalbank's lending rate is reduced by 0.35 percentage point to 1.20 per cent, the rate of interest on certificates of deposit is reduced by 0.35 percentage point to 0.65 per cent and the current account rate is reduced by 0.35 percentage point to 0.55 per cent. The discount rate is reduced by 0.25 percentage point to 1.0 per cent.

The interest rate reduction is a consequence of the reduction by the European Central Bank of its rate on the main refinancing operations by 0.25 percentage point to 1.25 per cent. Furthermore Danmarks Nationalbank has purchased foreign exchange in the market.

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

Lending rate: 1.20 per cent.
Certificates of deposit: 0.65 per cent.
Current account: 0.55 per cent.
Discount rate: 1.0 per cent.

8 DECEMBER 2011: INTEREST RATE REDUCTION

Effective from 9 December 2011, Danmarks Nationalbank's lending rate is reduced by 0.40 percentage point to 0.8 per cent. The rate of interest

on certificates of deposit, the current account rate and the discount rate is reduced by 0.25 percentage point to 0.4 per cent, 0.3 per cent and 0.75 per cent respectively.

The interest rate reduction is a consequence of the reduction by the European Central Bank of its rate on the main refinancing operations by 0.25 percentage point to 1.0 per cent. At the same time Danmarks Nationalbank has taken the opportunity to narrow the spread between the lending rate and the rate on certificates of deposit in order to reduce the possibility of fluctuations in the short money market rates.

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

Lending rate: 0.8 per cent.
Certificates of deposit: 0.4 per cent.
Current account: 0.3 per cent.
Discount rate: 0.75 per cent.

8 DECEMBER 2011: NEW INSTRUMENTS

In order to temporarily enhance the banks' and mortgage-credit institutes' access to longer-term financing, Danmarks Nationalbank introduces the possibility to raise 3-year loans. The loans will be made against collateral included in Danmarks Nationalbank's collateral basis. The rate of interest on the 3-year credit facility will be variable, reflecting Danmarks Nationalbank's 7-day monetary-policy lending rate. The new loans will supplement Danmarks Nationalbank's 7-day and 6-month credit facilities. Danmarks Nationalbank will invite banks and mortgage-credit institutions to a discussion on the details of the facility.

As announced at The Danish Bankers Association's Annual Meeting 5 December 2011, Danmarks Nationalbank will also supplement its instruments with liquidity-adjusting deposit and lending operations in kroner to support the fixed-exchange-rate policy. The operations can be used to adjust the liquidity in the money market when and to the extent needed. The rate of interest and maturity of operations will reflect market conditions.

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 9 December 2011.

Danmarks Nationalbank is the source for Tables 1-15, 17-19 and 24-25, while the Nasdaq OMX Copenhagen is the source for series of bond yields and the share-price index in Table 1. Statistics Denmark is the source for Tables 16 and 20-23. The calculations in Tables 21 and 25 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: Lending	Certificates of deposit	Current-account deposits	Discount rate	The ECB's interest rate: Main refinancing operations, fixed rate[1]	End of period	Interbank interest rate, 3-months uncollateralized	Bond yields: 10-year central-government bond	Bond yields: 30-year mortgage-credit bond	Share-price index OMXC20 (prev. KFX)
	Per cent per annum						Per cent per annum			3.7.89 =100
2006	3.75	3.75	3.50	3.50	3.50	2006	3.81	3.95	5.24	441.48
2007	4.25	4.25	4.00	4.00	4.00	2007	4.65	4.48	5.61	464.14
2008	3.75	3.75	3.50	3.50	2.50	2008	4.20	3.31	6.21	247.72
2009	1.20	0.95	0.85	1.00	1.00	2009	0.85	3.62	5.19	336.69
2010	1.05	0.70	0.60	0.75	1.00	2010	0.87	2.98	4.53	457.58
2010 20 May	1.05	0.60	0.50	0.75	1.00	Nov 10	0.80	2.82	4.47	424.77
27 May	1.05	0.50	0.40	0.75	1.00	Dec 10	0.87	2.98	4.53	457.58
15 Oct	1.05	0.60	0.50	0.75	1.00	Jan 11	0.84	3.15	4.65	462.11
29 Oct	1.05	0.70	0.60	0.75	1.00	Feb 11	0.82	3.17	4.71	473.64
2011 8 Apr	1.30	0.95	0.85	1.00	1.25	Mar 11	0.92	3.39	5.23	467.15
8 Jul	1.55	1.20	1.10	1.25	1.50	Apr 11	1.02	3.27	5.19	462.81
26 Aug	1.55	1.10	1.00	1.25	1.50	May 11	1.04	3.03	5.11	456.25
16 Sep	1.55	1.00	0.90	1.25	1.50	Jun 11	1.15	2.98	5.16	431.06
4 Nov	1.20	0.65	0.55	1.00	1.25	Jul 11	1.22	2.80	5.04	420.54
9 Dec	0.80	0.40	0.30	0.75	1.00	Aug 11	1.36	2.35	4.88	359.41
						Sep 11	0.97	2.06	4.15	350.34
						Oct 11	1.15	2.33	4.26	362.77
9 Dec	0.80	0.40	0.30	0.75	1.00	Nov 11	1.10	2.04	4.21	385 .19

[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 banks' net position with Danmarks Nationalbank			
				Certificates of deposit	Deposits (current account)	Loans	Total net position
	Kr. billion						
2006	171.7	59.8	73.8	163.2	8.8	153.7	18.2
2007	168.8	61.6	89.9	200.5	9.4	216.8	-6.9
2008	211.7	61.3	262.8	118.5	9.7	240.9	-112.7
2009	394.5	60.8	212.4	166.2	22.1	104.2	84.1
2010	428.7	62.5	179.4	132.5	14.5	9.3	137.8
Nov 10	419.2	61.1	192.2	111.3	15.3	1.2	125.4
Dec 10	418.6	62.5	177.3	132.5	14.5	9.3	137.8
Jan 11	430.1	60.3	184.0	120.5	14.8	2.4	133.0
Feb 11	446.4	60.7	235.2	66.8	23.9	0.4	90.4
Mar 11	453.9	59.9	242.2	95.0	12.2	7.9	99.4
Apr 11	454.1	61.9	244.9	85.5	12.0	0.9	96.6
May 11	453.4	62.0	245.4	79.4	17.2	0.3	96.4
Jun 11	456.8	62.4	252.2	93.7	13.4	13.9	93.3
Jul 11	456.9	61.8	229.5	101.8	15.3	0.6	116.5
Aug 11	475.7	60.5	265.9	82.9	17.2	0.8	99.3
Sep 11	490.3	60.5	287.0	80.8	12.1	3.9	89.0
Oct 11	489.9	60.5	294.5	66.1	17.0	3.6	79.4
Nov 11	467.7	61.0	256.4	89.3	14.3	0.2	103.4

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

Table 3

	Central-government finance			Net purchase of foreign exchange by Danmarks Nationalbank					The banks' and the mortgage banks' 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	Net purchase of bonds by Danmarks Nationalbank	Other factors	Change in net position	End of period
	Kr. billion									
2006	-14.5	16.2	-30.6	-34.3	4.3	-30.0	-4.9	-1.2	-66.7	18.2
2007	-26.1	2.9	-29.1	-1.7	7.2	5.5	-0.4	-1.4	-25.3	-6.9
2008	-11.9	99.6	-111.5	-19.9	0.1	-19.8	0.6	24.9	-105.8	-112.7
2009	178.6	123.8	54.8	153.6	17.1	170.7	6.5	-35.3	196.8	84.1
2010	169.6	160.7	8.8	45.7	4.3	50.0	-0.4	-4.7	53.7	137.8
Nov 10	24.2	10.3	13.9	-2.2	0.0	-2.2	0.0	-2.2	9.5	125.4
Dec 10	20.9	6.3	14.6	0.2	-0.4	-0.2	-0.5	-1.5	12.4	137.8
Jan 11	8.5	14.9	-6.4	0.0	1.2	1.2	-1.4	1.8	-4.8	133.0
Feb 11	-27.5	9.5	-37.0	0.0	2.2	2.2	0.6	-8.5	-42.6	90.4
Mar 11	1.5	-0.2	1.7	-0.4	-0.7	-1.1	1.0	7.4	9.0	99.4
Apr 11	12.0	15.1	-3.1	0.0	0.7	0.7	0.2	-0.5	-2.7	96.6
May 11	9.1	9.5	-0.3	0.0	-0.7	-0.7	0.5	0.3	-0.3	96.4
Jun 11	10.1	14.2	-4.0	0.0	0.6	0.6	0.9	-0.5	-3.0	93.3
Jul 11	38.2	15.8	22.4	0.0	0.5	0.5	-0.1	0.3	23.2	116.5
Aug 11	-14.8	14.4	-29.2	11.2	0.5	11.7	-1.3	1.7	-17.2	99.3
Sep 11	0.5	21.4	-20.8	14.0	0.5	14.5	0.8	-4.8	-10.3	89.0
Oct 11	19.2	26.5	-7.4	0.0	-0.4	-0.4	0.1	-1.8	-9.6	79.4
Nov 11	13.0	6.9	6.1	10.7	-0.8	9.9	-0.3	8.3	24.0	103.4

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		Domestic deposits	Bonds, etc. issued	
		Public sector	Private sector	Bonds, etc.	Shares, etc.			
	Kr. billion							
2006	4,656.2	116.8	2,956.0	51.8	60.3	1,079.6	1,433.4	-223.0
2007	5,446.3	117.5	3,356.1	43.3	63.5	1,224.8	1,505.2	-304.5
2008	6,286.4	129.1	3,724.3	40.6	56.7	1,487.5	1,508.4	-407.9
2009	5,968.5	135.9	3,647.9	78.2	65.5	1,442.8	1,650.9	-417.6
2010	6,159.1	146.6	3,696.6	41.8	87.9	1,410.1	1,660.4	-397.7
Oct 10	6,351.9	141.5	3,701.9	54.7	85.8	1,446.4	1,754.5	-309.4
Nov 10	6,331.3	142.4	3,699.5	29.3	86.2	1,415.4	1,676.6	-385.2
Dec 10	6,159.1	146.6	3,696.6	41.8	87.9	1,410.1	1,660.4	-397.7
Jan 11	6,096.8	144.2	3,664.0	42.8	90.0	1,400.0	1,696.5	-335.1
Feb 11	6,112.6	142.9	3,648.1	45.9	95.1	1,451.9	1,674.9	-300.5
Mar 11	6,087.3	146.0	3,671.9	46.2	93.6	1,448.4	1,678.0	-303.1
Apr 11	6,062.1	145.5	3,660.0	49.5	92.1	1,463.0	1,683.1	-264.7
May 11	6,063.8	143.6	3,638.1	58.6	88.2	1,465.2	1,712.0	-250.5
Jun 11	5,985.7	147.4	3,649.3	60.0	87.4	1,458.7	1,714.3	-254.7
Jul 11	6,062.7	148.5	3,631.9	57.8	87.1	1,462.8	1,729.9	-260.0
Aug 11	6,190.1	142.6	3,630.0	67.2	83.6	1,486.9	1,735.5	-247.3
Sep 11	6,360.4	143.3	3,657.2	69.2	79.9	1,511.6	1,736.0	-261.3
Oct 11	6,255.6	144.6	3,647.3	72.8	81.4	1,509.5	1,726.8	-246.0
	Change compared with previous year, per cent							
2006	...	8.3	14.4	-31.8	12.8	10.9	8.7	...
2007	...	0.6	13.5	-16.4	5.2	13.5	5.0	...
2008	...	9.8	11.0	-6.2	-10.7	21.4	0.2	...
2009	...	5.3	-2.1	92.4	15.5	-3.0	9.4	...
2010	...	7.9	1.3	-46.6	34.3	-2.3	0.6	...
Oct 10	...	7.5	1.6	-26.2	36.1	0.9	7.6	...
Nov 10	...	9.1	1.4	-60.8	36.3	0.3	2.0	...
Dec 10	...	7.9	1.3	-46.6	34.3	-2.3	0.6	...
Jan 11	...	7.8	0.1	-46.5	32.4	-3.1	0.7	...
Feb 11	...	8.0	-0.1	-36.5	38.6	1.4	-0.9	...
Mar 11	...	7.9	0.4	-40.1	35.3	1.3	-0.1	...
Apr 11	...	6.7	0.3	-34.0	32.6	2.4	0.6	...
May 11	...	5.0	-1.1	-11.6	12.0	2.2	0.2	...
Jun 11	...	4.7	-1.8	11.0	9.9	1.5	0.3	...
Jul 11	...	3.4	-1.6	24.4	7.7	1.2	1.0	...
Aug 11	...	2.7	-2.3	4.3	2.9	0.8	-1.1	...
Sep 11	...	0.1	-1.5	6.7	-3.5	5.6	-0.5	...
Oct 11	...	2.2	-1.5	33.1	-5.2	4.4	-1.6	...

Note: The MFI sector includes Danish monetary financial institutions, i.e. banks and mortgage banks, 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								
2006	50.7	648.6	699.3	145.6	17.9	862.8	8.0	21.3	892.1
2007	51.9	703.2	755.1	204.8	18.0	977.9	6.2	61.5	1,045.7
2008	50.4	702.8	753.2	286.4	18.4	1,058.0	4.0	57.0	1,119.1
2009	48.5	744.6	793.1	203.0	19.6	1,015.7	10.9	143.0	1,169.7
2010	52.6	747.8	800.4	143.9	18.0	962.3	58.2	241.0	1,261.8
Oct 10	51.8	772.1	823.9	160.6	17.9	1,002.4	33.8	231.8	1,268.1
Nov 10	52.1	764.2	816.2	149.2	18.2	983.7	38.4	230.3	1,252.5
Dec 10	52.6	747.8	800.4	143.9	18.0	962.3	58.2	241.0	1,261.8
Jan 11	50.7	743.8	794.5	140.2	18.0	952.7	49.9	126.9	1,129.8
Feb 11	51.8	743.5	795.2	141.6	17.9	954.8	49.7	125.9	1,130.5
Mar 11	50.8	729.3	780.1	143.5	16.9	940.5	52.8	154.4	1,148.0
Apr 11	52.7	753.4	806.1	138.1	17.1	961.3	43.7	102.6	1,107.9
May 11	52.3	756.0	808.3	141.7	17.2	967.2	41.4	112.7	1,121.5
Jun 11	52.4	735.0	787.4	141.5	16.9	945.8	50.7	119.1	1,115.8
Jul 11	52.0	749.7	801.7	146.7	16.9	965.3	57.1	135.3	1,158.0
Aug 11	51.4	735.2	786.6	140.4	17.0	943.9	66.8	131.4	1,142.3
Sep 11	51.4	730.8	782.3	140.4	17.9	940.6	73.0	168.1	1,181.9
Oct 11	51.8	732.7	784.5	139.7	17.2	941.4	59.6	141.5	1,142.7
	Change compared with previous year, per cent								
2006	...	...	8.7	...	...	10.9	...	...	11.5
2007	...	...	8.0	...	...	13.3	...	...	17.2
2008	...	...	-0.3	...	...	8.2	...	...	7.0
2009	...	...	5.3	...	...	-4.0	...	...	4.5
2010	...	...	0.9	...	...	-5.3	...	...	7.9
Oct 10	...	...	2.3	...	...	-4.4	...	...	4.2
Nov 10	...	...	1.1	...	...	-5.0	...	...	4.5
Dec 10	...	...	0.9	...	...	-5.3	...	...	7.9
Jan 11	...	...	-2.3	...	...	-7.9	...	...	-6.9
Feb 11	...	...	-2.6	...	...	-6.6	...	...	-5.1
Mar 11	...	...	-3.8	...	...	-6.0	...	...	-5.0
Apr 11	...	...	-2.8	...	...	-5.3	...	...	-8.4
May 11	...	...	-3.7	...	...	-5.8	...	...	-9.0
Jun 11	...	...	-4.7	...	...	-5.1	...	...	-8.7
Jul 11	...	...	-4.9	...	...	-5.4	...	...	-10.9
Aug 11	...	...	-6.2	...	...	-6.9	...	...	-12.7
Sep 11	...	...	-4.2	...	...	-2.7	...	...	-5.2
Oct 11	...	...	-4.8	...	...	-6.1	...	...	-9.9

[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							
2006	3,216.1	715.0	1,124.3	475.0	458.0	889.6	1,127.8	1,153.9
2007	3,940.0	924.3	1,333.6	557.4	551.8	1,065.8	1,433.5	1,353.9
2008	4,568.5	974.6	1,546.3	586.8	603.3	1,092.1	1,444.2	1,424.2
2009	4,147.6	876.1	1,359.1	575.7	529.7	1,203.5	1,168.8	1,427.4
2010	4,197.4	902.7	1,334.6	570.2	494.7	1,157.1	1,118.3	1,489.7
Oct 10	4,347.9	921.8	1,349.0	563.9	496.3	1,154.1	1,174.2	1,513.3
Nov 10	4,398.6	977.6	1,339.0	560.7	498.6	1,179.5	1,235.7	1,509.7
Dec 10	4,197.4	902.7	1,334.6	570.2	494.7	1,157.1	1,118.3	1,489.7
Jan 11	4,079.9	833.4	1,300.3	560.8	488.9	1,160.6	1,050.1	1,476.2
Feb 11	4,023.8	831.9	1,280.1	558.7	485.2	1,134.6	1,002.5	1,465.0
Mar 11	3,976.6	796.4	1,300.1	565.1	482.6	1,133.1	996.4	1,442.9
Apr 11	3,930.7	728.2	1,286.8	559.9	478.5	1,127.2	903.1	1,443.6
May 11	3,909.1	740.1	1,258.5	556.0	462.0	1,112.7	831.5	1,496.1
Jun 11	3,870.4	731.0	1,273.4	564.4	463.4	1,131.6	949.6	1,461.1
Jul 11	3,923.9	723.1	1,253.8	560.4	449.4	1,146.8	937.7	1,493.2
Aug 11	4,011.0	733.3	1,238.1	559.8	446.4	1,139.0	953.4	1,476.8
Sep 11	4,159.8	758.7	1,264.2	566.9	453.0	1,120.1	989.2	1,486.5
Oct 11	4,045.9	734.2	1,252.7	561.9	446.2	1,122.1	978.8	1,453.2
	Change compared with previous year, per cent							
2006	...	9.7	22.2	19.8	23.8	3.2	15.8	8.1
2007	...	29.3	18.6	17.4	20.5	19.8	27.1	17.3
2008	...	5.4	15.9	5.3	9.3	2.5	0.7	5.2
2009	...	-10.1	-12.1	-1.9	-12.2	10.2	-19.1	0.2
2010	...	3.0	-1.8	-1.0	-6.6	-3.9	-4.3	4.4
Oct 10	...	17.5	-0.6	0.2	-4.1	-6.7	11.5	3.5
Nov 10	...	13.4	-1.2	0.0	-5.8	-2.1	9.0	4.2
Dec 10	...	3.0	-1.8	-1.0	-6.6	-3.9	-4.3	4.4
Jan 11	...	-12.3	-4.5	-0.8	-6.6	-3.3	-15.4	2.3
Feb 11	...	-14.2	-4.8	-0.4	-9.3	-3.9	-19.5	2.5
Mar 11	...	-16.1	-3.5	-0.2	-9.4	-8.7	-20.4	0.9
Apr 11	...	-20.5	-3.5	0.0	-9.4	-5.3	-20.8	-0.4
May 11	...	-22.8	-7.0	-0.5	-12.3	-8.5	-29.1	2.2
Jun 11	...	-20.4	-8.3	-0.9	-12.9	-11.3	-20.8	2.4
Jul 11	...	-22.7	-7.9	-0.5	-12.0	-7.8	-18.4	0.0
Aug 11	...	-24.0	-9.7	-0.6	-13.9	-6.8	-17.9	-4.4
Sep 11	...	-16.6	-7.3	-0.7	-10.3	-8.5	-23.7	1.5
Oct 11	...	-20.3	-7.1	-0.3	-10.1	-2.8	-16.6	-4.0

Note: Excluding Danish banks' units abroad.

SELECTED ITEMS FROM THE BALANCE SHEET OF THE MORTGAGE BANKS

Table 7

End of period	Total balance	Assets					Liabilities	
		Lending to MFIs	Domestic lending			Holdings of securities	Loans from MFIs	Bonds, etc. issued
			Total	of which:				
				Households, etc.	Non-financial companies			
	Kr. billion							
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	466.7	633.5	474.4	2,582.3
2009	3,827.1	512.2	2,278.8	1,712.2	501.0	927.6	539.3	3,048.3
2010	4,009.6	572.6	2,347.1	1,749.2	532.0	976.9	632.1	3,139.3
Oct 10	3,285.6	498.7	2,336.6	1,744.0	525.6	347.7	536.6	2,564.8
Nov 10	3,405.8	524.7	2,344.3	1,749.1	528.8	424.5	568.7	2,633.8
Dec 10	4,009.6	572.6	2,347.1	1,749.2	532.0	976.9	632.1	3,139.3
Jan 11	3,207.3	454.3	2,346.3	1,747.2	533.2	307.5	529.4	2,480.7
Feb 11	3,226.3	455.3	2,349.7	1,749.0	534.8	312.5	525.5	2,487.0
Mar 11	3,432.6	509.9	2,354.7	1,748.4	539.1	465.1	562.9	2,635.3
Apr 11	3,202.2	451.5	2,356.3	1,751.7	539.0	297.5	506.8	2,482.4
May 11	3,227.5	453.5	2,363.0	1,754.5	542.7	305.7	515.0	2,503.8
Jun 11	3,266.8	508.2	2,365.1	1,754.5	544.3	295.6	528.5	2,509.4
Jul 11	3,256.6	481.8	2,368.2	1,756.3	545.4	300.7	530.9	2,516.0
Aug 11	3,310.8	493.3	2,375.9	1,762.0	548.0	325.5	546.5	2,560.9
Sep 11	3,494.0	574.1	2,375.7	1,760.1	549.0	433.9	597.5	2,693.1
Oct 11	3,339.0	510.7	2,379.3	1,763.7	551.8	336.8	553.7	2,588.5
	Change compared with previous year, per cent							
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	15.5	-2.4	37.8	3.5
2009	...	19.5	5.3	5.1	7.4	46.4	13.7	18.0
2010	...	11.8	3.0	2.2	6.2	5.3	17.2	3.0
Oct 10	...	21.4	2.9	2.7	4.4	1.1	17.3	4.7
Nov 10	...	24.9	2.9	2.6	4.9	-0.5	24.7	3.0
Dec 10	...	11.8	3.0	2.2	6.2	5.3	17.2	3.0
Jan 11	...	5.9	2.8	1.9	5.7	10.5	9.3	2.6
Feb 11	...	3.9	2.7	1.9	5.3	7.5	6.0	1.7
Mar 11	...	1.9	2.8	1.9	6.3	23.5	4.4	3.8
Apr 11	...	6.3	2.6	2.0	4.8	-0.1	2.9	1.2
May 11	...	-1.4	2.6	1.9	4.9	1.9	0.4	0.5
Jun 11	...	-2.9	2.3	1.6	5.0	-9.2	-3.0	-1.2
Jul 11	...	0.8	2.2	1.4	5.0	-7.7	0.1	0.0
Aug 11	...	-1.9	2.1	1.3	5.4	-4.8	-0.6	-0.1
Sep 11	...	-1.6	1.8	1.1	4.6	5.8	2.9	1.6
Oct 11	...	2.4	1.8	1.1	5.0	-3.1	3.2	0.9

LENDING TO RESIDENTS BY THE BANKS AND THE MORTGAGE BANKS

Table 8

End of period	Total lending			The banks' lending			The mortgage banks' lending		
	Total	House-holds, etc.	Business, etc.	Total	House-holds, etc.	Business, etc.	Total	House-holds, etc.	Business, etc.
	Kr. billion								
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	1,456.4	1,622.9	586.8	978.3	2,164.6	1,629.6	478.1
2009	3,682.4	2,287.9	1,283.8	1,403.6	575.7	770.0	2,278.8	1,712.2	513.8
2010	3,704.3	2,319.4	1,281.8	1,357.2	570.2	738.6	2,347.1	1,749.2	543.1
Oct 10	3,708.2	2,307.9	1,295.7	1,371.6	563.9	759.1	2,336.6	1,744.0	536.6
Nov 10	3,705.9	2,309.8	1,293.6	1,361.6	560.7	753.7	2,344.3	1,749.1	539.9
Dec 10	3,704.3	2,319.4	1,281.8	1,357.2	570.2	738.6	2,347.1	1,749.2	543.1
Jan 11	3,666.2	2,308.0	1,259.1	1,319.9	560.8	714.8	2,346.3	1,747.2	544.3
Feb 11	3,649.4	2,307.7	1,245.9	1,299.7	558.7	699.9	2,349.7	1,749.0	546.0
Mar 11	3,674.4	2,313.5	1,263.0	1,319.7	565.1	712.4	2,354.7	1,748.4	550.5
Apr 11	3,660.7	2,311.6	1,254.7	1,304.4	559.9	704.3	2,356.3	1,751.7	550.3
May 11	3,639.2	2,310.6	1,234.8	1,276.1	556.0	680.6	2,363.0	1,754.5	554.3
Jun 11	3,656.1	2,318.9	1,237.2	1,291.0	564.4	681.2	2,365.1	1,754.5	556.0
Jul 11	3,640.8	2,316.7	1,224.1	1,272.7	560.4	666.9	2,368.2	1,756.3	557.2
Aug 11	3,632.9	2,321.8	1,220.0	1,257.0	559.8	660.0	2,375.9	1,762.0	560.0
Sep 11	3,658.7	2,327.0	1,239.8	1,283.0	566.9	678.8	2,375.7	1,760.1	560.9
Oct 11	3,650.8	2,325.6	1,234.5	1,271.5	561.9	670.7	2,379.3	1,763.7	563.8
	Change compared with previous year, per cent								
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	15.9
2009	-2.8	3.2	-11.9	-13.5	-1.9	-21.3	5.3	5.1	7.5
2010	0.6	1.4	-0.2	-3.3	-1.0	-4.1	3.0	2.2	5.7
Oct 10	1.0	2.1	-0.6	-2.2	0.2	-3.3	2.9	2.7	3.5
Nov 10	0.7	2.0	-0.9	-2.8	0.0	-4.1	2.9	2.6	3.8
Dec 10	0.6	1.4	-0.2	-3.3	-1.0	-4.1	3.0	2.2	5.7
Jan 11	-0.5	1.3	-2.9	-5.8	-0.8	-8.4	2.8	1.9	5.3
Feb 11	-0.7	1.3	-3.6	-6.1	-0.4	-9.4	2.7	1.9	5.0
Mar 11	-0.1	1.3	-2.1	-4.9	-0.2	-7.4	2.8	1.9	5.9
Apr 11	0.0	1.5	-1.8	-4.3	0.0	-6.3	2.6	2.0	4.6
May 11	-1.3	1.3	-5.0	-7.7	-0.5	-11.7	2.6	1.9	4.8
Jun 11	-2.0	1.0	-6.6	-8.9	-0.9	-14.3	2.3	1.6	5.0
Jul 11	-1.6	0.9	-5.3	-7.8	-0.5	-12.5	2.2	1.4	4.9
Aug 11	-2.2	0.8	-6.7	-9.6	-0.6	-15.0	2.1	1.3	5.4
Sep 11	-1.5	0.7	-4.3	-7.2	-0.7	-10.6	1.8	1.1	4.7
Oct 11	-1.5	0.8	-4.7	-7.3	-0.3	-11.6	1.8	1.1	5.1

Note: Including lending in Danish banks' units abroad. The category "Business etc." includes non-financial companies, pension and insurance companies, other financial intermediaries (except banks and mortgage banks) and unknown sector.

THE MORTGAGE BANKS' 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	Instal-ment-free lending[1]
	Kr. billion						
2006	83.5	797.5	951.7	720.5	1,832.7	85.7	432.2
2007	77.9	889.2	1,045.6	796.6	2,012.7	123.8	547.3
2008	72.4	903.9	1,189.1	900.3	2,165.4	155.3	626.4
2009	68.3	740.2	1,472.7	1,106.6	2,281.2	211.4	695.1
2010	63.9	644.1	1,641.0	1,190.5	2,349.0	232.3	740.6
Oct 10	66.5	652.1	1,619.8	1,177.3	2,338.4	231.3	731.8
Nov 10	66.1	654.1	1,626.3	1,180.5	2,346.4	232.1	736.7
Dec 10	63.9	644.1	1,641.0	1,190.5	2,349.0	232.3	740.6
Jan 11	64.0	640.1	1,643.6	1,183.3	2,347.7	231.2	741.6
Feb 11	64.1	643.9	1,647.8	1,184.8	2,355.8	231.5	744.8
Mar 11	64.3	635.8	1,657.6	1,188.3	2,357.7	231.6	749.1
Apr 11	64.4	633.4	1,660.4	1,197.0	2,358.1	230.8	751.2
May 11	64.1	634.9	1,666.1	1,200.2	2,365.1	230.7	754.0
Jun 11	62.2	634.0	1,670.4	1,202.8	2,366.7	231.3	757.1
Jul 11	62.2	632.3	1,675.5	1,205.1	2,370.0	230.4	759.3
Aug 11	62.2	636.1	1,679.5	1,206.3	2,377.8	230.4	762.9
Sep 11	62.2	631.1	1,684.1	1,215.4	2,377.4	230.0	765.8
Oct 11	62.3	627.1	1,691.7	1,207.6	2,381.1	227.8	769.5

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

[1] The mortgage banks' 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							
Q1 06	4.8	6.2	4.5	2.8	1.9	1.5	2.0	2.4
Q2 06	5.0	6.4	4.7	3.1	2.1	1.8	2.3	2.6
Q3 06	5.2	6.6	5.0	3.3	2.4	2.1	2.5	2.8
Q4 06	5.4	6.8	5.2	3.5	2.7	2.4	2.9	3.2
Q1 07	5.7	7.1	5.5	3.6	3.1	2.8	3.2	3.4
Q2 07	5.9	7.2	5.7	4.0	3.4	3.1	3.4	3.8
Q3 07	6.1	7.4	6.0	4.1	3.6	3.3	3.6	4.0
Q4 07	6.2	7.4	6.1	4.3	3.7	3.4	3.7	4.1
Q1 08	6.2	7.5	6.1	4.5	3.7	3.5	3.8	4.2
Q2 08	6.5	7.7	6.3	4.6	3.8	3.6	3.9	4.2
Q3 08	6.6	7.8	6.5	4.9	4.0	3.6	4.1	4.5
Q4 08	7.0	8.4	7.1	5.2	4.4	3.9	4.5	5.0
Q1 09	6.0	7.4	6.3	4.0	3.3	2.8	3.2	4.1
Q2 09	5.1	6.4	5.4	2.7	2.2	2.0	2.0	2.6
Q3 09	4.5	6.0	5.0	2.1	1.7	1.7	1.5	1.9
Q4 09	4.1	5.6	4.6	1.7	1.4	1.5	1.1	1.5
Q1 10	3.9	5.5	4.4	1.5	1.2	1.4	0.9	1.3
Q2 10	3.6	5.3	4.2	1.3	1.0	1.2	0.7	1.0
Q3 10	3.5	5.1	4.1	1.2	0.9	1.1	0.6	0.8
Q4 10	3.6	5.1	4.2	1.2	0.9	1.1	0.6	0.9
Q1 11	3.8	5.2	4.2	1.3	1.0	1.1	0.7	0.9
Q2 11	4.0	5.3	4.3	1.6	1.1	1.2	0.8	1.1
Q3 11	4.2	5.6	4.6	1.7	1.2	1.3	0.9	1.3
Oct 10	3.5	5.2	4.2	1.1	0.9	1.1	0.6	0.8
Nov 10	3.7	5.2	4.3	1.2	0.9	1.1	0.6	0.9
Dec 10	3.5	5.1	4.1	1.1	0.9	1.0	0.7	0.9
Jan 11	3.8	5.2	4.2	1.3	0.9	1.1	0.6	0.9
Feb 11	3.8	5.2	4.3	1.4	1.0	1.1	0.7	1.0
Mar 11	3.9	5.1	4.2	1.4	1.0	1.1	0.7	0.9
Apr 11	4.0	5.2	4.4	1.5	1.0	1.1	0.8	1.1
May 11	4.1	5.3	4.4	1.6	1.1	1.2	0.8	1.2
Jun 11	4.0	5.3	4.4	1.6	1.1	1.2	0.9	1.1
Jul 11	4.1	5.5	4.5	1.7	1.2	1.3	0.9	1.3
Aug 11	4.3	5.6	4.7	1.8	1.2	1.3	1.0	1.3
Sep 11	4.2	5.7	4.6	1.6	1.2	1.3	0.9	1.3
Oct 11	4.2	5.7	4.7	1.6	1.2	1.3	0.9	1.2

DANMARKS NATIONALBANK'S LENDING SURVEY Table 11

	Changes in banks and mortgage banks' credit policies			
	Corporate lending		Lending to households	
	Development in current quarter	Expectations for the coming quarter	Development in current quarter	Expectations for the coming quarter
	Net balance			
Q1 09	-59.8	-27.6	-23.1	-5.2
Q2 09	-10.4	-6.7	-1.0	-5.0
Q3 09	-3.7	-0.9	-0.1	-4.7
Q4 09	2.4	-4.1	-4.5	0.0
Q1 10	-7.3	-0.2	-4.5	-4.8
Q2 10	0.6	0.9	0.0	4.7
Q3 10	1.1	-0.1	-0.3	4.6
Q4 10	8.4	10.1	0.0	0.1
Q1 11	-2.7	3.0	4.4	-5.7
Q2 11	-8.5	0.9	0.0	-4.4
Q3 11	-20.7	-1.9	-23.3	0.3

Note: A negative net balance indicates that, overall, the institutions have tightened their credit policies, thus making it more difficult to obtain loans, while a positive net balance indicates an overall easing of credit policies. The net balance indicates the institutions' assessment of quarter-on-quarter changes and not absolute changes. For a detailed presentation of the lending survey, see Carina Moselund Jensen and Tania Al-Zagheer Sass, Danmarks Nationalbank's Lending Survey – New Statistics for Changes in Banks' and Mortgage-Credit Institutes' Credit Policies, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2009.

SELECTED ITEMS FROM THE BALANCE SHEET OF INVESTMENT FUNDS Table 12

End of period	Total balance	Assets		Liabilities			
		Holdings of securities		Investment fund shares/units broken down by sector			
		Bonds, etc.	Shares, etc.	House-holds	Insurance compa-nies and pension funds	Other	Abroad
	Kr. billion						
2006	924.8	431.8	385.4	294.3	289.6	305.1	28.8
2007	1,020.7	477.9	411.6	295.2	336.8	322.0	29.2
2008	773.2	425.3	222.5	211.4	266.9	238.1	14.6
2009	865.4	487.5	301.4	252.7	357.8	185.1	22.7
2010	1,287.6	768.8	385.9	299.1	653.1	235.5	25.2
Oct 10	1,201.5	752.4	337.0	286.8	578.2	215.1	27.1
Nov 10	1,249.8	754.2	382.4	291.2	606.5	219.3	27.5
Dec 10	1,287.6	768.8	385.9	299.1	653.1	235.5	25.2
Jan 11	1,299.6	778.6	390.9	299.7	653.0	237.9	26.4
Feb 11	1,315.5	791.9	397.9	301.2	658.4	243.3	26.7
Mar 11	1,290.6	776.6	387.1	299.1	657.6	241.1	26.4
Apr 11	1,295.4	775.2	386.7	298.4	662.6	240.4	25.9
May 11	1,363.0	798.7	391.0	303.1	668.0	295.1	26.2
Jun 11	1,348.3	784.4	380.9	301.0	655.2	295.1	26.3
Jul 11	1,365.5	809.4	375.7	303.2	660.3	300.4	26.5
Aug 11	1,340.2	822.3	333.5	292.4	646.8	295.8	23.8
Sep 11	1,335.6	829.9	325.7	287.1	642.7	291.1	23.3
Oct 11	1,383.0	830.5	363.9	295.0	659.1	299.8	24.7

SECURITIES ISSUED BY RESIDENTS BY OWNER'S HOME COUNTRY — Table 13

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							
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	2,981.3	405.0	363.1	158.5	2,419.4	227.4	529.9	244.4
2009	3,414.8	431.8	394.1	159.8	2,802.7	252.0	641.0	347.5
2010	3,551.4	538.8	473.9	173.1	2,846.1	341.3	784.5	545.5
Oct 10	2,946.8	538.5	483.7	195.9	2,232.8	316.6	718.9	518.5
Nov 10	3,182.1	488.3	470.9	179.1	2,485.0	284.8	725.5	522.0
Dec 10	3,551.4	538.8	473.9	173.1	2,846.1	341.3	784.5	545.5
Jan 11	2,795.8	573.5	461.9	190.5	2,110.1	359.9	789.1	543.6
Feb 11	2,821.3	552.7	463.4	194.6	2,138.2	336.6	793.3	560.3
Mar 11	2,966.7	542.4	451.6	194.1	2,297.9	328.5	772.8	553.6
Apr 11	2,806.2	562.4	463.1	199.6	2,129.2	340.5	781.5	554.2
May 11	2,830.2	566.1	477.4	197.8	2,140.7	348.8	766.2	538.8
Jun 11	2,816.5	599.7	475.0	202.0	2,132.9	380.3	716.8	513.0
Jul 11	2,837.5	589.7	493.0	209.9	2,141.4	362.4	699.5	503.5
Aug 11	2,882.9	620.7	500.7	232.6	2,180.4	370.6	611.7	431.2
Sep 11	3,047.5	630.1	516.9	251.4	2,330.6	359.8	593.6	425.0
Oct 11	2,931.4	636.9	514.2	264.1	2,219.2	355.0	586.9	439.6

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

HOUSEHOLDS' FINANCIAL ASSETS AND LIABILITIES — Table 14

	Assets					Liabilities		
End of period	Currency and bank deposits, etc.	Bonds, etc.	Shares and certificates issued by investment funds, etc.	Life-insurance and pension-scheme savings, etc.	Total	Loans, etc.	Net financial assets	Total
	Kr. billion							
2006	839	181	1,563	1,681	4,263	2,095	2,168	4,263
2007	902	188	1,453	1,722	4,264	2,273	1,991	4,264
2008	905	173	794	1,786	3,659	2,409	1,251	3,660
2009	936	165	1,032	1,924	4,057	2,537	1,520	4,057
2010	967	148	1,251	2,131	4,498	2,676	1,821	4,497
Q2 10	944	153	1,090	2,103	4,290	2,601	1,690	4,291
Q3 10	942	156	1,133	2,175	4,406	2,623	1,783	4,406
Q4 10	967	148	1,251	2,131	4,498	2,676	1,821	4,497
Q1 11	937	148	1,217	2,126	4,428	2,649	1,779	4,428
Q2 11	935	142	1,160	2,148	4,385	2,665	1,720	4,385

COMPANIES' FINANCIAL ASSETS AND LIABILITIES Table 15

End of period	Assets				Liabilities				
					Debt				
	Currency, bank deposits and granted credits, etc.	Bonds, etc.	Shares and certificates issued by investment funds, etc.	Total	Loans, etc.	Bonds, etc. issued	Shares, etc. issued	Net financial assets	Total
	Kr. billion								
2006	837	148	3,083	4,068	1,584	139	4,429	-2,085	4,068
2007	911	134	2,923	3,968	1,732	118	4,284	-2,166	3,968
2008	1,050	106	1,788	2,944	1,932	108	2,518	-1,614	2,944
2009	1,052	107	2,225	3,385	1,892	136	3,062	-1,705	3,385
2010	1,156	124	2,655	3,934	1,936	143	3,745	-1,890	3,934
Q2 10	1,106	105	2,353	3,564	1,973	129	3,247	-1,786	3,564
Q3 10	1,119	110	2,417	3,645	1,968	132	3,364	-1,819	3,646
Q4 10	1,156	124	2,655	3,934	1,936	143	3,745	-1,890	3,934
Q1 11	1,137	130	2,560	3,826	1,838	158	3,645	-1,815	3,826
Q2 11	1,096	122	2,440	3,657	1,860	150	3,383	-1,737	3,657

Note: Companies are defined as non-financial companies.

CURRENT ACCOUNT OF THE BALANCE OF PAYMENTS (NET REVENUES) Table 16

	Goods (fob)	Services	Goods and services	Wages and property income	Current transfers	Total current account
	Kr. billion					
2006	18.2	42.0	60.2	16.8	-28.4	48.6
2007	2.1	40.3	42.5	9.7	-29.2	23.0
2008	4.2	52.1	56.3	23.0	-28.7	50.5
2009	41.8	24.0	65.8	17.8	-28.9	54.6
2010	48.5	48.1	96.6	32.6	-32.4	96.9
Nov 09 - Oct 10	53.8	42.7	96.5	28.2	-32.0	92.7
Nov 10 - Oct 11	49.7	50.5	100.2	49.3	-31.2	118.2
Oct 10	3.9	5.0	8.9	3.5	-2.3	10.1
Nov 10	4.9	5.0	9.9	3.5	-2.1	11.3
Dec 10	0.6	4.7	5.3	3.0	-2.2	6.1
Jan 11	4.9	3.6	8.5	5.0	-3.9	9.5
Feb 11	4.3	3.5	7.8	3.7	-3.7	7.9
Mar 11	7.2	3.0	10.3	1.0	-3.2	8.1
Apr 11	4.5	4.8	9.3	2.6	-2.0	9.9
May 11	3.2	2.9	6.1	6.4	-2.1	10.4
Jun 11	3.8	4.1	7.9	5.6	-2.0	11.4
Jul 11	4.1	3.4	7.5	5.5	-2.6	10.4
Aug 11	5.0	5.2	10.2	4.9	-2.5	12.6
Sep 11	3.7	5.7	9.4	5.0	-2.5	11.8
Oct 11	3.5	4.5	8.0	3.1	-2.3	8.7

FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 17

	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						
2006	48.6	-50.2	16.1	-103.3	83.4	-33.0	-38.3
2007	23.3	-112.3	64.3	-32.0	56.5	-1.0	-1.2
2008	50.9	-67.6	9.3	52.7	-49.5	-67.1	-71.4
2009	54.4	-33.9	21.1	69.7	193.3	-16.6	288.0
2010	97.4	-19.5	-41.6	-24.5	93.8	-79.1	26.5
Nov 09 - Oct 10	93.2	-9.2	-20.3	-109.4	158.3	-71.7	40.9
Nov 10 - Oct 11	122.6	-107.2	50.7	117.1	-61.9	-51.9	69.4
Oct 10	10.1	26.9	-9.0	14.7	-50.8	1.1	-7.1
Nov 10	11.4	-12.3	16.5	-66.4	37.6	15.2	2.0
Dec 10	6.2	23.3	-47.8	79.2	-22.0	-38.8	0.1
Jan 11	9.6	-10.0	-7.1	7.7	-24.8	25.9	1.2
Feb 11	7.9	-11.4	-1.4	10.1	-10.5	22.5	17.2
Mar 11	8.1	-2.8	4.5	4.8	0.3	-6.4	8.5
Apr 11	9.9	-13.9	3.2	36.1	-2.9	-30.5	2.0
May 11	10.4	-11.3	42.4	5.9	-48.5	3.6	2.5
Jun 11	11.5	-21.1	2.7	23.0	15.6	-27.7	4.1
Jul 11	14.1	-8.6	-3.0	-38.7	27.6	8.2	-0.4
Aug 11	12.7	2.3	4.2	43.0	-18.1	-24.3	19.8
Sep 11	11.9	-36.9	32.1	27.3	-38.8	17.2	12.8
Oct 11	8.8	-4.5	4.5	-15.0	22.7	-16.8	-0.3

[1] This item may differ from the total of Table 18, as portfolio investments are published 1-2 weeks earlier than the rest of the balance of payments.

[2] Including errors and omissions.

[3] Including transactions on *all* Danmarks Nationalbank's accounts with abroad and not only transactions on accounts included by compilation of the foreign-exchange reserve. The latter is published by press release on the 2nd banking day of each month and included in Table 2 of this section.

PORTFOLIO INVESTMENTS OF THE BALANCE OF PAYMENTS
(NET PAYMENTS FROM ABROAD) Table 18

	Danish securities			Foreign securities		
	Krone-denominated bonds, etc.	Foreign currency denominated bonds, etc.	Shares	Bonds, etc.	Shares	Total [1]
	Kr. billion					
2006	16.3	70.0	-34.4	-21.5	-133.8	-103.3
2007	26.2	73.4	15.0	-96.4	-50.1	-32.0
2008	-59.8	142.1	11.3	-91.0	50.1	52.7
2009	-4.3	162.3	38.0	-82.5	-43.8	69.7
2010	62.9	-42.9	40.1	-60.4	-24.1	-24.5
Oct 10	19.1	9.8	9.5	-17.6	-6.1	14.7
Nov 10	-26.1	-12.9	-1.0	-20.8	-5.5	-66.4
Dec 10	7.3	60.7	12.2	9.0	-10.0	79.2
Jan 11	36.5	-5.3	0.4	-13.2	-10.7	7.7
Feb 11	-11.3	34.5	-2.6	-7.8	-2.6	10.1
Mar 11	3.5	6.8	-1.5	2.0	-6.1	4.8
Apr 11	4.5	14.8	8.7	12.6	-4.6	36.1
May 11	5.7	7.5	-15.4	8.3	-0.2	5.9
Jun 11	14.0	-30.4	0.4	31.4	7.6	23.0
Jul 11	-1.7	-27.1	0.4	-4.9	-5.3	-38.7
Aug 11	23.9	-4.6	-5.4	21.1	8.0	43.0
Sep 11	4.5	-18.1	0.1	36.8	4.0	27.3
Oct 11	9.2	-10.2	-0.3	-6.6	-7.2	-15.0

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 Table 17, as the rest of the balance of payments is published 1-2 weeks later.

DENMARK'S EXTERNAL ASSETS AND LIABILITIES — Table 19

End of period	Direct investments		Portfolio investments		Financial derivatives, net	Other investments			Danmarks Nationalbank	Total
	Equity	Inter-company debt, etc.	Shares, etc.	Bonds, etc.		Trade credits	Loans and deposits	Other		
	Kr. billion									
Assets										
2006	579	260	746	678	47	41	823	30	178	3,383
2007	650	288	794	733	0	47	1,035	32	176	3,755
2008	650	379	449	783	83	45	1,101	37	226	3,753
2009	730	376	612	926	21	38	927	32	400	4,061
2010	833	401	734	1,030	39	45	990	33	432	4,537
Q2 10	822	407	643	1,031	67	45	970	32	483	4,500
Q3 10	808	423	657	1,022	86	45	1,067	34	474	4,617
Q4 10	833	401	734	1,030	39	45	990	33	432	4,537
Q1 11	833	401	739	1,018	11	47	961	33	454	4,497
Q2 11	856	437	729	975	23	50	913	32	459	4,475
Liabilities										
2006	482	270	356	1,066	•	32	1,142	35	4	3,386
2007	543	277	422	1,123	•	36	1,409	38	5	3,853
2008	511	292	242	1,198	•	41	1,398	40	121	3,844
2009	497	303	348	1,362	•	34	1,402	38	5	3,988
2010	490	290	520	1,433	•	40	1,538	41	5	4,356
Q2 10	513	310	431	1,507	•	34	1,495	40	42	4,371
Q3 10	506	304	454	1,376	•	38	1,664	42	37	4,422
Q4 10	490	290	520	1,433	•	40	1,538	41	5	4,356
Q1 11	485	279	535	1,458	•	39	1,466	41	3	4,306
Q2 11	495	307	490	1,484	•	41	1,360	42	2	4,220
Net assets										
2006	98	-11	390	-387	47	10	-319	-5	174	-3
2007	108	11	372	-390	0	11	-375	-6	171	-98
2008	139	87	207	-415	83	4	-297	-3	105	-91
2009	233	73	264	-436	21	3	-475	-6	395	73
2010	343	111	214	-403	39	4	-548	-8	428	181
Q2 10	308	98	213	-477	67	11	-525	-8	441	128
Q3 10	302	119	203	-354	86	7	-597	-8	437	195
Q4 10	343	111	214	-403	39	4	-548	-8	428	181
Q1 11	348	122	203	-439	11	9	-505	-9	452	191
Q2 11	361	130	239	-509	23	9	-446	-10	457	255

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

GDP BY TYPE OF EXPENDITURE Table 20

	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							
2006	1,631.7	786.6	422.6	356.0	14.6	1,579.8	849.6	797.7
2007	1,695.3	820.4	440.0	371.4	24.8	1,656.5	885.2	846.5
2008	1,753.2	840.0	465.4	371.7	20.4	1,697.5	959.6	904.0
2009	1,667.8	814.9	497.0	313.5	-20.1	1,605.2	793.7	731.1
2010	1,754.6	850.9	510.2	305.1	-4.0	1,662.3	883.0	790.7
Q3 10	443.4	209.0	127.2	77.7	-1.2	412.8	231.6	201.0
Q4 10	453.7	222.5	130.2	80.7	-2.8	430.6	230.3	207.2
Q1 11	433.8	212.2	126.3	70.0	1.5	410.0	232.1	208.3
Q2 11	450.7	216.9	129.5	79.0	1.8	427.2	240.0	216.6
Q3 11	443.3	212.1	126.9	77.9	1.1	418.0	245.2	219.9
	Real growth compared with previous year, per cent							
2006	3.4	3.6	2.8	14.2	...	5.2	9.0	13.4
2007	1.6	3.0	1.3	0.4	...	2.3	2.8	4.3
2008	-0.8	-0.3	1.9	-4.1	...	-0.9	3.3	3.3
2009	-5.8	-4.2	2.5	-13.4	...	-6.7	-9.8	-11.6
2010	1.3	1.9	0.3	-3.7	...	1.3	3.2	3.5
Q3 10	2.9	1.5	0.0	0.1	...	2.3	5.2	4.0
Q4 10	2.2	2.1	-0.7	3.3	...	2.2	6.9	7.2
Q1 11	1.9	-0.8	-0.7	0.8	...	0.6	9.7	7.8
Q2 11	1.9	0.1	0.1	-0.6	...	-0.1	8.5	4.6
Q3 11	-0.2	-0.7	-1.1	-0.3	...	-0.4	5.7	6.4
	Real growth compared with previous quarter (seasonally adjusted), per cent							
Q3 10	1.3	1.8	-0.4	1.7	...	0.6	3.2	-0.4
Q4 10	-0.5	-0.9	-0.5	-0.6	...	-0.7	-0.2	1.6
Q1 11	-0.1	-0.4	-0.2	-4.5	...	-0.7	4.5	1.0
Q2 11	1.2	-0.4	1.2	3.9	...	0.8	0.8	2.2
Q3 11	-0.8	-0.3	-1.6	0.3	...	-0.4	0.4	1.3

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

Table 21

	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									
2006	1.9	5.3	2.2	1.2	2.1	0.9	1.1	1.3	3.1	0.4
2007	1.7	0.3	3.7	1.3	2.1	0.6	1.2	1.4	1.4	1.4
2008	3.6	7.7	6.7	2.1	2.8	3.5	1.9	2.1	4.0	1.1
2009	1.1	-4.0	0.5	2.0	3.1	4.8	1.7	1.9	-4.3	5.1
2010	2.2	9.2	2.1	1.2	2.8	3.9	0.8	0.9	1.7	0.5
Q1 09	1.7	-4.6	3.2	2.2	2.7	4.2	2.0	2.3	-1.9	4.4
Q2 09	1.1	-5.5	0.7	2.2	3.1	5.0	1.9	2.1	-4.2	5.2
Q3 09	0.6	-5.9	-0.5	2.0	3.5	5.1	1.6	1.9	-6.0	6.0
Q4 09	0.9	0.3	-1.5	1.6	2.9	4.9	1.2	1.6	-5.0	4.9
Q1 10	1.9	8.9	0.0	1.4	2.9	3.7	1.0	1.2	-1.3	2.3
Q2 10	2.0	10.1	0.8	1.1	2.8	3.9	0.7	0.7	1.0	0.6
Q3 10	2.3	8.8	3.2	1.1	2.5	4.0	0.8	0.9	3.2	-0.2
Q4 10	2.5	9.1	4.5	1.1	2.9	4.0	0.7	0.8	3.8	-0.6
Q1 11	2.6	9.3	3.4	1.4	2.9	3.7	1.0	0.8	5.4	-1.3
Q2 11	2.9	9.0	4.9	1.5	2.8	2.0	1.3	1.3	6.0	-0.9
Q3 11	2.6	9.3	3.3	1.4	3.2	1.9	1.1	0.9	4.2	-0.7

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 22

	Unemployment Per cent of labour force		Quantity index					Composite cyclical Indicator for		
	Gross [1]	Net	Manufacturing industry [2]	Retail trade	Forced sales of real property	New passenger car registrations	Consumer confidence indicator	Manufacturing industry	Building and construction	Service [3]
			2005=100	2005=100	Number		Balance per cent			
2006	...	3.9	105.7	103.5	1,231	156,719	10.5	9	21	24
2007	3.7	2.7	107.0	104.9	1,392	162,481	7.5	5	9	20
2008	2.7	1.9	106.7	101.7	2,840	150,663	-7.7	-7	-16	3
2009	5.0	3.7	88.2	97.0	4,140	112,249	-5.0	-17	-44	-13
2010	6.2	4.3	90.6	96.7	5,222	153,612	1.8	3	-35	4
					Seasonally adjusted					
Nov 10 ...	6.3	4.3	90.6	96.7	404	14,378	3,9	-2	-32	9
Dec 10 ...	6.3	4.2	89.7	96.2	420	13,873	1.9	-1	-30	3
Jan 11 ...	6.2	4.2	94.8	96.7	426	14,739	1.9	5	-32	8
Feb 11 ...	6.1	4.1	90.7	96.0	428	14,064	0.9	4	-21	10
Mar 11 ...	6.1	4.1	92.8	96.0	385	14,608	1.4	1	-16	7
Apr 11 ...	6.0	3.9	95.6	96.6	400	13,713	-0.2	9	-20	13
May 11 ...	6.1	4.1	98.5	95.3	395	14,887	0.8	12	-16	8
Jun 11 ...	6.1	4.1	94.7	94.8	353	14,079	2.9	4	-20	10
Jul 11 ...	6.2	4.1	98.1	94.0	390	14,100	-1.5	5	-18	9
Aug 11 ...	6.2	4.2	94.1	94.5	412	13,760	-2.7	4	-20	-1
Sep 11 ...	6.2	4.2	94.7	94.5	444	13,634	-4.0	0	-17	-4
Oct 11 ...	6.2	4.2	94.4	94.5	425	13,303	-5.9	-1	-17	-9
Nov 11 ...	...	...	...	...	467	...	-8.7	2	-18	-7

[1] Including persons in activation programmes.
[2] Excluding shipbuilding.
[2] Revised as from May 2011.

SELECTED QUARTERLY ECONOMIC INDICATORS — Table 23

	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			
2006	2,825	1,980	145.7	146.1	134.0	100.3
2007	2,903	2,061	151.4	152.1	138.0	104.8
2008	2,952	2,114	158.1	158.5	142.6	100.1
2009	2,856	2,006	162.9	163.2	145.2	88.1
2010	2,793	1,932	166.6	167.4	149.1	90.5
			Seasonally adjusted			
Q3 10	2,794	1,932	167.0	168.0	149.3	91.3
Q4 10	2,789	1,933	167.7	169.1	150.1	90.9
Q1 11	2,783	1,930	168.6	170.1	151.3	89.3
Q2 11	2,781	1,930	169.1	170.7	152.2	89.8
Q3 11	2,772	1,923	169.8	171.8	153.0	...
			Change compared with previous year, per cent			
2006	2.1	2.9	3.1	3.1	2.5	21.6
2007	2.8	4.1	3.8	4.0	3.0	4.6
2008	1.7	2.6	4.4	4.2	3.3	-4.5
2009	-3.3	-5.1	3.0	2.9	1.9	-12.0
2010	-2.2	-3.7	2.3	2.6	2.7	2.8
Q3 10	-1.5	-2.7	2.2	2.5	2.5	3.0
Q4 10	-0.6	-0.9	2.2	2.5	2.4	2.9
Q1 11	-0.3	-0.1	1.8	2.3	1.9	0.6
Q2 11	-0.6	-0.2	1.9	2.1	2.4	-1.3
Q3 11	-0.8	-0.5	1.7	2.3	2.5	...

EXCHANGE RATES Table 24

	EUR	USD	GBP	SEK	NOK	CHF	JPY
	Kroner per 100 units						
	Average						
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
2010	744.74	562.57	869.02	78.15	93.02	540.60	6.4299
Nov 10	745.47	545.99	871.93	80.02	91.51	554.70	6.6164
Dec 10	745.28	563.81	879.47	82.23	94.22	580.90	6.7607
Jan 11	745.18	558.00	879.82	83.62	95.30	583.22	6.7529
Feb 11	745.55	546.27	880.93	84.84	95.34	574.71	6.6116
Mar 11	745.74	532.75	860.72	83.93	95.26	579.63	6.5200
Apr 11	745.74	516.75	844.58	83.10	95.52	574.38	6.1913
May 11	745.66	519.65	849.47	83.24	95.13	594.77	6.4033
Jun 11	745.81	518.67	839.89	81.73	95.21	617.16	6.4487
Jul 11	745.60	522.76	842.79	81.63	95.80	634.03	6.5852
Aug 11	744.98	519.42	849.80	81.29	95.66	665.74	6.7465
Sep 11	744.62	540.93	854.23	81.53	96.42	620.73	7.0446
Oct 11	744.42	543.31	855.34	81.68	96.09	605.47	7.0880
Nov 11	744.12	549.01	867.90	81.43	95.56	604.63	7.0872

EFFECTIVE KRONE RATE — Table 25

Average	Nominal effective krone rate	Consumer-price indices		Real effective krone rate based on consumer prices	Real effective krone rate based on hourly earnings	Consumer-price index in the euro area
		Denmark	Abroad			
	1980=100					2005=100
2006	101.6	246.2	233.4	107.3	110.4	102.2
2007	103.2	250.5	238.7	108.3	113.1	104.4
2008	105.8	259.0	246.9	111.1	117.1	107.8
2009	107.8	262.4	247.3	114.8	121.0	108.1
2010	104.0	268.4	251.6	111.6	116.8	109.8
Nov 10	103.9	270.1	253.1	111.3	...	110.6
Dec 10	102.7	270.3	254.5	109.8	116.5	111.3
Jan 11	102.5	270.6	254.4	109.6	...	110.5
Feb 11	102.9	273.9	255.7	110.6	...	111.0
Mar 11	103.8	275.4	257.3	111.4	115.5	112.5
Apr 11	104.7	276.5	258.4	112.1	...	113.1
May 11	104.3	276.9	258.8	111.8	...	113.1
Jun 11	104.5	276.3	258.6	111.8	116.5	113.1
Jul 11	104.1	276.0	258.7	111.3	...	112.4
Aug 11	104.2	276.0	259.0	111.3	...	112.6
Sep 11	103.4	276.9	259.8	110.9	116.3	113.5
Oct 11	103.5	277.4	260.1	111.1	...	113.9
Nov 11	103.3	...	...	...	...	...
	Change compared with previous year, per cent					
2006	0.0	1.9	2.1	-0.1	0.7	2.2
2007	1.6	1.7	2.3	0.9	2.5	2.2
2008	2.5	3.4	3.4	2.6	3.5	3.3
2009	1.9	1.3	0.2	3.4	3.3	0.3
2010	-3.6	2.3	1.7	-2.8	-3.4	1.6
Nov 10	-4.2	2.6	1.9	-3.3	...	1.9
Dec 10	-5.0	2.8	2.2	-4.0	-4.0	2.2
Jan 11	-4.2	2.7	2.3	-3.6	...	2.3
Feb 11	-2.7	2.7	2.5	-2.4	...	2.4
Mar 11	-1.6	2.7	2.6	-1.7	-2.5	2.7
Apr 11	-0.1	2.9	2.8	-0.3	...	2.8
May 11	1.0	3.1	2.8	0.5	...	2.7
Jun 11	2.2	3.0	2.8	1.5	0.0	2.7
Jul 11	1.1	2.9	2.9	0.6	...	2.5
Aug 11	1.4	2.6	2.9	0.6	...	2.5
Sep 11	0.6	2.5	3.0	0.1	0.5	3.0
Oct 11	-0.9	2.8	2.9	-0.6	...	3.0
Nov 11	-0.5	...	...	...	...	...

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

As from April 2010 the weights are based on trade in manufactured goods in 2009 and earlier on trade in manufactured goods in 2002.

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

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