Danmarks Nationalbank

Monetary Review 4th Quarter

2008

D A N M A R K S
N A T I O N A L
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MONETARY REVIEW 4th QUARTER 2008

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

The Monetary Review is available on Danmarks Nationalbank's website:
www.nationalbanken.dk under publications.

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This edition closed for contributions on 5 December 2008.

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Schultz Grafisk A/S
ISSN 0011-6149
(Online) ISSN 1398-3865

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Recent Economic and Monetary Trends

This review covers the period from mid-September to early December 2008

SUMMARY

The international financial crisis that began in the summer of 2007 intensified further in the autumn of 2008. The crisis escalated after the US authorities had allowed the investment bank Lehman Brothers to fail in mid-September. Stock prices fell, the money markets ceased to work properly and several smaller currencies came under pressure. Defaults, mergers and nationalisation characterised the financial sector, and in many countries, including Denmark, governments launched extensive rescue packages to mitigate the crisis. The free fall of the financial system was stopped.

The financial crisis has had real economic repercussions, and the global economic prospects have become gloomy. Housing prices are falling in many countries. This, combined with lower stock prices, tighter credit conditions, rising unemployment and a weaker economic outlook, has lead to more restraint on the part of business enterprises and consumers. On the other hand, oil prices and global inflationary pressures have receded in recent months, thereby increasing real incomes. Moreover, many central banks have eased their monetary policies considerably. The general perception is that economic activity in the industrialised world will decline until the end of 2009 and then slowly pick up again.

The financial crisis has also hit Denmark. The Danish krone came under pressure in September and October, and in order to support it Danmarks Nationalbank purchased kroner against foreign exchange for a considerable amount. When this proved to be insufficient, Danmarks Nationalbank, in accordance with the fixed-exchange-rate policy, raised its policy interest rates.

Economic growth in Denmark has been falling since 2006, following some years of strong expansion. The slowdown, which was originally caused by a capacity squeeze, has been exacerbated by the financial crisis and the weaker international economy. Growth has declined more rapidly than expected, but production resources are still under pressure. Unemployment is very low, wage increases are high, and inflation is appreciably above the euro area level.

The economy is slowing down in Denmark, but from a more favourable starting point than in the rest of the world. Disposable real incomes will grow substantially in 2009 on account of rising real wages and tax cuts. In addition, the taxation and transfer system will automatically moderate the cyclical reversal. Disbursements of unemployment benefits will increase, and tax revenue will fall. The current situation with high wage increases and indications of rising, but still low, unemployment leaves no scope to go further in terms of economic policy. An economic policy aimed at maintaining employment above the level that is compatible with wage and price stability is unsustainable.

THE INTERNATIONAL ECONOMY

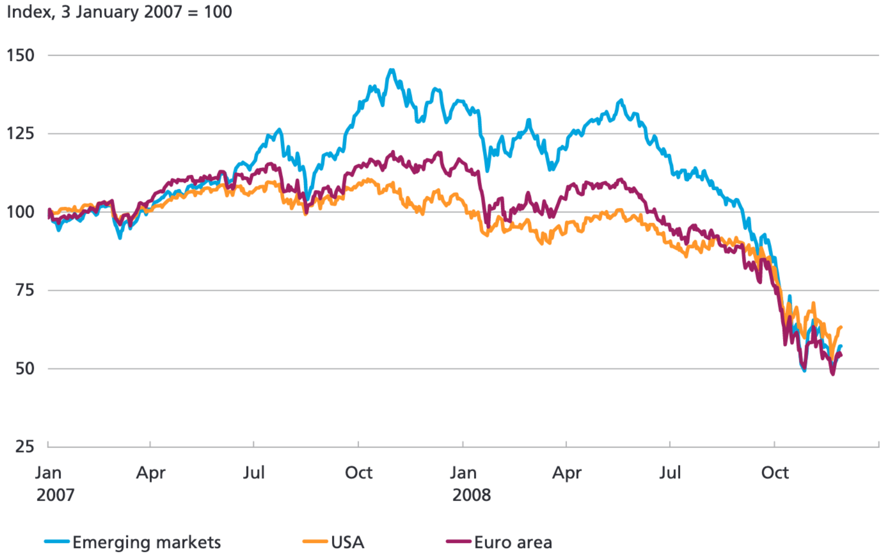
The international financial crisis escalated in the autumn of 2008. Particularly after the default of the investment bank Lehman Brothers in mid-September, the international money markets froze and investors' risk appetite waned considerably. In this phase of the crisis, emerging market economies were also severely affected. The development of the financial turmoil in the autumn of 2008 is elaborated on in *The International Financial Crisis* on p. 25.

Stock prices worldwide plummeted from the summer of 2008 until the end of October, notably in the emerging market economies, cf. Chart 1. In a historical context, the stock market dive in September and October was among the steepest ever seen. During the 40 trading days from 1 September until 27 October, the US S&P 500 index dropped by 33 per cent, corresponding to the fall in October 1987. The all-time record over 40 days was, however, set in October and November 1929, when the S&P 500 index tumbled by more than 40 per cent. Since late October prices have remained at a lower level with considerable day-to-day fluctuations. The VIX index[1], which is based on the 500 largest US stocks, rose above 80 in October. Since 1990 it has fluctuated around 20, and it has never previously exceeded 50. A high value of the VIX index indicates great uncertainty concerning future price developments and thus high risk for investors.

The strongest day-to-day fluctuations since the millennium rollover have been observed for several exchange rates. In addition, the relative values of the major currencies have shifted considerably. The dollar has strengthened against the euro, and the yen has strengthened even more, cf. Chart 2. The Swiss franc also appreciated substantially vis-à-vis the euro during September and October, but fell back somewhat in

[1] The VIX index measures the implied volatility in the US S&P 500 index and is calculated on the basis of prices for options on the S&P 500 index.

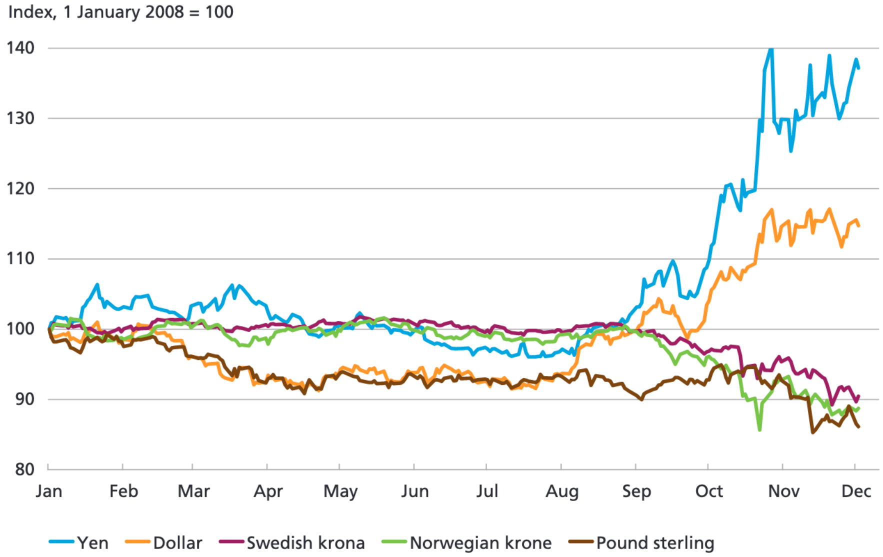
INTERNATIONAL STOCK PRICES Chart 1



Note: For the emerging markets, the weighted MSCI index in dollars has been applied, comprising indices for Argentina, Brazil, Chile, China, Columbia, the Czech Republic, Egypt, Hungary, India, Indonesia, Israel, Jordan, Korea, Malaysia, Mexico, Morocco, Pakistan, Peru, the Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey. For the USA the S&P 500 index has been applied, and for the euro area the S&P Euro Composite index in euro. The most recent observations are from 28 November 2008.

Source: EcoWin.

EXCHANGE RATES VIS-À-VIS THE EURO, 2008 Chart 2



Note: Euro per foreign currency unit. A rising index indicates strengthening of the currency. The most recent observations are from 2 December 2008.

Source: EcoWin.

November. The strengthening of the yen and the Swiss franc is to some extent attributable to settlement of "carry trades", whereby investors borrow in low-interest countries such as Japan and Switzerland and invest in high-interest countries. The pound sterling weakened by 5 per cent against the euro from the end of September to the end of November in step with the relatively strong downturn in the UK economy and substantial rate cuts.

Capital outflows in the wake of the financial crisis put several smaller currencies under pressure in the autumn. The Norwegian krone and the Swedish krona weakened by 11 and 8 per cent, respectively, against the euro from early September to the end of November. In Iceland, cf. Box 1, and several emerging market economies, including Ukraine, Hungary and Pakistan, capital outflows have necessitated the establishment of large-scale IMF loan programmes in order to stabilise the economies. The rescue packages are aimed at restoring access to the international capital markets and supporting sustainable economic development.

International real economy

The global economy has weakened substantially as a result of the financial crisis, and growth estimates for 2009 have been adjusted considerably downwards, cf. Chart 3. It is quite common for preceding financial turmoil to reinforce an economic downturn.[1]

The economic slowdown has been particularly pronounced in the industrialised countries. In the 3rd quarter of 2008, GDP fell in both the USA and the euro area, and indicators point to a further decline in the 4th quarter. Investments and private consumption have weakened considerably, and recently the financial crisis and growing pessimism among consumers and in the corporate sector have reinforced this downward trend. Since the summer of 2007, consumer confidence in the major industrialised countries has dropped to a very low level compared with previous years, cf. Chart 4. Particularly consumption of consumer durables has been affected, and US car sales are at their lowest level since the 1980s. Business confidence indicators have also fallen worldwide, and the propensity to invest is weak.

Tighter credit conditions have led to further loss of confidence. Since mid-2007 US and euro area banks have tightened their lending conditions for all types of loans to the corporate sector and the households, cf. Chart 5. Concerns about the credit risk on borrowers, and restricted borrowing possibilities for the banks themselves, have been cited as the

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[1] Cf. Financial Stress and Economic Downturns, IMF, *World Economic Outlook*, October 2008.

ICELAND'S ECONOMIC COLLAPSE Box 1

After many years of strong economic growth, the Icelandic economy was hit by a banking crisis of historical dimensions in October. The crisis was triggered by the international financial crisis, which exposed the imbalances in the Icelandic economy and the vulnerability of the financial sector. Within a few years, the Icelandic banks had accumulated a balance-sheet total 12 times the size of the overall Icelandic economy in the form of e.g. large loans to the private sector, a considerable part of which were indexed to the exchange rate and inflation. The banks relied on financing in the international money and capital markets, but from the end of September this source of financing dried up. The largest three banks, Glitnir, Kaupthing and Landsbanki, which jointly accounted for approximately 85 per cent of the Icelandic banking sector, were thus unable to meet their obligations as they matured and had to be nationalised at the beginning of October.

In connection with the nationalisation, the Icelandic government segregated the banks' domestic and foreign assets and liabilities with a view to recapitalising the domestic parts in "new banks" and discontinuing the foreign parts of "old banks". Initially this procedure led to some doubt as to whether Iceland would meet its international obligations to foreign depositors and lenders, and uncertainty arose among foreign depositors with claims on Icelandic banks, e.g. in the UK.

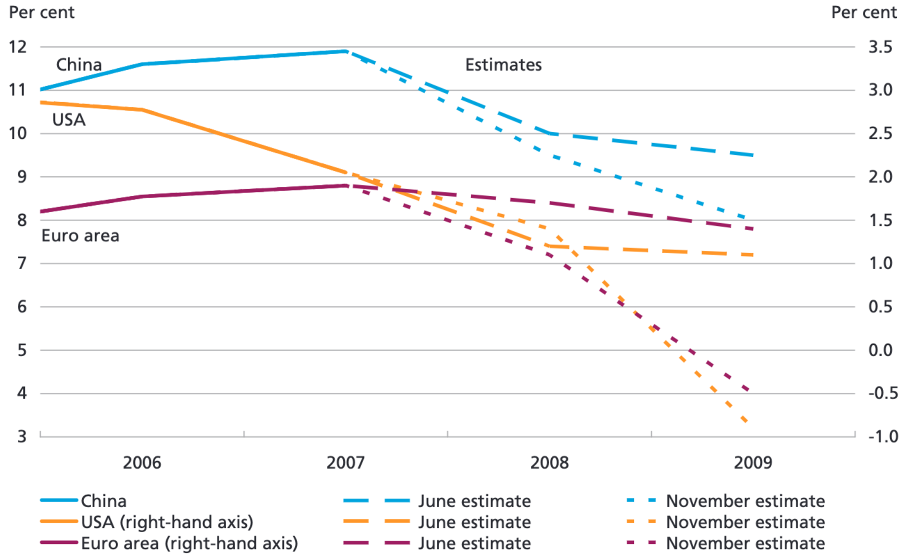
During September and October it became increasingly difficult to procure foreign exchange in Iceland to meet external payment obligations and pay for imported goods, and the Icelandic krona depreciated strongly. Following an unsuccessful attempt on 7 October to maintain the exchange rate of the krona against the euro, the Icelandic central bank, Seðlabanki Íslands, had to take over intermediation of certain payments between Iceland and abroad. Consequently, on 14 October, it became necessary for Seðlabanki Íslands to draw 200 million euro on each of the swap lines established with Denmark and Norway, respectively, in mid-May.

On 24 October, IMF staff and the Icelandic authorities reached agreement on an IMF loan. The agreement is based on an economic-policy programme aimed at restoring confidence to the banking system, stabilising the Icelandic krona and achieving fiscal consolidation. The resultant loan from the IMF is for 2.1 billion dollars and conditional upon observation of the economic stability programme. On 19 November the Executive Board of the IMF approved the loan, after agreement had been reached on covering foreign deposits in the Icelandic banks and a number of countries had made bilateral loan commitments. On the basis of the IMF programme, Denmark, Finland, Norway and Sweden have made commitments for loans totalling 2.5 billion dollars. In addition, Poland has contributed loans of 200 million dollars and the Faroe Islands loans of 300 million Danish kroner.

Even with the IMF programme, Iceland will have a huge bill to pay in the coming years. Government debt has multiplied rapidly. GDP, and thus the standard of living, is expected to fall considerably in the near future, and inflation is set to rise on account of the weakening of the krona. As part of the agreement with the IMF, Seðlabanki Íslands on 28 October raised its interest rate by 6 per cent to 18 per cent in an attempt to strengthen the krona.

underlying factors. At the same time, it has become extremely difficult for business enterprises to issue corporate bonds, and the yield spread to government bonds has become very wide. For the households, falling housing prices and rising unemployment limit the access to credit.

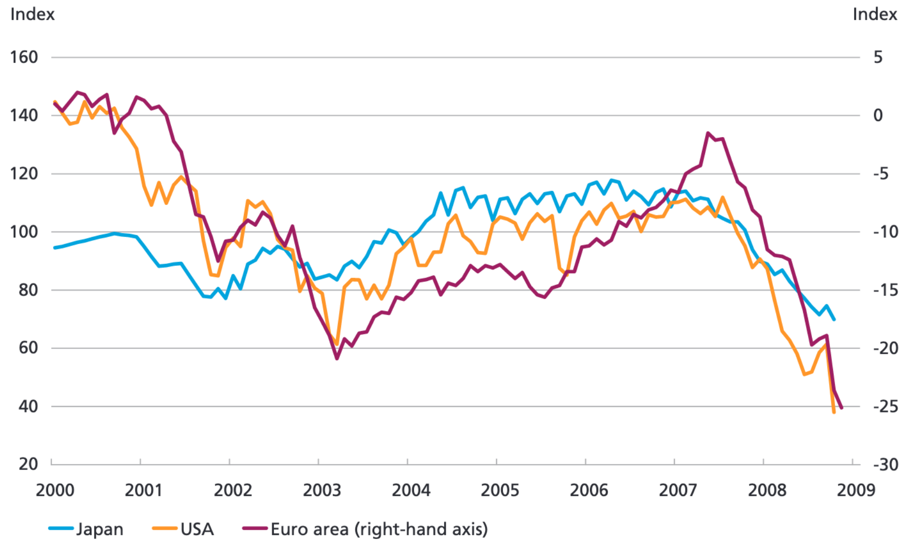
ESTIMATES OF GDP IN 2008 AND 2009 Chart 3



Source: OECD, *Economic Outlook*, No. 83, June 2008, and *Economic Outlook*, No. 84, November 2008.

Unemployment in the USA has been increasing since mid-2007. The trend accelerated during 2008, with unemployment in October reaching the highest level since the early 1990s. Euro area unemployment has risen only modestly since it bottomed out in March 2008. As investments

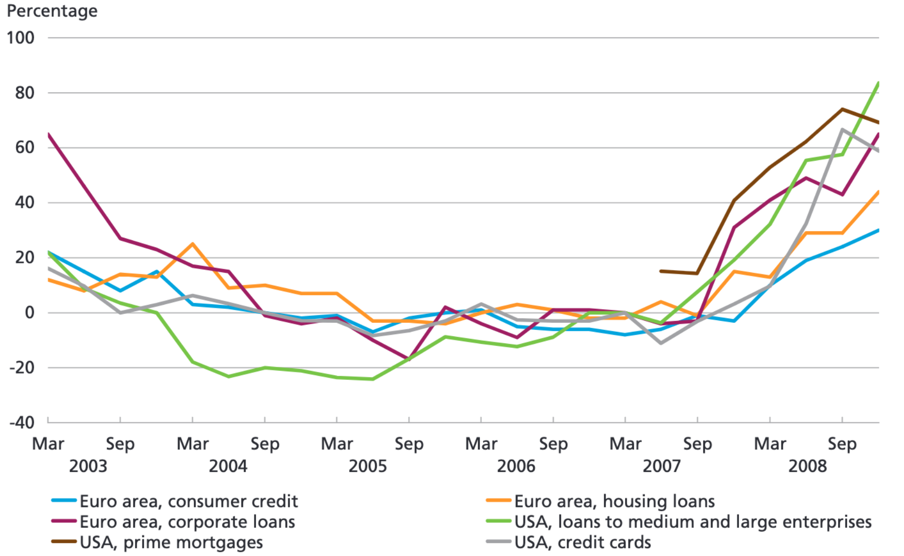
CONSUMER CONFIDENCE Chart 4



Note: USA: Conference Boards' consumer confidence, seasonally adjusted; Euro area: European Commission's consumer confidence indicator, seasonally adjusted; Japan: consumer confidence indicator from the Cabinet Office. Japan and the USA are indexed by their averages since 1985.

Source: EcoWin.

BANKS WITH TIGHTER LENDING CONDITIONS Chart 5



Note: Calculations based on Senior Loan Officer Opinion Survey on Bank Lending Practices from the Federal Reserve System and the Euro Area Bank Lending Survey from the ECB. In these surveys, a number of high-ranking employees within the banks respond, on a quarterly basis, to a number of recurrent questions about the credit standards of their banks. The index is calculated as the percentage stating that they have tightened conditions.
Source: EcoWin.

and private consumption continue to decrease and confidence indicators remain weak, unemployment is expected to continue to rise in most industrialised countries in the near future.

In the emerging market economies, dynamics are moderated by less favourable sales opportunities in the global market, as well as weaker domestic demand. Commodity exporters, in particular, are severely affected, but also China and India have seen growth fall to the lowest level in several years.

According to the IMF's latest estimate overall global growth will decline from 5.0 per cent in 2007 to 3.7 per cent this year and 2.2 per cent in 2009. Both the IMF and the OECD[1] expect aggregate output in the industrialised countries to fall for the first time since World War II. A turnaround is not expected until the 2nd half of 2009 at the earliest, and it will take some time for growth to return to normal levels. For the emerging market economies and developing countries taken as one, the IMF expects a growth rate of 5 per cent 2009. This is considerably lower than in recent years, but higher than in previous recessions. According to the estimates from the international organisations, global economic growth in 2009 will thus be driven solely by emerging market economies and developing countries.

[1] IMF: *World Economic Outlook Update*, November 2008, OECD: *Economic Outlook*, No. 84, November 2008.

International price developments

The inflationary pressures affecting most economies since mid-2007 are easing. These pressures were mainly attributable to rapidly rising commodity prices for agricultural commodities, metals and energy, a trend that has reversed strongly in recent months, cf. Chart 6. By end-November a barrel of Brent crude oil had fallen to around 50 dollars from a peak of 143 dollars at the beginning of July. The contraction of the economy has reduced demand, and in addition the supply of oil from OPEC countries has increased compared with 2007. Sea freight rates have also gone down, reflecting lower global demand and greater freight capacity.

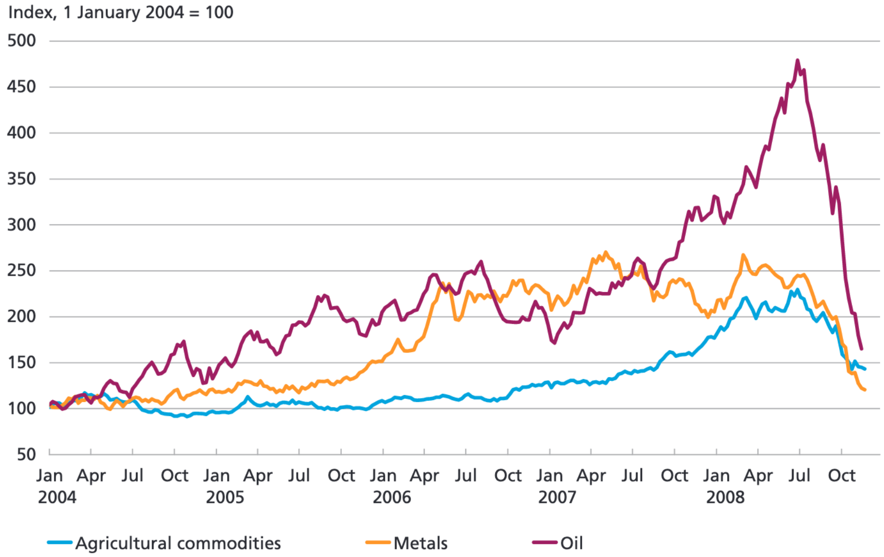
The OECD expects consumer price inflation in the OECD countries to fall from 3.3 per cent in 2008 to 1.7 per cent in 2009, and concerns about second-round effects of the elevated inflation level since the summer of 2007 have lessened. The lower rate of inflation helps to boost real income, thereby stimulating consumption and investments. In several emerging market economies inflation is more persistent, and the IMF only expects it to fall from 9.2 per cent in 2008 to 7.1 per cent in 2009.

Economic policies

Many countries have implemented rapid series of economic policy adjustments to halt the spiral of economic slowdown and weakening of the financial system. A safety net has been put in place under the financial system – with liquidity, government guarantees and capital injections, cf. *The International Financial Crisis* on p. 25.

The alleviation of inflationary pressures has provided scope to ease monetary policy. On 8 October 2008, the European Central Bank (ECB), the Federal Reserve, the Bank of England, Sveriges Riksbank, the Bank of Canada and the Swiss National Bank cut their key policy rates by 0.5 per cent in the first coordinated action ever. Later in the autumn, the Federal Reserve and the ECB further reduced their rates by 0.5 per cent to 1 and 3.25 per cent, respectively. On 4 December, the ECB cut its rate by another 0.75 per cent. In mid-November the Swiss National Bank reduced its interest rate by 1 percentage point, while the Bank of England opted for a cut by as much as 1.5 per cent at the beginning of November 2008 and by a further 1 percentage point, to 2 per cent, on 4 December; this is the lowest level since the 1950s. Sveriges Riksbank reduced its interest rate on two occasions in October, by a total of 1 percentage point to 3.75 per cent, and by a further 1.75 per cent on 4 December, thus landing at 2 per cent. Tighter lending conditions mean that the central-bank rate cuts have not been fully passed through to consumers and business enterprises by way of lower interest rates.

FALLING COMMODITY PRICES | Chart 6



Note: Commodity prices in dollars. Weekly observations. The most recent observations are from 28 November. Agricultural commodities: The Economist Commodity Index, food. Metals: The Economist Commodity index, metal industrials, Oil: Brent crude oil in Europe.
Source: EcoWin.

Fiscal policy has also come into focus, and a number of international organisations have called for easing of fiscal policy to counteract the recession. In mid-November, IMF Managing Director Dominique Strauss-Kahn stated that in the current situation the IMF advocates a strong, coordinated fiscal expansion at the global level. Taking into account the economic situation of the individual countries, the recommended target is a fiscal stimulus of 2 per cent of world GDP.

In late November, the European Commission published a communication on a European Economic Recovery Plan. The Plan proposes an immediate budgetary impulse of 1.5 per cent of GDP, of which 1.2 per cent is to be made up of a budgetary expansion by member states within the framework of the revised Stability and Growth Pact, while the remainder is to come from increased EU funding. The proposals in the Plan were on the agenda for the summit of the EU heads of state and government on 11-12 December 2008.

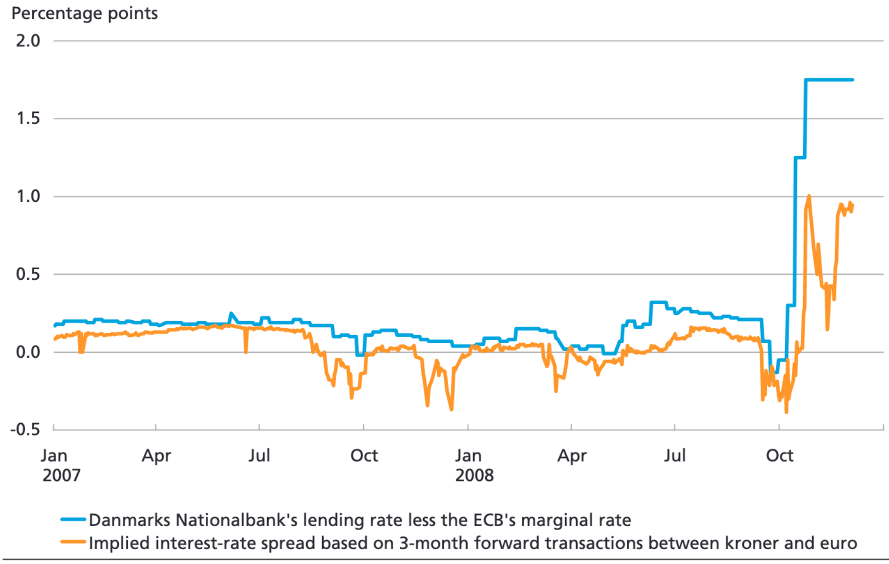
In its *Economic Outlook* from the end of November 2008, the OECD states that in the current unusual situation, fiscal policy stimulus has an important role to play, but stresses that the room for budgetary manoeuvre varies considerably among OECD countries. The OECD emphasises that it is important to ensure long-run public finance sustainability, and that uncontrolled accumulation of debt could trigger unfavourable reactions in the financial markets.

THE DANISH ECONOMY: MONETARY AND EXCHANGE-RATE CONDITIONS

The Danish krone weakened in September and October as the international financial crisis intensified. The pressure on the krone followed a period in which the spread between Danmarks Nationalbank's lending rate and the ECB's marginal rate had been negative, cf. Chart 7. In September, the ECB's marginal rate rose to a level considerably above the minimum bid rate, because euro area banks had been requesting more liquidity from the ECB in the weekly tenders. The negative interest-rate spread between Denmark and the euro area was also reflected in a negative implied yield spread for FX swaps between kroner and euro.

To stabilise the krone, Danmarks Nationalbank intervened in the foreign-exchange market, buying kroner against foreign exchange for a considerable amount from late September to early October. However, this proved insufficient to withstand the pressure on the krone, and in accordance with the fixed-exchange-rate policy Danmarks Nationalbank unilaterally raised its policy interest rates. On 7 October, Danmarks Nationalbank announced that the lending rate and the rate of interest on certificates of deposit would be raised by 0.4 per cent to 5 per cent effective from 8 October. The discount rate and the current-account rate were raised by 0.25 per cent to 4.5 per cent.

MONETARY-POLICY INTEREST-RATE SPREAD AND SPREAD IMPLIED BY 3-MONTH FORWARD FOREIGN-EXCHANGE TRANSACTIONS — Chart 7



Note: For the ECB's marginal rate, the variable tender rate is applied until 14 October 2008, after which the fixed tender rate is applied. The most recent observations are from 4 December 2008.

Source: Danmarks Nationalbank and ECB.

Danmarks Nationalbank subsequently continued to intervene in the foreign-exchange market to stabilise the krone. On 8 October around midday, the ECB announced a reduction of the minimum bid rate by 0.5 per cent to 3.75 per cent. Later on the same day, the ECB announced that, until further notice, the weekly main refinancing operations would be carried out at a fixed rate, corresponding to the minimum bid rate, whereas they had previously been variable-rate tenders. This change of instrument meant that the actual policy interest-rate spread between Denmark and the euro area widened to 1.25 per cent since Danmarks Nationalbank kept its policy interest rates unchanged.

At the end of October, Danmarks Nationalbank intervened again, purchasing kroner against foreign exchange to stabilise the krone, which was still under pressure due to a continued outflow of foreign exchange. This to some extent reflects how the mounting financial crisis caused investors to withdraw from minor currencies, including the Danish krone. On 24 October, Danmarks Nationalbank raised the lending rate and the rate of interest on certificates of deposit by a further 0.5 per cent to 5.5 per cent in response to the sustained pressure against the krone. This meant that the spread between Danmarks Nationalbank's lending rate and the ECB's minimum bid rate widened to 1.75 per cent.

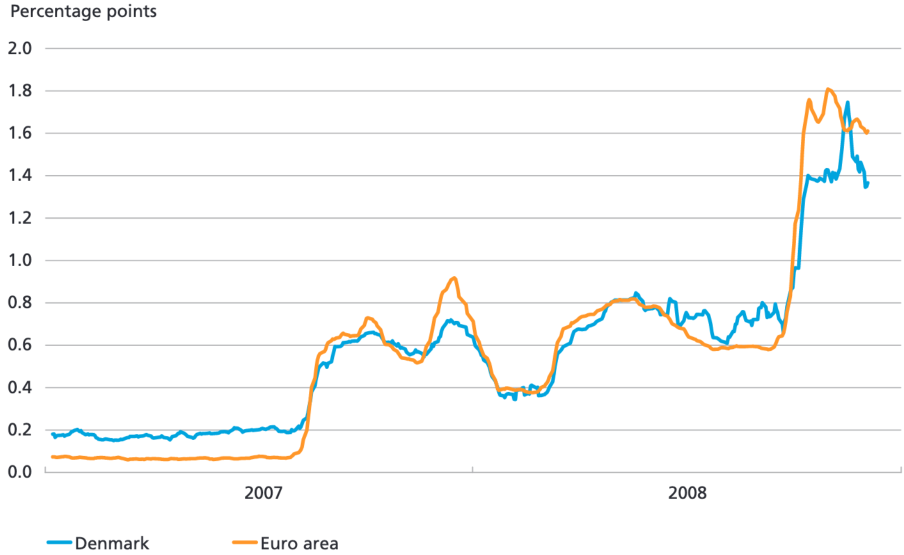
From the end of October the krone strengthened and Danmarks Nationalbank was able to repurchase foreign exchange. On 6 November, Danmarks Nationalbank, mirroring the ECB, cut its policy interest rates by 0.5 per cent, so that the lending rate and the rate of interest on certificates of deposit landed at 5 per cent and the discount rate and the current-account rate at 4 per cent, effective from 7 November.

Like the ECB, Danmarks Nationalbank cut its policy interest rates on 4 December. The lending rate and rate of interest on certificates of deposit were reduced by 0.75 per cent to 4.25 per cent and the discount rate and the current-account rate by 0.5 per cent to 3.5 per cent, effective from 5 December. The spread between Danmarks Nationalbank's lending rate and the ECB's minimum bid rate thus remained at 1.75 per cent.

The money market

In September and October the markets became much more nervous. The lack of confidence between banks became more pronounced, banks became less willing to grant uncollateralised loans in the money markets, and the spread between uncollateralised and collateralised money-market interest rates widened considerably. To restore confidence in the financial markets, western governments began to announce bank rescue packages towards the end of September. Nevertheless, the spread be-

SPREAD BETWEEN UNCOLLATERALISED AND COLLATERALISED 3-MONTH MONEY-MARKET INTEREST RATES IN DENMARK AND THE EURO AREA Chart 8



Note: 5-day moving averages. Spread between 3-month CIBOR and repo rate for Denmark and between 3-month EURIBOR and repo rate for the euro area. The most recent observations are from 4 December 2008.
Source: EcoWin.

tween uncollateralised and collateralised interest rates has remained wide in the euro area. This is also the case in Denmark, cf. Chart 8, which is a reflection of the fixed-exchange-rate policy vis-à-vis the euro.

In September, the banks had considerably larger current-account deposits than usual. The turbulent money markets, combined with heavy demand for liquidity around the end of the quarter, led to temporary suspension at the end of September of the current-account limit, i.e. the upper limit for the total current-account deposits of banks and mortgage-credit institutes at Danmarks Nationalbank.

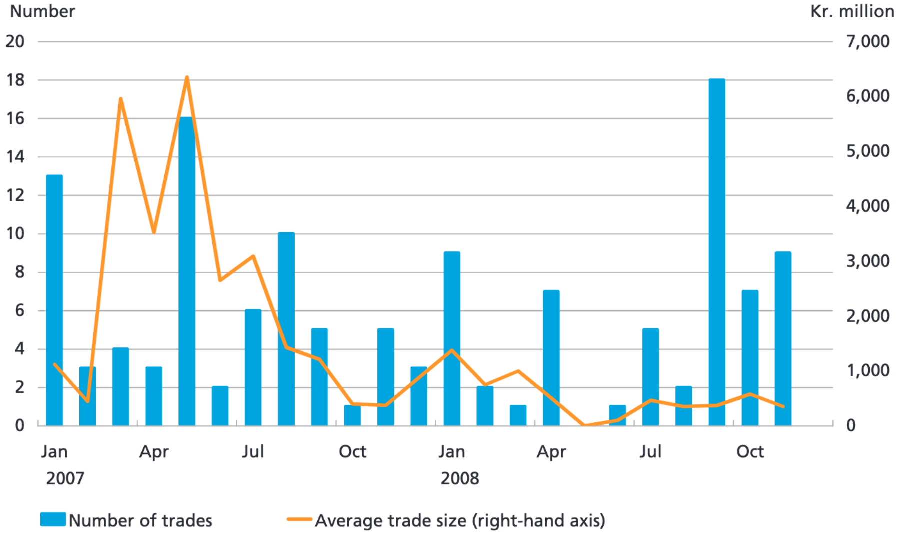
The volume of trading in certificates of deposit among banks and mortgage-credit institutes was higher in September than in the previous months, cf. Chart 9. The total current-account deposit was high, but it was unevenly distributed, and the financial institutions therefore used certificates of deposit to smooth differences within the sector.

To boost liquidity, Danmarks Nationalbank, in line with other central banks, launched a series of temporary facilities in September and October. Furthermore, the Danish bank rescue package from early October 2008 helped to facilitate access to liquidity for banks. These measures are described in more detail in *The International Financial Crisis* on p. 25.

Recent months have also seen a considerable lack of short-term dollar and euro liquidity among banks and mortgage-credit institutes in Denmark. In September and October, Danmarks Nationalbank contributed

TRADING IN CERTIFICATES OF DEPOSIT AMONG BANKS AND MORTGAGE-CREDIT INSTITUTES

Chart 9



Source: Danmarks Nationalbank.

to alleviating conditions in the forward markets by selling foreign exchange from its reserve against kroner by way of FX swaps. In addition, Danmarks Nationalbank has established swap lines with the Federal Reserve and the ECB with a view to offering dollar and euro loans to Danmarks Nationalbank's monetary-policy counterparties. Five dollar auctions and one euro auction have been held.[1]

The net position of the banks and mortgage-credit institutes vis-à-vis Danmarks Nationalbank was reduced by kr. 69 million in October, cf. Table 1. This is primarily attributable to Danmarks Nationalbank's net sale of foreign exchange against kroner in connection with intervention for kr. 64 billion in October. When it becomes necessary to support the krone, Danmarks Nationalbank purchases kroner from a bank against payment in foreign exchange. This transaction reduces the foreign-exchange reserve and the net position. During September and October the banks and mortgage-credit institutes reduced their monetary-policy loans from Danmarks Nationalbank, which was reflected in lower holdings of certificates of deposit. Over the same period, the financial institutions raised loans in foreign currency for kr. 85 billion from Danmarks Nationalbank under the swap lines established, cf. above. The net position was reduced further in November due to factors such as the issuance of 30-year government bonds. The lower net position was reflected in an increase in monetary-policy loans.

[1] For the results, see www.nationalbanken.dk under Market info.

IMPACT OF VARIOUS FACTORS ON THE NET POSITION OF BANKS AND MORTGAGE-CREDIT INSTITUTES VIS-À-VIS DANMARKS NATIONALBANK — Table 1

Kr. billion	2006	2007	Sep 2008	Oct 2008	Nov 2008
Liquidity impact of government finances	-31	-29	-10	-7	-110
Danmarks Nationalbank's intervention purchases of foreign exchange, net	-34	-2	-1	-64	32
Other	-2	5	10	1	4
Change in net position	-67	-25	0	-69	-74
End of period:					
Net position	18	-7	16	-53	-127
Broken down by:					
Certificates of deposit	163	200	242	157	135
Current-account deposits	9	9	38	7	13
Monetary-policy lending	154	217	263	218	275
Memo:					
Lending in foreign currency[1]	...	...	26	85	115

Note: The banks' and mortgage-credit institutes' loans in foreign currency from Danmarks Nationalbank are not included in the net position vis-à-vis Danmarks Nationalbank.
Source: Danmarks Nationalbank.
[1] Loans granted to banks and mortgage-credit institutes by Danmarks Nationalbank under the swap lines with the Federal Reserve and the ECB.

Yields on mortgage-credit bonds and government bonds

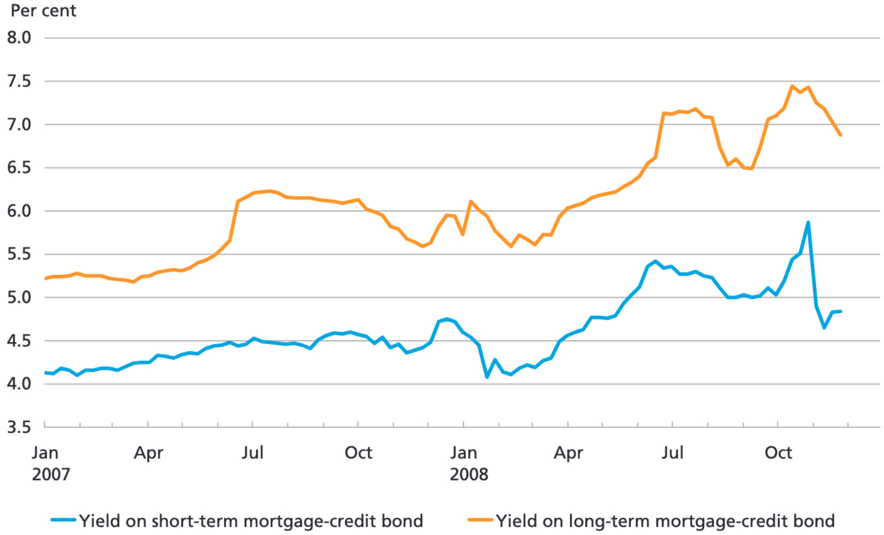
The Danish mortgage-credit market was also affected by the escalation of the financial crisis. Yields on both long-term and short-term mortgage-credit bonds increased considerably in September and October, cf. Chart 10. At the same time, the spread to government yields widened considerably, cf. *The International Financial Crisis* on p. 25.

Against the backdrop of the unusual market conditions an agreement concerning financial stability in the pension area in Denmark was concluded on 31 October 2008 between the Danish Insurance Association and the Ministry of Economic and Business Affairs. Moreover, the Danish government announced the opening of a 30-year Danish government bond in November. The aim was to improve the risk-hedging opportunities available to the Danish pension sector.

At the beginning of November it was announced that the Social Pension Fund (SPF) would invest around kr. 22 billion in short-term mortgage-credit bonds in the December auctions with a view to covering the central-government interest-rate risk related to the financing of subsidised housing.

The yield on a 10-year government bond was approximately 3.9 per cent at the end of November, slightly lower than at the end of September. The yield spread to an equivalent German bond widened from around 0.3 per cent at the end of September to 0.6 per cent at the end of November. Other European countries also experienced a considerable widening of the yield spread to German government bonds.

YIELDS ON MORTGAGE-CREDIT BONDS Chart 10



Note: Weekly observations. The yields on mortgage-credit bonds are average yields to maturity, the short-term yield being based on 1-2-year non-callable mortgage-credit bonds, the long-term yield on 30-year callable mortgage-credit bonds, cf. the Association of Danish Mortgage Banks. The most recent observations are from calendar week 48, 2008.

Source: Association of Danish Mortgage Banks.

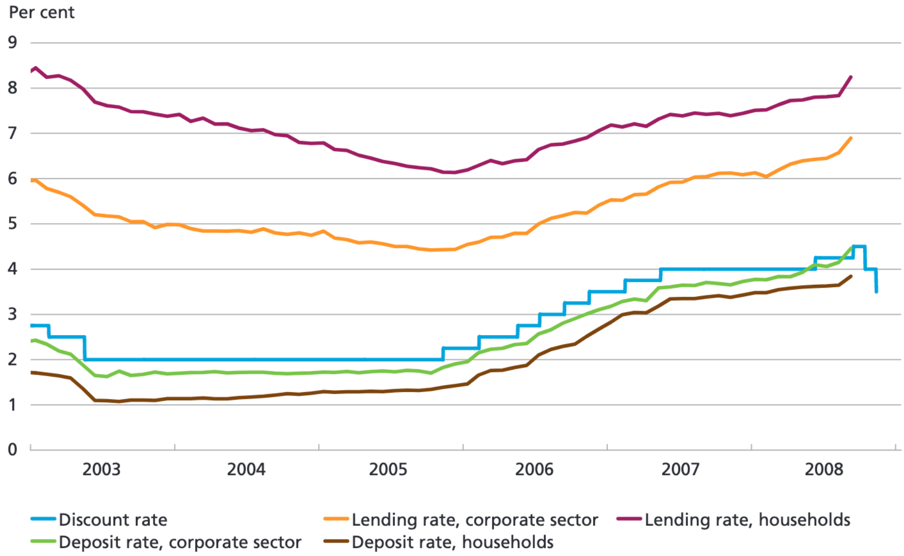
Bank interest rates and credit

The banks raised their interest rates on several occasions in October, citing higher financing costs, including Danmarks Nationalbank's higher interest rates. From the onset of the turmoil in the summer of 2007 until October 2008, the banks' average interest rates on lending to households and the corporate sector rose by 0.8 and 1.0 per cent, respectively, while the corresponding deposit rates rose by 0.5 and 0.8 per cent, cf. Chart 11. In November, several banks announced that interest rates would be lowered by 0.5 per cent following Danmarks Nationalbank's interest-rate cut.

Total growth in lending by banks and mortgage-credit institutes has been declining since the beginning of 2007, but remained at a relatively high level at end-October, cf. Chart 12. Especially lending to households has dampened, reflecting the more moderate growth in private consumption and housing investments.

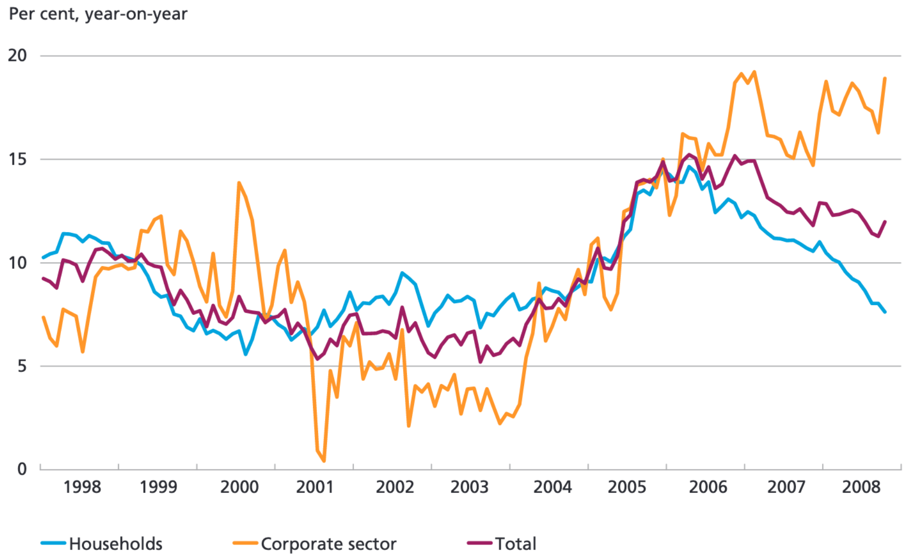
The economic slowdown and falling housing prices reduce the demand for loans from banks and mortgage-credit institutes. The lending opportunities of the latter are closely linked to the value of real property. Falling cash prices and fewer new construction projects will dampen lending by mortgage-credit institutes in the coming years, but homeowners still have considerable home equity that could potentially be mortgaged.

THE DISCOUNT RATE AND THE BANKS' AVERAGE INTEREST RATES Chart 11



Note: The discount rate is on a daily basis. Other interest rates are monthly averages for outstanding business. The most recent observation is from 5 December 2008 for the discount rate and October 2008 for the other interest rates.
Source: Danmarks Nationalbank.

GROWTH IN LENDING BY BANKS AND MORTGAGE-CREDIT INSTITUTES Chart 12



Note: Including lending by foreign units of Danish banks. Adjusted for the inclusion of FIH in the balance-sheet statistics for banks since January 2003. The corporate sector includes financial corporations (except MFIs). The total includes the public sector and lending not broken down by sector. The most recent observations are from October 2008.
Source: Danmarks Nationalbank.

Besides affecting demand and reducing the collateral base, an economic slowdown can lead to tightening of credit conditions by loan providers to an extent where even creditworthy applicants are rejected.

With the Danish rescue package from October, all unsecured creditors are certain to get their money back in a timely manner. This has created a good foundation for the banks again to obtain financing in the national and international financial markets.

Nevertheless, the banks are faced with major challenges, and there is a risk that the current liquidity crisis could turn into a genuine credit crisis, resulting in an unnecessary setback for the Danish economy.

The development in the international financial markets has made it extremely difficult for Danish banks to obtain new capital in the markets at a time when they are expected to be in need of extra capital.

At end-2007, the Danish banking sector held excess capital in relation to the statutory solvency requirement totalling almost kr. 90 billion. Losses of 1 per cent of loans and guarantees will amount to kr. 27 billion. The excess capital would thus cover accumulated losses of just over 3 per cent. During the deep slump in the late 1980s and early 1990s, accumulated losses in the period 1991-94 were just over 7 per cent of loans and guarantees. Earnings were unable to offset losses of this magnitude, and accumulated accounting losses – and thus undermining of equity – reached a level corresponding to 1.4 per cent of loans and guarantees. In practice, banks will not reduce their excess capital to zero, and some banks may experience difficulties in obtaining new capital long before the excess capital has reached zero. In addition, around kr. 20 billion of the banks' subordinated loan capital matures in 2009 and 2010.

It is an international phenomenon that banks are finding it difficult to attract capital in the markets. Many countries have therefore opted for government capital injections in connection with bank rescue packages. In the EU, a total of 280 billion euro has been injected into the banking system. The effect has been that the implied international market standard for the core capital coverage of international banks has risen to 11 per cent. This has put the Danish banks under pressure to increase their capital adequacy to meet the new international market standard. Unless capital is injected into the banks, this can only be achieved by reducing the balance sheet.

Denmark may thus end up in a situation in which even creditworthy borrowers are refused bank loans. To reduce the risk of such a credit crunch, which could reinforce the economic slowdown, it is necessary to ensure that well-run Danish banks gain access to temporary financing on conditions that resemble those in the market as closely as possible so that the banks can continue to act as intermediaries between savers and creditworthy borrowers.

THE DANISH ECONOMY: REAL ECONOMY

Economic growth in Denmark has been declining since 2006, following some years of high growth. The slowdown, which was originally caused by a capacity squeeze, has been exacerbated by the financial crisis and the weaker international economy. According to the most recent national accounts, GDP fell by 0.5 per cent in the 3rd quarter of 2008, adjusted for seasonal fluctuations and price developments. Compared with the same quarter of 2007, GDP was down by 1.2 per cent.

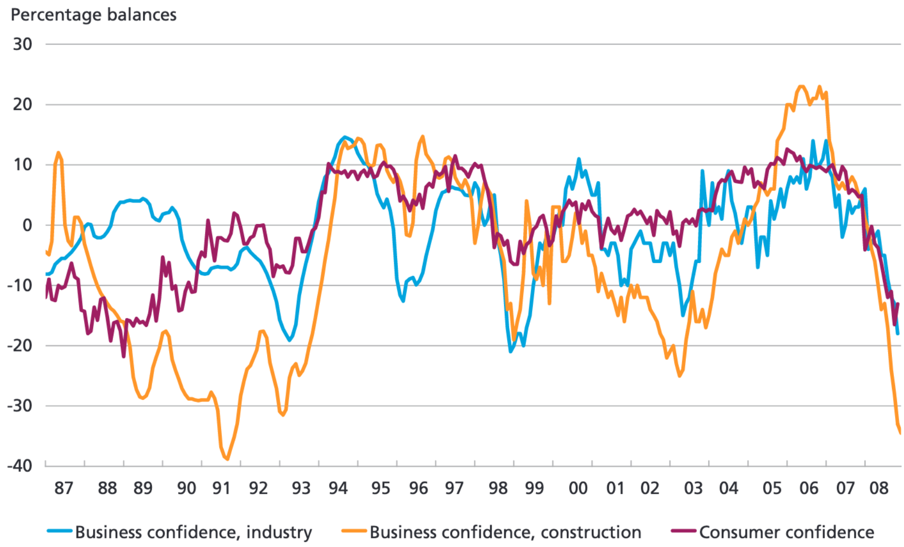
Although growth in demand has moderated, the output level remains high and considerably above the level that is estimated to be compatible with wage and price stability. Unemployment is still very low, household finances are generally sound and the balance of payments and public finances show surpluses. Compared with other countries, Denmark is thus in a strong position to tackle the challenges posed by the financial crisis and the global economic slowdown.

The crisis has affected the business enterprises' expectations of future employment and revenue, and in November confidence indicators were close to the level seen during the recession in the early 1990s, cf. Chart 13. The weaker prospects have also been reflected in corporate investments, which have been stagnant in the last year, but remain high. Consumers, too, have felt the financial crisis and the pessimistic sentiment in the public debate, and in the autumn of 2008 consumer confidence fell to the lowest level for 18 years. Lower retail and car sales over the last year also point to restraint, cf. Chart 14.

Total real private consumption, which includes e.g. services, housing costs and tourism, rose by 1.6 per cent in the first three quarters of 2008 compared with the same period of 2007. The increase is attributable to factors such as increased consumption of services. Growth in consumption has thus moderated in relation to the period 2004-06, but nevertheless persists. The slower growth in private consumption is to some extent a result of higher interest rates, as well as lower household wealth due to falling equity and house prices.

Although home equity has decreased, the average level remains high, at around kr. 800,000 per home in the 3rd quarter of 2008. Moreover, real disposable incomes are expected to increase by approximately 3 per cent in 2009 – on average around kr. 11,000 per household – due to relatively high wage increases and lower income taxes. Overall the finances of the households are thus sound.

CONFIDENCE INDICATORS Chart 13

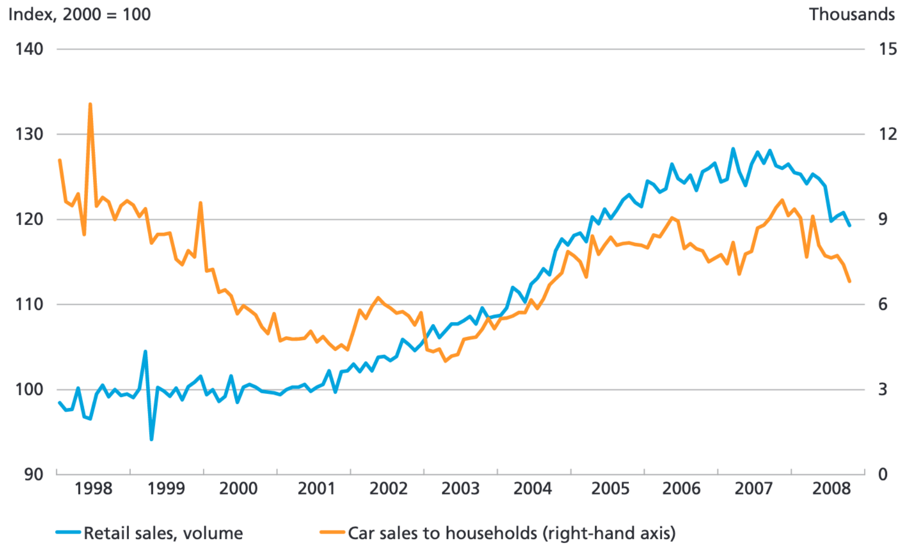


Note: Seasonally adjusted monthly series. Before 1998, business confidence in the industrial and construction sectors are quarterly observations.
Source: Statistics Denmark.

The housing market

The rising interest rates until the autumn of 2008 have contributed to a slowdown in the housing market. According to the Association of Danish Mortgage Banks, average sales prices for single-family and ter-

RETAIL AND CAR SALES Chart 14



Note: Seasonally adjusted.
Source: Statistics Denmark.

raced houses have fallen by just over 5 per cent since they peaked in the 2nd quarter of 2007. The market for owner-occupied flats has also run out of steam, with average sales prices down by 16 per cent since the reversal in the 3rd quarter of 2006. The lower prices have contributed to a small decline in housing investments from the high level at the end of 2006.

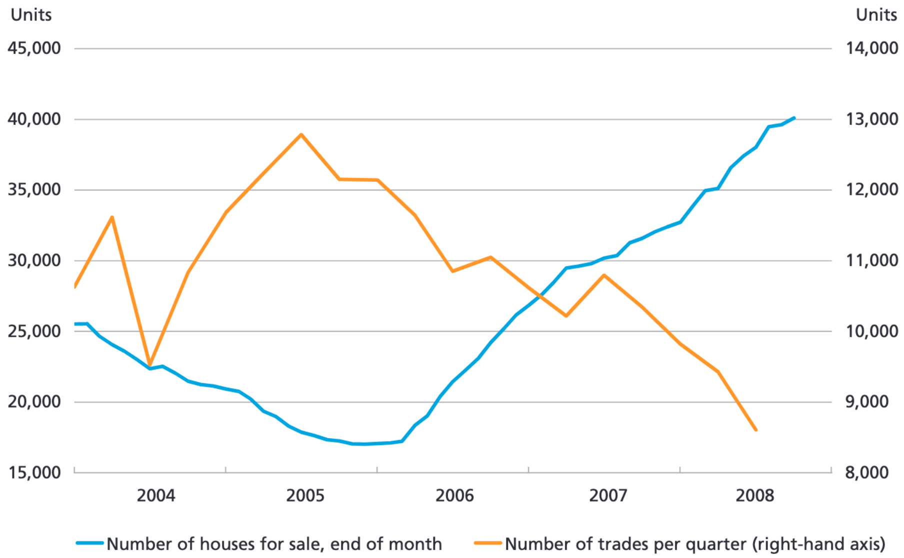
While sales prices for single-family and terraced houses peaked in the spring of 2007, average asking prices continued to rise until January 2008. They have subsequently declined, but not as rapidly as sales prices, meaning that the gap has widened. This undoubtedly reflects reluctance on the part of sellers to accept prices that are significantly lower than anticipated. As a consequence, turnover in the housing market has fallen, cf. Chart 15, while the number of houses for sale has risen sharply. This means that houses are staying on the market for longer.

Expectations of falling prices in the near future, the sellers' reluctance to lower their asking prices and the slower economic growth all contribute to weakening the housing market, and further falls can be expected in the short term.

Foreign trade and balance of payments

In spite of the international slowdown, exports of Danish goods and services rose by 3.8 per cent in the first nine months of 2008 compared with the same period of 2007. The seasonally adjusted monthly trade surplus (excluding ships) increased to around kr. 4 billion in the summer

SINGLE-FAMILY AND TERRACED HOUSES FOR SALE AND SOLD — Chart 15



Note: Seasonally adjusted. Own seasonal adjustment of houses for sale.
Source: Association of Danish Mortgage Banks.

of 2008, after having displayed a steady downward trend in the preceding years. In recent months, exports of goods have stagnated, while imports have continued to grow. The trade surplus has thus been reduced somewhat.

The reasons for the decrease in exports of goods are that the value of energy exports has fallen in step with oil prices since the summer and that industrial exports have slowed down since May. The latter has also resulted in a more pessimistic industry assessment of orders from export markets since the spring. In view of the gloomy outlook for the Danish export markets, export growth is expected to subside further in the near future.

The current-account surplus has been growing steadily since the end of 2007. In September, the accumulated 12-month surplus was kr. 33 billion, which is almost kr. 22 billion higher than in the same period one year earlier. The improvement reflects that the surplus on trade in services has remained high, while the last few years' rapid deterioration of the surplus on trade in goods has been halted. In addition, the investment income surplus increased substantially in 2008. Investment income is primarily driven by income from outward foreign direct investment; data for the current year are projections based on corporate profit ratios in previous years. In other words, investment income in 2008 is subject to considerable uncertainty and will be revised when the annual accounts for 2008, and thus the surplus on direct investment for this year, are incorporated into the statement.

Labour market, wages and prices

The economic slowdown is gradually affecting the labour market. Unemployment rose a little from September to October 2008, having displayed a downward trend for almost five years. Moreover, the shortage of labour in the industrial and construction sectors has eased considerably since 2007, and the number of new jobs posted on the Internet has been declining since the turn of the year.

Although the demand for labour has fallen, the labour market remains tight. Seasonally adjusted employment was still very high in the 3rd quarter of 2008, and seasonally adjusted unemployment was 47,700, i.e. 1.7 per cent of the labour force, in October. This is substantially below the level estimated to be compatible with wage and price stability. In the autumn of 2008 the number of job vacancies posted on the Internet every month matched the level at the end of 2005, when unemployment was falling. In addition, the shortage of qualified labour is still pronounced in the less cyclically sensitive sectors, including the public sector.

Pressures on the labour market have also been reflected in higher wage increases in recent years. In the private sector, wages rose by 4.5 per cent in the 3rd quarter of 2008 compared with the previous year. The rate of wage increase declined slightly from the 2nd to the 3rd quarters of 2008, but remained high compared with previous years. Wage pressures are still pronounced in the construction sector, although activity has declined and the shortage of labour has become less pronounced. In the public sector, the rate of wage increase has risen in 2008 to date, a trend that will continue for the rest of the year as the wage adjustments agreed during the collective bargaining in the spring are implemented.

For some years, wage increases in industry have exceeded those abroad, so that wage competitiveness has deteriorated and Denmark has lost market shares. Competitive pressures intensified because the krone strengthened vis-à-vis the currencies of Denmark's trading partners until the summer of 2008. In August, the effective krone rate was at the highest level seen since the mid-1970s. Subsequently, it has weakened a little, but remains higher than in previous years.

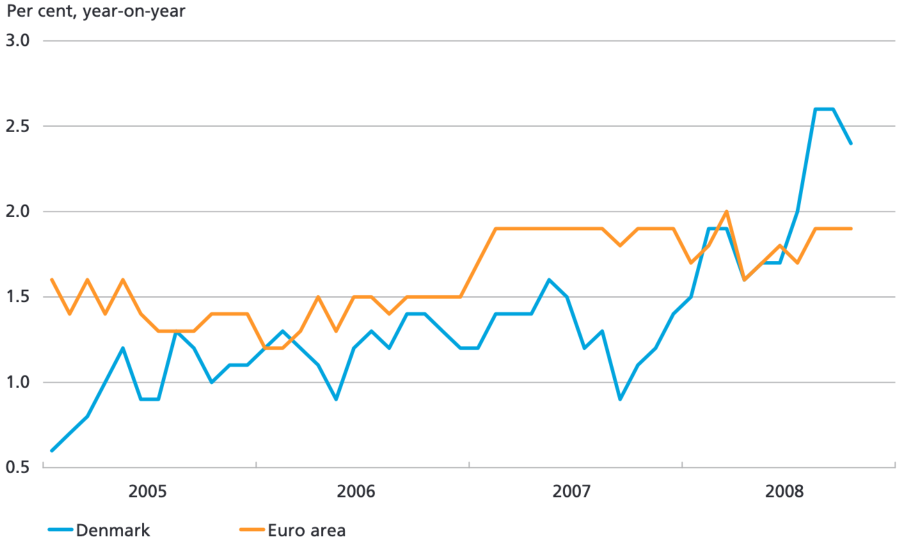
The strong wage developments, coupled with higher food and energy prices, have contributed to a rapid rise in consumer prices over the past year. In October 2008, consumer prices, measured by HICP, were 3.8 per cent higher than in the same month of 2007. Annual consumer price inflation has receded since August, reflecting falling energy and food prices. As the energy and food price hikes seen in the autumn of 2007 gradually drop out of the calculations, this will also have a downward impact on the annual rate of price increase.

In spite of the fall, consumer price inflation remained higher in Denmark than in the euro area in October, even when energy, food alcohol and tobacco prices are excluded, cf. Chart 16. The higher wage and price pressures in Denmark reflect a greater capacity squeeze than in the euro area.

Economic outlook

In the near term, demand in Denmark's export markets is expected to weaken further due to the global slowdown. At the same time, growth in private consumption and investments will moderate as stock prices have dived, housing prices are falling and banks are applying more restrictive credit policies. Lower growth, both at home and abroad, also makes consumers and business enterprises more cautious. On the other hand, demand is boosted by lower oil prices and the slightly weaker effective krone rate. Tax cuts, robust household finances and the sustained low level of unemployment are also expected to buoy up consumption.

CORE INFLATION IN DENMARK AND THE EURO AREA Chart 16



Note: Core inflation is calculated as HICP excluding energy, food, alcohol and tobacco.
Source: Eurostat.

Available evidence points to a stagnation in Danish output in 2008, a trend that is set to continue into 2009. The slowdown has thus materialised faster than predicted by Danmarks Nationalbank in September. Unemployment will rise in the coming years on account of the weaker economy, but is nonetheless expected to remain below the structural level until 2010. Pressures on the labour market are intensified by demographic trends that will reduce the supply of labour as the age groups with the highest participation rates decline. This will have a negative impact on growth opportunities and fiscal sustainability in the long term. In other words, it will still be necessary to implement measures to increase the supply of labour and promote adaptability, cf. *Development in the Labour Supply* on p. 85.

Denmark's starting point, with extensive pressures on the labour market, differs from that of most other countries. Consequently, wage increases in Denmark can also be expected to exceed those abroad in the next few years, thereby further weakening wage competitiveness. To limit the loss of market shares and avoid an unnecessarily high and prolonged rise in unemployment, wage and price pressures must be dampened. The alleviation of labour market pressures will help to achieve this.

Public finances automatically stabilise the Danish economy. During a slowdown, higher unemployment will increase expenditure for benefits, and the tax and revenue base will shrink. These "automatic stabilisers" will moderate the cyclical reversal, as will sound real-wage increases and tax cuts in 2009. The current situation, with wage pressures remaining high, leaves no scope to go further in terms of economic policy than to let the automatic stabilisers work.

The International Financial Crisis

For more than a year, the international financial crisis has raged in waves. For a long time, the assessment was that the crisis was limited to certain parts of the financial system, and that financial stability as such was not threatened, even though several banks and investment banks could suffer considerable losses. The adjustments in the financial markets could actually benefit financial stability since they could induce the banks to improve their risk management and lead to more accurate pricing of risk.

This picture changed in the autumn of 2008, when the financial crisis escalated and became a real threat to financial stability in the USA and Europe. Governments and central banks worldwide have responded with decisive action, by implementing measures in relation to individual institutions, and by adopting several general rescue packages. The overriding objective is to short-circuit the process of the financial markets panicking and confidence eroding. This process generates a negative spiral with serious implications for the real economy. Like most other European countries, Denmark has provided a government guarantee for the banks' unsecured creditors.

The government guarantees of the various countries have put the international financial crisis on standby, but it is probably not over yet. The financial institutions will continue to adjust their balance sheets, possibly resulting in considerable shifts in the financial markets. In addition, the crisis will impact the real economy and contribute to low growth for a while, thereby increasing the losses of the financial institutions, all other things being equal.

The crisis will affect the future structure and regulation of the financial sector, both nationally and internationally, but it is yet too early to draw conclusions. The causes must be analysed first. However, there is no doubt that the capital-to-risk requirements imposed on the financial institutions will be tightened.

Looking forward, a key issue will be how to phase out the wide range of government guarantees. This will probably require an internationally concerted effort to prevent distortion of competition between countries.

THE CRISIS ERUPTED FROM THE US HOUSING MARKET

The years up to the international financial crisis were characterised by high lending growth and equity gearing for the banks. Interest rates were low and there was ample liquidity. Many banks increased their lending far beyond the level of their deposits, thereby accumulating considerable deposit deficits. Consequently, they had to rely on the financial markets as a source of financing. In addition, the macroeconomic environment was generally favourable, and housing prices were soaring in many countries. At the same time, financial innovation had made it possible to resell credit risk.[1] The banks' focus was on expected continued growth in the prices for the underlying collateral, including housing prices, rather than on the creditworthiness of the borrowers. As a result, liquidity and credit risks were generally underestimated.

The international financial crisis began in the summer of 2007 and was triggered by losses in the market for US subprime mortgages. This is a large, but well-defined financial market. The development of new financial instruments had, however, spread the risk of losses over many different types of investors. Uncertainty as to who would ultimately bear the losses and which financial institutions were exposed to potential losses created a nervous mood in the financial markets. Loss of confidence between the banks led to restraint on uncollateralised lending in the money markets. The market players sought to safeguard their own liquidity and hesitated to grant loans to counterparties, particularly at long maturities. The spread between collateralised and uncollateralised 3-month money-market interest rates multiplied during August 2007, cf. Chart 1.

On several occasions central banks all over the world have expanded their lending facilities to loosen up the tight money markets. In order to stem the crisis, the central banks have thus expanded the range of assets eligible as collateral, offered new credit facilities and established currency swap lines to improve liquidity in other currencies.

To a considerable extent, this has resulted in the banks' increasing their borrowing from central banks, without increasing the exchange of liquidity through the interbank market. This means that the money markets have now become part of the balance sheets of the central banks.

Over the past year, the international financial markets have seen tensions come in waves, as illustrated by the banks' CDS spreads[2], cf. Chart 2. CDS spreads reflect, among other things, market expectations of the probability of a bank going into liquidation or defaulting on its obligations.

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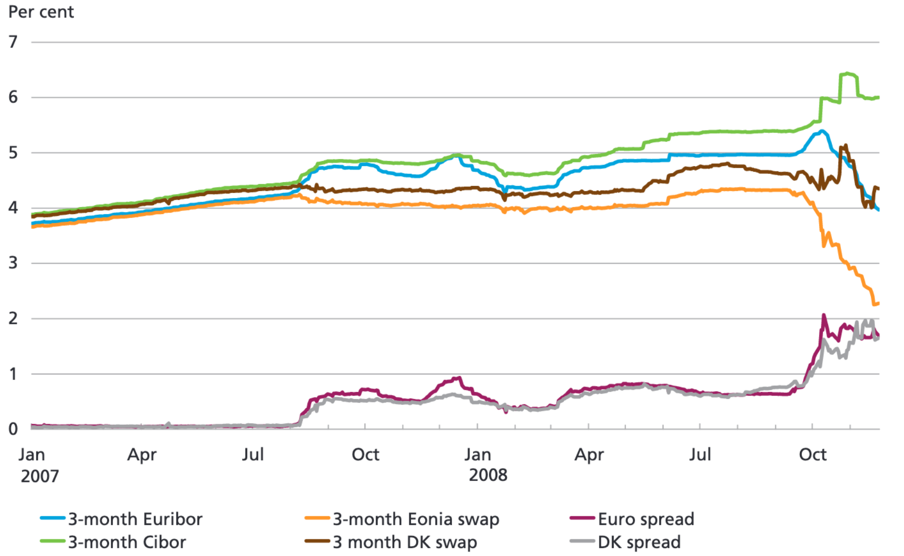
1 See Jakob Windfeld Lund, Turmoil in the Financial Markets, Danmarks Nationalbank, *Monetary Review,* 3rd Quarter 2007.

2 A credit default swap, CDS, is a financial instrument used to hedge the credit risk on e.g. a bank, among other things. The development in a bank's CDS spread, typically measured as annual payment per nominal unit of the reference asset, thus reflects the market assessment of the estimated failure rate for the bank in question within a given period. All other things being equal, a wider CDS spread implies a market assessment of a higher estimated failure rate for the bank. See also Annemette Skak Jensen, Credit Default Swaps, Danmarks Nationalbank, *Monetary Review*, 3rd Quarter 2008.

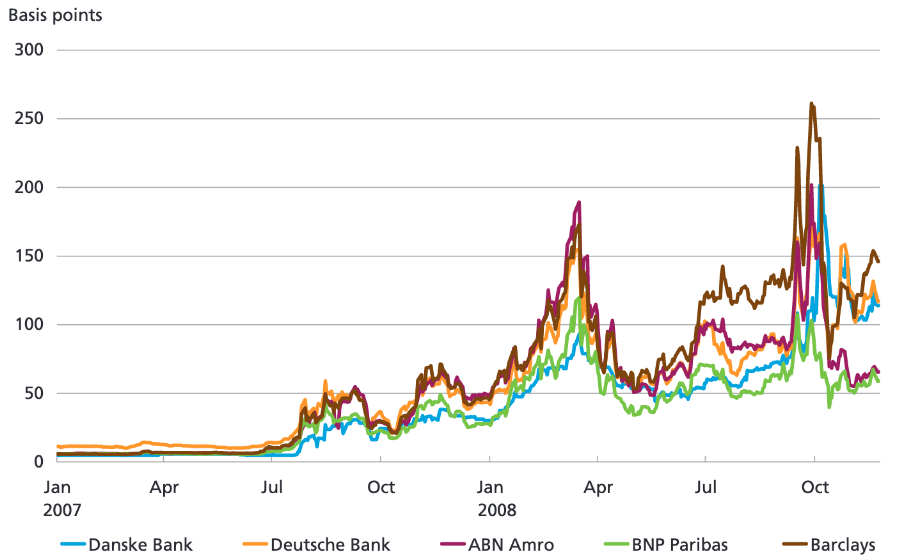
COLLATERALISED AND UNCOLLATERALISED MONEY-MARKET INTEREST RATES IN THE EURO AREA AND DENMARK, 2007-08 Chart 1



Source: Bloomberg.

New crisis waves have often been triggered by single events. Box 1 outlines the chronology of selected events in the international financial crisis, including those in Denmark.

CDS SPREADS FOR SELECTED EUROPEAN BANKS, 2007-08 Chart 2



Source: Bloomberg.

SELECTED EVENTS UP TO AND DURING THE FINANCIAL CRISIS Box 1

2 April 2007 New Century Financial, subprime mortgage lender, files for bankruptcy (Chapter 11).

22 June 2007 Bear Stearns announces that it has provided a facility of up to 3.2 billion dollars to the High-Grade Structured Credit Fund, while the High-Grade Structured Credit Enhanced Leverage Fund will be deleveraged in the marketplace without financial assistance from Bear Stearns.

30 July 2007 IKB Deutsche Industriebank (IKB) announces that it is hit by the subprime crisis. Rhineland Funding (conduit), with a credit facility with IKB, and to a lesser extent IKB itself, have invested in structured credit products related to US subprime mortgages. IKB's principal shareholder, KfW Banking Group, and three German bank funds had, together with the government, provided a rescue package in the days up to 30 July.

9 August 2007 BNP Paribas suspends the calculation of mark-to-market for three money market funds that are subprime-exposed, and puts a stop to amortisations.

9 August 2007 The European Central Bank, ECB, provides 95 billion euro to the money market with overnight maturity. Three more operations are carried out in the following days, totalling almost 117 billion euro.

26 August 2007 Landesbank Baden-Württemberg announces that as of 1 January 2008 it will take over Sachsen LB, which had suffered large losses on subprime investments.

14 September 2007 The Bank of England announces that it is ready to provide liquidity support to Northern Rock. This leads to an actual run on Northern Rock, followed by a government guarantee, on 17 September, for Northern Rock's existing deposits.

11 January 2008 Bank of America announces its acquisition of Countrywide Financial.

21 January 2008 Sydbank acquires bankTrelleborg, which was in financial jeopardy.

13 February 2008 IKB announces that the losses on its portfolio are of a magnitude that requires yet another bailout operation.

17 February 2008 The UK government announces the temporary nationalisation of Northern Rock.

14 March 2008 The Federal Reserve and JPMorgan Chase provide liquidity to Bear Stearns. Two days later, JPMorgan Chase announces that it will take over Bear Stearns.

10 July 2008 Danmarks Nationalbank provides a liquidity guarantee to Roskilde Bank, and Roskilde Bank is put up for sale.

11 July 2008 IndyMac Bank, with focus on mortgages, is taken over by the Federal Deposit Insurance Corporation (FDIC). IndyMac Bank is located in California. It had suffered substantial losses before the takeover and had also been subject to an actual run on the bank.

CONTINUED Box 1

13 July 2008 The Federal Reserve provides a credit facility to the mortgage companies Fannie Mae and Freddie Mac.

24 August 2008 Danmarks Nationalbank and the Danish Contingency Association take over the assets and liabilities of Roskilde Bank except subordinated loan capital and hybrid core capital.

7 September 2008 The Federal Housing Finance Agency (FHFA) takes control of Fannie Mae and Freddie Mac.

15 September 2008 Nykredit Realkredit submits a recommended tender offer for the total outstanding share capital of Forstædernes Bank. The offer is completed in October.

15 September 2008 Lehman Brothers Holding files for bankruptcy (Chapter 11).

15 September 2008 Bank of America announces its acquisition of Merrill Lynch.

16 September 2008 The Federal Reserve provides an 85 billion dollar credit facility to AIG, and in return, the US government acquires an ownership share of 79.9 per cent of AIG. The government is given the right of veto concerning disbursement of dividends to owners of ordinary shares and preference shares.

18 September 2008 Lloyds TSB announces its intention to acquire HBOS.

20 September 2008 The US Department of the Treasury announces a support package that includes the government's purchase of "troubled assets" for up to 700 billion dollars. The plan is called TARP (Troubled Asset Relief Program), and is passed by the House of Representatives on 3 October, following the rejection of a previous version of TARP on 29 September.

21 September 2008 Goldman Sachs and Morgan Stanley relinquish their status as investment banks and become subject to the same regulatory requirements as ordinary commercial banks.

22 September 2008 Danmarks Nationalbank and a number of private banks provide liquidity support to ebh bank to enable it to continue its daily operations.

25 September 2008 The Office of Thrift Supervision under the US Department of the Treasury takes over control of Washington Mutual Bank, which is acquired by JPMorgan Chase on the same day.

29 September 2008 Roskilde Bank's branch network is sold to Nordea (9 branches), Spar Nord Bank (7 branches) and Arbejdernes Landsbank (5 branches).

29 September 2008 vestjyskBANK acquires Bonusbanken, whose equity capital is regarded as lost. vestjyskBANK merges with Ringkjøbing Bank on the same day.

29 September 2008 Fortis announces that the governments of Belgium, Luxembourg and the Netherlands will invest 11.2 billion euro in Fortis in their respective countries. This brings the governments' ownership share to 49 per cent. In addition, Fortis must sell its share of ABN Amro.

CONTINUED Box 1

29 September 2008 Bradford & Bingley is nationalised. The portfolio of retail deposits and the branch network are taken over by Abbey National.

29 September 2008 The Icelandic central bank, Seðlabanki Íslands, announces that the government will, through the central bank, contribute equity capital equivalent to 600 million euro to Glitnir, bringing the government's ownership share in Glitnir to 75 per cent.

29 September 2008 Hypo Real Estate announces that a consortium from the German financial sector has extended short-term and medium-term credit facilities to it. The private banks renege on the agreement a few days later and the attempted rescue is unsuccessful.

29 September 2008 The FDIC announces that Citigroup will take over the bank activities of Wachovia in an FDIC-supported transaction. The transaction is, however, never realised.

30 September 2008 Dexia announces that it has received 6.4 billion euro from the governments of Belgium, France and Luxembourg and its current shareholders.

30 September 2008 The Irish government announces an unlimited deposit guarantee, including banks' debt, covered bonds, senior debt and dated subordinated debt. It is estimated that the banks covered by the guarantee will have to pay 1 billion euro in total over two years.

3 October 2008 Wells Fargo and Wachovia announce their merger without any financial support from public authorities.

5 October 2008 The Danish government announces a rescue package for banks in Denmark. The package includes an unlimited government guarantee of deposits and the banks' debt except covered bonds (SDOs), share capital, hybrid core capital and supplementary capital. The participating banks, i.e. the members of the Danish Contingency Association, will have to pay up to kr. 35 billion over two years.

6 October 2008 BNP Paribas announces that it has concluded an agreement on the acquisition of the Belgian, Luxembourgian an international parts of Fortis.

6 October 2008 Hypo Real Estate announces that a new agreement has now been concluded whereby the German government and the financial sector together offer a credit facility of 50 billion euro. The government provides a guarantee of 35 billion euro.

7 October 2008 The Icelandic financial supervisory authority announces that it has taken over control of Glitnir and Landsbanki.

8 October 2008 The UK presents a rescue package for the financial sector, which includes an amount of 50 billion pounds sterling for recapitalisation of distressed banks and 250 billion pounds for guarantee of the banks' future short-term and medium-term borrowing (excluding subordinated debt).

8 October 2008 Coordinated reduction of interest rates by a number of central banks, including the ECB, the Federal Reserve, the Bank of England and Sveriges Riksbank.

CONTINUED Box 1

9 October 2008 The financial supervisory authority of Iceland announces that it has taken over control of Kaupthing.

12 October 2008 The euro area member states launch a set of common bank rescue principles including e.g. the possibility of recapitalisation of banks and a temporary government guarantee of future issuance of senior bank debt with a maturity of up to 5 years. More countries follow suit and launch rescue packages, and the 27 EU member states endorse the principles at a summit on 15 October.

14 October 2008 The US Department of the Treasury states that nine major US banks have sold senior preference shares to the government – on a voluntary basis and in order to strengthen the capital base. This includes just over 125 billion dollars of TARP funds, while 21 financial institutions will sell shares for just over 30 billion dollars in November.

19 October 2008 ING announces that it will receive 10 billion euro from the Dutch government to strengthen its core capital.

30 October 2008 As of 3 November, Morsø Bank will take over the activities, excluding the guarantee capital, of Sparekassen Spar Mors, since the latter does not meet the statutory capital requirement due to substantial write-downs on loans and a high individual capital need.

10 November 2008 The Swedish government takes over the investment bank Carnegie.

13 November 2008 ebh bank announces that its solvency is below the statutory requirement. On 21 November, assets and liabilities (except share capital and other subordinated debt) are transferred to Afviklingsselskabet til Sikring af Finansiel Stabilitet A/S.

23 November 2008 In a joint statement from the US Department of the Treasury, the FDIC and the Federal Reserve, the authorities provide a guarantee of 306 billion dollars to Citigroup. Citigroup assumes all losses up to 29 billion dollars and 10 per cent of losses exceeding this limit. The government also provides a further 20 billion dollars of TARP funds.

25 November 2008 The Federal Reserve announces the purchase of mortgage-credit bonds and MBS (mortgage-backed securities) for up to 600 billion dollars. In addition, the Federal Reserve launches a new facility called TALF (Term Asset-Backed Securities Loan Facility) to support loans to small business enterprises, student loans, car loans and credit card loans. The facility amounts to up to 200 billion dollars.

MOST RECENT EVENTS

The financial crisis escalated in September 2008, more than a year after it had begun. The events really took off when the US government took control of the mortgage giants, Freddie Mac and Fannie Mae, which account for just under half of all mortgage lending and guarantees on the US market. The bailout reduced the expectations of losses on unsecured debt and bonds issued by the two institutions, but it also resulted in losses for the shareholders. The problems of Freddie Mac and Fannie Mae brought other banks into focus, particularly large investment banks exposed to distressed assets and with a high degree of dependence on financing via the financial markets.

The investment bank Lehman Brothers had considerable exposures in commercial real estate loans, which was one of the reasons why several investors doubted that the bank was sufficiently capitalised. During September, the bank found it more and more difficult to refinance its activities. The US government refrained from rescuing Lehman Brothers, which had to file for bankruptcy (Chapter 11) on 15 September. This sent shockwaves through the financial markets as they had expected a bailout along the same lines as the Bear Stearns case in the spring of 2008. As a result of the complexity of Lehman Brothers, with innumerable financial contracts with other financial institutions, and as a consequence of the bank's cross-border structure, its failure had a severe adverse impact on the financial markets. This reinforced the banks' reluctance to provide uncollateralised interbank lending. The global money markets froze, and the spread between collateralised and uncollateralised money-market interest rates widened to almost 200 basis points, cf. Chart 1.

Later that week, US Secretary of the Treasury Paulson announced a plan that included acquisition of troubled assets from financial institutions for 700 billion dollars. The act was signed by President Bush on 3 October.

Europe was also affected by the mounting pressures. By the end of September, several European banks had received emergency capital injections, mainly from the respective governments. Iceland was hit the worst, in that the entire financial system collapsed and the three major Icelandic banks[1] were nationalised, cf. p. 5.

Each of these events increased the vulnerability of other institutions due to the interdependent nature of the financial system, and to the diminishing confidence in other institutions' ability to survive. The banks tried to reduce their exposures to other financial institutions, and the maturities of interbank loans shortened.

Panic ruled the international financial markets. Investors, banks and other financial institutions held fire sales of assets to obtain liquidity, which caused asset prices to fall even more. In the extremely volatile

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[1] Kaupthing, Glitnir and Landsbanki.

markets, there was speculation in further price drops, which reinforced the crisis sentiment. During September, several countries, including the USA and the UK, temporarily banned short selling[1] of financial stocks in an attempt to halt the plummeting prices and dampen market volatility.[2] On 13 October, Denmark followed suit with a general ban on short selling stocks in Danish banks.

It was clear that the international financial crisis was a real threat to financial stability. At the same time, it had moved beyond a liquidity crisis that central banks could alleviate by providing liquidity to the markets. The crisis had deeper roots, the banks' capital adequacy was called into question, and quite extraordinary measures were needed in order to restore stability and confidence in the financial markets.

In Europe, Ireland was the first country to provide a government guarantee for the banking sector. It was announced on 30 September and comprised six named Irish banks. The aims of the Irish government's decision were to maintain financial stability in Ireland and safeguard the interests of the Irish economy. In the first instance, the guarantee did not comprise branches of foreign banks, which therefore came under pressure in the Irish market.

The Irish government guarantee created a snowball effect throughout Europe, and in the intervening period, most EU member states, including Denmark, have had to issue guarantees for their banking sectors – wholly or partially. The government guarantees vary considerably in terms of duration as well as institutions and claims covered. The Appendix on p. 40 provides an overview of rescue packages in the USA and Europe.

In the globalised financial environment, even countries whose banks have pursued relatively conservative lending policies have had to issue government guarantees. The reason is that financing conditions have been tightened for everyone and it is difficult to be an outsider when other countries issue government guarantees for their banks. In general, but especially in these uncertain times, investors, depositors and other banks tend to prefer countries with government guarantees. This illustrates the importance of concerted action in view of the global nature of the problems.

On 12 October, the euro area member states agreed on a set of common bank rescue principles, which were endorsed by the other EU member states on 15 October. The EU member states will be allowed to recapitalise banks. They can also issue temporary government guaran-

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1 Short selling means that an investor sells stock he does not own and buys it back later. The investor profits if the fall in the value of the stock exceeds the price of borrowing it.

2 The US ban on short selling expired on 17 October 2008.

tees for future borrowing by the banks with maturities of up to 5 years. Rescue packages must ensure fair competition and it is considered important that the banks must pay for the guarantees.

On 15 November, the G20 countries[1] agreed on five basic principles for addressing the financial crisis. These principles extensively overlap the principles adopted by the EU Heads of State and Government. The five principles are:

- Strengthening transparency and accountability
- Enhancing good regulation
- Promoting integrity in financial markets
- Reinforcing international cooperation
- Reforming international financial institutions.

THE DEVELOPMENT OF THE FINANCIAL CRISIS IN DENMARK

The liquidity support given to Roskilde Bank in July 2008 and the takeover of the bank on 24 August drew negative attention to Denmark in the international financial markets. Roskilde Bank had suffered from an unsuitable combination of very large exposures in the property market and a lenient credit policy, and this landed the bank in solvency problems. The problems were thus self-inflicted and had little to do with the financial crisis. However, during the international turmoil foreign investors found it difficult to assess whether Roskilde Bank was an exception.

Consequently, small and medium-sized Danish banks generally found it very difficult – not to say impossible – to obtain financing abroad, while Danish banks responded by further reducing the exchange of interbank liquidity. In addition, large term deposits from local authorities, business enterprises and private individuals moved away from the small and medium-sized banks. Danmarks Nationalbank's measures to enhance the credit facilities for banks, cf. Box 2, failed to cover the large deposit deficits of the individual banks. As a result, many banks struggled to make ends meet by rolling large financing amounts in front of them, i.e. every day they had to refinance large amounts on an overnight basis. This made then extremely exposed.

1 G20 consists of ministers for finance and central-bank governors from the following 19 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the UK and the USA. The EU is the 20th member, represented by the European Commission and the European Central Bank, respectively.

DANMARKS NATIONALBANK'S MEASURES Box 2

Secured lending facility

In May 2008, Danmarks Nationalbank established a temporary facility that enabled banks and mortgage-credit institutes to borrow against special loan bills issued by banks in the Kingdom of Denmark. Under normal circumstances, the rate of interest for borrowing against loan bills is Danmarks Nationalbank's lending rate plus 2 percentage points.

A bank or mortgage-credit institute may borrow against acquired loan bills at Danmarks Nationalbank up to a ceiling of 25 per cent of its end-2007 Tier-1 capital. Each bank or mortgage-credit institute can pledge loan bills from a single issuer only up to 75 per cent of the issuing institution's end-2007 Tier-1 capital. When borrowing at Danmarks Nationalbank a haircut of 10 per cent is applied to the nominal value of the loan bills. Loan bills that are eligible for secured lending at Danmarks Nationalbank can be included in the lending bank's liquidity, cf. Section 152 of the Danish Financial Business Act, until one month before the expiry of the facility on 30 September 2010.

Temporary credit facility on the basis of excess capital adequacy

Until 30 September 2010, banks and mortgage-credit institutes may borrow at Danmarks Nationalbank on the basis of their excess capital adequacy.

The institutions may borrow an amount corresponding to their excess capital adequacy, i.e. the difference between the base capital and the capital need, less a margin of 1 percentage point. The maximum credit line is usually kr. 800 million. Danmarks Nationalbank's lending rate plus 2 percentage points applies.

Banks and mortgage-credit institutes can provisionally be approved for a credit line based on a statement signed by their management and auditors as to the agreed working tasks. Moreover, banks and mortgage-credit institutes shall present a liquidity budget and inform about their loan development on a monthly basis. If an institution is approved for credit from Danmarks Nationalbank under this facility, it may determine on a weekly basis the amount it wishes to borrow within the credit line. The credit line can be included in the institution's liquidity, cf. Section 152 of the Danish Financial Business Act, until one month before the expiry of the credit line.

Temporary expansion of the collateral base at Danmarks Nationalbank

Danmarks Nationalbank has temporarily expanded the collateral base for borrowing by banks and mortgage-credit institutes from Danmarks Nationalbank (monetary-policy loans and intraday credit) to include a number of new types of securities. The expansion expires on 30 September 2010.

Swap lines with the Federal Reserve and the European Central Bank

The Federal Reserve has concluded agreements with a number of central banks, including Danmarks Nationalbank, on establishment of temporary reciprocal currency arrangements (swap lines). The swap facility agreed between the Federal Reserve and Danmarks Nationalbank amounts to 15 billion dollars in total and expires on 30 April 2009. Danmarks Nationalbank has concluded a similar agreement with the European Central Bank in order to improve the liquidity conditions in the euro short-term funding markets. This agreement totals 12 billion euro and will be in force for as long as necessary.

On 5 October, the Danish government concluded an agreement with the Danish People's Party, the Social Democrats and the Social-Liberal Party and with the financial sector in order to safeguard continued financial stability in Denmark. The agreement became law on 10 October and de facto constitutes a safety net – provided by the central government and the financial sector – so that all claims of depositors and other unsecured creditors in banks in the Kingdom of Denmark are fully covered under the government guarantee.

The financial sector (the Danish Contingency Association) is to contribute up to kr. 35 billion, equivalent to 2 per cent of GDP. The Danish Contingency Association will provide a contingency fund of kr. 10 billion (own risk) and in addition pay market-related guarantee commission of kr. 7.5 billion annually. A company has been established with the purpose of facilitating the winding-up of insolvent banks. For banks that do not meet the statutory solvency requirement, if no private-sector solution can be found, this company will inject capital into a newly-established subsidiary, which will take over and wind up the bank in question. If the estimated losses, including the return on contributed capital in the winding-up company, exceed the guarantee provided and the paid-up guarantee commission, the Danish Contingency Association will cover losses to the amount of a further kr. 10 billion via increased guarantee commission.

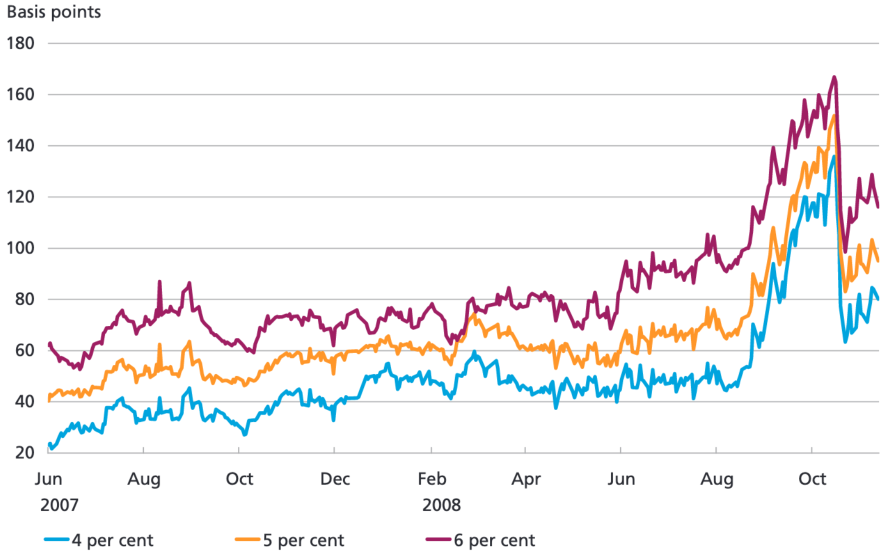
Furthermore, the agreement on financial stability emphasises that, in return for the safety net, the financial sector must show restraint and consolidate over the next two years. The agreement thus includes a ban on dividend payments from banks and puts a stop to new buy-back programmes of own stocks. No new stock option programmes may be established, and existing programmes may not be extended. The scheme expires on 30 September 2010.

AGREEMENT ON FINANCIAL STABILITY IN THE PENSION AREA IN DENMARK

During October Danish mortgage-credit bonds were hit by a wave of unrest, and the spread to government bonds widened considerably, cf. Chart 3.

As a result of the abnormal market conditions, several pension companies had to divest Danish mortgage-credit bonds from their portfolios. Major divestment of Danish mortgage-credit bonds could have serious implications for pension savers and homeowners in the form of falling prices and rising interest rates. Against this background, on 31 October the Ministry of Economic and Business Affairs and the Danish Insurance

OAS TO GOVERNMENT BONDS FOR NYKREDIT CALLABLE 30-YEAR MORTGAGE-CREDIT BONDS WITH DIFFERENT COUPONS Chart 3



Note: OAS is the option-adjusted spread to the swap yield curve in basis points.
Source: Nordea Analytics.

Association decided to launch a number of initiatives to ensure market stability and prevent systematic divestment of Danish mortgage-credit bonds.

- The mortgage-credit yield will temporarily be included in the yield curve used in the calculation of the pension companies' liabilities. This will address the considerable increase in provisions that can be attributed to the extraordinary interest-rate pattern.
- In order to promote consolidation of the sector, an upper limit is set on the pension companies' bonus policy and fixing of interest rates on policyholders' savings.
- In the calculation of their individual capital needs, the pension companies may, to a reasonable extent, take into account the improvement in result they can achieve when the situation is normalised.
- The use of the yellow "traffic light" scenario of the Danish Financial Supervisory Authority is discontinued to avoid inappropriate market behaviour. Instead, like other Danish financial enterprises, the pension companies are to submit quarterly financial statements, including the consumption of reserves, to the Danish Financial Supervisory Authority.

The agreement has significantly enhanced the pricing of mortgage-credit bonds, and the widening of the spread had to a large extent reversed, cf. Chart 3.

CONCLUSION

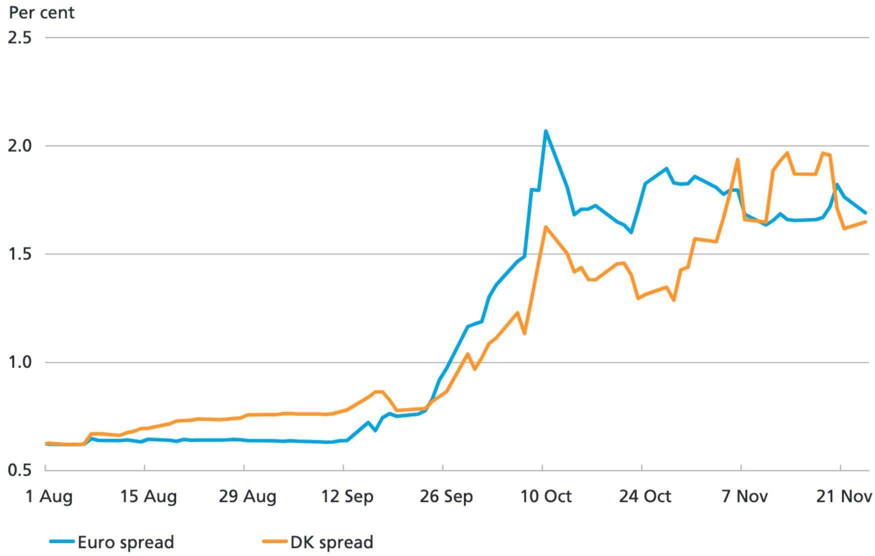
The rescue packages in a number of countries have had a positive impact on the money markets. Most indicators thus show that the accelerated deterioration of the crisis has stopped and that the situation has been stabilised. The nervous sentiment regarding risk of bank failures has subsided.

In the Danish money market, there are signs of beneficial effects of the rescue package. Among other factors, the banks have reduced their portfolios of certificates of deposit and their current-account balances with Danmarks Nationalbank. In addition, several banks are reporting easier access to liquidity after the adoption of the rescue package.

On the other hand, the spread between collateralised and uncollateralised money-market interest rates is virtually unchanged compared with the level before the package was adopted, which is also the case in the euro area, cf. Chart 4. The restoration of confidence among the banks is expected to take some time, and the rescue packages will only slowly improve the market conditions.

So far, the government guarantee for the banks' unsecured claims has created a good foundation for the banks once again to obtain financing in the national and international financial markets. However, the

SPREADS BETWEEN COLLATERALISED AND UNCOLLATERALISED MONEY-MARKET INTEREST RATES, 3-MONTH MATURITY, 2008 — Chart 4



Source: Bloomberg.

assessment is that, like other countries, Denmark may have to supplement the capital that can be raised in the private market, so that well-run Danish banks gain access to temporary financing on conditions that resemble those in the market as closely as possible.

APPENDIX: OVERVIEW OF SELECTED BANK RESCUE PACKAGES

Country	Deposit guarantee (private deposits)	Guarantee for banks' debt	Recapitalisation
Austria	Unlimited guarantee	Fund of EUR 85 billion to be established for guarantee of bank debt.	Fund of EUR 15 billion to be established for recapitalisation of banks.
Belgium	EUR 100,000	Guarantee of refinancing of debt with maturities until 31 October 2011. Systemically important and sufficiently capitalised banks.	Ad hoc recapitalisation of distressed banks.
Bulgaria	EUR 50,000	Interbank loans.	
Cyprus	EUR 100,000	Commitment to support banks in difficulties	Commitment to support banks in difficulties.
Czech Republic	EUR 50,000		
Denmark	Unlimited guarantee	Unlimited guarantee of the banks' debt except covered bonds (SDOs), subordinated loan capital and hybrid core capital Banks are to pay up to kr. 35 billion over two years. Covers members of the Danish Contingency Association.	
Estonia	EUR 50,000		
Finland	EUR 50,000	EUR 50 billion. New debt issues with maturities of up to 5 years. Payment to the central government on market terms. Covers solvent Finnish banks.	EUR 4 billion. The rate of interest for capital injections from the government is to ensure that the Finnish government receives sufficient compensation for the risk.
France*	Political: Unlimited guarantee	Establishment of fund of EUR 320 billion for refinancing of interbank loans.	Establishment of state-owned recapitalisation company of EUR 40 billion. To be deposited in banks against preference shares, as subordinated loan capital or against ordinary shares.
Germany	Legal: EUR 20,000 Political: Unlimited guarantee	Establishment of fund to provide guarantees for EUR 400 billion for new debt issues with maturities of up to 3 years. Market-based margin. Covers solvent German financial institutions and subsidiaries of foreign financial institutions.	The fund can use up to EUR 80 billion for recapitalisation of financial institutions via e.g. preference shares.

Country	Deposit guarantee (private deposits)	Guarantee for banks' debt	Recapitalisation
Greece	Legal: EUR 100,000 Political: Unlimited guarantee	EUR 15 billion. New debt issues with maturities of up to 5 years. Margin of 100-150 basis points or a margin reflecting the counterparty's credit risk.	EUR 5 billion. Preference shares with buy-back option after minimum 5 years remunerated at 10 per cent.
Hungary	Legal: HUF 13 million (approximately EUR 50,000) Political: Unlimited guarantee		
Iceland	Unlimited guarantee of deposits in Icelandic banks. Approximately EUR 20,000 for deposits with branches in the EU.		
Ireland	Unlimited guarantee	Unlimited guarantee of banks' debt including covered bonds, senior debt and dated subordinated debt. Covers banks that are estimated to have a payment obligation of EUR 1 billion over the guarantee period of two years.	
Italy*		The guarantee covers new issues with maturities of up to 5 years. Price to be fixed on market terms. Banks resident in Italy.	Possibility of capital injections from the Italian government against preference shares.
Latvia	EUR 50,000		
Lithuania	EUR 100,000		
Luxembourg	EUR 100,000		
Malta	EUR 100,000		
Netherlands	EUR 100,000	EUR 200 billion. Interbank loans and senior debt with maturities from 3 months to 3 years. Price based on historical CDS spreads + 50 basis points (maturity of less than 1 year, fixed premium of 50 basis points). Covers national banks and foreign subsidiary banks with major activities in the Netherlands.	EUR 20 billion

Country	Deposit guarantee (private deposits)	Guarantee for banks' debt	Recapitalisation
Norway*			Swap arrangement (NOK 350 billion) between banks and the Norwegian government (covered bonds against government bonds). Norwegian banks and branches of foreign banks may use the arrangement.
Poland	EUR 50,000	Possibility of issuing government guarantee.	Possibility of temporary ownership of distressed banks.
Portugal	Legal: EUR 100,000 Political: Unlimited guarantee	EUR 20 billion. New debt issues (except subordinated loan capital) with maturities from 3 months to 3 years. Price based on historical CDS spreads + 50 basis points (maturity of up to 1 year, fixed premium of 50 basis points). Covers banks resident in Portugal.	Possibility of capital injections from the Portuguese government against preference shares.
Romania	EUR 50,000		
Slovakia	Unlimited guarantee		
Slovenia	Unlimited guarantee		
Spain	EUR 100,000	Guarantee of banks' debt (including interbank deposits), EUR 100 billion.	A temporary fund of up to EUR 50 billion for purchasing "high-quality" assets from banks. Price based on underlying risk. All banks with activities in Spain can participate in the scheme.
Sweden	SEK 500,000	Guarantee of new medium-term debt issues, SEK 1,500 billion. Risk-based margin. Covers banks and mortgage-credit institutes.	Stability fund of SEK 15 billion. Capital injection from the government against preference shares.
Switzerland	CHF 30,000	Guarantee commitment for new short-term and medium-term interbank liabilities and money-market transactions.	Not an official programme, but it has supported e.g. UBS.
UK	GBP 50,000	Approximately GBP 250 billion. The guarantee covers new debt issues with maturities of up to 3 years. Price based on CDS spread + 50 basis points.	GBP 50 billion allocated for recapitalisation.

Country	Deposit guarantee (private deposits)	Guarantee for banks' debt	Recapitalisation
USA	USD 250,000	Unlimited guarantee for certain settlement accounts and all senior unsecured debt, including commercial paper and interbank loans issued before 30 June 2009. The guarantee scheme is free of charge for the first 30 days. After that time, the participating institutions have to pay 75 basis points per year for new issues. For settlement accounts, a premium of 10 basis points is added to the existing risk-adjusted deposit guarantee premium of the participating bank.	USD 700 billion allocated for purchases of troubled assets and recapitalisation of financial institutions via preference shares.

* France, Italy and Norway have not changed their deposit guarantee schemes, which cover EUR 70,000, EUR 103,000 and NOK 2 million, respectively.

New Euro Area Member State from 2009: Slovakia

Slovakia has adopted the euro as its currency as of 1 January 2009, when euro banknotes and coins will be put into circulation and the Slovak currency, the koruna, will gradually be withdrawn. The conversion rate will be 30.1260 Slovak korunas per euro, corresponding to the central rate for the koruna applying in ERM II.

The euro banknotes will be identical to those used elsewhere in the euro area, while the euro coins will have one national side, as is the case in the other euro area member states. The national euro coins of the other euro area member states will be legal tender in Slovakia and vice versa. The national sides of the Slovak euro coins are shown in Box 1.

Slovakia is the fourth of the EU member states from the 2004 enlargement to adopt the single currency, following in the footsteps of Slovenia (2007) and Cyprus and Malta (2008).

As of 1 January 2009, the following 16 of the 27 EU member states will thus have the euro as their currency: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.

THE NATIONAL SIDES OF THE SLOVAK EURO COINS | Box 1

1 cent | 2 cent | 5 cent | 1 euro

10 cent | 20 cent | 50 cent | 2 euro

Investment Associations in Denmark

Sonnie Karlsson and Casper Ristorp-Thomsen, Market Operations

INTRODUCTION AND SUMMARY

Today, around one Dane in six invests through Danish investment associations. At the end of 2007, total assets managed by such associations were estimated to have multiplied by a factor of 10 over a decade, to more than kr. 900 billion. Investment associations thus play a key role in relation to individual savers and to society in general.

There are numerous arguments for investing through an investment association. It is easy, it enables risk diversification, and economies of scale may potentially reduce costs. However, individual investors should be aware of some special characteristics of the Danish market that affect these advantages. It is a relatively protected and concentrated market with little external competition. By far the greater share of the assets are actively managed (96 per cent) – while index-based, passive management is more prevalent outside Denmark, where e.g. Exchange Traded Funds (ETFs) have gained considerable ground in recent years. On average, the return achieved by actively managed funds is lower than the market return due to higher costs. The few funds that might actually outperform the benchmark are very difficult to identify beforehand. What can be identified is the level of costs, which is typically higher for the active funds. Finally, it turns out that surprisingly many actively managed funds are de facto pursuing a passive investment strategy.

This article seeks to shed light on the market for investment associations in Denmark. It is concluded that lack of information, financial incentives and fiscal barriers are some of the possible explanations as to why index-based alternatives constitute a relatively small share of the Danish market for investment associations.

THE DANISH MARKET FOR INVESTMENT ASSOCIATIONS: LOCAL, CONCENTRATED AND DOMINATED BY ACTIVE FUNDS

An investment association is an association that receives funds from a group of investors and then invests the funds in various securities[1].

[1] The term "investment association" is defined in the Danish Investment Associations, Special-Purpose Associations and Other Collective Investment Schemes, etc. Act.

Unlike most foreign funds (mutual funds), investment associations in Denmark are owned by their members, funds are typically traded on an exchange, and they are traded at levels close to their book value.

Investment associations have existed in Denmark since 1956, but have roots back to 1928. However, they have only really taken off over the last decade. In the period 1997-2007 the aggregate assets managed by Danish investment associations thus multiplied by a factor 10, cf. Chart 1. The decline in 2008 is primarily attributable to the fall in stock prices, whereby the value of the assets has decreased.

Of the total assets managed at the end of 2007, 43 per cent was placed in equity funds, 42 per cent in bond funds, 14 per cent in mixed funds and 1 per cent in other funds. Compared with the global distribution – where bond funds account for approximately 16 per cent[1] – Denmark has a relatively high percentage of bond funds.

Moreover, the Danish market is dominated by Danish participants. Danish tax rules on investments through investment associations have a significant impact on the structure of and competition in the market, cf. the Appendix. Finally, the market is concentrated. The largest four investment association groups manage approximately 74 per cent of the assets.

Just over 100 foreign investment undertakings have been approved by the Danish Financial Supervisory Authority to market a total of almost 6,000 foreign funds in Denmark. The foreign funds are primarily aimed at companies and pension savers. Private investors' shares of foreign funds are generally taxed as investment income and thus at a higher rate than returns from dividend-paying Danish associations. The foreign undertakings may achieve the same tax status as the dividend-paying Danish associations, but this requires the establishment of a reporting system so that the tax payable by Danish taxpayers can be correctly stated. Furthermore, the foreign undertakings must adjust their portfolios to the investment rules applying to dividend-paying associations. In practice the reporting system and investment rules seem to constitute a major obstacle since no foreign funds have chosen to go through the necessary procedures to obtain the same tax status as the Danish associations. Ordinary investors paying personal income tax are thus in effect left only with the option of placing their funds in Danish investment associations.

Most Danish investment associations have been initiated by Danish banks, which generally serve as distribution networks. Day-to-day operations are undertaken by an investment management company, while services such as distribution, trading, depositary services and advisory

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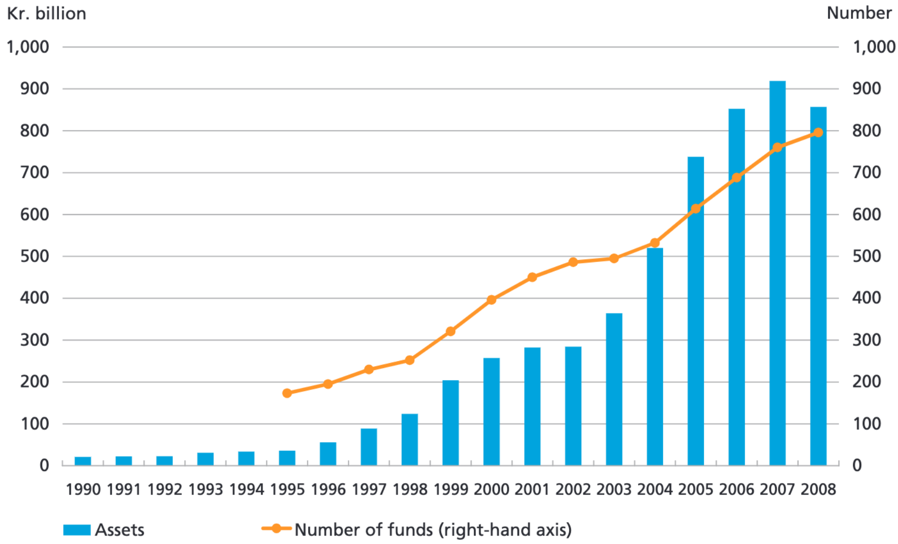
[1] European Fund and Asset Management Association, EFAMA, end-2007.

INVESTMENT ASSOCIATIONS – ASSETS MANAGED AND NUMBER OF FUNDS, 1990-2008 Chart 1



Note: Observations for 2008 are from August.
Source: Federation of Danish Investment Associations.

services in relation to portfolio structure are often purchased from the "parent bank". The distributor of investment certificates is paid commission, i.e. a percentage of the value of all new certificates, and the bank receives a fixed annual percentage of the assets as payment for customer contact and advisory services.[1,2] Irrespective of the actual services rendered, a fixed share is thus transferred to the bank; a payment that would not immediately seem to benefit the owners of the certificates. There are, however, some Danish investment associations that do not pay the banks for customer contact and advisory services.

CONVENIENCE, DIVERSIFICATION AND ECONOMIES OF SCALE – THE RAISONS D'ETRE OF THE INVESTMENT ASSOCIATIONS

Why invest in an investment association? It has often been argued that compared with structuring your own portfolio of securities it is easy and convenient, the investment (even a small one) is diversified, and economies of scale will reduce costs.

Easy and convenient is a good reason to opt for an investment association rather than composing an individual portfolio of securities. Many investors want to avoid having to select the securities and are happy to

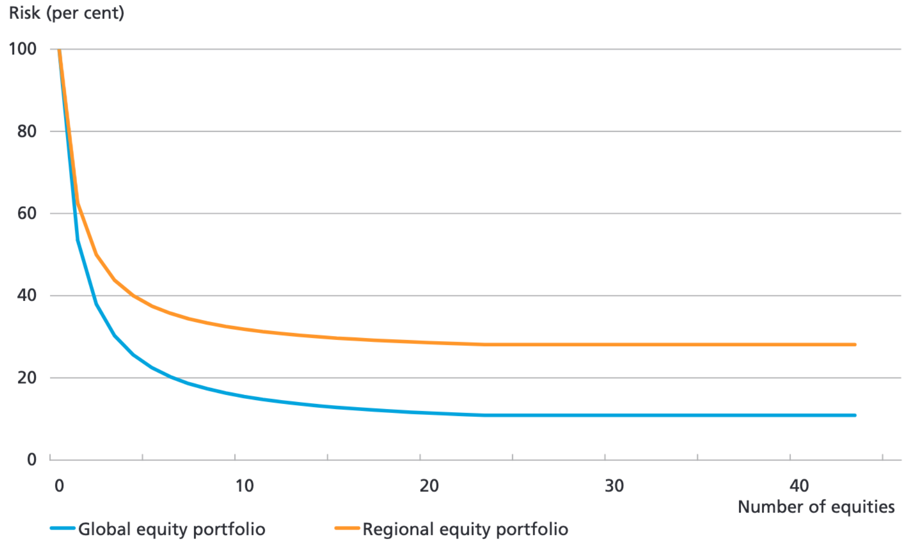
1 Usually calculated on the basis of the market price of the customer's savings held in deposit.
2 Bechmann and Rangvid (2006), Henriksen (2008).

leave it to professional investors by placing their money in investment associations. In addition, the latter provide easy access to markets that might otherwise be difficult to access, e.g. in developing countries, and they take care of the practical aspects of reinvesting interest and dividend, etc.

Diversification means spreading investments on a range of assets. When the prices of different assets are not influenced by the same factors, assets can be combined to spread the risk. An investment in equities that are negatively affected by rising oil prices, e.g. an airline company, can be combined with energy equities to reduce the "oil risk". Diversification is a strong argument in favour of investment associations – at least as regards relatively small equity investments. A private investor may, of course, structure his or her own diversified portfolio, but in many cases this requires a considerably greater investment than when investing in an association. Chart 2 illustrates the diversification gain, i.e. the risk reduction on diversification. The effect is strong at first, but then declines and converges towards a lower limit as the number of assets increases.

Firstly, the Chart shows that diversification is a relative term – a portfolio can be "more or less" diversified. The risk reduction is thus lower on a regional portfolio than on a global portfolio. Secondly, risk converges towards a lower limit, which means that some risks cannot be eliminated by diversification. The reason is that the underlying assets display a positive correlation, i.e. they tend to react in the same way to the develop-

EFFECT OF DIVERSIFICATION ON PORTFOLIO RISK — Chart 2



Note: Risk is measured as the portfolio's standard deviation and is estimated on the basis of historical returns.
Source: Malkiel (1999).

ment in a given factor. For example, a change in GDP growth will have a parallel impact on both IT and car equities. The risk remaining when all diversification options have been exhausted is called the systematic risk. Finally, Chart 2 shows that investors do not achieve further diversification gains by adding more funds to a well-diversified global portfolio.

In relation to investments in government or mortgage-credit bonds, the case for diversification is often weaker. The risk on government bonds is lower and the degree of correlation higher. This reduces the possibility of spreading risk, while the risk to be spread is also lower.

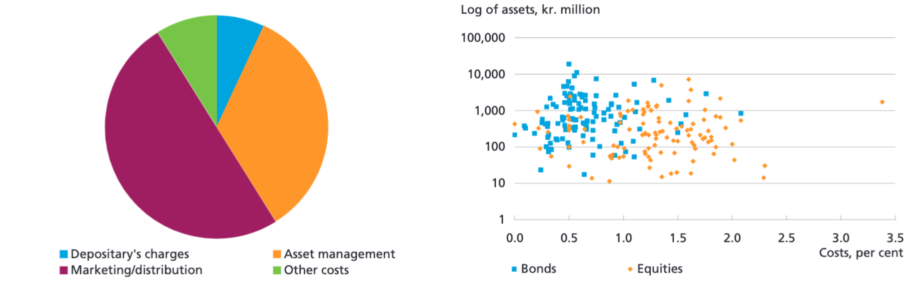
It might be expected that the transaction costs in an investment association would be lower than the costs of structuring and managing a similar individual portfolio. Investment associations have lower fixed costs per trade and can trade at lower marginal costs. However, total transaction costs comprise the number of trades multiplied by the cost per trade and therefore also depend on the trading volume. Moreover, developments in recent years, with web-based stock trading and increased competition on price parameters such as brokerage and depositary's charges, have substantially lowered the costs to private investors of trading equity.

The associations also have various overheads, e.g. payroll costs, rent, audit and fees to public authorities, and most of them remunerate their distribution networks for providing consultancy and advice to customers in relation to buying and selling. This item – intermediation fees – accounted for nearly half of the costs in 2007, cf. Chart 3. The second largest cost was asset management, comprising purchase of investment services from specialists within specific areas.

One of the principles behind an investment association is that many investors pool their funds and share the overheads. Economies of scale should thus mean that costs fall as the association grows. However, this is not the case, cf. Chart 3, possibly because a large part of the costs are payable to the banks as a fixed percentage of the assets.

BREAKDOWN OF COSTS AND RELATIONSHIP BETWEEN ASSETS AND LEVEL OF COSTS, 2007

Chart 3



Source: Federation of Danish Investment Associations.

A comparison with investment associations in other European countries shows that the level of costs in Denmark is on the low side.[1] Nevertheless, there are many indications that costs could be cut further. For example, the costs of one of the largest US index funds (Vanguard 500) are as low as 15 basis points, while the large ETFs have costs in the range of 10-30 basis points. According to a cost analysis made by the Federation of Danish Investment Associations in June 2008, the costs of the Danish equity funds average around 75 basis points for passive units and just under 150 basis points for active units.

In theory, investing through an investment association makes good sense. Investment associations offer convenience, risk diversification and potential cost reductions. In practice, however, the associations do not seem to use their financial muscle to lower costs. Nor does investment in investment certificates automatically lead to the desired spread in risk. Particularly in many bond funds, the diversification gain is limited.

ACTIVELY MANAGED FUNDS VERSUS INDEX FUNDS

The Danish market for investment associations is dominated by "actively managed" funds. At end-2007, the assets of active funds constituted approximately 96 per cent of the market. The management strategy of these funds is to outperform a benchmark (typically a market index).

An alternative to actively managed funds are "index" funds[2]. Unlike the active funds, these funds pursue a passive strategy, the main aim being to replicate an index.

In the USA, where the tradition of investing through funds goes considerably further back, the situation is different. There, the passive index funds have a larger share of the market (15 per cent)[3] and the share of passive funds is rising. In the USA and various other countries there are also a number of other passive alternatives. One such alternative, EFTs, is making considerable headway internationally, cf. Box 1. In many respects, these funds resemble the Danish index funds, which are also traded on an exchange, but ETFs often have lower costs.

Active management involves the collection and analysis of information with a view to outperforming a given benchmark. Needless to say, this involves costs (collection and analysis of information, trade costs, payroll costs, etc.), to be deducted from any excess return achieved. The costs of investing in an index fund are generally lower than the costs of

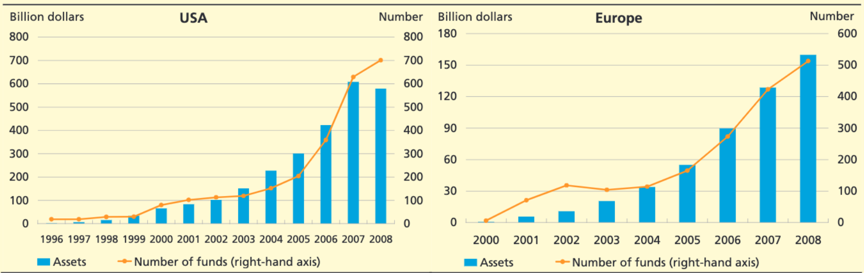
1 Bechmann and Rangvid (2006a).
2 Danish index funds have been analysed by Felstedt and Rangvid (2007).
3 Investment Company Factbook, Investment Company Institute, 2008.

EXCHANGE TRADED FUNDS Box 1

An investment product that has become immensely popular in recent years is "Exchange Traded Funds" (ETFs). An ETF is usually an index fund, i.e. a fund replicating a predefined index, with very low costs and is traded as ordinary equity. The large ETFs have costs in the range of 10-30 basis points. In many respects, index-based ETFs resemble the Danish index funds, whose investment certificates are typically also traded on stock exchanges.

ETFs were developed by US asset managers in the early 1990s. In Europe, they have existed since 2000. Customers include both private individuals and professional investors, and today ETFs are among the fastest growing financial products, cf. Chart 4.

DEVELOPMENT IN ETF SALES IN THE USA AND EUROPE Chart 4



Note: Observations up to and including September 2008 for the USA and July 2008 for Europe.
Source: USA: Investment Company Institute; Europe: ETF Network and Bloomberg.

ETFs are offered in most countries – including Sweden. In Denmark, however, no actual ETFs have been established, although the Danish index funds resemble ETFs. So far no foreign funds comply with the Danish tax rules for dividend-paying funds. In other words, private individuals' gains and losses are taxed as investment income. At the moment ETFs are therefore mainly interesting for pension savers in Denmark.

investing in an actively managed fund.[1] A passive strategy typically involves fewer trades (trading primarily takes place when the composition of the index changes) and lower costs for collection and analysis of market information.

Basically, the two strategies reflect two different views on the information efficiency of the financial markets. In an efficient market, active management does not "pay off", cf. Box 2. In that case, the logical strategic choice is to invest in a portfolio that reduces diversifiable risk while keeping costs at a minimum. This can be done fairly easily by replicating a large market index.

[1] Average annual costs for actively managed equity funds are 1.33 per cent in Denmark, 1.34 per cent in Europe, 1.56 per cent in Japan, 1.29 per cent in North America, 1.37 per cent globally (2007). The least expensive Danish equity funds that cover these markets all have an annual cost ratio of 50 basis points. One of the world's largest index funds, the US Vanguard 500 Index Fund, has annual costs of 15 basis points (31 December 2007).

EFFICIENT MARKETS Box 2

In an information-efficient market, prices of financial assets are adjusted immediately when new, relevant information is released. Prices thus reflect all relevant information. The financial markets are constantly being monitored by a large number of investors. When news breaks, e.g. that a company's profitability will increase, the market price moves to a higher level, reflecting higher profitability. Although an individual investor may miscalculate the value of the new information, it seems probable that, given the competitive nature of the market, the outcome of the aggregate decisions made by many players is an efficient market. If markets are efficient, it is impossible consistently to "outperform the market" by finding underrated assets. A relatively low price does not reflect incorrect pricing, but higher risk.

It can, of course, be argued that markets are not efficient. The core issue in this respect is, however, whether the markets are sufficiently efficient to make active management systematically unprofitable. Much points to this being the case. For example, Malkiel (2005) shows that 90 per cent of the active funds in the US market underperform a broad market index over a 20-year horizon.

Is active management worthwhile? Academic research has paid much attention to this question. In most cases, the conclusion is that on average the active funds achieve a lower return than the passive, market-replicating funds.[1]

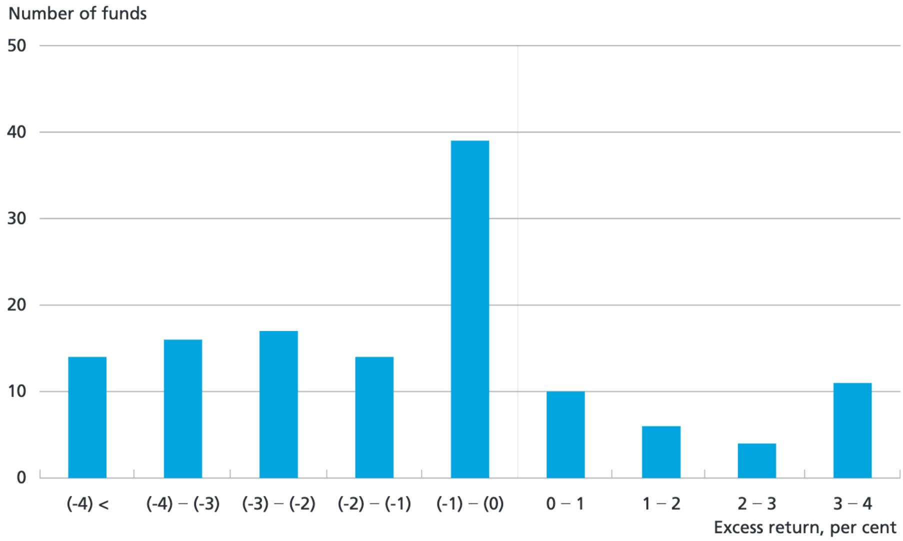
It is not surprising that the average active manager achieves a lower return than a passive, market-replicating fund as the market return is a weighted average of the return on all assets. Since the active portfolios have higher average costs than the passive ones, this inherently means that the average net return on active portfolios, i.e. the return after deduction of costs, must be lower than the net return on index portfolios.[2]

However, this does not mean that active management never pays off. In this context it is interesting to investigate whether there are funds that persistently outperform the market. A number of studies have addressed this issue.[3] While it is not ruled out that such funds may indeed exist, the overall picture is as follows:

- on the basis of historical data it is very difficult to identify funds that systematically outperform an index,
- a large share of the funds' returns can be explained by exposure to systematic risk. Only a small part is attributable to the active strategy that is the argument for the higher costs.

1 One of the best known is Gruber (1996).
2 William Sharpe calls this "the arithmetic of active management", Sharpe (1991).
3 See e.g. Anderson and Ahmen (2005), and Fama and French (2008).

RETURNS OF DANISH ACTIVE FUNDS COMPARED WITH THE BENCHMARK, 2002 TO MID-2008 Chart 5



Note: The benchmark portfolio has been adjusted for an annual cost ratio of 50 basis points. The returns of the funds are adjusted for their annual cost ratios and thus exclude emission and redemption costs. The data set comprises the approximately 150 funds with a complete series of returns over the period, both for the funds themselves and for their benchmarks.
Source: Federation of Danish Investment Associations, Morningstar, Bloomberg, Danske Invest, Nordea Analytics.

These results imply that it is very difficult for an individual investor to select a fund that yields a higher return than a passive index fund. The probability of finding one that yields a lower return is greater.

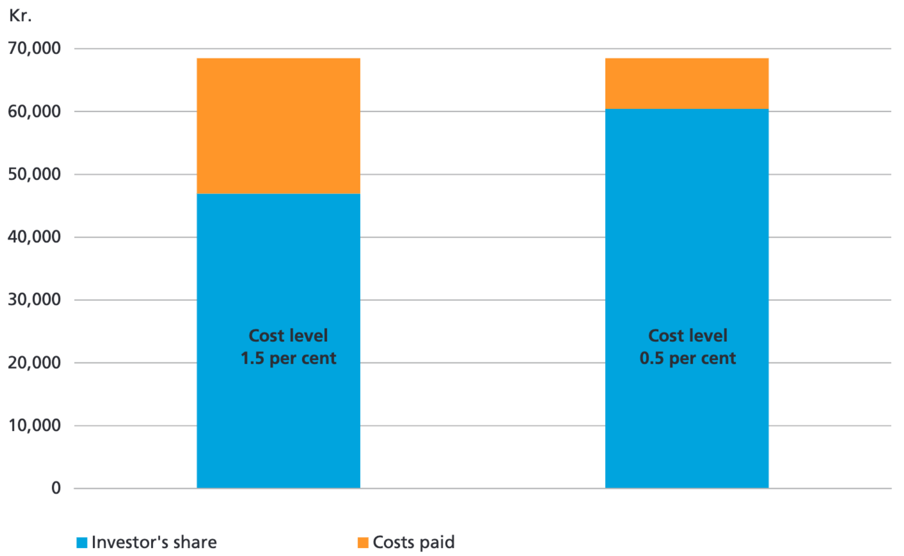
In reality it is not only difficult to beat a well-diversified index fund; many funds are also struggling to exceed their own benchmarks. Chart 5 illustrates the cost-adjusted returns of Danish investment associations in relation to their own benchmarks, adjusted for costs of 50 basis points.[1] It is seen that, over a period of just over five years, most of the funds yield a lower return than a passive investment in the benchmark.

To get an idea of the extent to which the excess return is attributable to "pure" active performance, the excess return must be risk-adjusted. When the marketing of an investment association is entirely based on historical returns without any indication of the risk exposure, investors should be on the alert. For example, many bond funds use government bonds as the benchmark, but predominantly invest in mortgage-credit bonds, which have a different systematic risk profile.

The fact that the active funds often yield lower returns than an index partly reflects the higher costs of active management. The cost effect

[1] As stated by the individual benchmark funds to the Federation of Danish Investment Associations in 2007.

DISTRIBUTION OF ASSETS AT DIFFERENT COST LEVELS Chart 6



Source: Own calculations.

becomes more pronounced with the duration of the investment due to the compound interest effect. This can be illustrated by the following example: an initial investment/asset portfolio of kr. 10,000, an average annual return of 8 per cent and costs to the investment association of 1.5 and 0.5 per cent, respectively. After 25 years, around one third of the total assets have been paid in costs to the association if the annual cost is 1.5 per cent, cf. Chart 6. At an annual cost of 0.5 per cent, 12 per cent goes to costs.

A study by Bechmann and Rangvid (2006b) of the Danish market in the period 1994-2003 shows how the cost level of a fund is an indicator of the future market-adjusted return – the higher the costs, the lower the return.

Both in Denmark and internationally, active investment funds are struggling to outperform their benchmarks. The few funds that may be successful in this respect are very difficult to identify. What can be identified beforehand is the level of costs – which has a significant impact on the investors' ultimate returns.

WHY SO FEW PASSIVE ALTERNATIVES?

Studies of the funds' management performance go back a long way[1], and it should not come as a surprise to the sector that active funds cap-

[1] Since the 1960s, academic literature has analysed investment associations and their performance.

able of outperforming passive alternatives are few and far between. It is therefore a mystery why so many people invest in actively managed funds. Even in the USA, where passively managed funds are far more prevalent, the aggregate volume of the actively managed funds seems to be astonishingly large.[1]

On the demand side, many customers may be unaware of the historical evidence in favour of the passive strategy. Most of them buy investment certificates through their bank. Unless the bank has an incentive to advertise the index products, this information is not passed on to customers. Presumably there is also a psychological aspect. Words such as "passive" and "average return" are perceived as negative by many people, while words like "specialist", "active" and "outperform the benchmark" have a far more positive ring to them. Part of the explanation could also be that the individual investor believes him/herself capable of selecting the winning investment association – possibly on the basis of historical returns.

On the supply side, the bank distribution networks play a major role. The banks have a financial incentive to recommend the active funds, which typically generate higher income for the bank by way of trading fees, depositary's charges and portfolio advisory services. In the case of index funds it can be difficult to argue that one fund is better at replicating a benchmark than another. The best argument for selecting one particular index fund is the cost parameter. Suppliers thus have an incentive to differentiate their products.

Moreover, many of the funds marketed as active funds de facto mirror a benchmark closely, cf. Chart 7. The tracking error is a measure of the standard deviation in the spread between the portfolio and benchmark returns, i.e. how close the portfolio is to the index it refers to.

It goes without saying that passive funds should have a low tracking error since their strategy is to replicate a benchmark. Active funds that have an explicit strategy aimed at – and that charge extra for – "outperforming" the benchmark, would be expected to have a somewhat greater tracking error than the passive ones. Most Danish index funds have a tracking error in the range of 1-4 per cent p.a., which is also where most of the active funds are found. However, the latter generally have higher costs.

If the tracking error is low, the fund deviates only marginally from the benchmark and can therefore be expected to have correspondingly lower costs. Chart 7 confirms the positive relationship between costs and level of activity, but also indicates a considerable spread. Thus there are

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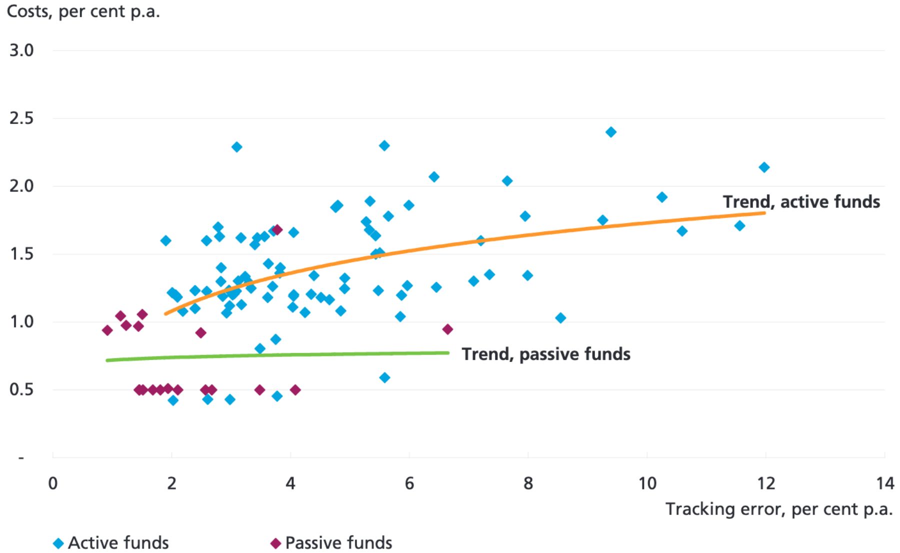
[1] See e.g. Gruber (1996).

TRACKING ERRORS AND COSTS | Chart 7



Note: Includes equity funds established before 2002 only. Costs in 2007.
Source: Federation of Danish Investment Associations, Morningstar, Bloomberg, Danske Invest, Nordea Analytics.

very active funds with lower costs than those close to the benchmark, and likewise there are active funds with low tracking errors and costs matching those of the passive funds.[1] Index funds generally have lower cost-to-activity ratios, but as the Chart shows, there are also index funds with relatively high costs. In other words, what matters is not whether the funds are designated as "active" or "passive", but whether costs are low in relation to the level of activity.

In a study based on US data, Cremers and Petajisto (2007) criticise a number of active US funds for being "closet index funds" with high costs. The average tracking error is higher in the USA than in Denmark, but the relationship between costs and tracking errors is similar. In the USA, too, many funds are marketed and recommended as active, but in reality mirror an index closely.

A passive fund is not necessarily inexpensive. Typically, trading costs are lower than in an equivalent active fund, but marketing and distribution account for a large share of the costs. Pressure to reduce such costs would presumably require a market situation with easy access to information and greater competition, not only among the active funds, but also among the passive ones. This is not facilitated by the current tax rules in Denmark that bar private investors' access to foreign funds –

[1] Primarily "wholesale funds", which are mainly aimed at institutional investors.

such as ETFs – combined with the existing distribution channels and financial incentives.

SUMMARY AND CONCLUSION

In Denmark, actively managed investment associations are dominant. Many active funds are struggling to outperform those applying a passive strategy due to the higher level of costs. Finally, it turns out that surprisingly many actively managed funds are, in fact, close to pursuing a passive investment strategy. Lack of information, financial incentive structures and fiscal barriers may be some of the explanations to why index-based alternatives with low costs constitute a relatively small share of the Danish market for investment associations.

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APPENDIX: TAXATION OF INVESTMENT ASSOCIATIONS

Danish tax rules distinguish between investor types (private individuals, companies, pension funds, etc.), investment targets (equities or bonds), and dividend-paying and accumulating investment associations.

- **Private individuals (free funds):** Realised gains on investments in dividend-paying equity funds are taxed as equity income (28-45 per cent). Losses can be offset against dividends and gains on quoted shares, etc. For bond funds, gains are taxed as investment income (33-59 per cent), but only capital losses on certificates in funds investing in foreign bonds can be deducted from investment income. Returns from bond funds disbursing gains on "rubber-stamped" bonds are tax-free income. As regards investments in accumulating investment associations (known as investment firms), both realised and unrealised gains and losses are taxed as investment income. Shares in foreign funds ("investment undertakings") are in principle taxed under the rules applying to accumulating investment associations (investment firms), i.e. as investment income (up to 59 per cent, depending on other income). If investors in foreign investment undertakings are to be taxed in the same way as those investing in Danish dividend-paying associations, these institutions must be registered by the tax authorities (SKAT) in Denmark and must regularly report amounts disbursed for taxation purposes. Finally, they must observe special Danish investment rules in the same way as the Danish dividend-paying associations.
- **Pension funds:** Both realised and unrealised gains are taxed at 15 per cent, while net losses are carried forward to the following year.
- **Companies:** Realised gains and losses are taxed as corporate income for dividend-paying funds. However, the 3-year rule for equities applies to gains/losses on certificates in equity funds. For accumulating funds (investment firms) both realised and unrealised gains and losses are taxed as corporate income.

For an in-depth description of the tax rules, reference is made to SKAT.

The Danish Mortgage-Credit Market – a Liquidity Dilemma

Claus Johansen, Financial Markets and Elena Kabatchenko Nielsen, Statistics

INTRODUCTION

The Danish market for mortgage-credit bonds[1] has undergone considerable development over the last few decades. The total outstanding volume has risen in step with housing prices, and the issuers' introduction of new mortgage products has increased the number of bond types available.

In addition to having a major impact on the structure of the mortgage-credit market, product development has affected pricing patterns. Liquidity is dispersed over more bond series for each issuer, and the wider range of remortgaging options entails faster shifts in the liquidity of the individual series. Scarcity premiums on illiquid bond series would indicate that the outstanding volume and ownership concentration are significant to pricing in the market.

This article investigates whether borrowers experience so-called "lock-in effects" in relation to mortgage-credit bonds because investors are able to demand a higher price for series concentrated on a few investors. The conclusion is that lock-in effects for borrowers do exist in certain bond series. For investors, it is found that the ownership concentration has a major impact on pricing, as scarcity premiums tend to apply to illiquid bond series. These effects for borrowers and investors are seen in bond series with small outstanding volumes and in series that are targets for buy-back in connection with the borrower's remortgaging at a higher coupon rate.

On the basis of the findings in this article, new statistics are introduced showing the ownership concentration for the individual bond series. In future, these statistics will be published as part of Danmarks Nationalbank's securities statistics by ISIN codes.

[1] In this article, the term "mortgage-credit bonds" is used as a collective term for bonds issued to finance loans against real property as collateral. It therefore comprises traditional mortgage-credit bonds, as well as covered bonds and covered mortgage-credit bonds issued by banks and mortgage-credit institutes.

STRUCTURAL TRENDS IN THE MORTGAGE-CREDIT MARKET

Over the years, there has been a high degree of consolidation among issuers in the Danish mortgage-credit market, which has concentrated issues on fewer bond series and enhanced liquidity[1]. Since 1996, when the first adjustable-rate mortgage-credit loans were introduced, the palette of loan types on offer has, however, been widened considerably. In 2003, deferred amortisation was introduced, followed by capped adjustable-rate loans in 2004, cf. Hansen and Thuesen (2006). Several of these product types had been tried before, but not with the same success. For example, loans with unlimited deferred amortisation, i.e. perpetual loans, were introduced as early as in the 19th century, cf. Ebbesen (2008). Overall, no concentration has been observed at series level, as the range of products offered by the issuers has also increased considerably. The introduction of adjustable-rate loans is the single most important factor influencing the structure of the Danish mortgage-credit market in recent decades, cf. Chart 1.

CONSEQUENCES TO THE MORTGAGE-CREDIT MARKET OF A WIDER RANGE OF MORTGAGE-CREDIT PRODUCTS

Issuers

On the issuer side, product development in the market for financing real property reflects competition to offer borrowers new, more sophisticated products. Consequently, issuers must develop new bond types.

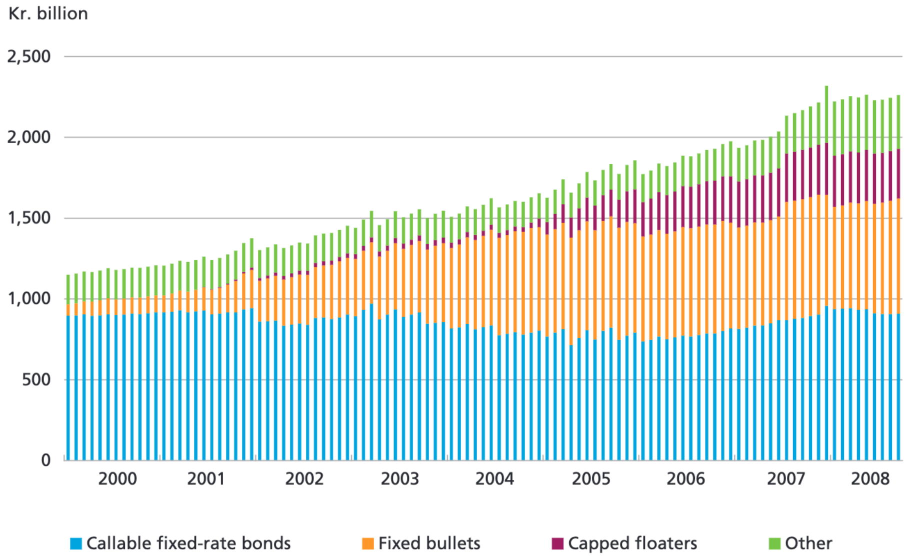
The incentive to innovate lies in the fact that a credit institution can win market shares from its competitors by introducing a new product that meets the requirements of a large group of borrowers. For this reason, competitors are often quick to replicate successful new products. The product development seen since the mid-1990s, combined with the balance principle, has increased the number of open series offered by each issuer, cf. Chart 2.

Callable mortgage-credit loans are financed via bonds with characteristics resembling those of the loans. Practically all recent callable mortgage-credit loans are offered in versions with and without amortisation. The number of underlying bond series is thus considerable.

In contrast, the bonds used to finance adjustable-rate loans do not have characteristics similar to those of the loans. Instead, financing takes place via issuance in series of fixed-rate bullet loans. In recent years, such

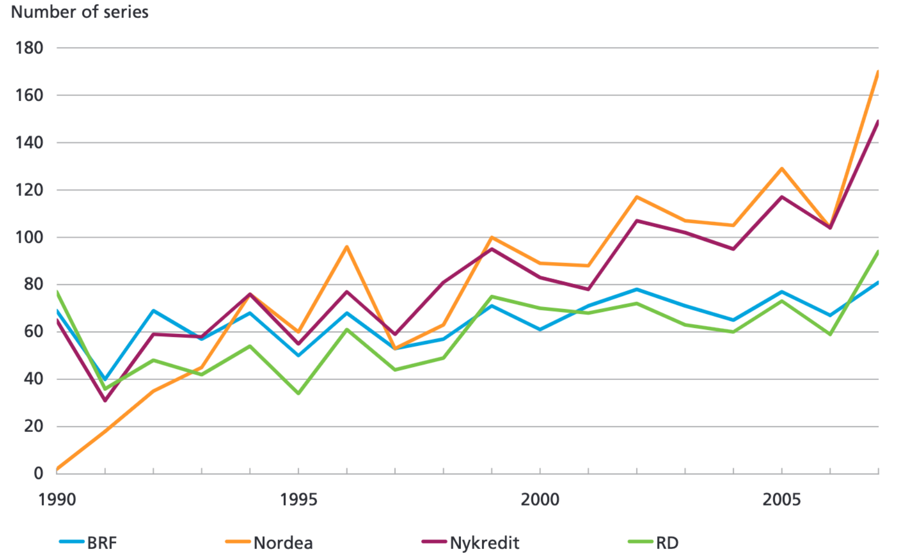
[1] The liquidity of a security is used as a generic term for negotiability in the market. The term is often applied as an expression of the total outstanding volume in a bond series, as a large outstanding volume is typically linked to high negotiability, cf. Danmarks Nationalbank (1998), Chapter 8.

STRUCTURE OF THE DANISH MORTGAGE-CREDIT MARKET OVER TIME Chart 1



Note: Adjusted for a higher outstanding volume in December of each year.

NUMBER OF OPEN SERIES IN FOUR MORTGAGE-CREDIT INSTITUTES, 1990-2007 Chart 2



Note: The increases in 2007 are partly attributable to the shift to SDO legislation. At the turn of the year 2007-08, all series under the previous legislation were closed.

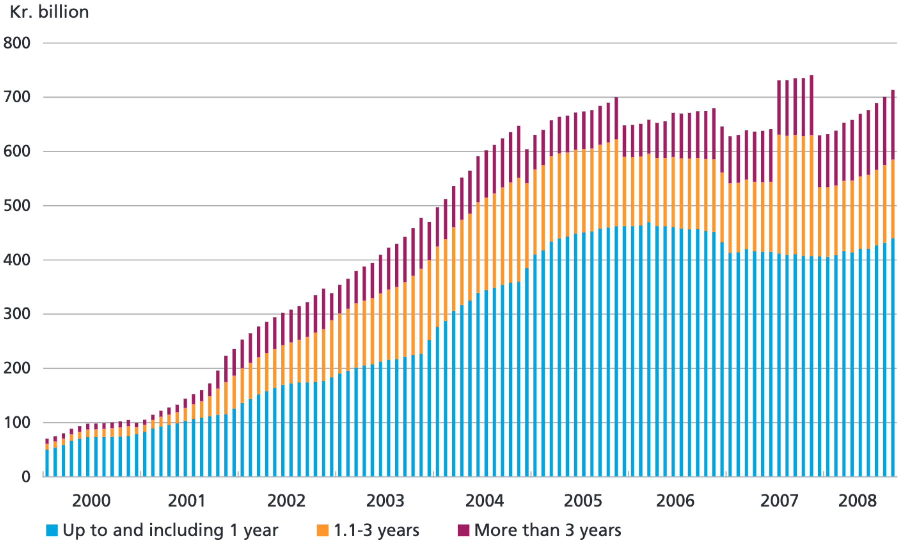
Source: RIO.

issuance has primarily taken place in bonds with a coupon of 4 per cent, whereas previously, when interest rates were lower, the coupon was 2 or 3 per cent. Adjustable-rate loans thereby generate a great many bond series in the Danish mortgage-credit market. Unlike other loan types, deferred-amortisation loans are not based on special bond series; issuance is merely adapted to the borrower's chosen redemption profile. Adjustable-rate loans come in many varieties. For a more detailed review, see Christensen and Kjeldsen (2002).

Issuance of non-callable fixed-rate bullet bonds for financing adjustable-rate loans ("fixed bullets") is greatest in very short-term series with a remaining term to maturity of up to one year. However, a certain volume is also issued in series with a remaining term to maturity of up to three years, cf. Chart 3.

It is sought to build up liquidity in mortgage-credit bonds by issuing in the same series for a prolonged period. Issuance in callable fixed-rate bond series typically takes place over a period of three years. Bullet loans for financing of adjustable-rate loans can be used from the first issues with a remaining term to maturity of up to 11 years until the last issues in the year up to maturity. However, shifts in the level of interest rates may entail that series are replaced by other series with higher or lower coupons. On the other hand, such shifts may also lead to renewed issuance in old series.

DEVELOPMENT IN OUTSTANDING VOLUME OF FIXED BULLETS, BY MATURITY Chart 3



Note: "Up to and including 1 year" comprises remaining term to maturity <= 13 months.
"1.1-3 years" comprises 13 months < remaining term to maturity <= 37 months.
"More than 3 years" comprises remaining term to maturity > 37 months.
Adjusted for a higher outstanding volume in December of each year.

Investors

If investors are to be able to buy and sell positions in a bond series without affecting market prices, it is in their interest that liquidity is built up in the individual series. Investors holding positions in illiquid series may be forced to accept a price compromise if they need to sell a position in the market. Consequently, investors may be willing to pay a liquidity premium when buying bonds in liquid series.

The wider range of remortgaging options for borrowers as a result of the issuers' product development increases the liquidity risk incurred by investors. There is now a greater probability that the status of a series will change from liquid to difficult to sell in the market.

Although investors may be prepared to pay a premium for liquid bond series, smaller series often tend to be more highly priced in the market than large series. The reason is that it is easier for investors to demand a premium for selling out in a small bond series. Consequently, a scarcity premium may apply to illiquid mortgage-credit bond series. This situation mainly arises if the ownership concentration in a series is high.

Over the years, a number of initiatives have been taken to address the issue of dispersed liquidity and price differences between identical bond series owing to differences in volumes. For example, members of the Danish Securities Dealers Association have established a voluntary market maker arrangement for a number of unit bonds, cf. Hansen and Thuesen (2006). Most recently, in 2008, it has been sought to introduce forwards on callable mortgage-credit bonds. The first contract under the Danish Securities Dealers Association's market maker arrangement is a December contract for delivery of any chosen bond from an underlying basket comprising the most liquid series in the 30-year 5-per-cent segment.[1] If liquidity is built up in this forward, this will contribute to investors buying up relatively inexpensive securities from the underlying basket, thereby ironing out any price differences. Turnover has, however, been very low in the first months, possibly on account of the prevailing market turmoil.

Borrowers

Product development by issuers has given borrowers more choice. In terms of interest-rate risk, the introduction of adjustable-rate loans and capped loans has increasingly allowed borrowers to select loan types to match their risk appetite. Likewise, the introduction of deferred amortisation has enabled borrowers to structure their redemptions in relation to alternative savings options and their own private finances.

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[1] For further information about the forward, see the press release of 28 August 2008 (in Danish only) published at the website of the Danish Securities Dealers Association, www.dbmf.dk.

The potential illiquidity of bond series impacts on the price of the loan when it is raised and in connection with any buy-back from the market. When a new series is opened, it is often uncertain whether or not it will become liquid. Consequently, a scarcity premium may be applied to a security as investors become convinced that it will close with a low outstanding volume, or that it will subsequently become illiquid due to prepayments and/or buy-back in the market. Borrowers issuing early in the opening period in what later turns out to be an illiquid series thus risk missing out on a scarcity premium on issue, as well as having to pay more if they subsequently buy back in the market. The scarcity premium is often referred to as a lock-in effect for borrowers.[1]

LOCK-IN EFFECTS IN MORTGAGE-CREDIT BONDS

Lock-in effects for borrowers generally occur when a bond series is concentrated on a few investors. The following is an analysis of the extent to which lock-in effects are observed in the largest two types of mortgage-credit bonds in the Danish market, i.e. callable fixed-rate bonds and fixed bullets.

In callable fixed-rate bond series, a lock-in effect can occur in a situation where the borrower wishes to buy back bonds in the market, i.e. when redeeming a loan or remortgaging at a higher coupon rate. For borrowers wishing to exercise their right to redeem the bonds at par or another applicable price, lock-in due to illiquidity will not play any role. The built-in prepayment price thus sets an upper limit to the lock-in premium payable by the borrower as the bonds can always be redeemed at the agreed price.

Borrowers with adjustable-rate loans do not have this call option. Consequently, there is no upper limit to the premium that the borrower risks having to pay upon premature redemption if the ownership concentration is high. On the other hand, the lock-in does not apply beyond the date when the interest rate has to be adjusted. As previously stated, the majority by far of adjustable-rate loans are issued in short-term bond series with a remaining term to maturity of up to three years. For fixed bullets, lock-in is therefore most likely to occur in the longer series, i.e. the least liquid ones.

To describe the extent of lock-in effects, the correlation between ownership concentration and price is investigated for closed mortgage-credit bond series. The ownership concentration is measured as the

1 See e.g. Jacobsen (2007).

maximum ownership share[1], calculated as the share of a series owned by the largest investor[2] in the series. If one investor owns 60 per cent of a bond series, the maximum ownership share in this series is thus 60 per cent. All bonds are grouped according to ownership concentration:

1. Low: maximum ownership share < 20 per cent.
2. Medium: 20 per cent ≤ maximum ownership share < 50 per cent:
3. High: maximum ownership share ≥ 50 per cent.

To analyse the significance of ownership concentration to pricing of the bond series, an option-adjusted spread (OAS) is calculated between mortgage-credit bonds and the government yield curve. OAS indicates the spread between a bond's yield to maturity and a risk-free interest rate, taking into account the value of the option element in the bond. The higher the OAS, the higher the excess interest rate and the lower the price of the bond.

Besides describing the impact of ownership concentration on pricing, the following investigates the correlation between ownership concentration and liquidity. In this context, liquidity is measured as the average nominal outstanding volume, and as the average number of days in the period of observation on which securities within each group were traded.

For callable fixed-rate bonds, the analysis of lock-in effects is based on the period end-May to end-October 2008, during which, inter alia, 30-year bond series with a coupon of 7 per cent were opened. For fixed bullets, the analysis is purely based on data for June 2008, as the number of trade observations is higher for this group of bonds.

Lock-in effects in callable bonds[3]

In step with the assumption that it is easier for an investor to obtain a high share in a small series, all coupon groups for callable fixed-rate bonds tend to have a higher ownership concentration in series with low outstanding volumes. This is also reflected in the lower number of trade days for bond series with the highest ownership concentration, cf. Table 1.

The excess interest rate is highest for the high coupon groups. For the lowest two coupon groups, the correlation between ownership concentration and average OAS is negative, which means that bond series with high ownership concentrations tend to be traded at higher prices than

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1 The use of this concentration measure is verified by comparison with other concentration measures, including the Herfindahl index. Unlike the maximum ownership share, the Herfindahl index does not express a single investor's share of a series, but is a weighted average concentration.

2 In the calculations, private individuals and foreign investors are disregarded as only aggregated data is available for these groups.

3 The analysis is limited to callable bonds with amortisation.

OWNERSHIP CONCENTRATION AND LOCK-IN EFFECTS FOR CALLABLE FIXED-RATE BONDS Table 1

	Outstanding volume kr. billion[1]	Number of trade days[2]	OAS (bp)[3]
Coupon: 4 per cent			
Low concentration	4.02	20.23	71.18
Medium concentration	0.74	4.80	67.41
High concentration	0.16	1.00	63.00
Coupon: 5 per cent			
Low concentration	5.12	23.76	97.54
Medium concentration	0.47	3.25	89.60
High concentration	0.23	1.83	68.18
Coupon: 6 per cent			
Low concentration	1.20	11.35	140.59
Medium concentration	0.12	2.19	141.19
High concentration	0.06	1.21	157.87
Coupon: 7 per cent			
Low concentration	0.09	2.25	160.99
Medium concentration	0.04	1.06	183.04
High concentration	0.02	0.67	186.44

1 Average outstanding volume as at end-June 2008.
2 Average over 104 banking days (30 May - 23 October 2008).
3 Average June-October 2008. The maximum ownership share shows a high degree of persistence over time. It is therefore reasonable to use the calculated maximum ownership share as at end-June in the comparisons over the full period of observation.

those with low ownership concentrations. For the 5-per-cent coupon group, this negative correlation is significant at a significance level of 5 per cent[1], thereby verifying the existence of lock-in effects in this coupon group. The correlation is insignificant for the 4-per-cent coupon group. No similar tendency is observed for the 6- and 7-per-cent coupon groups, presumably because these bond series have not seen large volumes of buy-backs as the price has been relatively close to par.

Lock-in effects in fixed bullets

In recent years, adjustable-rate loans have primarily been financed via issues in bond series with a coupon of 4 per cent. Consequently, only this segment is considered in the following. Moreover, bonds with a remaining term to maturity of less than one year are disregarded as calculations of yield spreads[2] to the government yield curve for securities in this maturity segment are highly sensitive to the choice of underlying model for the government yield curve.

1 In these statistics, the significance level indicates the probability of finding an incorrect statistical correlation between maximum ownership share and OAS.
2 For non-callable bonds, OAS simply corresponds to a yield curve spread as there is no option element.

OWNERSHIP CONCENTRATION AND LOCK-IN EFFECTS FOR FIXED BULLETS Table 2	Outstanding volume kr. billion[1]	Number of trade days[2]	OAS (bp)[3]
Remaining term to maturity: 1-3 years			
Low concentration	9.40	16.29	48.73
Medium concentration	1.29	4.25	52.01
High concentration	0.26	1.31	40.75
Remaining term to maturity: more than 3 years			
Low concentration	5.25	10.22	54.82
Medium concentration	0.92	4.93	47.97
High concentration	0.18	1.81	47.12

[1] As at end-June 2008.
[2] Average over 20 banking days in June 2008.
[3] Average, June 2008.

As was the case for callable bonds, it is seen that fixed bullets in series with medium or high concentrations are characterised by lower outstanding volumes and a lower average number of trade days, cf. Table 2.

For bonds with a remaining term to maturity of more than three years, there is a significant negative correlation between OAS and ownership concentration at a significance level of 5 per cent. The price for the high-concentration series is thus significantly higher than for the low-concentration series. This correlation indicates lock-in effects in the high-concentration series for long-term fixed bullets. For bonds with a remaining term to maturity of 1-3 years, the tendency is not significant.

The tendency for illiquid securities – callable fixed-rate bonds with a low coupon, as well as fixed bullets with a remaining term to maturity of more than three years – to be traded at higher prices than liquid securities indicates that investors are able to retain positions until another investor or a borrower is willing to pay a scarcity premium to buy the bonds.

OWNERSHIP CONCENTRATION AS A NEW VARIABLE IN DANMARKS NATIONALBANK'S SECURITIES STATISTICS

The above analysis shows a significant correlation between ownership concentration and bond price for several segments of the mortgage-credit market.

For issuers, this correlation between ownership concentration and premium for a bond indicates that the product development incentive should be balanced against the value to borrowers of liquidity in the bond series.

For investors, the ownership concentration has a significant impact on pricing of bonds, as a scarcity premium tends to apply to illiquid series. This premium relates to the higher concentration on a few investors generally seen in these series. On the other hand, the analyses show that borrowers can benefit from, whenever possible, issuing in series that are already liquid or very likely to become liquid. Publication of the maximum ownership share variable is therefore assessed to be relevant to issuers, investors and borrowers alike.

On the basis of the findings in this article, Danmarks Nationalbank's securities statistics by ISIN codes are expanded to include information about ownership concentration, expressed by the maximum ownership share variable, cf. Box 1. This variable contributes to greater transparency in the market for mortgage-credit bonds.

OWNERSHIP CONCENTRATION INCLUDED IN SECURITIES STATISTICS — Box 1

As from January 2009, the securities statistics by ISIN codes will be expanded to include an "ownership concentration" variable. To each bond series in the statistics, an indicator will be applied, reflecting its ownership concentration:

Group 1: Low, maximum ownership share < 20 per cent.
Group 2: Medium, 20 ≤ maximum ownership share < 50 per cent
Group 3: High, maximum ownership share ≥ 50 per cent.

The new securities statistics by ISIN codes are in accordance with the applicable non-disclosure principles and will only be published for bonds.

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The IMF Undergoing Change

Helene Kronholm Bohn-Jespersen, Economics

INTRODUCTION AND SUMMARY

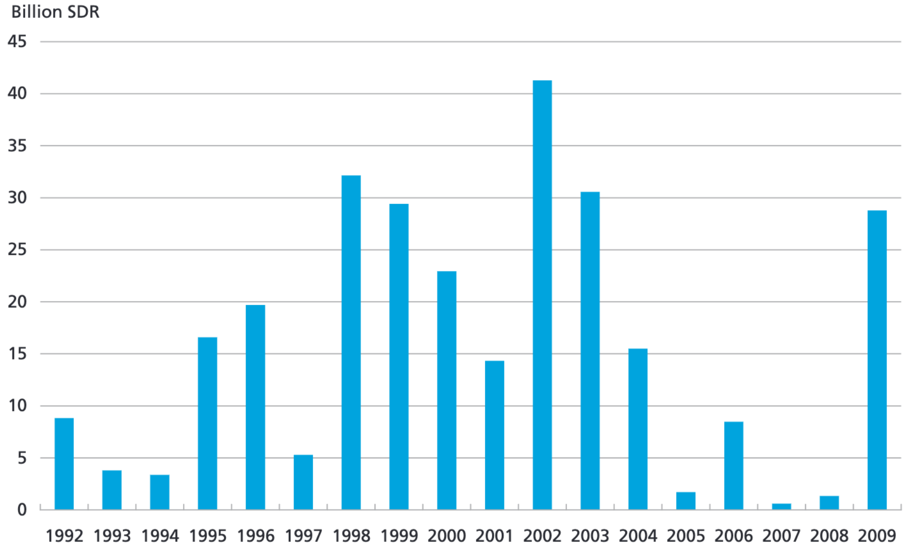
Towards the end of 2008, the escalating global financial crisis brought the International Monetary Fund (IMF) back into focus in international economic-policy cooperation. The EU and G20 discussions on reforming the international financial system showed broad support for the IMF as a central institution in the efforts to design a more effective global financial architecture. Since the Annual Meetings of the IMF and the World Bank held in Washington in October, a number of countries that have been particularly severely hit by the crisis, including Ukraine, Hungary, Iceland and Pakistan, have concluded agreements with the IMF on large-scale loans. After several years of futile deliberations, the IMF introduced a new lending facility in October, the Short-Term Liquidity Facility (SLF), which provides large short-term loans without the normal binding economic-policy requirements. The facility is aimed primarily at emerging market economies with track records of sound economic policies.

The increased focus on the IMF follows a period characterised by historically low levels of new IMF lending commitments, cf. Chart 1. Until recently, new lending commitments were largely limited to concessional loans to low-income countries.

The low-lending environment called for a reform of the IMF's finances. Furthermore, adjustments of the influence the IMF's 185 member countries in the organisation to better reflect their relative weight in the world economy characterised the IMF's work in 2007 and the first half of 2008. The quota and voice reform was adopted by the IMF's Board of Governors in the spring of 2008. The required amendments to the IMF's Articles of Agreement are now awaiting approval by the member countries before the reform can be implemented. Denmark approved the proposed amendments to the Articles of Agreement on 2 October 2008.

The IMF has been modernising its activities over the last couple of years according to a medium-term strategy. Attention has mainly been focused on the framework for ongoing surveillance, analysis and advice in relation to both individual member countries' economies and the world economy. The aim has been to strengthen financial stability surveillance and increasingly to include developments in financial markets

IMF LENDING Chart 1



Note: The Chart shows the sum of approved loans in each financial year from 1 May to 30 April. For 2009, the sum of approved loans is shown for the 7-month period from 1 May to 28 November 2008.
Source: IMF.

and financial systems in macroeconomic analysis. Additionally, focus on the countries' external stability has been sharpened. The financial crisis has emphasised the need for the IMF to improve its ability to detect danger signals earlier and to provide advice on the best possible intervention methods.

The IMF's management has also undergone substantial changes over the past year. On 1 November 2007, Dominique Strauss-Kahn, former French finance minister, assumed office as the new Managing Director of the IMF. He replaced former Spanish finance minister Rodrigo de Rato, who held the office for only about three years out of the normal five-year term. In connection with the reform of the IMF's own finances and the slimming of the organisation, the managements of most departments were replaced during the past year. Moreover, a new chairman, Egyptian finance minister Youssef Boutros Ghali, was appointed for the IMF's advisory committee, the International Monetary and Financial Committee, IMFC. He is the first IMFC chairman elected outside the industrialised countries.

This article outlines the development during the past year[1] and the priorities of the IMF's work programme for the near future.

[1] For a more detailed review of the IMF's activities and the Nordic-Baltic positions on the most significant issues discussed by the IMF's Executive Board, see the interim reports from the IMF's Nordic-Baltic office at www.nationalbanken.dk.

THE IMF QUOTA AND VOICE REFORM

Following protracted and often complex negotiations the IMF's Executive Board managed to reach an agreement on a quota and voice reform in March 2008. The reform increases the relative voice in the IMF of the emerging market economies and the poorest countries, thus acknowledging that a larger number of countries will play key roles in the global economic development now and in the future. The decision ended the process that was launched at the IMF Annual Meeting in Singapore in September 2006 where the member countries, including Denmark, approved an immediate increase in quotas for China, Korea, Mexico and Turkey. The reform is outlined in Box 1.

THE IMF'S QUOTA AND VOICE REFORM 2008 — Box 1

The reform includes a new formula to calculate the quotas, a second round of ad hoc quota increases (after the first round adopted in Singapore in 2006) based on the new quota formula, a tripling of basic votes that will increase the voting shares of small countries, particularly low-income countries, and allowing the two African Board members to appoint an additional Alternate Executive Director each. Moreover, the reform envisages realignments of quotas and voting shares every five years.

The *new quota formula* consists of four variables: GDP, openness in terms of export and import, variability of export revenue, and foreign-exchange reserves. The weights of the variables are 50, 30, 15, and 5 per cent, respectively. The GDP variable is a blend of 60 per cent GDP at market rates and 40 per cent GDP adjusted for purchasing-power parity (PPP). The formula is combined with a compression factor of 0.95, i.e. it is raised to the 0.95 power to level differences in the economies. PPP GDP and compression will be retained in the formula for 20 years, after which these elements will be reassessed.

The *second round of ad hoc quota increases* amounts to 9.6 per cent, (i.e. a total quota increase, including the first round, of 11.5 per cent) of the total quotas. A mechanism will be introduced to ensure that the four countries (China, Korea, Mexico and Turkey) that received quota increases during the first ad hoc round in Singapore will see a quota increase of minimum 15 per cent allowing them to maintain, as a minimum, their post-Singapore quota share. Furthermore, a "booster" implies a quota increase of at least 40 per cent for countries whose GDP at market rates is considerably lower than their PPP GDP (this applies to countries whose proportionate share of PPP GDP relative to their pre-Singapore quota share exceeds 1.75). This element is of particular importance for Brazil and India.

The *basic votes* are tripled, which will affect especially the voting power and representation of small economies, including low-income countries. Moreover, a mechanism is introduced to ensure that the ratio of total basic votes to total voting power remains constant over time.

Future quota adjustments are recommended in connection with the recurring quota review every five years (i.e. the first review will take place in connection with the 14th general review to be completed by 2013) to ensure that the quotas reflect changes in the relative weights of the member countries in the world economy.

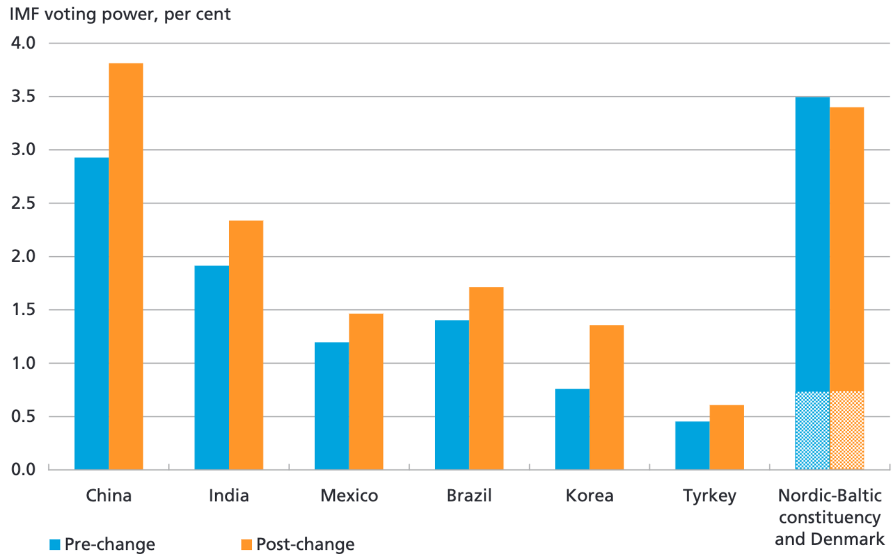
CONTINUED Box 1

Other elements of the quota and voice reform include that constituencies of minimum 19 countries (in practice the two African constituencies) are allowed to appoint an additional Alternate Executive Director, and further elaboration on the quota formula variables of variability and openness, including financial openness.

Amendment to the IMF's Articles of Agreement. The reform entails the need to amend the IMF's Articles of Agreement as a result of the proposed tripling of basic votes, the provisions to ensure that the basic votes constitute a specific proportion of the total voting power, and provisions allowing particularly large constituency offices to have two Alternate Executive Directors.

The reform will result in an overall shift in quota shares of 4.9 percentage points and a shift in votes of 5.4 percentage points. 54 countries will get a quota increase, while 135 countries will be given greater voting power; the tripling of the basic votes will be of great consequence. The reform means a shift in quota shares of 1.1 percentage points from the industrialised countries to the emerging market economies and low-income countries and a shift in votes of 2.7 percentage points. The EU will see its total voting power decline, thus contributing the bulk of the quota shift to the emerging market economies and low-income countries. China, Korea, India, Brazil and Mexico are among the countries whose voting power will increase the most as a result of the quota reform, cf. Chart 2. The reform will mean a minor decrease in the Nordic-

VOTING WEIGHTS BEFORE AND AFTER THE IMF QUOTA REFORM Chart 2



Note: "Pre-change" is prior to the first round of ad hoc quota increases.
Source: IMF and own calculations.

Baltic constituency's total voting power. Denmark's voting power will increase from 0.76 per cent to 0.78 per cent.

No country got everything it wanted during the complex negotiations and particularly the wish for a more transparent and simple formula could not be met. However, all countries got a globally improved representative institution, which will support the IMF's legitimacy and efficiency. Moreover, the decision is dynamic, given the requirements for further adjustment every five years.

REFORM OF THE IMF'S FINANCES

Low demand for IMF loans in recent years has caused the IMF's revenue base to dwindle, as a large proportion of IMF's administrative costs are financed by interest-rate margin on lending. In 2006, the IMF adopted temporary measures to address the declining revenue base, including drawing on its reserves. Furthermore, an investment account was established with a view to obtaining a higher return on the reserves. In 2007, discussions were initiated for more permanent solutions to ensure the revenue base, on the basis of a report prepared by an external committee chaired by Andrew Crockett. The report's starting point was a new IMF income model with separate financing of the IMF's three core activities (surveillance, lending and technical assistance). The provision of public goods such as surveillance was to be financed by the member countries in general, while lending was still to be financed by the interest-rate margin on lending. Other bilateral services, e.g. technical assistance, were to be financed by the recipients and/or by bilateral donors[1].

Based on the recommendations of the report, the IMF's Executive Board adopted an overall package in April 2008 concerning new sources of revenue of approximately 300 million dollars per year. The key elements of the income reform are described in further detail in Box 2. At the same time agreement was reached on spending cuts of approximately 100 million dollars over the next three years. Staff reductions by just under 400 employees (out of some 2,900) will account for the major part of these savings, while the rest will be achieved by streamlining and reprioritising the Fund's tasks. The staff reduction has proved to be attainable by voluntary retirement to be completed by 1 May 2009.

The overall income reform was approved by the Board of Governors on 5 May 2008. Following the Board of Governors' approval, as was the case of the quota reform, the IMF member countries have to express

[1] For a further description, see Katrine Graabæk Mogensen, The Future Financing of the IMF, Danmarks Nationalbank, *Monetary Review,* 2nd Quarter 2007.

THE IMF INCOME REFORM 2008 — Box 2

The reform of IMF income involves new sources of revenue decoupled from IMF lending and thus includes three new sources of revenue based on the Crockett Committee[1] proposal of January 2007:

- *Expanding the IMF's investment mandate.* The expansion includes giving the IMF investment opportunities in line with those of multilateral development banks, notably the World Bank, which, unlike the IMF, can invest in government bonds (rated AA and above) and asset-backed securities (rated AAA only). The proposal requires an amendment of the IMF's Articles of Agreement and thus a majority of 85 per cent and three fifths of the membership.
- *Gold sale***.** Investing the proceeds of a sale of 403.3 metric tons of gold (out of 3,217 metric tons). The decision comprises only gold acquired by the IMF after the Second Amendment of the IMF's Articles of Agreement in 1978, i.e. primarily gold from the 1999-2000 off-market transactions[2]. In the interests of the gold market, the sales are to be carried out within the framework of the current central bank agreements on gold sales. An 85 per cent majority is required both to sell gold and to amend the IMF's Articles of Agreement to allow the total proceeds of the gold sales to be invested. Without an amendment of the Articles of Agreement there is a risk that part of the gold sale proceeds would be used for the IMF's general accumulation of reserves.
- *The PRGF-ESF Trust shall finance its own administrative costs*. So far, the administrative costs of subsidised loans to low-income countries under the PRGF facility have been covered by the IMF's general resources, but it is proposed that in future they should be covered by the PRGF-ESF Trust itself. The proposal requires only a simple majority vote.

[1] The Crockett Committee was the Committee of Eminent Persons, chaired by Andrew Crockett (JP Morgan Chase), whose members included Alan Greenspan, Jean-Claude Trichet and Zhou Xiaochuan, Governor of the People's Bank of China. It was set up to study possible new sources of revenue for the Fund.

[2] The IMF revalued part of its gold by selling and repurchasing gold at market value from countries required to repay loans from the IMF. Thus, the bulk of the IMF's gold was entered in the IMF's balance sheet at a book value of 35 SDR per ounce, while the market price is considerably higher. The purpose of these off-market transactions was to finance facilities for the low-income countries (debt relief and low-interest loans).

whether the required amendments to the Articles of Agreement are acceptable to them. The amendments will not enter into force until they are accepted by at least three fifths of the IMF members representing at least 85 per cent of the votes. In this respect it should be mentioned that in the case of the USA, some of the proposals, including the IMF's gold sales, have to be approved by the US Congress. Denmark approved the amendments to the Articles of Agreement on 2 October 2008.

The proposed amendments will have no direct impact on Denmark, which supported the efforts to stabilise and increase the Fund's income during the negotiations.

The income reform was launched at a time when lending was low, and in the light of the many recent loans, the premises of the reform may become less relevant. Nevertheless, implementing the reform will reduce the IMF's dependence on the credit requirements of its member countries.

STRENGTHENING THE IMF'S MACROECONOMIC AND FINANCIAL SURVEILLANCE

In September 2008, the IMF's Executive Board conducted a comprehensive evaluation of the IMF's macroeconomic and financial surveillance experience during the Triennial Surveillance Review. The review gave rise to discussions of the implementation of the new framework for the IMF's bilateral surveillance of its member countries that was adopted in 2007, and the preparation of surveillance guidelines for the coming years.

The implementation of the 2007 decision aimed to make the IMF surveillance more efficient and transparent and to strengthen the focus on external stability, including the exchange-rate policies of the member countries. However, implementing the decision turned out to be more difficult than expected. For example, China's economy has not been discussed in the IMF for more than two years despite its key importance to the world economy. The difficulties are to some extent attributable to the inadequacy of the existing analysis tools to assess whether a country's exchange-rate policy creates external imbalances. In particular, it has proved difficult to determine whether a country's exchange rate is fundamentally misaligned, which is an exceptionally sensitive topic. The IMF is in the process of improving the methodological framework for exchange-rate assessment and has introduced further measures, including the special ad hoc consultation option, to improve the implementation of the 2007 decision. In addition, there is increasing support for the view that excessive focus on the exchange-rate policy should be avoided, and that it is vital to ensure overall consistency in stability-oriented economic policy.

The evaluation of the IMF's surveillance resulted in a statement of surveillance priorities for 2008-11. The key elements of the statement, which was approved by the IMFC at its meeting in October, are presented in Box 3. The IMFC emphasised the IMF's key role in providing the member countries clear and early warning about risks and vulnerabilities in terms of financial and macroeconomic stability.

For Denmark the most recent IMF visit took place in the autumn of 2008. The visit concluded with the head of the IMF mission announcing a number of recommendations regarding the Danish economy[1]. Based on this visit, the IMF will prepare a more detailed report on the Danish economy. The report is expected to be discussed by the IMF's Executive Board around the turn of the year.

[1] The Concluding Statement of 2 October 2008 can be found at www.nationalbanken.dk.

IMF SURVEILLANCE PRIORITIES 2008-11[1] Box 3

Economic priorities:
- *Resolve financial market distress.* Restore stability and minimise the adverse impact of the current crisis in financial markets on the real economy.
- *Strengthen the global financial system* by upgrading domestic and cross-border regulation and supervision, especially in major financial centres, and by avoiding the exposure of capital-importing countries to excessive risks.
- *Adjust to sharp changes in commodity prices*. React to commodity price shifts in domestically appropriate and globally consistent ways, with emphasis on keeping inflationary pressures in check in boom phases and minimising risks that could arise when prices fall.
- *Promote the orderly reduction of global imbalances* while minimising adverse real and financial repercussions.

Operational priorities:
- *Risk assessment.* Refine the tools necessary to provide clear early warnings to members. Thorough systematic analysis of major risks to baseline projections (including rare, but very serious risks).
- *Financial sector surveillance and real-financial linkages.* Improve analysis of financial stability, including diagnostic tools; deepen understanding of linkages; and ensure adequate discussion in surveillance reports.
- *Multilateral perspective.* Bilateral surveillance to be informed systematically by analysis of inward spillovers; outward spillovers (where relevant); and cross-country knowledge (as useful).
- *Analysis of exchange rates and external stability risks.* In the context of strengthening external stability analysis, integrate clearer and more robust exchange rate analysis, underpinned by strengthened methodologies, into the assessment of the overall policy mix.

[1] The statement is available in its entirety at: www.imf.org/external/np/pdr/surv/2008/index.htm.

THE IMF'S ROLE DURING THE FINANCIAL CRISIS AND IN THE FUTURE

During the Annual Meetings in October the IMF was invited to play a leading role in helping the member countries to handle the current financial crisis and in activities to strengthen the global financial architecture. The universal membership of the IMF and its vast macroeconomic and financial expertise provide a good foundation for drawing lessons from the financial crisis and recommending effective measures to restore confidence and stability. At the same time importance was attached to enhancing cooperation with the Financial Stability Forum (FSF), the G20 and other key players.

Since the Annual Meetings Ukraine, Hungary, Iceland and Pakistan, which have been particularly severely hit by the crisis, have concluded agreements with the IMF concerning large-scale loans, cf. Box 4.

MAJOR BORROWERING ARRANGEMENTS IN THE AUTUMN OF 2008:
UKRAINE, HUNGARY, ICELAND AND PAKISTAN Box 4

On 5 November 2008, the IMF approved a loan of 16.4 billion dollars for *Ukraine* in the form of a two-year Stand-By Arrangement[1]. The loan corresponds to 802 per cent of Ukraine's quota[2]. The approval enabled the immediate disbursement of 4.5 billion dollars. The IMF programme is designed to help the authorities restore confidence in economic and financial stability. The key elements are to recapitalise the banking sector, ensure a flexible exchange-rate policy, strengthen the independence of the central bank, tighten monetary policy, and consolidate fiscal policy, which will allow increased expenditure for unemployment benefits.

On 6 November 2008, the IMF approved a 15.7 billion dollar 17-month Stand-By Arrangement for *Hungary* to avert a deepening of financial market pressures. The loan corresponds to 1,015 per cent of Hungary's quota. The international financial turmoil significantly increased the refinancing risk of Hungary's external debt. The IMF's financial support, combined with a loan of 8.4 billion dollars from the European Union and a 1.3 billion dollar loan from the World Bank, totalling about 25 billion dollars in financial support, will provide Hungary with sufficient reserves to meet its external obligations, even in extreme market circumstances. The economic-policy programme includes substantial fiscal policy tightening and an extensive banking sector support package.

On 19 November 2008, the IMF approved a 2.1 billion dollar two-year Stand-By Arrangement for *Iceland*. This is the IMF's first credit agreement with an industrialised country since the case of the UK in 1976. The loan corresponds to 1,190 per cent of Iceland's quota. The objective of the IMF programme is to stabilise the Icelandic krona, to restore a viable banking sector and to implement a medium-term fiscal consolidation programme. In connection with the IMF loan, Denmark, Finland, Norway and Sweden have decided to grant supplementary financing of 2.5 billion dollars. On 20 November, Danmarks Nationalbank, Norges Bank and Sveriges Riksbank announced that they had prolonged their swap facilities with Seðlabanki Íslands. The agreement enables Seðlabanki Íslands to obtain up to 1,500 million euro equally distributed on the three central banks.

On 24 November 2008, the IMF approved a 23-month Stand-By Arrangement for *Pakistan* in the amount of 7.6 billion dollars, which corresponds to approximately 500 per cent of Pakistan's quota. The economic stabilisation programme includes significant monetary and fiscal policy tightening to dampen inflation and reduce the current account deficit to a more sustainable level. At the same time, the programme aims to ensure adequate support for the poor and vulnerable in Pakistan through a targeted social safety net. In connection with the IMF loan, Pakistan will also receive support from other multilateral organisations and regional development banks.

[1] A Stand-By Arrangement is one of the lending instruments made available by the IMF to its member countries. The instrument is designed to help countries with short-term balance-of-payments problems. A Stand-By Arrangement typically stretches across 12-24 months, and the loan is expected to be repaid within 2¼ to 4 years.

[2] Normally, a country can only draw up to 100 per cent of its quota per year and up to 300 per cent in total. However, the IMF's Executive Board can disregard this rule in exceptional circumstances. See the Public Information Notice from the IMF at www.imf.org/external/np/sec/pn/2001/pn01102.htm.

The loans are all significantly above the normal access limit of 300 per cent of the quota and have thus been approved under the special fast-track Emergency Financing Procedures. The procedure was previously used by four countries during the Asian crisis in 1997 and by Turkey in 2001. It is used when a member country is facing an exceptional situation that threatens its financial stability, and where immediate action is crucial for damage control purposes.

After several years of futile discussions about a new insurance facility without special conditionality, the IMF introduced a new facility in October 2008, the SLF, which provides large short-term loans without the normal binding economic-policy requirements. The facility is aimed primarily at emerging market economies with track records of sound economic policies. It is intended exclusively for use by countries that have previously had access to international capital markets, and whose external position was sustainable until the onset of the crisis. The current account deficit is therefore required to be self-correcting. The total amount made available under the arrangement will be up to 500 per cent of the quota. The intention is to make this amount available immediately on approval by the IMF's Executive Board, with a limit of three drawings over each 12-month period. At the same time each drawing is to be repaid after just three months. A country that has utilised its three drawing rights and needs continued support must change to a standard Fund arrangement. The decision includes a provision to the effect that the IMF's Executive Board will reconsider its decision if lending under this facility reaches 60 billion SDR (approximately 100 billion dollars) or about half of the IMF's lending capacity of approximately 200 billion dollars, to which should be added the IMF's GAB and NAB financing arrangements of approximately 50 billion dollars. So far, no countries have applied for support under the facility.

On 15 November 2008, the G20[1] leaders of the largest industrialised countries and emerging market economies met in Washington to discuss the international financial crisis. The declaration and action plan from the meeting represent a step towards enhanced international cooperation with a view to handling the global financial crisis and preparing reforms to prevent similar crises from recurring.

In relation to the implementation of the action plan from the meeting, the IMF will play a prominent role in strengthening the early warning system in case there are indications that a crisis is imminent. The IMF's role as macrofinancial advisor is to be enhanced, and the IMF is to help countries overcome the crisis. Furthermore, the IMF will play a key role in the

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[1] Official G20 website: www.g20.org.

international efforts to design a better global financial system for the 21st century. In this connection the G20 invited the IMF to play a leading part in drawing lessons from the financial crisis. Before the meeting, the IMF had been encouraged by the IMFC to play a leading role in relation to the above issues, which is also reflected in the work programme of the IMF's Executive Board that was presented at the end of November.

The G20 leaders supported the SLF and a review and possible simplification of the IMF's lending instruments. The G20 undertook to ensure that the IMF has sufficient resources to discharge its duties[1]. At the meeting, all G20 countries accepted to let the IMF review their financial sectors under the Financial Sector Assessment Program, FSAP. Of the G20 member countries, four have not yet been through an FSAP, including the USA. An FSAP was carried out for Denmark in 2006[2].

Finally, a wish was expressed for the World Bank and the IMF to better reflect the change in the global economy by increasing the influence of the countries playing a more central role today. The Managing Director of the IMF has already set up a committee headed by South African finance minister Trevor Manuel with a view to recommending measures to strengthen the IMF's decision-making structures and enabling the IMF to carry out its global mandate more effectively. The Committee's report is expected to be available in April 2009.

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[1] Japan offered to lend the IMF up to 100 billion dollars in connection with the financial crisis. For further information, see www.imf.org/external/np/sec/pr/2008/pr08284.htm.

[2] For further information see Gitte Wallin Pedersen, IMF Review of the Financial Sector in Denmark, Danmarks Nationalbank, *Monetary Review*, 4th Quarter 2006.

Development in the Labour Supply

Erik Haller Pedersen and Johanne Dinesen Riishøj, Economics

INTRODUCTION AND SUMMARY

The labour force has increased during the most recent upswing, even though demographic trends would warrant a reduction. Good job opportunities have led to an expansion of the labour force and moved more people off public benefits, and at the same time there has been an influx of foreign labour. Particularly the extent to which Denmark has succeeded in attracting foreign labour distinguishes this upswing from previous ones. In addition, the total number of hours worked per employee has stopped declining and has in fact been on the rise since the mid-1990s. Together, the increase in the labour force and the higher number of hours worked per employee have boosted the labour supply by more than 160,000 since 2004.

Employment has risen even more than the labour force, and registered unemployment has fallen to the lowest level since the early 1970s. Unemployment can be expected to increase as the economy cools down. Nevertheless, the challenge of the coming years will be to increase age-related participation rates and to ensure a sufficient supply of foreign labour as the ageing of the population continues to reduce the labour supply significantly. The labour supply is only expected to increase again in 10 years' time as welfare reform initiatives gradually raise the eligible ages for early retirement benefits and state retirement pension as from 2019 and 2024, respectively. Above all, an increase in the labour supply is necessary to ensure fiscal sustainability.

In Denmark a very large share of the population of working age is outside the labour force and on some kind of public benefits. The share is the highest among the Nordic countries. An increase in the age-related participation rates would therefore require a reduction of the number of people on public benefits.

The requirement for an increase in the labour supply to maintain the level of output and ensure the sustainability of public finances and ultimately the foundation of the Danish welfare society will be so urgent in the coming years that a wide range of initiatives are needed.[1]

[1] A Labour Market Commission and a Tax Commission are currently working on specific proposals for ways to increase the labour supply. The Labour Market Commission presented a preliminary report in the autumn. There was no immediate political support for substantial parts of its proposals, however.

LABOUR FORCE AND LABOUR SUPPLY

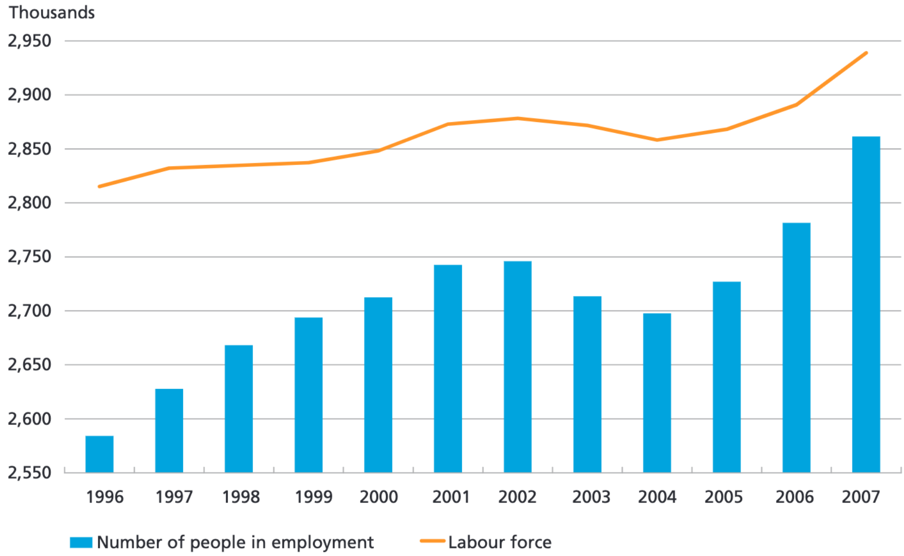
The labour force is calculated as the sum of those in employment and the unemployed, expressed in number of people. Employment increased more than the supply of labour during the most recent upswing and resulted in a substantial reduction in unemployment, cf. Chart 1.

The total labour supply is determined by the labour force and by the hours worked per employee. Thus, the labour supply can be increased both by attracting more Danes and foreigners to the labour market and by raising the number of hours worked by those in employment.

The labour supply is affected by cyclical changes. In times with good job opportunities more people will enter the Danish job market while the opposite is true in bad times. The labour supply is also affected by structural factors such as demographic trends, social norms, rules on eligibility for unemployment benefits, leave-of-absence and retirement schemes, e.g. early retirement benefits, access to social pensions, and the official retirement age.

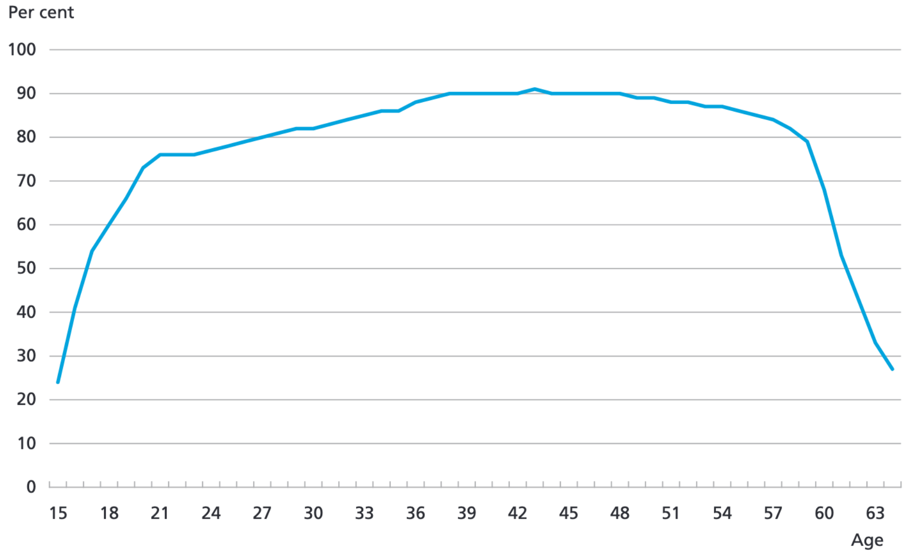
Relating the labour force to the population of working age gives the average participation rate. Breakdown by age intervals gives the age-related participation rates, cf. Chart 2. As people close to retirement age are less active on the labour market than the middle-aged, a shift in the population towards more elderly people would lead to a reduction of the average participation rate, even if the age-related participation

LABOUR FORCE AND NUMBER OF EMPLOYEES Chart 1



Note: Employment according to the national accounts. The gap between the two graphs shows the number of unemployed people.
Source: Statistics Denmark.

AGE-RELATED PARTICIPATION RATES 2007 Chart 2



Source: Adam databank.

rates remain unchanged. The average participation rate will also fall to the extent that immigration to Denmark consists of people with a participation rate below that of the residents.

Demographic trends will tend to lower the average participation rate in the coming decades. At the same time the share of the population outside the labour market will increase.

Cyclical effect on the labour supply

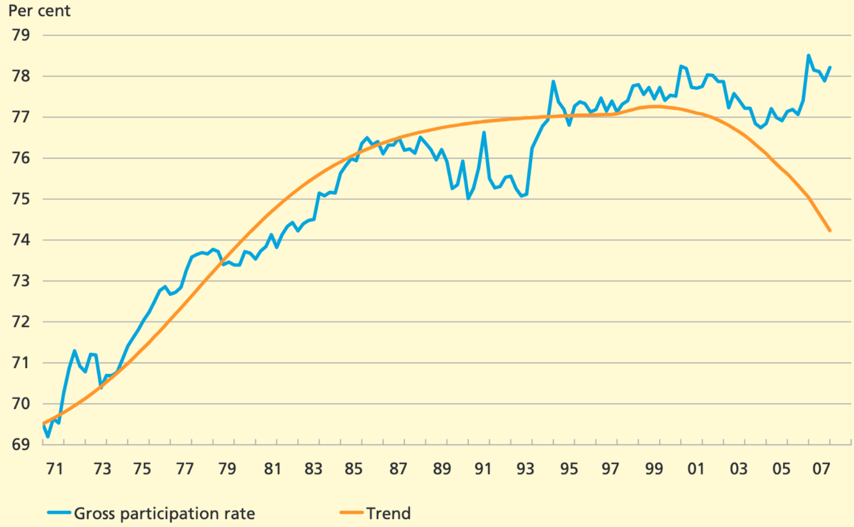
As already mentioned, the labour supply is determined by both the economic cycle and underlying structural factors. To get an indication of the cyclical effect on the labour supply, a gross participation rate is compared with a trend in Box 1. In addition to those in employment and the unemployed, the gross participation rate also includes people on early retirement benefits and transitional allowance, people on maternity leave, child-minding or educational leave and people participating in educational labour-market schemes as a share of the population aged 15-74 years, thus isolating the cyclical effect from the main policy-determined structural effects.

The spread between the gross participation rate and the participation rate increased from the end of the 1970s to the mid-1990s following the introduction of several schemes such as early retirement benefits, transitional allowance, leave, etc. With 140,000 people, early retirement benefits is the most significant of these schemes. The spread has stabilised

CYCLICAL EFFECT ON THE LABOUR SUPPLY Box 1

The labour force equals the sum of those in employment and the unemployed. The participation rate shows the relation between the labour force and the population of working age (15-74 years). In order to get an idea of the impact of cyclical factors on the labour supply, a gross participation rate is calculated, as well as a trend expressing the effect of structural conditions. The gross participation rate is calculated using a gross labour force, including people on maternity leave, other leave and transitional allowance, people participating in educational labour-market schemes and early retirement benefit recipients aged 60-64 years, thus adjusting for a large number of policy-determined changes in the labour force.

GROSS PARTICIPATION RATE AND TREND Chart 3



[1] The gross participation rate calculation is based on a gross labour force including, in addition to those in employment and the unemployed, people on early retirement benefits, transitional allowance, maternity leave, child-minding and educational leave as well as people participating in educational labour-market schemes. The logistic trend is in accordance with the MONA model.

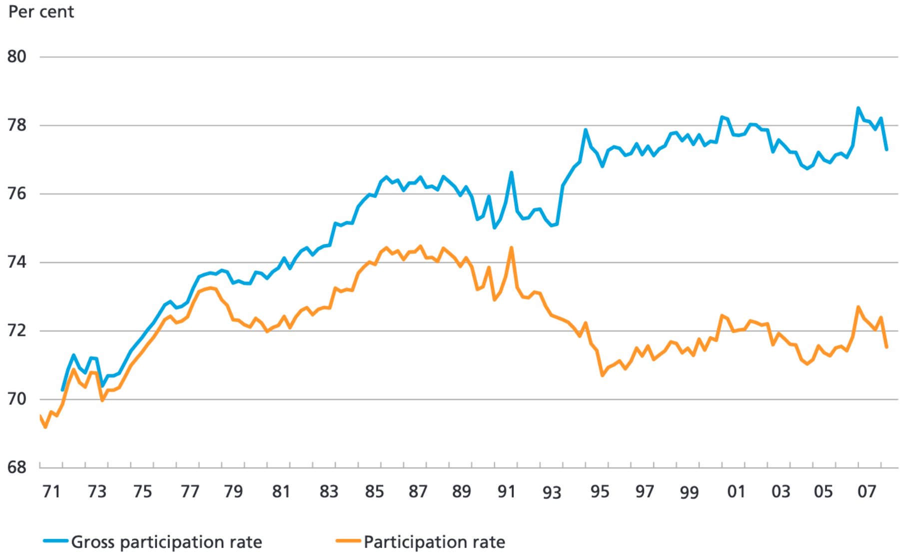
[2] Statistics Denmark and own calculations.

The gross participation rate is compared with a logistic trend with its saturation point in the 1990s. From 1998, the trend variable changes to fall in step with a standard labour force calculation, cf. Chart 3, thus adjusting for demographic trends in the last part of the period.

The logistic trend is a method to smooth out the gross participation rate. It was chosen because of the s shape's ability to capture women's increased participation in the labour market from the 1960s to the 1990s, when women's participation rate had reached a level virtually on a par with men's. Women's increased participation in the labour market completely dominates demographic trends in the first decade of the period under review.

The cyclical contribution to the labour force appears as the difference between the gross participation rate and the smoothed-out curve, i.e. as the difference between the two graphs in the Chart.

PARTICIPATION RATES Chart 4



Note: Gross participation rate as defined in the note to Chart 3 in Box 1.
Source: Statistics Denmark and own calculations.

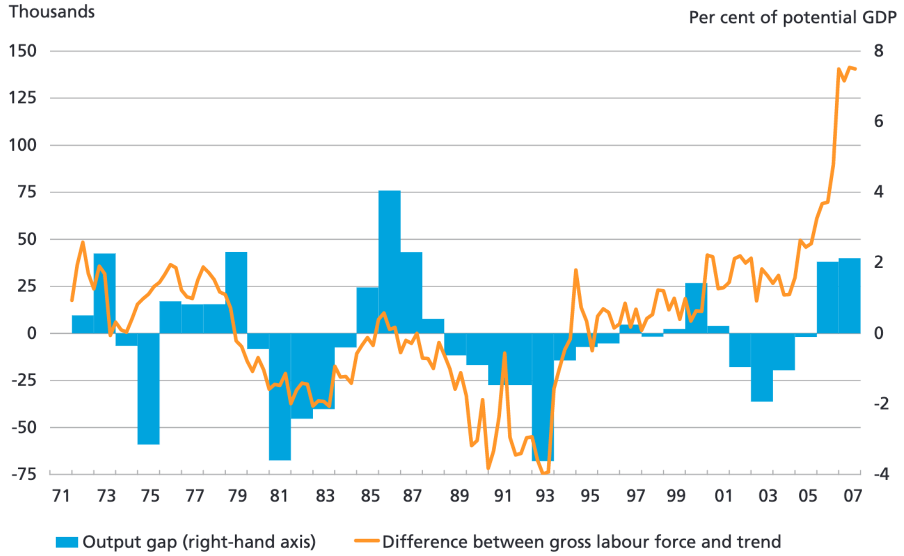
since then, cf. Chart 4, and indicates a current labour force potential of up to 6 per cent of the population in the age groups concerned.

The cyclical contribution, calculated as the difference between the gross participation rate and the trend, can be compared with the output gap, which is a measure of the pressure on the economy, cf. Chart 5. Historically, there has been a clear correlation, in that increased pressures on the economy have led to both reduced unemployment and an expansion of the labour force. During the most recent upswing the cyclical effect seems to have been more pronounced than previously. The increase has been even stronger than shown in the Chart, since the national accounts do not include in the labour force employees seconded to Denmark from foreign companies.

The challenge of the coming years will be to prevent the participation rates from falling back again as the economy slows down, but rather to ensure a further increase and an influx of foreign labour. It is important to turn what was initially a cyclical effect into a more permanent increase in the labour force.

The increase in the labour force during the boom economy was to some extent the result of fewer young people enrolled in education, however. This may reflect that fewer young people choose to get an education, but also that they finish their studies sooner. This is a well-known phenomenon in a boom economy. If fewer young people get an education, the level of competence will be undermined, and therefore

CYCLICAL CONTRIBUTION TO LABOUR FORCE AND OUTPUT GAP Chart 5



Note: Output gap according to OECD. The difference between the gross labour force and the trend is an indicator of the cyclical contribution to the labour force.
Source: OECD, Statistics Denmark and own calculations.

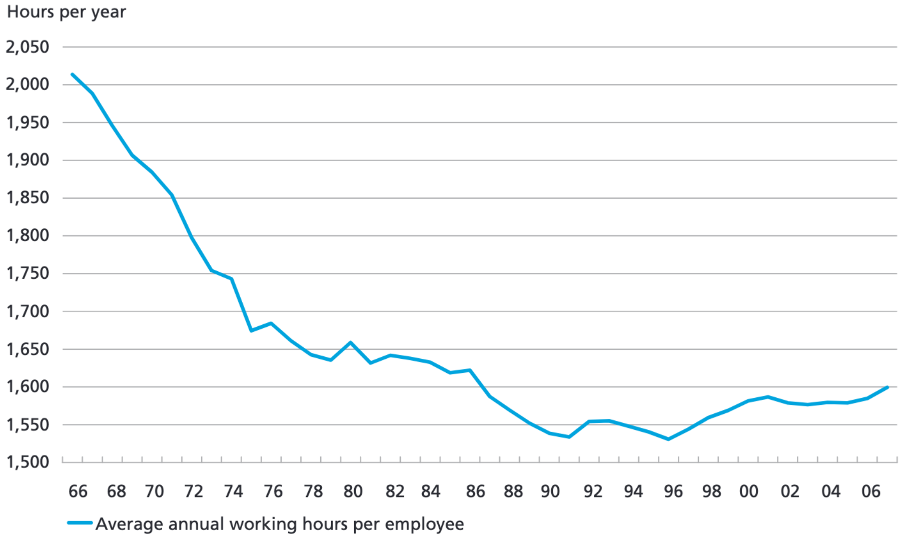
such expansion of the labour force is not sustainable in the long run. On the contrary, a higher proportion of young people need to get a qualifying education if Denmark is to sustain a long-term level of prosperity and competitiveness.

Not only has the labour supply grown in numerical terms during the upswing, the number of hours worked per employee has also increased, cf. Chart 6. The increase in working hours per employee from 2004 to 2007 corresponds to 34,000 more people in full-time employment. This is a continuation of the trend that has been observed since the mid-1990s with an increased number of working hours per person. In this respect, Denmark differs from practically all other OECD countries, where the number of working hours continues to fall. Denmark remains at the lower end among the OECD countries, however, which is a reflection of its high participation rate.

Where does the influx to the labour force come from?

The labour force, calculated as the sum of those in employment and the unemployed in the 15-64 age group, grew by 68,000 from 2004 to 2007. If the underlying demographic trend with fewer people of working age is taken into account, there has actually been an influx of labour of 81,000, cf. Table 1.

DEVELOPMENT IN NUMBER OF HOURS WORKED PER EMPLOYEE — Chart 6



Source: Statistics Denmark.

In Denmark virtually everyone outside the labour force is on some kind of public benefits. The increase in the labour force includes 30,000 that previously received public benefits. Among the cash-benefit recipients,

LABOUR INFLUX DURING THE BOOM — Table 1

	Change in number of people, 2004-07
1. Actual influx to labour force (b-a)	81,000
Of which:	
a. Demographics	-13,000
b. Labour force[1]	68,000
2. Total from social pensions, etc.	30,000
Of which:	
Cash benefits	14,000
Early retirement pension	4,000
Early retirement benefits	8,000
Sickness benefits	-6,000
Other[2]	10,000
3. Foreign labour, etc. (1-2)[3]	51,000
4. People seconded to Denmark	51,000
5. Effect of increased working hours/employee	34,000
6. Total influx (1+4+5)	166,000

Source: Statistics Denmark, Adam databank, Tax Centre Tønder and own calculations.

1 The labour force is calculated as the number of employees aged 15-64 years according to the national accounts definition plus the number of unemployed people aged 15-64 years according to unemployment statistics. People seconded to Denmark are not included in the labour force calculation in the national accounts.

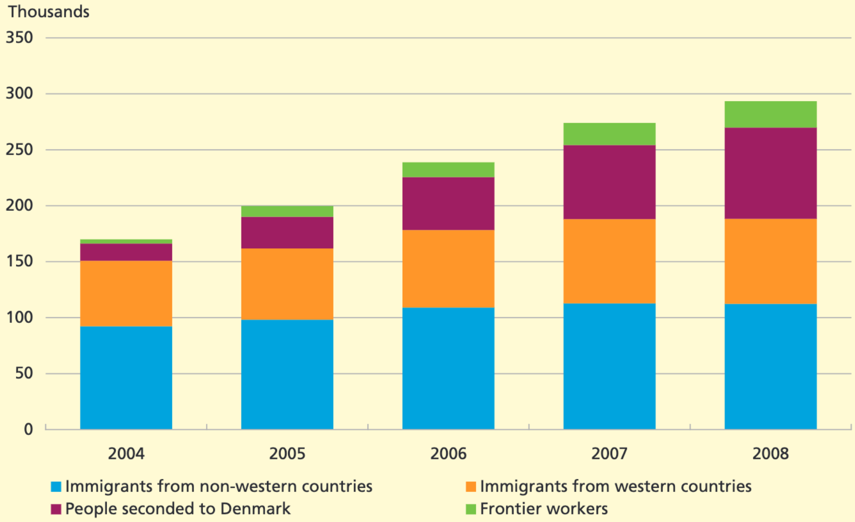
2 Includes maternity benefits, child-minding leave, unemployment allowance, rehabilitation and activation schemes.

3 Includes immigrants, frontier workers and other sources and is calculated residually. This item includes foreign contributions to the labour force and is not directly comparable to the bars in Chart 7 in Box 2. The Chart shows the number of employees with a foreign background. A good many of the foreigners employed were already in Denmark and receiving transfer payments in 2004. If the figures in Chart 7 were to be used in this table, some employees would thus be counted twice, i.e. as influx of foreign labour and as labour previously receiving transfer payments.

FOREIGN LABOUR STATISTICS Box 2

Complete statistics are not available regarding foreign labour in Denmark, cf. Chart 7, and to some extent the figures relating to foreign labour in this article are therefore based on estimates. All employees in Denmark except those seconded are included in the employment calculation in the national accounts and in the ATP (Labour Market Supplementary Pension) statistics, but they are not broken down by nationality in these or other economic statistics regarding employment. Employment is broken down by nationality in the register-based labour force, but this only includes people residing in Denmark, and as a result the statistics do not include frontier workers and people seconded to Denmark. Furthermore, the register-based labour force is only compiled on an annual basis and with a considerable lag. Consequently, other sources must also be applied when assessing the contribution of foreign labour to the labour force.

FOREIGN LABOUR IN THE DANISH LABOUR MARKET Chart 7



Note: Year-end observations. The 2008 observations are from August. It should be noted that there are no figures for the number of German frontier workers in 2004, so the 2004 figure shows only Swedish frontier workers, whereas the 2005, 2006, 2007 and 2008 figures include both Swedish and German frontier workers. The frontier workers include only people who were not born in Denmark, i.e. Danes residing in Sweden or Germany are not included.

Source: Tax Øresund, Tax Centre Tønder, the Danish Immigration Service, Statistics Denmark and own calculations.

The estimated number of immigrants in employment from western and non-western countries, respectively, is based on the register-based labour force statistics. The statistics are compiled in November, but Statistics Denmark places the observation in January of the following year. The November observation is included as year-end in the present estimate. As the most recent statistics are from November 2006, the figures have been projected using the number of immigrants in age group 16-66 (from western and non-western countries, respectively), and the employment rate for immigrants (western and non-western, respectively) aged 16-66 years. The calculation maintains the employment rate of November 2006.

As no data is available on the total number of frontier workers in Denmark we have assumed that they only include employees from Germany and Sweden. Frontier

CONTINUED Box 2

workers residing in Sweden and working in Denmark are registered in the Øresund database, and fairly exact data on them is therefore available. The most recently published figures are from November 2006. The subsequent projection is based on the granting of tax deduction cards to new Danish taxpayers residing in Sweden. The number of German frontier workers is based on an estimate from Tax Centre Tønder.

The calculation of employees seconded to Denmark is also based on information from Tax Centre Tønder. Information on the number of foreign companies conducting business in Denmark without their representatives residing permanently in Denmark is available from SKAT. The number of employees seconded to Denmark is based on the estimate that each company employs an average of 15 people. The estimate is based on a sample survey, cf. Jens A. Hansen and Søren Kaj Andersen, Eastern European Workers in the Danish Construction Sector (in Danish only), FAOS (Employment Relations Research Centre), January 2008, and subject to uncertainty.

the proportion of people in match groups 4 and 5 keeps growing as those with better qualifications find jobs. This makes it increasingly difficult to source additional labour from the group of cash-benefit recipients. The number of people on sickness benefits has risen during the period under review.[1] The reason is that as employment rises, weaker groups with higher rates of absence due to illness have entered the labour market.

Foreign labour accounted for approximately 102,000 additional employees during the boom, thus contributing more to meeting the need for labour than during previous upswings.

The number of employees seconded to Denmark is subject to some uncertainty, cf. Box 2, and is not included in the calculation of the labour force in the national accounts. The increase in the participation rate during the most recent upswing is therefore even stronger than indicated in Chart 4.

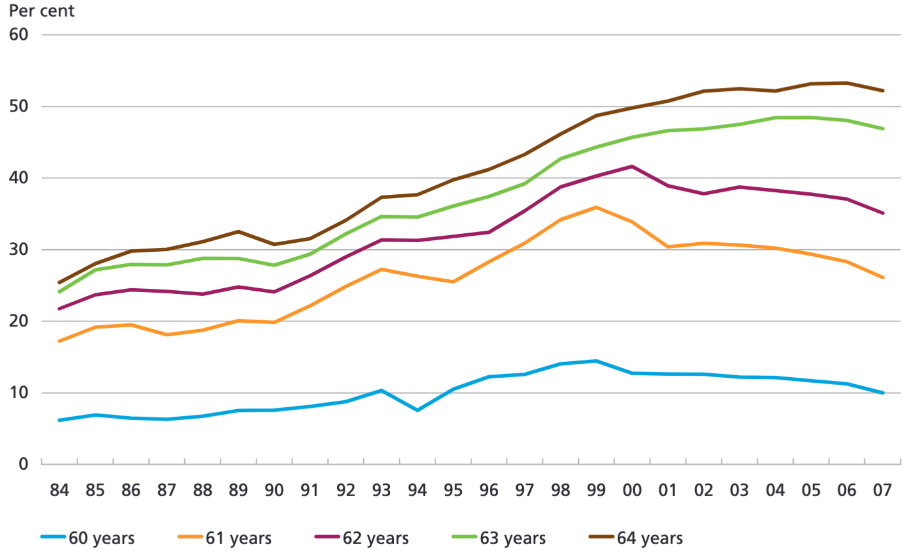
If the increase in working hours per employee is included, the total influx to the labour market amounted to 166,000 from 2004 to 2007.

The boom in the economy since 2003 has influenced the share of people aged 60-64 who receive early retirement benefits only to a small extent. There has been a decline at the lower end of the age interval and a flat development at the upper end, cf. Chart 8.

If the share of early retirement benefit recipients had been the same in 2007 as in 2004, 8,000 more people would have been on early retirement benefits.

[1] In October 2008, a tripartite agreement was concluded between the government and the social partners with a view to reducing absence due to illness.

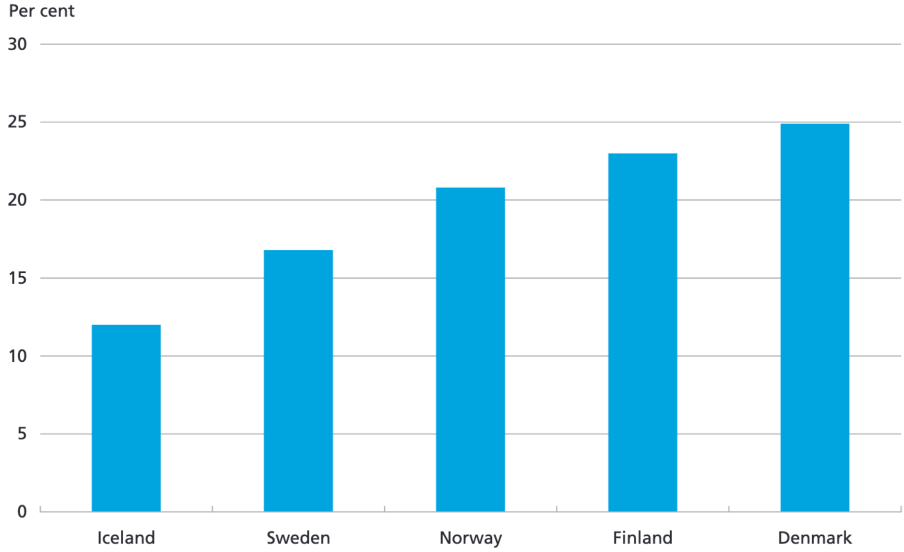
SHARE OF EARLY-RETIREMENT BENEFIT RECIPIENTS, BY AGE Chart 8



Note: Full-time participants receiving early-retirement benefits in proportion to the population.
Source: Statistics Denmark.

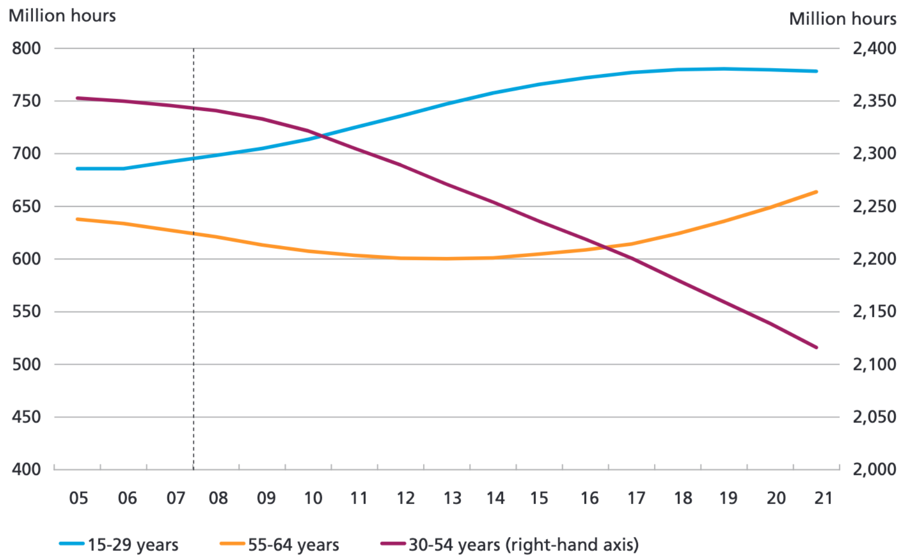
The Danish early retirement benefit scheme contributes to explaining why the share of people aged 16-66 on public benefits is the highest among the Nordic countries, cf. Chart 9.

SHARE OF PEOPLE AGED 16-66 YEARS RECEIVING PUBLIC BENEFITS IN 2007 Chart 9



Note: Figures relating to Sweden include people aged 20-64 years. Figures relating to Norway do not include people on maternity leave.
Source: Statistics Denmark, the Danish Ministry of Finance, the Norwegian Labour and Welfare Organisation (NAV), Statistics Norway, Statistics Sweden and the Confederation of Danish Employers (DA).

FUTURE ANNUAL LABOUR INPUT IN HOURS BROKEN DOWN BY AGE GROUPS Chart 10



Note: Projection of standard calculation of annual labour input maintaining age-related participation rates and number of hours worked per employee at 2005 level. The projection is based on Statistics Denmark's population forecast 2008.

Source: Statistics Denmark and own calculations.

THE LABOUR FORCE IN A FORWARD-LOOKING PERSPECTIVE

For many years population trends were favourable for Denmark in that the population groups with the highest participation rates increased. This has changed. Up to 2020 the labour force will grow by 75,000 in the 15-29 age group, but if the participation rates remain the same as in 2005, the number of people aged 30-54 will fall by approximately 140,000 during the same period, cf. Chart 10. The assumption of an unchanged participation rate for young people may be too optimistic given the objective that an increasing share of young people in each year group should get a qualifying education.

If the age-related participation rates and hours worked per employee are kept at the 2005 level, the total hours worked will fall by 3.5 per cent up to 2020. At the same time, the number of elderly people and children will increase by a total of 240,000, thereby draining public funds by an additional estimated kr. 13 billion[1] per year at present value. The need for teachers for the children and for nursing and healthcare professionals for especially the elderly will increase and has

[1] The figure is based on the Welfare Commission's calculation of age-related net contributions to the public sector. To the extent that a continued raising of the standard and scale of public services is required, the figure will be higher.

to be met by a reduced labour supply. Higher expenditure on public service combined with a smaller tax base increases the urgency of the fiscal sustainability issue.

While population trends can be calculated fairly accurately for a considerable number of years to come and are difficult to manage politically, that is not the case for labour participation and hours worked per person per year. These elements can be influenced by politically adopted incentive mechanisms and amendments to the framework conditions. Experience from Danish labour-market policies over the last 15 years indicates that a "stick and carrot" approach has an effect on labour input.[1] If the Danish welfare model is to be maintained without substantial reductions, a wide range of measures will be needed to increase labour input in the economy.

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[1] See Erik Haller Pedersen and Johanne Dinesen Riishøj, Flexicurity – the Danish Labour-Market Model, Danmarks Nationalbank, *Monetary Review*, 4th Quarter 2007.

Speech by Nils Bernstein at the Annual Meeting of the Danish Bankers Association on 8 December 2008

Thank you for inviting me to speak today. I will try to look forward.

First I would like to talk about the economy. For the first time since World War II, there are widespread concerns that the industrialised world will see a fall in output next year. Large parts of the global economy are in – or heading for – a recession. Naturally, Denmark is not unaffected by this situation, as we export one third of all our output. Moreover, consumers are tightening their purse strings. Widespread talk about a crisis, tough times and falling housing prices affect the propensity to buy.

It is a bit of a paradox. On the one hand it may seem sensible for us as individual consumers to show restraint and save a little "for a rainy day", but on the other hand this sensible behaviour may be negative for the economy overall. Pessimism can be self-fulfilling if we all look on the dark side. There is no reason to do so. Actually, next year most households will see a sizeable increase in their real disposable incomes due to sustained high wage increases and lower taxes. At the same time, inflation is expected to be lower.

We expect zero growth and rising unemployment next year, but nevertheless, it is important to remember that Denmark goes into recession from a situation with low unemployment, extensive labour shortages and relatively high wage increases. Many comparable countries are in a very different situation. In the USA and many euro area member states, the economy is reversing at a time when unemployment is considerably higher. This difference is essential in terms of the economic-policy approach chosen. The fact that Denmark has not launched packages of fiscal stimulants, as many other countries have, reflects responsible economic policy – not the opposite.

When will the tide turn again? When will we see renewed progress? Most forecasters believe that the global economy will turn sometime during 2009. In Denmark's case we may have to wait until 2010. But let me emphasise that such estimates are subject to exceptionally high uncertainty.

So far, there are no indications that the current real economic development in Denmark can be labelled a "crisis" – provided that we act sensibly. Let us save the word "crisis" for a time when we are really in trouble.

The financial sector, on the other hand, is in a crisis. A combination of external problems and self-inflicted plagues has landed the financial sector in a situation where financial stability is at risk.

Looking ahead, when we discuss how to avoid a repetition of this untenable situation, it is important to remember what caused it. Not least the banks' deposit deficits have made it necessary for the central government to step in and guarantee deposits and loans to the tune of kr. 4,200 billion. The business model increasingly applied by banks since the millennium rollover is not viable in its present form.

The crisis will affect the future structure and regulation of the financial sector. It is yet too early to draw detailed conclusions, the causes must be analysed first. However, there is no doubt that the capital-to-risk requirements imposed on the financial institutions will be tightened. New transparency requirements will be imposed on financial institutions, and liquidity management will, undoubtedly, also be tightened in the future. And these requirements will not be voluntary. The weaknesses in the system will not simply pass over. We need to do something about the underlying factors that have landed us in this pickle!

At Danmarks Nationalbank we will consider how we can contribute better to strengthening financial stability in future. In this respect, we believe that we must work more closely with the Danish Financial Supervisory Authority, so that we together gain optimum insight into the risks of the banks and address weaknesses in a timely manner. We need to go on the offensive. In my opinion, the last six months have disclosed a need for more direct regulatory control of banking activities.

In the very short term a new banking package is being discussed, which is to inject new capital into the banking sector. The background is concerns as to whether the banks are currently able to fulfil their necessary role in society as intermediaries between savers and creditworthy borrowers.

So far, the central government's guarantee for all deposits with and unsecured claims against the banks has created a good foundation for the banks once again to obtain financing in the national and international financial markets.

However, what started off mainly as a liquidity crisis could turn into a genuine credit crisis.

The turmoil in the international financial markets will make it all but impossible for many banks to attract new capital. At the same time, there are many indications that Danish banks will need extra capital in the near future, as losses mount.

If nothing else is done, the banks will go on the defensive and cut their activities, thereby reducing the balance-sheet total to meet the capital requirements. Even creditworthy customers will find it difficult to obtain financing for sound projects.

At the end of 2007, the excess solvency of the banking sector as a whole was around kr. 90 billion. This would be sufficient to cover aggregate losses amounting to just over 3 per cent of all lending and guarantees. Losses of that magnitude are not unrealistic if we look at previous periods of recession.

In addition, part of the banks' subordinated loan capital matures in 2009 and 2010 – approximately kr. 10 billion in each of these years.

Furthermore, the crisis comes in the wake of a period of unusually large increases in lending by banks. In Denmark, the banks' lending amounted to almost 9 times their equity capital at the end of 2007. The same ratio in 2003 was almost 7, which was also the average for the preceding 30 years. If new capital is not attracted, a return to that gearing ratio requires a 25 per cent reduction in lending.

This pattern is not unique to Denmark, but is seen in many countries. In a situation where banks cannot raise new capital in the markets, many countries have chosen to inject capital into the banking sector by launching government rescue packages. This is in accordance with the conclusion of the European Council summit on 15 and 16 October, reaffirming the Council's commitment that in all circumstances the necessary measures will be taken to preserve the stability of the financial system, inter alia by providing the financial institutions with capital resources so that they can continue to finance the economy properly.

Overall, EU recapitalisation totals 280 billion euro.

The effect of various national capital injections has been that the core capital of international banks has increased from around 9 per cent to around 11 per cent. You could say that the international benchmark for banks' core capital has risen.

Against that background, Danmarks Nationalbank believes that it is necessary for Denmark to introduce a temporary facility to supplement the capital that can be raised in the private market, so that well-run Danish banks gain access to temporary financing on conditions that resemble those in the market as closely as possible. This has been done in other countries, and it should be done in good time, before it becomes obvious to everyone that it is required.

But there is time to consider e.g. the criteria and conditions to be applied. The facility should be in place early in the new year. In this way we will be able to contribute to a stable financial system in a period when the usual channels are closed.

As I said, the aim is to avoid an actual credit crunch in Denmark, i.e. a situation in which even creditworthy borrowers – households and businesses – are refused loans, with a negative impact on the real economy.

A capital injection must ensure that banks have sound buffers. In the opinion of Danmarks Nationalbank we need to aim for a higher core capital ratio so that losses can be absorbed.

This initiative will not solve all problems, but it may prevent further negative effects on the economy. As you know, the Danish Contingency Association and the government have already promised to cover all losses on lending to banks. A capital injection would reduce such losses and would thus serve as damage control.

On top of the financial crisis, we were hit by severe currency unrest in October – the first such incident for more than 10 years. The unrest was not due to factors in the real economy and shows that when a global financial crisis occurs, a price must be paid for not adopting the euro. The currency unrest led to a considerable outflow of capital in a very short time, resulting in falling foreign-exchange reserve and a significant widening of the yield spread to the euro area.

Monetary policy interest rates in Denmark are solely aimed at supporting the fixed-exchange-rate policy; a policy that has served Denmark well. It is based on the experience from the 70s and early 80s. If the yield spread to the anchor currency is to narrow, further private capital imports are required.

With these words I would like to say 'thank you' for our good and productive cooperation in 2008 to the Danish Bankers Association – its members, its Chairman, its Executive Board and its employees.

Press releases

18 SEPTEMBER 2008: THE ROYAL YACHT DANNEBROG AS THE MOTIF ON THE COMMON COIN WITH SHIPS

On 22 September 2008 Danmarks Nationalbank issues a new 20-krone coin with the Royal Yacht Dannebrog as its motif. This is the fifth coin with a ship as motif.

The Royal Yacht Dannebrog was built in 1931-32 at the Naval Dockyard in Copenhagen and was launched in 1932. The yacht serves as the official and private residence of Her Majesty the Queen, His Royal Highness the Prince Consort and members of the Royal Family when they are on summer cruises in Danish waters and on official visits over-seas.

The motif of the new ship coin was designed by medallist Henrik Wiberg, The Royal Mint, who has created a very attractive relief of the beautiful yacht. The relief appears both vivid and deep, although the actual depth is only around 0.19 mm. Henrik Wiberg's statement on his work with the coin can be found at the website of The Royal Mint, www.royalmint.dk.

The ship coin with its royal motif will be issued in an edition of 1.2 million coins in ordinary circulation. In addition, a very limited number of collector's coins, only 1,500 will be minted in the very fine proof quality. Furthermore, the ship coin will also be issued as a 500-krone coin in fine silver in a edition of maximum 60,000 coins. Besides the Royal Yacht, this edition includes the monogram of Her Majesty Queen Margrethe.

The coins can be purchased form banks, Danmarks Nationalbank and via the website of The Royal Mint, www.royalmint.dk

24 SEPTEMBER 2008: SWAP LINES WITH THE FEDERAL RESERVE

Today, the Federal Reserve, the Reserve Bank of Australia, Danmarks Nationalbank, Norges Bank and Sveriges Riksbank are announcing the establishment of temporary reciprocal currency arrangements (swap lines) to address elevated pressures in U.S. dollar short-term funding markets. These facilities, like those already in place with other central banks, are designed to improve liquidity conditions in global financial markets. Central banks continue to work together during this period of market stress and are prepared to take further steps as the need arises.

Danmarks Nationalbank action

The Federal Reserve and Danmarks Nationalbank have agreed on a swap facility amounting to 5 billion dollar which will expire on 30 January 2009.

On this basis Danmarks Nationalbank will auction US dollar liquidity on Friday 26 September 2008 with settlement on Tuesday 30 September 2008. The maturity of the loans is 28 days and the loans will be provided against Nationalbanken's eligible collateral. A maximum amount of 5 billion dollars will be offered at the auction. Danmarks Nationalbank will monitor the need for additional US dollar auctions.

Further information on the US dollar auction and the tender procedure will be published later today on www.nationalbanken.dk.

For further information please see:

www.federalreserve.gov

www.rba.gov.au

www.norges-bank.no

www.riksbank.se

26 SEPTEMBER 2008: TEMPORARY EXTENSION OF LENDING FACILITIES AT DANMARKS NATIONALBANK

Owing to the tight liquidity situation at present, Danmarks Nationalbank extends the banks and mortgage credit institutes lending facilities at Danmarks Nationalbank.

Firstly, a facility is introduced, offering banks and institutes credit on the basis of their excess capital adequacy.

Secondly, Danmarks Nationalbank increases the number of assets accepted as collateral.

The changes take effect as from 26 September 2008.

Danmarks Nationalbank will closely monitor developments with a view to introducing further measures.

The temporary extension of the collateral lending facilities is described in more detail under Rules – Pledging of collateral at www.nationalbanken.dk

29 SEPTEMBER 2008: EXTENSION OF SWAP FACILITY WITH THE FEDERAL RESERVE

In response to the continued strains in short-term funding markets, central banks today are announcing further coordinated actions to expand significantly the capacity to provide US dollar liquidity. Central banks will continue to work together closely and are prepared to take appropriate steps as needed to address funding pressures.

Today the Federal Reserve has concluded agreements with a number of central banks, including Danmarks Nationalbank, to increase and extend existing temporary reciprocal currency agreements (swap lines). Danmarks Nationalbank's swap facility with the Federal Reserve has been increased from 5 billion dollars to a total of 15 billion dollars and the term has been extended from 30 January 2009 to 30 April 2009.

Governor Nils Bernstein, Danmarks Nationalbank, says, "The crisis in the USA has made it more difficult for banks outside the USA to obtain funding in dollars. By increasing the size of its swap facility with the Federal Reserve, Danmarks Nationalbank, like other central banks, is expanding its capacity to provide credit in US dollars in order to facilitate the exchange of dollar funding. Danmarks Nationalbank appreciates this assistance from the Federal Reserve."

Danmarks Nationalbank provided 5 billion dollars in an auction held on 26 September 2008. Details of the next auction will be published at a later date.

Further information is available on the following websites:
Bank of Canada: www.bank-banque-canada.ca
Bank of England: www.bankofengland.co.uk
Bank of Japan: www.boj.or.jp/en
Norges Bank: www.norges-bank.no
European Central Bank: www.ecb.int
Reserve Bank of Australia: www.rba.gov.au
Sveriges Riksbank: www.riksbank.com
Swiss National Bank: www.snb.ch

7 OCTOBER 2008 ADJUSTMENT OF THE LENDING FACILITIES IN DANMARKS NATIONALBANK

Danmarks Nationalbank adjusts the existing temporary lending facility based on the excess capital adequacy. The adjustment takes effect as from 7 October 2008. This will ease the procedure for the banks' and mortgage-credit institutes' request for lending and fasten the possibilities for a borrowing engagement.

The interest rate on the temporary lending facility will be Danmarks Nationalbank's usual lending rate plus 2 percentage point. Each institute can as a rule borrow a maximum of 800 million DKK. The facility is prolonged and will expire on 30 September 2010.

At the same time the interest rate for loan bills is changed to Danmarks Nationalbank's usual lending rate plus 2 percentage points.

A more detailed description of the facility is available under Rules - Pledging of collateral at www.nationalbanken.dk

7 OCTOBER 2008 INTEREST RATE INCREASE

Danmarks Nationalbank's lending rate and the rate of interest for certificates of deposits are raised from 4.60 per cent to 5.0 per cent. The discount rate and the interest rate on the banks' current accounts with Danmarks Nationalbank are raised by 0.25 per cent to 4.50 per cent. The increase will have effect as from 8 October 2008.

Since mid-September there has been an increase in ECB's marginal rate. This has reduced the spread between Danmarks Nationalbank's lending rate and ECB's marginal rate. Recently the interest-rate spread has been negative, which has led to an outflow of foreign-exchange.

Danmarks Nationalbank has intervened in the foreign-exchange market to support the krone. The intervention has now reached a point which leads to Danmarks Nationalbank's increase of the lending rate. The size of the change in the interest rate reflects the need to re-establish a positive interest-rate spread.

8 OCTOBER 2008: THE AGREEMENT ON THE NATIONAL GUARANTEE

Danmarks Nationalbank welcomes the agreement on the national guarantee to the depositors and senior debt (unsecured unsubordinated debts) in banks in Denmark and requests Folketinget – the Danish Parliament – to pass the bill soon.

Until the bill has been passed Danmarks Nationalbank will take care of any eventual problem banks as has been the case with Roskilde Bank and others.

8 OCTOBER 2008: THE LEVEL OF INTEREST RATE IS MAINTAINED

Danmarks Nationalbank announces that the lending rate, the rate of interest for certificates of deposits and the discount rate are maintained for the time being.

24 OCTOBER 2008: INTEREST RATE INCREASE

As a result of continued intervention to support the Danish krone, Danmarks Nationalbank increases the lending rate and the rate of interest for certificates and deposits from 5 per cent to 5.5 per cent with effect as from 24 October 2008.

The discount rate and the current account rate remain unchanged at 4.5 per cent.

27 OCTOBER 2008: DANMARKS NATIONALBANK AND EUROPEAN CENTRAL BANK COOPERATION TO PROVIDE EURO LIQUIDITY

Danmarks Nationalbank is today announcing measures to improve liquidity in euro short-term markets. In support of these measures the European Central Bank (ECB) and Danmarks Nationalbank have today established a reciprocal currency arrangement (swap line) amounting to EUR 12 billion, which will remain in place as long as needed.

Danmarks Nationalbank has a similar agreement with the Federal Reserve.

Further information regarding a EUR auction will be published later on Market Info on www.nationalbanken.dk.

6 NOVEMBER 2008: INTEREST RATE REDUCTION

Danmarks Nationalbank's lending rate and the rate of interest on certificates are lowered by 0.50 per cent to 5.00 per cent. The discount rate and the interest rate on the banks' current accounts with Danmarks Nationalbank are lowered by 0.50 per cent to 4.00 per cent. The reduction will have effect as from 7 November 2008.

The interest rate reduction is a consequence of the lowering by 0.50 per cent to 3.25 per cent in the European Central Bank's minimum bid rate on the main refinancing operations.

20 NOVEMBER 2008: DANMARKS NATIONALBANK PROLONGS SWAP FACILITY WITH SEÐLABANKI ÍSLANDS

Seðlabanki Íslands and Danmarks Nationalbank entered on 16 May 2008 into a bilateral swap facility agreement for up to an aggregated amount of EUR 500 million. This agreement has now been prolonged.

The reason for the prolongation of the swap facility is that The International Monetary Fund (IMF) based on a request hereon from Island on 19 November 2008 has approved a Stand-By Arrangement for Iceland.

Seðlabanki Íslands has made similar agreements with Sveriges Riksbank and Norges Bank.

See also:
The International Monetary Fund, IMF (www.imf.org)
Seðlabanki Íslands (www.sedlabanki.is)
Sveriges Riksbank (www.riksbank.se)
Norges Bank (www.norges-bank.no)

4 DECEMBER 2008: INTEREST RATE REDUCTION

Danmarks Nationalbank's lending rate and the rate of interest on certificates are lowered by 0.75 per cent to 4.25 per cent. The discount rate and the interest rate on the banks' current accounts with Danmarks Nationalbank are lowered by 0.50 per cent to 3.50 per cent. The reduction will have effect as from 5 December 2008.

The interest rate reduction is a consequence of the lowering by 0.75 per cent to 2.50 per cent in the European Central Bank's rate on the main refinancing operations.

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 16 January 2009 and thus based on more recent information than the equivalent section of the Danish edition.

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

INTEREST RATES AND SHARE-PRICE INDEX | Table 1

Effective end-of-year/ from	Danmarks Nationalbank's interest rates		The ECB's interest rate	End of period		Bond yields		
	Discount rate	Lending and certificates of deposit	Main refinancing operations, fixed rate[1]		Inter-bank interest rate, 3-months uncollateralized	10-year central-government bond	30-year mortgage-credit bond	Share-price index OMXC20 (prev.KFX)
	Per cent per annum				Per cent per annum			3.7.89 =100
2004	2.00	2.15	2.00	2004	2.16	3.87	5.07	286.66
2005	2.25	2.40	2.25	2005	2.46	3.30	4.39	393.52
2006	3.50	3.75	3.50	2006	3.81	3.95	5.24	441.48
2007	4.00	4.25	4.00	2007	4.65	4.48	5.61	464.14
2008	3.50	3.75	2.50	2008	4.20	3.31	6.21	247.72
2008 24 Oct	4.50	5.50	3.75	Jun 08	5.08	4.81	6.08	424.30
7 Nov	4.00	5.00	3.25	Jul 08	5.15	4.70	6.49	417.43
5 Dec	3.50	4.25	2.50	Aug 08	5.10	4.38	6.38	424.11
19 Dec	3.50	3.75	2.50	Sep 08	5.15	4.29	6.66	351.15
				Oct 08	5.30	4.35	6.64	285.19
				Nov 08	5.60	3.84	6.44	263.05
2009 16 Jan	2.75	3.00	2.00	Dec 08	4.20	3.31	6.21	247.72

[1] Until 7 October 2008 minimum bid rate.

SELECTED ITEMS FROM DANMARKS NATIONALBANK'S BALANCE SHEET Table 2

End of period	The foreign-exchange reserve (net)	Notes and coin in circulation	The central government's account with Danmarks Nationalbank	The banks' and the mortgage-credit institutes' net position with Danmarks Nationalbank			
				Certificates of deposit	Deposits (current account)	Loans	Total net position
	Kr. billion						
2003	224.2	49.7	44.0	157.3	12.9	48.0	122.2
2004	217.6	52.0	60.8	160.4	6.9	72.6	94.6
2005	212.3	56.2	56.4	207.6	12.8	135.3	85.1
2006	171.7	59.8	73.8	163.2	8.8	153.7	18.2
2007	168.8	61.6	89.9	200.5	9.4	216.8	-6.9
Jul 08	164.0	60.7	73.3	196.2	22.1	212.6	5.6
Aug 08	164.8	59.7	64.0	251.5	5.3	240.1	16.7
Sep 08	160.1	59.2	70.2	242.0	37.6	263.3	16.3
Oct 08	132.4	59.2	121.8	157.1	7.3	217.5	-53.1
Nov 08	172.8	59.2	234.5	134.7	13.1	275.2	-127.4
Dec 08	212.7	61.3	259.6	118.5	9.7	240.9	-112.7

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

Table 3

	Central-government finance			Net purchase of foreign exchange by Danmarks Nationalbank					The banks' and the mortgage-credit institutes' net position with Danmarks Nationalbank	
	Domestic gross financing requirement	Sales of domestic central-government securities, etc.	Liquidity effect	Interventions to purchase foreign exchange, net	Other	Total	Net purchase of bonds by Danmarks Nationalbank	Other factors	Change in net position	End of period
	Kr. billion									
2004	75.5	92.6	-17.1	-12.5	6.1	-6.4	-2.6	-1.2	-27.3	94.6
2005	39.5	30.9	8.6	-18.4	3.0	-15.4	-2.2	-0.5	-9.5	85.1
2006	-14.5	16.2	-30.6	-34.3	4.3	-30.0	-4.9	-1.2	-66.7	18.2
2007	-26.1	2.9	-29.1	-1.7	7.2	5.5	-0.4	-1.4	-25.3	-6.9
2008	-11.9	99.6	-111.5	-19.9	0.1	-19.8	0.6	24.9	-105.8	...
Jul 08	24.2	1.7	22.5	0.0	-1.3	-1.3	0.1	3.3	24.7	5.6
Aug 08	11.3	2.1	9.2	0.0	0.9	0.9	0.2	0.7	11.1	16.7
Sep 08	-7.2	2.5	-9.6	-0.7	-0.4	-1.1	0.1	10.2	-0.4	16.3
Oct 08	8.0	14.7	-6.7	-63.9	-9.5	-73.4	1.2	9.4	-69.4	-53.1
Nov 08	-52.1	57.5	-109.6	31.6	5.8	37.4	0.1	-2.2	-74.3	-127.4
Dec 08	12.1	20.7	-8.6	24.7	-1.3	23.4	-0.5	0.4	14.8	-112.7

SELECTED ITEMS FROM THE CONSOLIDATED BALANCE SHEET OF THE MFI SECTOR

Table 4

		Assets				Liabilities		
		Domestic lending		Domestic securities				
	Total balance	Public sector	Private sector	Bonds, etc.	Shares, etc.	Domestic deposits	Bonds, etc. issued	Foreign assets, net [1]
End of period	Kr. billion							
2003	3,359.0	89.6	2,062.0	123.3	43.3	754.7	1,157.9	-70.7
2004	3,684.5	97.5	2,246.2	100.8	46.3	848.9	1,222.1	-65.7
2005	4,228.2	107.8	2,584.2	75.9	53.5	971.3	1,318.2	-172.9
2006	4,682.1	116.8	2,956.0	51.8	60.3	1,077.0	1,433.7	-222.8
2007	5,497.4	119.9	3,353.7	43.3	63.5	1,219.7	1,505.2	-304.5
Jun 08	5,854.5	125.4	3,532.0	39.9	77.5	1,274.9	1,501.6	-409.6
Jul 08	5,792.5	128.1	3,520.1	42.2	78.6	1,279.4	1,517.2	-434.2
Aug 08	5,834.4	123.5	3,540.7	27.6	78.8	1,255.8	1,534.1	-472.2
Sep 08	5,878.3	127.5	3,584.4	33.6	58.6	1,238.1	1,517.3	-494.9
Oct 08	6,247.6	130.1	3,629.6	41.1	56.6	1,353.4	1,471.1	-491.8
Nov 08	6,416.3	130.1	3,685.1	46.5	56.6	1,468.5	1,446.4	-435.6
	Change compared with previous year, per cent							
2003	...	12.1	6.0	-13.7	18.6	4.3	2.8	...
2004	...	8.8	8.9	-18.2	7.0	12.5	5.5	...
2005	...	10.6	15.0	-24.7	15.4	14.4	7.9	...
2006	...	8.3	14.4	-31.8	12.8	10.9	8.8	...
2007	...	2.7	13.5	-16.4	5.2	13.3	5.0	...
Jun 08	...	6.1	12.4	-7.7	21.7	11.8	3.4	...
Jul 08	...	9.4	12.0	-5.9	26.0	10.9	3.0	...
Aug 08	...	6.6	11.6	-50.8	26.3	6.4	4.4	...
Sep 08	...	10.7	11.3	-36.4	-7.5	5.0	2.5	...
Oct 08	...	10.4	12.2	-24.2	-12.8	13.0	-1.0	...
Nov 08	...	10.6	12.3	17.9	-10.6	18.8	-2.2	...

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

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

MONEY STOCK Table 5

End of period	Bank-notes and coin in circula-tion[1]	Deposits on demand	M1	Time deposits with original maturity =<2 years	Deposits at notice with original maturity =< 3 months	M2	Repur-chase agree-ments	Bonds, etc. issued with original maturity =< 2 years	M3
	Kr. billion								
2003	41.0	428.1	469.1	112.2	19.2	600.5	2.7	77.3	680.5
2004	43.7	492.8	536.5	119.2	21.0	676.7	2.0	20.2	699.0
2005	47.3	596.3	643.5	114.1	18.4	776.0	14.2	8.4	798.7
2006	50.7	648.6	699.3	143.0	17.9	860.2	8.0	21.3	889.5
2007	51.9	703.2	755.1	199.7	18.0	972.8	6.2	61.5	1,040.6
Jun 08	51.4	719.7	771.1	210.2	20.0	1,001.3	18.0	98.2	1,117.7
Jul 08	50.8	726.6	777.4	234.4	19.9	1,031.7	17.0	100.3	1,149.2
Aug 08	50.6	721.4	772.1	225.6	19.8	1,017.5	15.6	98.7	1,131.9
Sep 08	50.1	695.7	745.8	228.7	17.9	992.3	18.5	102.9	1,113.8
Oct 08	50.2	708.5	758.7	288.9	18.4	1,066.0	6.5	95.3	1,167.9
Nov 08	50.3	711.5	761.8	283.2	18.7	1,063.7	7.9	86.7	1,158.4
	Change compared with previous year, per cent								
2003	...	...	8.8	...	...	8.8	...	...	11.3
2004	...	...	14.4	...	...	12.7	...	...	2.7
2005	...	...	19.9	...	...	14.7	...	...	14.3
2006	...	...	8.7	...	...	10.8	...	...	11.4
2007	...	...	8.0	...	...	13.1	...	...	17.0
Jun 08	...	...	3.1	...	...	7.4	...	...	15.6
Jul 08	...	...	1.5	...	...	6.4	...	...	14.3
Aug 08	...	...	3.1	...	...	5.3	...	...	12.5
Sep 08	...	...	0.4	...	...	4.0	...	...	12.4
Oct 08	...	...	1.7	...	...	9.7	...	...	16.0
Nov 08	...	...	1.8	...	...	9.0	...	...	14.8

[1] Notes and coin in circulation, excluding the banks' holdings.

SELECTED ITEMS FROM THE BALANCE SHEET OF THE BANKS — Table 6

End of period	Total balance	Assets: Lending to MFIs	Assets: Domestic lending: Total	Domestic lending, of which: Households, etc.	Domestic lending, of which: Non-financial companies	Assets: Holdings of securities	Liabilities: Loans from MFIs	Liabilities: Deposits
	Kr. billion							
2003	2,204.4	468.7	662.9	271.5	285.7	764.4	823.8	795.1
2004	2,418.4	495.6	754.8	324.8	309.6	780.3	823.1	908.0
2005	2,867.3	652.0	920.1	396.6	370.0	862.1	975.7	1,065.6
2006	3,242.0	715.0	1,124.3	475.0	458.0	889.6	1,133.8	1,148.3
2007	3,993.4	926.6	1,333.6	557.4	551.8	1,065.8	1,444.1	1,345.6
Jun 08	4,349.5	987.5	1,423.5	577.9	587.8	1,137.9	1,524.3	1,424.4
Jul 08	4,277.5	969.0	1,398.3	574.8	566.3	1,169.9	1,508.8	1,428.9
Aug 08	4,339.5	936.4	1,403.1	573.6	575.0	1,240.1	1,560.3	1,389.1
Sep 08	4,429.9	979.8	1,438.7	592.1	582.6	1,207.0	1,623.9	1,377.0
Oct 08	4,750.5	1,041.0	1,472.7	588.0	590.3	1,166.3	1,590.3	1,444.3
Nov 08	4,874.8	1,088.2	1,510.1	583.4	606.0	1,201.0	1,686.0	1,445.5
	Change compared with previous year, per cent							
2003	...	10.7	2.5	7.1	3.1	21.8	18.8	3.9
2004	...	5.6	13.8	19.6	8.4	2.1	-0.1	14.2
2005	...	31.7	21.9	22.1	19.5	10.5	18.5	17.3
2006	...	9.7	22.2	19.8	23.8	3.2	16.2	7.8
2007	...	29.6	18.6	17.4	20.5	19.8	27.4	17.2
Jun 08	...	19.7	16.5	13.8	14.9	20.7	28.4	12.7
Jul 08	...	17.8	16.1	12.9	14.1	24.5	34.9	9.4
Aug 08	...	18.8	15.4	11.8	13.1	21.2	29.2	7.0
Sep 08	...	12.6	15.2	12.3	12.6	19.4	26.6	5.6
Oct 08	...	17.5	17.8	11.5	15.0	13.7	22.7	9.4
Nov 08	...	20.5	17.9	9.3	13.8	17.0	26.1	8.7

Note: Excluding Danish banks' units abroad.

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

Table 7

		Assets					Liabilities	
			Domestic lending					
				of which:				
End of period	Total balance	Lending to MFIs	Total	House-holds, etc.	Non-financial compa-nies	Holdings of securities	Loans from MFIs	Bonds, etc. issued
	Kr. billion							
2003	1,863.8	100.9	1,394.6	1,072.1	284.4	342.6	32.6	1,729.0
2004	2,097.4	91.2	1,489.9	1,141.3	307.9	481.2	26.1	1,952.5
2005	2,519.9	101.4	1,664.4	1,281.5	334.2	645.0	151.7	2,237.0
2006	2,699.9	245.1	1,834.8	1,407.7	370.8	574.1	226.5	2,297.9
2007	3,088.2	362.8	2,015.5	1,532.5	420.8	649.2	344.2	2,495.2
Jun 08	2,681.8	352.0	2,102.4	1,579.0	450.2	170.0	291.7	2,090.4
Jul 08	2,692.1	336.0	2,116.0	1,588.1	454.3	175.9	312.1	2,118.5
Aug 08	2,714.0	344.8	2,126.2	1,593.8	457.8	170.2	314.2	2,150.0
Sep 08	2,748.0	372.9	2,136.8	1,598.7	460.3	176.0	320.4	2,138.0
Oct 08	2,809.0	383.8	2,147.2	1,603.9	464.1	207.4	355.5	2,150.9
Nov 08	2,874.8	360.1	2,158.9	1,610.9	480.5	275.6	367.0	2,242.1
	Change compared with previous year, per cent							
2003	...	30.6	8.5	8.5	9.7	1.2	-44.8	9.1
2004	...	-9.6	6.8	6.5	8.3	40.4	-19.9	12.9
2005	...	11.1	11.7	12.3	8.5	34.0	481.5	14.6
2006	...	141.7	10.2	9.9	10.9	-11.0	49.3	2.7
2007	...	48.0	9.9	8.9	13.5	13.1	52.0	8.6
Jun 08	...	41.4	9.5	7.4	14.7	4.3	39.2	8.1
Jul 08	...	41.7	9.2	7.2	14.3	9.9	45.7	8.9
Aug 08	...	31.6	8.8	6.7	14.1	11.9	35.5	9.1
Sep 08	...	29.3	8.6	6.6	13.0	12.3	31.2	7.7
Oct 08	...	38.8	8.3	6.3	12.0	20.9	42.4	6.6
Nov 08	...	25.9	8.0	6.0	14.9	54.9	42.1	9.6

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

	Total lending			The banks' lending			The mortgage-credit institutes' lending		
	Total	House-holds, etc.	Business	Total	House-holds, etc.	Business	Total	House-holds, etc.	Business
End of period	Kr. billion								
2003	2,087.7	1,343.6	683.1	693.2	271.5	392.3	1,394.6	1,072.1	290.9
2004	2,276.0	1,466.1	741.0	786.0	324.8	426.8	1,489.9	1,141.3	314.2
2005	2,614.5	1,678.0	852.2	950.2	396.6	510.4	1,664.4	1,281.5	341.7
2006	3,000.8	1,882.7	1,015.2	1,166.0	475.0	636.9	1,834.8	1,407.7	378.3
2007	3,387.8	2,090.0	1,189.7	1,372.3	557.4	760.5	2,015.5	1,532.5	429.1
Jun 08	3,571.8	2,156.9	1,296.0	1,469.4	577.9	835.0	2,102.4	1,579.0	461.0
Jul 08	3,558.1	2,162.9	1,273.3	1,442.1	574.8	808.5	2,116.0	1,588.1	464.8
Aug 08	3,573.0	2,167.4	1,286.3	1,446.8	573.6	818.0	2,126.2	1,593.8	468.3
Sep 08	3,619.2	2,190.8	1,303.5	1,482.4	592.1	832.6	2,136.8	1,598.7	470.9
Oct 08	3,663.7	2,191.9	1,343.6	1,516.5	588.0	868.2	2,147.2	1,603.9	475.4
Nov 08	3,712.8	2,194.3	1,406.9	1,553.8	583.4	915.0	2,158.9	1,610.9	491.9
	Change compared with previous year, per cent								
2003	6.1	8.2	2.7	1.5	7.1	-1.7	8.5	8.5	9.3
2004	9.0	9.1	8.5	13.4	19.6	8.8	6.8	6.5	8.0
2005	14.9	14.5	15.0	20.9	22.1	19.6	11.7	12.3	8.8
2006	14.8	12.2	19.1	22.7	19.8	24.8	10.2	9.9	10.7
2007	12.9	11.0	17.2	17.7	17.4	19.4	9.9	8.9	13.4
Jun 08	12.4	9.1	18.3	16.9	13.8	20.1	9.5	7.4	15.2
Jul 08	12.0	8.6	17.5	16.3	12.9	19.3	9.2	7.2	14.5
Aug 08	11.4	8.0	17.3	15.5	11.8	19.2	8.8	6.7	14.2
Sep 08	11.3	8.0	16.3	15.4	12.3	18.0	8.6	6.6	13.3
Oct 08	12.0	7.6	18.9	17.7	11.5	22.8	8.3	6.3	12.4
Nov 08	11.9	6.9	21.5	17.8	9.3	25.0	8.0	6.0	15.3

Note: Including lending in Danish banks' units abroad.

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

End of period	Index-linked lending	Fixed-rate lending	Adjustable-rate lending: Total	Adjustable-rate lending: of which =<1 year	Total	of which: Lending in foreign currency	of which: Instal-ment-free lending [1]
	Kr. billion						
2003	99.5	795.0	499.0	250.0	1,393.5	85.7	44.4
2004	94.6	733.9	659.8	382.2	1,488.4	84.9	170.5
2005	88.6	720.3	853.9	616.0	1,662.8	80.5	315.5
2006	83.5	797.5	951.7	720.5	1,832.7	85.7	432.2
2007	77.9	889.2	1,045.6	796.6	2,012.7	123.8	547.0
Jun 08	75.5	890.1	1,137.2	887.7	2,102.8	142.5	593.7
Jul 08	75.1	891.8	1,149.9	896.1	2,116.8	144.9	601.3
Aug 08	75.2	892.8	1,159.1	901.6	2,127.0	146.8	606.3
Sep 08	75.3	891.6	1,170.5	895.2	2,137.3	150.3	612.7
Oct 08	75.3	917.9	1,154.7	870.5	2,147.9	152.2	617.3
Nov 08	74.9	910.7	1,174.1	870.7	2,159.7	154.1	622.0

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

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

THE BANKS' EFFECTIVE INTEREST RATES Table 10

	Lending: All sectors	Lending: House-holds, etc.	Lending: Non-financial compa-nies	Lending: Financial compa-nies	Deposits: All sectors	Deposits: House-holds, etc.	Deposits: Non-financial compa-nies	Deposits: Financial compa-nies
	Per cent, per annum							
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
Jun 08	6.5	7.7	6.4	4.7	3.9	3.6	3.9	4.3
Jul 08	6.6	7.8	6.4	4.8	4.0	3.6	4.1	4.4
Aug 08	6.6	7.8	6.4	4.7	4.0	3.6	4.1	4.5
Sep 08	6.7	7.8	6.6	5.1	4.1	3.6	4.2	4.6
Oct 08	7.0	8.2	6.9	5.3	4.4	3.8	4.5	4.9
Nov 08	7.3	8.7	7.4	5.3	4.6	4.1	4.8	5.1

SELECTED ITEMS FROM THE BALANCE SHEET OF THE INVESTMENT ASSOCIATIONS

Table 11

		Assets		Liabilities			
		Holdings of securities		Certificates issued by investment associations by owner			
End of period	Total balance	Bonds, etc.	Shares, etc.	House-holds, etc.	Insurance compa-nies and pension funds	Other residents	Abroad
	Kr. billion						
2003	367.1	237.2	108.7	188.2	103.2	60.4	12.3
2004	574.2	326.5	164.6	213.1	163.4	180.1	15.3
2005	794.7	412.1	286.4	265.7	236.5	263.0	24.4
2006	924.7	431.8	385.4	294.3	289.4	305.3	28.8
2007	1,020.7	477.9	411.6	295.2	336.8	322.1	29.2
Q3 07	1,002.2	442.6	428.8	299.8	340.9	322.8	31.1
Q4 07	1,020.7	477.9	411.6	295.2	336.8	322.1	29.2
Q1 08	963.9	466.4	356.2	268.6	329.3	304.0	23.9
Q2 08	951.4	467.2	352.0	256.5	324.1	310.9	23.0
Q3 08	889.3	458.5	302.0	238.0	310.6	275.6	19.0
	Quarterly transactions, kr. billion						
Q3 07	...	17.7	8.4	-0.1	22.5	0.3	0.0
Q4 07	...	40.1	2.8	-0.2	3.7	6.6	-2.7
Q1 08	...	4.0	12.0	-3.8	11.8	2.6	0.4
Q2 08	...	12.7	9.0	1.2	2.8	20.9	-0.8
Q3 08	...	-11.1	-11.8	-3.3	3.7	-20.5	-2.0

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

End of period	Bonds, etc. Total		Of which: Central-government securities		Of which: Mortgage-credit bonds		Shares	
	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad	Denmark	Abroad
	Market value, kr. billion							
2003	2,143.3	400.0	505.9	191.1	1,525.5	207.2	506.6	209.6
2004	2,379.2	434.4	498.8	213.6	1,768.7	218.4	604.3	245.2
2005	2,559.7	461.2	434.9	205.1	2,002.9	252.5	845.2	300.5
2006	2,541.3	464.7	380.1	172.6	2,034.9	285.9	989.4	361.8
2007	2,701.2	475.8	301.9	176.2	2,247.1	287.7	996.1	445.4
Jun 08	2,263.3	456.2	280.0	178.3	1,824.6	258.8	882.1	410.8
Jul 08	2,288.4	457.3	280.3	181.0	1,847.1	256.4	856.3	399.5
Aug 08	2,305.8	443.4	255.4	171.7	1,886.6	252.2	858.7	411.8
Sep 08	2,318.5	434.8	263.0	170.0	1,884.5	242.9	735.1	339.2
Oct 08	2,376.5	413.5	273.3	168.1	1,909.0	227.6	600.8	267.6
Nov 08	2,622.8	403.9	331.5	163.9	2,093.8	222.1	552.6	251.7

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

HOUSEHOLDS' FINANCIAL ASSETS AND LIABILITIES

Table 13

End of period	Assets: Currency and bank deposits, etc.	Assets: Bonds, etc.	Assets: Shares and certificates issued by investment associations, etc.	Assets: Life-insurance and pension-scheme savings, etc.	Assets: Total	Liabilities: Loans, etc.	Liabilities: Net financial assets	Liabilities: Total
	Kr. billion							
2003	622	166	400	1,262	2,451	1,505	947	2,452
2004	674	174	473	1,403	2,724	1,640	1,085	2,725
2005	755	172	618	1,617	3,162	1,830	1,332	3,162
2006	808	180	713	1,681	3,381	2,033	1,348	3,382
2007	870	191	699	1,724	3,485	2,217	1,268	3,485
Q2 07	858	179	749	1,691	3,477	2,117	1,360	3,477
Q3 07	859	185	742	1,716	3,502	2,143	1,359	3,502
Q4 07	870	191	699	1,724	3,485	2,217	1,268	3,485
Q1 08	876	187	626	1,729	3,420	2,270	1,150	3,420
Q2 08	899	186	603	1,708	3,395	2,272	1,123	3,395

COMPANIES' FINANCIAL ASSETS AND LIABILITIES

Table 14

End of period	Assets: Currency, bank deposits and granted credits, etc.	Assets: Bonds, etc.	Assets: Shares and certificates issued by investment associations, etc.	Assets: Total	Liabilities: Debt: Loans, etc.	Liabilities: Debt: Bonds, etc. issued	Liabilities: Debt: Shares, etc. issued	Liabilities: Net financial assets	Liabilities: Total
	Kr. billion								
2003	662	121	643	1,426	1,159	109	1,131	-973	1,426
2004	647	164	746	1,557	1,223	142	1,248	-1,056	1,557
2005	739	167	968	1,875	1,354	143	1,491	-1,113	1,875
2006	765	151	1,066	1,982	1,593	140	1,554	-1,305	1,982
2007	825	132	1,106	2,064	1,721	119	1,733	-1,508	2,064
Q2 07	839	139	1,151	2,129	1,668	132	1,738	-1,410	2,129
Q3 07	836	133	1,166	2,136	1,678	120	1,801	-1,463	2,136
Q4 07	825	132	1,106	2,064	1,721	119	1,733	-1,508	2,064
Q1 08	794	131	1,056	1,982	1,782	117	1,650	-1,567	1,982
Q2 08	869	124	1,119	2,113	1,842	116	1,689	-1,533	2,113

Note: Companies are defined as non-financial companies.

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

	Goods (fob)	Services	Goods and services	Wages and property income	Current transfers	Total current account
	Kr. billion					
2003	65.9	23.2	89.2	-16.8	-24.0	48.3
2004	54.5	19.8	74.4	-2.4	-27.7	44.2
2005	43.9	38.3	82.2	9.9	-25.0	67.1
2006	17.3	40.5	57.8	16.6	-27.4	47.0
2007	-2.3	41.7	39.4	0.8	-28.2	12.0
Dec 06 - Nov 07	0.0	39.4	39.5	1.8	-29.0	12.2
Dec 07 - Nov 08	-10.0	49.6	39.6	24.2	-31.3	32.5
Jun 08	0.1	4.1	4.2	3.1	-2.1	5.2
Jul 08	0.3	3.2	3.5	3.4	-2.5	4.4
Aug 08	-3.3	7.2	4.0	2.4	-2.6	3.8
Sep 08	-0.4	5.9	5.5	3.4	-2.2	6.7
Oct 08	-1.2	5.5	4.4	2.9	-3.3	4.0
Nov 08	0.3	5.1	5.4	4.4	-2.3	7.5

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

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

	Current account and capital account, etc., total	Capital import: Direct investments: Danish abroad	Capital import: Direct investments: Foreign in Denmark	Capital import: Portfolio invest-ments[1]	Capital import: Other capital import	Other[2]	Danmarks National-bank's transac-tions with abroad[3]
	Kr. billion						
2003	48.3	-8.0	17.8	-98.3	72.5	-1.5	30.8
2004	44.4	62.1	-62.6	-87.1	-22.5	59.4	-6.2
2005	70.0	-97.1	77.2	-68.8	23.2	-16.2	-11.8
2006	47.0	-50.2	16.1	-103.3	83.4	-31.4	-38.3
2007	12.3	-111.7	64.5	-34.2	54.1	13.7	-1.2
Dec 06 - Nov 07	12.2	-82.8	36.8	18.2	-21.1	39.2	2.5
Dec 07 - Nov 08	33.0	-126.3	55.9	-55.8	19.3	-48.6	-122.5
Jun 08	5.3	10.9	-0.3	3.2	-32.8	15.5	1.8
Jul 08	4.4	-12.7	5.8	-1.0	24.8	-21.1	0.2
Aug 08	3.8	-10.2	4.4	-20.9	20.8	2.3	0.2
Sep 08	6.8	-16.8	6.4	-6.1	-17.7	-4.2	-31.6
Oct 08	4.1	-4.9	0.5	22.0	-106.8	-3.5	-88.6
Nov 08	7.5	5.9	4.8	-16.1	25.1	-16.6	10.7

[1] This item may differ from the total of the below Table 17, as portfolio investments are published 1-2 weeks earlier than the rest of the balance of payments.
[2] Including errors and omissions and until end-December 2004 unrecorded trade credits.
[3] As from 2005 transactions on *all* Danmarks Nationalbank's accounts with abroad. Until end-2004 only transactions on accounts included by compilation of the foreign-exchange reserve, published by press release on the 2nd banking day of each month and included in Table 2 of this section.

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

	Danish securities: Krone-denominated bonds, etc.	Danish securities: Foreign currency denominated bonds, etc.	Danish securities: Shares	Foreign securities: Bonds, etc.	Foreign securities: Shares	Total[1]
	Kr. billion					
2003	-30.3	66.3	9.1	-121.5	-21.9	-98.3
2004	-6.2	56.9	9.7	-104.4	-43.0	-87.1
2005	20.8	122.5	-18.9	-108.2	-85.0	-68.8
2006	16.3	70.0	-34.4	-21.5	-133.8	-103.3
2007	26.0	72.6	17.2	-97.1	-52.8	-34.2
Jun 08	1.7	2.5	8.7	-30.8	21.1	3.2
Jul 08	-4.9	13.5	-1.8	-11.3	3.6	-1.0
Aug 08	-17.5	13.5	-1.3	-12.5	-3.1	-20.9
Sep 08	-7.0	-28.4	0.7	8.7	19.8	-6.1
Oct 08	-17.1	32.4	-10.7	-8.8	26.2	22.0
Nov 08	-4.7	10.6	-1.2	-28.4	7.6	-16.1

Note: A negative sign (-) indicates residents' net purchase of foreign securities, or non-residents' net sale of Danish securities.
[1] This item may differ from "Portfolio investments" in the above Table 16, as the rest of the balance of payments is published 1-2 weeks later.

DENMARK'S EXTERNAL ASSETS AND LIABILITIES Table 18

End of period	Direct investments: Equity	Direct investments: Inter-company debt, etc.	Portfolio investments: Shares, etc.	Portfolio investments: Bonds, etc.	Financial derivatives, net	Other investments: Trade credits	Other investments: Loans and deposits	Other investments: Other	Danmarks Nationalbank	Total
	Kr. billion									
Assets										
2003	413	198	309	446	17	57	518	31	230	2,221
2004	471	220	369	547	48	34	584	20	223	2,515
2005	564	253	556	684	85	37	720	19	217	3,136
2006	583	257	741	674	47	41	823	30	178	3,374
2007	629	284	789	733	-3	49	1,035	32	176	3,724
Q3 07	633	290	823	661	1	47	1,022	31	191	3,700
Q4 07	629	284	789	733	-3	49	1,035	32	176	3,724
Q1 08	619	302	683	690	14	51	1,073	32	185	3,651
Q2 08	678	318	663	740	-4	53	1,154	33	169	3,803
Q3 08	659	394	587	757	18	53	1,124	31	165	3,789
Liabilities										
2003	434	162	186	762	...	28	801	13	4	2,391
2004	429	208	241	857	...	20	816	20	2	2,593
2005	506	231	311	1,019	...	27	967	21	3	3,084
2006	488	273	358	1,067	...	32	1,144	34	4	3,401
2007	528	272	427	1,122	...	36	1,407	37	5	3,835
Q3 07	542	259	439	1,153	...	32	1,306	37	3	3,772
Q4 07	528	272	427	1,122	...	36	1,407	37	5	3,835
Q1 08	520	281	388	1,143	...	36	1,448	35	3	3,855
Q2 08	529	292	416	1,135	...	39	1,534	38	2	3,984
Q3 08	540	293	344	1,128	...	42	1,541	37	27	3,952
Net assets										
2003	-21	36	123	-315	17	29	-283	19	226	-170
2004	42	12	128	-310	48	14	-233	0	221	-78
2005	59	22	245	-335	85	10	-247	-2	214	51
2006	94	-16	382	-393	47	9	-321	-5	174	-27
2007	100	12	363	-389	-3	13	-372	-5	171	-112
Q3 07	91	31	384	-493	1	15	-284	-6	188	-72
Q4 07	100	12	363	-389	-3	13	-372	-5	171	-112
Q1 08	99	21	295	-453	14	15	-375	-3	183	-204
Q2 08	149	26	247	-395	-4	14	-380	-5	167	-181
Q3 08	119	101	243	-372	18	11	-417	-5	138	-163

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

GDP BY TYPE OF EXPENDITURE Table 19

	GDP	Final domestic demand: Private consumption	Final domestic demand: General-government consumption	Final domestic demand: Gross fixed capital formation	Final domestic demand: Change in inventories	Final domestic demand: Total	Exports of goods and services	Imports of goods and services
	Kr. billion							
2003	1,400.7	666.9	371.2	271.8	3.2	1,313.1	635.1	547.6
2004	1,466.2	707.2	389.0	285.0	13.5	1,394.8	665.0	593.6
2005	1,545.3	745.1	402.5	303.9	17.9	1,469.5	757.0	681.2
2006	1,628.6	792.8	422.5	349.5	14.4	1,579.2	846.5	797.0
2007	1,687.9	826.7	438.8	376.7	9.5	1,651.7	882.8	846.6
Q3 07	421.5	201.4	109.1	92.7	4.1	407.2	224.0	209.7
Q4 07	444.5	220.1	114.3	102.3	-3.6	433.1	233.9	222.6
Q1 08	414.6	209.1	110.2	88.3	4.6	412.2	226.1	223.7
Q2 08	441.8	216.3	113.5	96.9	4.0	430.8	246.7	235.7
Q3 08	438.2	210.3	115.5	96.0	4.5	426.4	247.7	235.8
	Real growth compared with previous year, per cent							
2003	0.4	1.0	0.7	-0.2	...	0.0	-1.0	-1.6
2004	2.3	4.7	1.8	3.9	...	4.4	2.8	7.7
2005	2.4	3.8	1.3	4.7	...	3.5	8.0	11.1
2006	3.3	4.4	2.1	13.3	...	5.3	9.1	13.9
2007	1.6	2.4	1.3	3.1	...	2.0	2.2	2.8
Q3 07	2.1	3.5	0.5	0.5	...	2.1	2.6	2.5
Q4 07	1.9	3.5	1.8	3.9	...	2.3	0.5	0.7
Q1 08	-0.8	2.1	0.1	-2.7	...	0.6	1.5	4.1
Q2 08	0.6	2.0	0.5	-1.1	...	0.8	7.3	7.9
Q3 08	-1.2	0.6	1.2	0.5	...	0.6	2.4	6.1
	Real growth compared with previous quarter (seasonally adjusted), per cent							
Q3 07	1.6	1.3	0.0	1.2	...	1.0	3.7	2.6
Q4 07	-0.2	1.3	1.2	1.7	...	1.4	0.0	0.5
Q1 08	-1.2	-0.4	-0.9	-2.3	...	-1.0	1.1	2.6
Q2 08	0.4	-0.3	0.2	-1.6	...	-0.4	2.5	2.0
Q3 08	-0.4	-0.2	0.7	2.7	...	0.7	-1.1	0.8

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

	HICP							Index of net retail prices[1]		
		Subcomponents:								
					Administered prices				Split into[4]:	
	Total	Energy	Food	Core infla-tion[2]	Rent	Public services	HICP excl. energy, food and admini-stered prices[3]	Index of net retail prices excl. energy, food and admini-stered prices[3]	Import content[5]	IMI[6]
	Weights, per cent									
	100	10.8	19.6	69.6	7.7	4.5	57.4	50.7	16.2	34.5
	Year-on-year growth, per cent									
2003	2.0	0.9	0.7	2.6	2.7	8.1	2.1	1.9	0.4	2.6
2004	0.9	2.6	-2.1	1.5	2.8	4.8	1.1	0.8	1.1	0.6
2005	1.7	7.6	1.0	1.0	2.4	3.2	0.6	0.7	3.4	-0.6
2006	1.9	5.3	2.2	1.2	2.1	0.9	1.1	1.3	3.1	0.4
2007	1.7	0.3	3.7	1.3	2.1	0.6	1.2	1.4	1.4	1.4
Q1 06	2.0	8.9	0.9	1.2	2.2	2.6	1.0	1.1	3.7	-0.1
Q2 06	2.0	8.3	1.9	1.0	2.0	0.4	1.0	1.1	3.8	-0.2
Q3 06	1.8	3.9	2.6	1.3	2.0	0.2	1.2	1.6	3.2	0.8
Q4 06	1.6	0.4	3.5	1.3	2.0	0.4	1.3	1.3	1.9	1.0
Q1 07	1.9	1.1	4.1	1.3	2.0	0.3	1.3	1.3	1.7	1.1
Q2 07	1.5	-1.7	3.6	1.5	2.1	0.2	1.5	1.4	0.9	1.7
Q3 07	1.0	-1.4	2.0	1.2	2.2	0.8	1.0	1.2	0.9	1.4
Q4 07	2.2	3.3	5.2	1.2	2.0	1.0	1.2	1.6	2.0	1.4
Q1 08	3.2	7.5	6.0	1.7	2.2	2.4	1.6	2.0	3.6	1.2
Q2 08	3.7	9.7	7.4	1.7	2.6	4.0	1.4	1.8	4.2	0.6
Q3 08	4.6	10.4	8.6	2.5	3.9	3.7	2.2	2.2	5.0	0.9

Note: The weights reflect the weighting basis as of January 2006.

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 57.4 per cent of HICP's weight basis and 50.7 per cent of the index of net retail prices. The difference reflects that the same goods and services do not count equally in the two indices, and does not express the indirect taxation content of the consumer prices.

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

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

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

SELECTED MONTHLY ECONOMIC INDICATORS Table 21

	Unemployment	Quantity index		Forced sales of real property	New passenger car registrations	Consumer confidence indicator	Composite cyclical indicator for		
		Manufacturing industry [1]	Retail trade				Manufacturing industry	Building and construction	Service
	Per cent of labour force	2000=100	2000=100	Number		Balance per cent			
2003	5.7	102.5	107.8	3,039	96,501	1	-6	-18	-2
2004	5.8	102.1	113.4	2,640	122,543	7	3	-5	13
2005	5.1	103.8	120.1	1,874	148,578	9	1	7	20
2006	3.9	108.0	124.0	1,231	156,719	10	9	21	24
2007	2.8	112.6	125.1	1,392	162,480	7	4	9	20
2008	...	...	...	2,840	...	-8	-8	-16	3
	Seasonally adjusted								
Jul 08	1.7	114.8	119.7	266	12,838	-9	-5	-13	5
Aug 08	1.7	112.2	120.4	266	12,381	-12	-10	-17	6
Sep 08	1.7	113.0	120.7	273	12,087	-11	-13	-24	2
Oct 08	1.8	112.5	119.3	321	10,925	-16	-13	-28	-8
Nov 08	1.9	106.0	119.9	267	8,959	-13	-19	-33	-11
Dec 08	...	...	...	358	...	-13	-22	-34	-22

[1] Excluding shipbuilding.

SELECTED QUARTERLY ECONOMIC INDICATORS Table 22

	Employment		Hourly earnings			Property prices (purchase sum, one-family dwellings)
	Total	Private	All sectors in Denmark, total	Manufac-turing industry in Denmark	Manufac-turing industry abroad	As a per-centage of property value 2006
	1,000 persons		1996=100			
2003	2,756	1,914	133.3	133.8	124.1	64.4
2004	2,739	1,898	137.4	138.0	127.5	70.1
2005	2,767	1,924	141.4	141.7	130.7	82.5
2006	2,822	1,978	145.7	146.2	134.0	100.0
2007	2,898	2,056	151.3	152.0	137.1	104.8
	Seasonally adjusted					
Q3 07	2,905	2,063	152.2	152.7	137.4	105.8
Q4 07	2,914	2,074	153.7	154.3	138.8	103.9
Q1 08	2,926	2,084	155.4	155.9	140.9	102.8
Q2 08	2,920	2,079	157.4	158.0	141.1	102.7
Q3 08	2,896	2,051	158.9	158.8	142.4	...
	Change compared with previous year, per cent					
2003	-1.1	-1.2	3.7	4.2	3.0	3.2
2004	-0.6	-0.8	3.1	3.1	2.7	8.9
2005	1.0	1.4	2.9	2.7	2.5	17.6
2006	2.0	2.8	3.1	3.1	2.5	21.6
2007	2.7	4.0	3.8	4.0	2.3	4.6
Q3 07	2.9	4.3	4.0	4.2	2.3	2.7
Q4 07	2.2	3.4	4.3	4.3	2.7	1.2
Q1 08	1.4	2.0	4.4	4.3	3.9	-1.2
Q2 08	1.2	1.6	4.6	4.5	3.3	-2.7
Q3 08	-0.3	-0.6	4.4	4.0	3.6	...

EXCHANGE RATES Table 23

	EUR	USD	GBP	SEK	NOK	CHF	JPY
	Kroner per 100 units						
	Average						
2004	743.98	598.93	1,096.69	81.54	88.90	481.96	5.5366
2005	745.19	600.34	1,090.02	80.29	93.11	481.30	5.4473
2006	745.91	594.70	1,094.32	80.62	92.71	474.22	5.1123
2007	745.06	544.56	1,089.81	80.57	92.99	453.66	4.6247
2008	745.60	509.86	939.73	77.73	91.02	469.90	4.9494
Jul 08	745.99	473.07	940.65	78.89	92.69	460.71	4.4286
Aug 08	745.95	498.34	940.97	79.37	93.57	460.13	4.5601
Sep 08	745.83	519.17	933.27	77.99	91.46	467.85	4.8701
Oct 08	745.45	560.29	947.73	75.69	86.83	490.96	5.6096
Nov 08	744.85	585.07	897.17	73.57	84.58	491.36	6.0444
Dec 08	745.03	557.46	829.94	69.51	79.55	482.65	6.1078

EFFECTIVE KRONE RATE Table 24

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
2003	101.2	234.7	220.3	107.9	108.4	95.8
2004	102.2	237.4	224.0	108.3	109.8	97.9
2005	101.6	241.7	228.4	107.6	109.4	100.0
2006	101.6	246.2	233.0	107.5	110.2	102.2
2007	103.2	250.5	238.2	108.5	113.5	104.4
2008	105.8	...	...	...	...	...
Jul 08	106.7	259.6	247.8	111.5	...	108.5
Aug 08	105.8	260.0	247.6	111.0	...	108.3
Sep 08	105.4	261.1	248.2	111.1	117.3	108.5
Oct 08	104.5	260.7	247.9	110.5	...	108.6
Nov 08	104.7	260.0	246.5	111.3	...	108.0
Dec 08	107.4	...	...	...	...	...
	Change compared with previous year, per cent					
2003	3.6	2.1	1.7	3.9	4.7	2.1
2004	1.0	1.2	1.7	0.4	1.3	2.1
2005	-0.6	1.8	1.9	-0.7	-0.3	2.2
2006	0.0	1.9	2.0	0.0	0.7	2.2
2007	1.6	1.7	2.2	0.9	3.0	2.1
2008	2.5	...	...	...	...	...
Jul 08	3.3	4.0	4.0	3.1	...	4.0
Aug 08	2.5	4.3	3.9	3.0	...	3.8
Sep 08	1.9	4.2	3.8	2.6	3.0	3.6
Oct 08	0.8	3.7	3.3	1.9	...	3.2
Nov 08	0.2	2.7	2.2	1.7	...	2.1
Dec 08	2.6	...	...	...	...	...

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

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

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

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