



Danmarks
Nationalbank

Financial stability
1st half

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FINANCIAL STABILITY 2009, 1st half

The small picture on the cover shows a characteristic section of Danmarks Nationalbank's building, Havnegade 5 in Copenhagen. The building, which was constructed in 1965-78, was designed by the architect Arne Jacobsen (1902-71).

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Financial stability 2009, 1st half is available on Danmarks Nationalbank's website: www.nationalbanken.dk under publications.

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This publication is based on information available up to 29 May 2009.

Explanation of symbols:

- Magnitude nil

0 Less than one half of unit employed

• Category not applicable

na. Numbers not available

Details may not add due to rounding.

Schultz Grafisk A/S

ISSN 1602-057X

ISSN (Online) 1602-0588

Contents

SUMMARY	5
FINANCIAL INSTITUTIONS AND FINANCIAL AND ECONOMIC DEVELOPMENTS	11
Crisis sentiment in the financial markets	11
The Danish money market	14
Credit extended by Danmarks Nationalbank	18
The international economy	22
The Danish economy	23
The financial institutions	25
Mortgage-credit institutes – increased write-downs and increasing arrears ratios	42
Life insurance companies' reserves heavily reduced	44
Nordic groups	46
THE RISK OUTLOOK	53
Overview of significant risks to financial stability	53
Risks associated with global macroeconomic and financial developments	54
Risks to the Danish economy	55
Credit risk for Danish banks continues to rise	58
Uneven picture of the banks' interest-rate risk	63
Liquidity maintained after government guarantee	64
Summary of risks facing the banks	65
Risks to the Danish mortgage-credit sector	65
ASSESSMENT OF THE BANKS' RESILIENCE	79
Macro stress test – scenarios	79
Results of the stress scenarios	85
Market assessment of the banks	92
DANMARKS NATIONALBANK'S OVERSIGHT OF THE FINANCIAL INFRASTRUCTURE IN DENMARK	97
The financial system's payments via Danmarks Nationalbank	98
Foreign-exchange settlement	107
Retail payments	108
Securities settlement	112

APPENDIX: SELECTED EVENTS UP TO AND DURING
THE FINANCIAL CRISIS 117

APPENDIX OF TABLES 123

Summary

2008 and the 1st half of 2009 have been dominated by the international financial crisis. After a number of years with high profits, Danish banks have had to make large write-downs on loans, and several banks had negative earnings in 2008. The banks are faced with considerable challenges in terms of restoring confidence and making necessary adjustments. The global economy is set to slow down further and credit risk is rising, so substantial write-downs can also be expected in the coming quarters. Stress tests of the largest 14 banks show that if the opportunities for capital injections under Bank Rescue Package II are exploited, these banks will be relatively robust.

Danmarks Nationalbank finds it positive that most large and medium-sized Danish banks have indicated that they will apply for government capital injections. Due to the economic uncertainty, the banks should carefully consider the option of being able to convert such capital injections into share capital. In an uncertain world it is an advantage for the banks to have extra buffers against any future losses.

The financial markets are slowly beginning to pick up

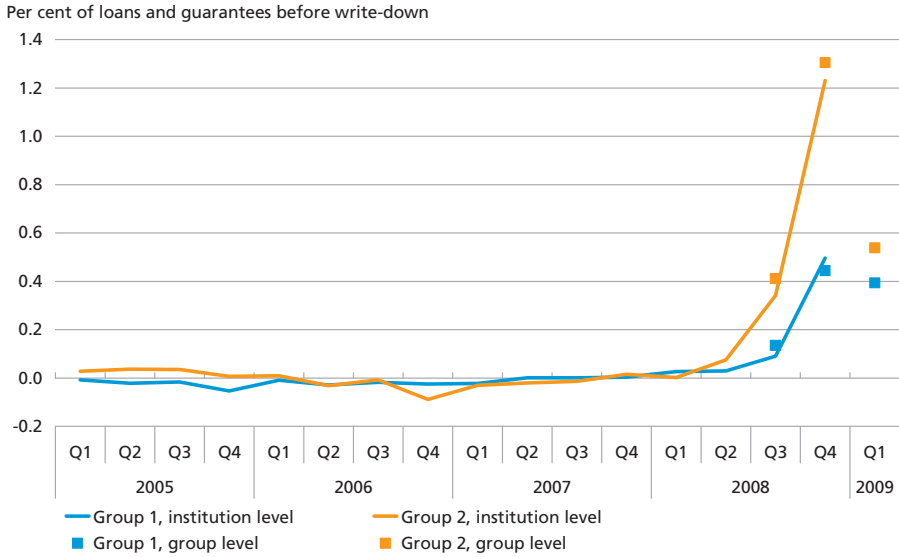
The turmoil in the financial markets culminated in the wake of Lehman Brothers' collapse in September 2008, when it became clear that extraordinary initiatives were needed in order to restore confidence in the financial system. Governments worldwide therefore introduced various measures to support the financial sector and mitigate the negative impact of the crisis on the real economy.

Recently the financial markets have begun to show positive signs. Stock markets have risen since early March 2009, and uncertainty in stock and interest-rate markets has been receding since the autumn of 2008, although it remains higher than previously.

The global economy has been severely hit, and what began as a financial crisis has developed into a global economic crisis. Forecasts for the global economy have been adjusted substantially downwards over the last year. The strength and pace of both the global and Danish economic slowdown have come as a surprise. Recent indicators do, however, point to stabilisation of the economy, although they are not unambiguous.

QUARTERLY WRITE-DOWNS

Chart 1



Note: Group-level data is exclusive of Nordea Bank Danmark and Arbejdernes Landsbank.

Source: Danish Financial Supervisory Authority and annual and quarterly financial statements.

Danish banks severely affected by the crisis

In 2008, the Danish banks really felt the impact of the financial crisis, which severely affected earnings in the 2nd half of the year. The aggregate result for the sector was only just within the positive range. Increasing write-downs on loans and negative value adjustments more than offset a strong improvement in the banks' core earnings that was attributable to rising lending margins. In the 1st quarter of 2009, write-downs on loans fell, but remained appreciably higher than in recent years, cf. Chart 1.

The banks' lending growth fell strongly in 2008 and was negative in the 1st quarter of 2009.

Risk outlook

Economic developments are of paramount importance to the risks faced by the banks.

Several factors could lead to a further worsening of the very uncertain growth outlook for both the international and the Danish economy. A protracted decline in global trade, continued sharp drops in housing prices and renewed turmoil in the financial markets could all make the current macroeconomic downturn deeper and longer than expected.

Developments in the financial sector may also cause the macroeconomic outlook to deteriorate. Expectations of higher unemployment and a rise in the number of failing companies, as well as lower housing prices, re-

duce Danish banks' risk appetite. In other words, there is still a risk of a credit crunch, although the credit package (Bank Rescue Package II) has made this scenario less probable.

Calculations based on Danmarks Nationalbank's failure-rate model show higher estimated failure rates for Danish companies in all sectors. A number of companies posted negative earnings in 2008. Combined with higher indebtedness, this poses a substantial credit risk for Danish banks.

After having risen strongly for a long period, land prices began to fall in the 3rd quarter of 2008. The increases in recent years are not immediately attributable to changes in fundamental economic conditions within the agricultural sector, so there is a risk that land prices will plunge further. This could affect banks with particularly strong exposure to agriculture.

The financial crisis has put the liquidity and capital contingency planning of Danish banks under strong pressure. The Folketing (Danish parliament) has adopted Bank Rescue Package II, offering solvent credit institutions injections of new capital as an extra buffer against rising losses. The government guarantee on bank debt has been of paramount importance to the banks' access to liquidity and has thus helped to reduce their liquidity risks. These measures are temporary, and the banks should therefore prepare strategies for the time after discontinuation of the schemes.

The Danish mortgage-credit system is, and always has been, exposed to credit risk. Homes with a high mortgaging ratio are frequently financed by the most interest-rate-sensitive loans, often with deferred amortisation. Part of the explanation is that previously homeowners only had access to traditional loan types. Developments within mortgage credit mean that many homeowners are more vulnerable to rising interest rates or loss of income than they used to be. Moreover, on average homeowners with deferred-amortisation loans have a higher debt burden than those who have loans with amortisation, and there are considerable regional differences. In general, households in areas with the most pronounced increases – and subsequent falls – in property prices are most vulnerable.

Covered bonds (known as SDOs in Denmark) have introduced a new risk element, as credit institutions must restore the collateral behind the SDOs issued when house prices fall. The need for extra collateral will rise more than proportionally as house prices fall, since an increasing number of loans will require top-up collateral. Danmarks Nationalbank finds it important that these risks are addressed in the current evaluation of SDO legislation.

Stress test

The Danish economy is in recession, and a considerable slowdown in activity is expected in 2009. The negative economic development means that write-downs by banks will be higher than in recent years. The 14 banks analysed are, however, expected to be able to meet the statutory solvency requirements if they exploit the opportunity to receive capital injections under Bank Rescue Package II. This scenario is regarded as representative of the most probable development in the Danish economy and the financial sector (baseline scenario). In this scenario, unemployment reaches 6.3 per cent by the end of 2011, and the average loss ratio is 1.3 per cent in each of the three years of the scenario.

The resilience of the banking sector is tested in two stress scenarios:

1. Negative shock to the Danish economy: The banks tighten their credit policies compared with the baseline scenario, and pessimism becomes more widespread among households and in the corporate sector. In this scenario, unemployment reaches 9.6 per cent by the end of 2011, and the average loss ratio is 2.2 per cent in each of the three years of the scenario.
2. Long, deep recession: While Denmark is hit by a domestic shock, the financial crisis also leads to an international recession that is longer and deeper than expected. In this scenario, unemployment reaches 11.8 per cent by the end of 2011, and the average loss ratio is 2.9 per cent in each of the three years of the scenario.

It should be emphasised that these scenarios are believed to be highly improbable and have primarily been constructed to test the banks' resilience.

In the "negative shock to the Danish economy" scenario, the Danish banks included in the analysis will be able to meet the solvency requirements in both 2010 and 2011, provided that the capital injections can be converted into share capital. If that is not the case, a few banks will experience solvency problems in 2010, and the number rises to almost half of the banks in 2011.

In the "long, deep recession" scenario, a large number of banks will experience difficulties in meeting the solvency requirement in 2011 – even if the capital injections can be converted into share capital. If the capital injections cannot be converted, problems will begin to arise in 2010.

The economic situation and uncertainty as to how the various stimulus packages will affect the economy mean that the scenarios and their impact on the banking sector are subject to unusually great uncertainty.

Overall, it is the assessment of Danmarks Nationalbank that, following capital injections under Bank Rescue Package II, Danish banks are well positioned to withstand the expected economic developments.

Due to the economic uncertainty, the banks should carefully consider the option of being able to convert such capital injections into share capital.

If the economic situation deteriorates markedly in relation to the current expectations, further capital injections may be required.

Financial Institutions and Financial and Economic Developments

The financial markets have recently experienced a more positive development, but they continue to be affected by the financial crisis. It has had a severe impact on the global economy, and international and Danish macroeconomic conditions have deteriorated significantly. The pace and strength of the economic slowdown have come as a surprise.

The financial crisis had a strong effect on the earnings of the Danish banks in the last six months of 2008, their total earnings only just remaining positive. Increasing write-downs on loans and negative value adjustments more than offset a strong improvement in the banks' core earnings that was attributable to rising lending margins.

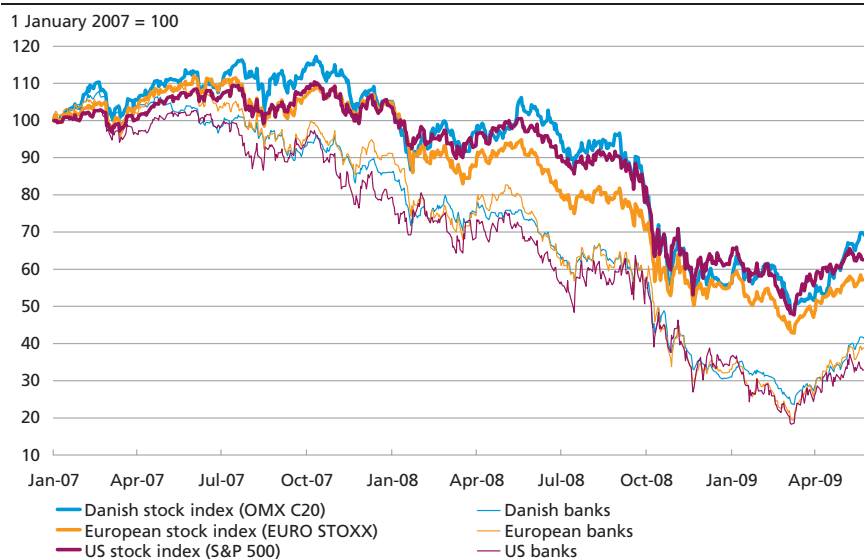
The banks' lending growth decreased in 2008 and was negative in the 1st quarter of 2009.

CRISIS SENTIMENT IN THE FINANCIAL MARKETS

The turmoil in the financial markets culminated in the wake of Lehman Brothers' collapse in September 2008 when it became clear that extraor-

DEVELOPMENT IN BENCHMARK STOCK INDICES AND BANK INDICES

Chart 2



Source: Bloomberg.

As the financial crisis has evolved, governments around the globe have implemented various measures ("bank rescue packages") with the primary objective of mitigating the negative consequences of the crisis and preventing a negative spiral in the real economy. The EU has prepared guidelines for the design of government guarantees and recapitalisation to prevent the member states from favouring national interests and introducing measures that distort competition.

The first bank rescue packages, which consisted of temporary government guarantees for the banks' unsecured creditors, were introduced in the autumn of 2008 to stop the panic in the financial markets in the wake of Lehman Brothers' collapse. The mission was accomplished in part as it put a stop to the accelerating deterioration, particularly in the interbank markets.

However, these bank rescue packages did not solve the banks' problem in the form of increasing losses and provisions as a result of the financial crisis and the severe global economic slowdown. Several countries, including Denmark, were therefore compelled to give the banks access to borrow capital from the central government. One of the aims was to prevent the development of a credit crunch, i.e. a situation where creditworthy business enterprises and households are unable to obtain credit because the banks have to reduce their lending gearing (lending/capital).

The common denominator of the government guarantees and the possibility of capital injections has been that the authorities have sought to solve problems by securing the banks' liabilities side.

In a number of countries, it has also been necessary for the authorities to help the banks handle their troubled assets. Generally, the authorities have applied one of the following two models or a combination thereof:

- ARS (Asset Removal Scheme): The bad assets are removed from the bank's balance sheet through sale or transfer to a separate institution ("bad bank"). Removing the bad assets from a bank's balance sheet releases internal resources, thereby enabling the bank to focus entirely on its sound activities.
- AIS (Asset Insurance Scheme): The bad assets remain on the bank's balance sheet, but the bank can purchase government insurance against losses exceeding a certain amount. The bank no longer needs to worry about becoming insolvent on account of the bad assets. The advantage in relation to the ARS is that the loan stays where the expertise is. The disadvantage is that the bank does not achieve the psychological effect of getting "a clean slate", as the assets remain on its balance sheet.

dinary initiatives were needed in order to restore confidence in the financial system. Governments worldwide therefore introduced various measures to support the financial sector and to mitigate the negative impact of the crisis on the real economy.

Equity markets continued to decline in early 2009. When the markets bottomed out at the beginning of March, European and US financial stocks were traded at less than 20 per cent of their worth in early 2007, cf. Chart 2. From the beginning of March to end-May, stock indices in Europe and the USA increased by about 30 per cent.

OFFICIAL MEASURES TO STABILISE THE EU FINANCIAL SECTOR – CONTINUED Box 1

The table below provides an overview of the stabilisation measures (temporary government guarantees, capital injections, acquisition/insurance of troubled assets) implemented by individual EU member states as at end-March 2009.

OFFICIAL MEASURES TO STABILISE THE EU FINANCIAL SECTOR

	Temporary government guarantee	Possibility of capital injections	Acquisition/ insurance of troubled assets
Belgium	√		
Bulgaria			
Cyprus			
Denmark	√	√	
Estonia			
Finland	√	√	
France	√	√	
Greece	√	√	√
Netherlands	√	√	
Ireland	√	√	√
Italy		√	√
Latvia	√		
Lithuania			
Luxembourg	√		
Malta			
Poland.....			
Portugal	√	√	
Rumania			
Slovakia			
Slovenia	√		
Spain	√		√
UK	√	√	√
Sweden	√	√	
Czech Republic			
Germany	√	√	√
Hungary	√	√	
Austria	√	√	

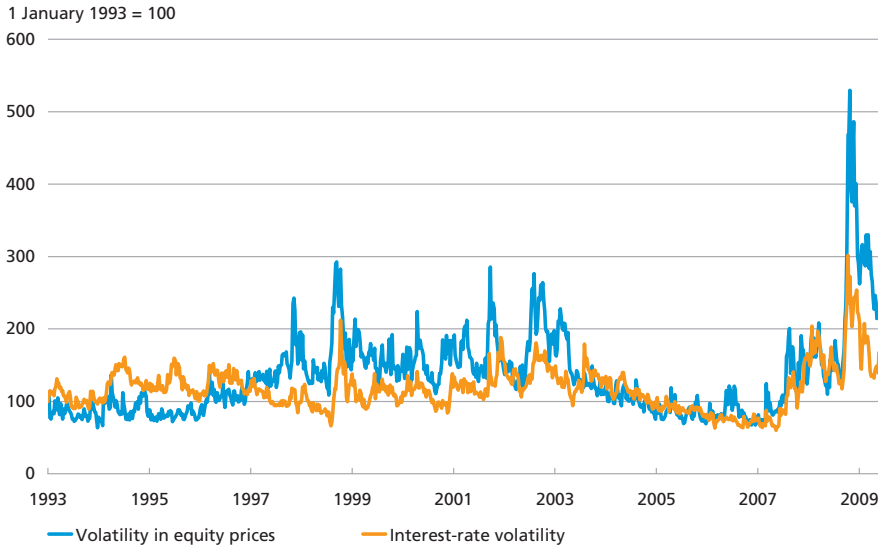
Note: "√" indicates that the member state has implemented general measures in the area concerned. It should be noted that introducing separate measures for individual institutions, e.g. injecting capital into a single bank, does not constitute a general measure, and in such cases the field will be left blank.

Source: National authorities and the ECB.

The increases by no means offset the total decline over the preceding eight months, however. On several occasions the global equity markets have reacted strongly to both rumours and actual measures to alleviate the financial crisis and its real-economic consequences. Besides, investors have had to consider the fact that governments have acquired substan-

IMPLIED VOLATILITY INDICES FOR EQUITIES AND INTEREST RATES

Chart 3



Note: Volatility in equity prices is the volatility in US equities, CBOE, VIX. Interest-rate volatility is Merrill Lynch Option Volatility Index, MOVE.

Source: Bloomberg.

tial shareholdings in an increasing number of banks as a result of the recapitalisation packages launched by many countries, cf. Box 1.

Uncertainty in the financial markets remains high, but without the same sense of panic as in the autumn of 2008. In 2009, implied volatility indices for equities and interest rates fell back from the extremely high levels at the end of 2008 and are now comparable with previous periods of turmoil, cf. Chart 3.

THE DANISH MONEY MARKET

Conditions on the Danish money market deteriorated significantly during September and early October 2008. Due to the financial crisis, it was practically impossible for many banks to obtain anything other than very short-term financing. This is reflected in the considerable widening of the spread between collateralised and uncollateralised money-market lending that occurred over the summer and up to the adoption of the Financial Stability Act (Bank Rescue Package I, see Box 2), cf. Chart 4.

In the autumn of 2008, uncertainty and increasing mistrust among the banks led to a significantly greater spread in very short-term interest rates with the day-to-day rate following Denmark's Nationalbank's official interest rates to a lesser extent than usual, cf. Chart 5.

COSTS AND THEIR DISTRIBUTION, BANK RESCUE PACKAGE I

Box 2

On 5 October 2008, the Danish Contingency Association concluded an agreement on financial stability (Bank Rescue Package I) with the Danish government. Under the agreement, the government provides an unlimited guarantee to all depositors and other unsecured creditors, exclusive of covered bonds (SDOs).

Overall, payments from the Danish Contingency Association under Bank Rescue Package I may constitute up to kr. 35 billion. This sum comprises a contingency fund of kr. 10 billion (own risk) to cover the losses of the Financial Stability Company (The Winding-Up company), a market-related guarantee commission to the Financial Stability Company of kr. 7.5 billion annually for two years and, if necessary, an increased guarantee commission of kr. 10 billion to cover further losses. The distribution of the banking institutions' payments under Bank Rescue Package I is determined by the Danish Contingency Association. The contribution from each banking institution is proportional to its share of the total base capital required for the activities comprised by the guarantee.

Participation in the government guarantee under Bank Rescue Package I is voluntary, but the great majority of Danish banking institutions have joined the scheme. This is positive, since the default of a Danish banking institution could have widespread consequences for all Danish banking institutions if foreign institutions lose confidence in the sector.

The effect of the government guarantee is evident from the banking institutions' financing costs. A selection of bond issues shows that the banking institutions pay a considerably lower price for issuance within than outside the government guarantee, cf. the Chart below.

SPREAD BETWEEN BOND AND REFERENCE RATES FOR SELECTED DANISH BONDS



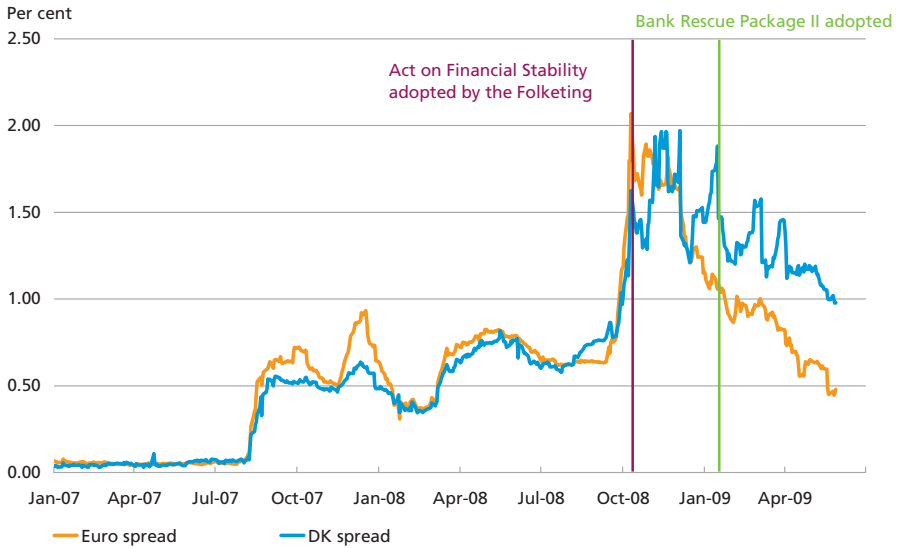
Note: The Chart shows secondary prices for bonds. The reference interest rate is CIBOR or EURIBOR.
Source: Danske Markets.

As a consequence of the adoption of Bank Rescue Package II, cf. Box 3, the Danish Act on Financial Stability has been amended. The amendment enables supplementary purchase of an individual government guarantee for non-subordinated unsecured debt and for loans issued for financing top-up collateral for institutions issuing SDOs and SDROs as well as Danish Ship Finance A/S. The individual government guarantee runs for up to three years and comprises loans issued on 31 December 2010 at the latest. Applications for individual government guarantees must be submitted by 31 December 2010.

¹ For further details, see *Financial stability 2008, 2nd half*.

**SPREAD BETWEEN COLLATERALISED AND UNCOLLATERALISED
3-MONTH MONEY-MARKET INTEREST RATES**

Chart 4



Source: Bloomberg.

Despite substantial fluctuations, the Danish money market has seen a significant reduction of the spread between uncollateralised and collateralised money-market interest rates in 2009 – from around 175 basis points in mid-January to around 100 basis points in late May, cf. Chart 5. Short-term money-market interest rates are again following Denmark's Nationalbank's official interest rates, and several banks are reporting easier access to liquidity. Nervousness in the market has decreased as a result of Bank Rescue Packages I and II, among other reasons, cf. Boxes 2 and 3, but market conditions remain far from normal. This is illustrated by the spread between collateralised and uncollateralised 3-month money-market interest rates in Denmark, which is still considerable despite the fact that uncollateralised loans are covered by the government guarantee until 30 September 2010.

As regards the development in the Danish money market compared with the development in the euro area, the narrowing of the spread between collateralised and uncollateralised money-market interest rates in Denmark has been slower and less smooth than in the euro area, cf. Chart 4. The Danish spread is almost twice as wide as in the euro area.

Apart from a few periods, the banks' daily turnover of uncollateralised day-to-day lending was stable in both 2008 and during 2009 to date and at more or less the same level as in 2007, cf. Chart 5. The banks generally reduced the volume of their money-market transactions, but due to the crisis the money market has seen a shift towards shorter-term loans.

On 3 February 2009, a bill on government capital injections into credit institutions was passed by the Folketing (Danish parliament). The purpose of the act is to recapitalise Danish credit institutions and to reduce the risk of a credit crunch.

Credit institutions that observe the statutory solvency requirements can apply to the government for injections of capital. The government injections are given in the form of hybrid core capital. If, on conclusion of the agreement, the hybrid core capital exceeds 35 per cent of the total Tier 1 capital, the Danish Financial Supervisory Authority may require that the capital be converted into share capital if the credit institution is in difficulties. Even if the hybrid core capital does not exceed 35 per cent of the Tier 1 capital on conclusion of the agreement, the central government and a credit institution whose shares have been admitted for trading on a regulated market may agree on an option for conversion on specific terms. This can be done if the hybrid capital exceeds 35 per cent of the Tier 1 capital, e.g. as a result of losses, at a later time.

Credit institutions receiving capital injections must subsequently have a Tier 1 ratio of at least 12 per cent. Individual solutions may be negotiated in special cases, however. The credit institutions pay an interest rate reflecting the central government's risk on the institution concerned. The interest rate is expected to be approximately 10 per cent p.a. on average.

Capital injections are subject to conditions, including requirements regarding lending policy, executives' remunerations and dividend policy.

The scheme is intended to be temporary, and incentives are therefore given for redemption of the government capital, e.g. through rising interest payments in the event of increased disbursement of dividends and more expensive redemption after five years.

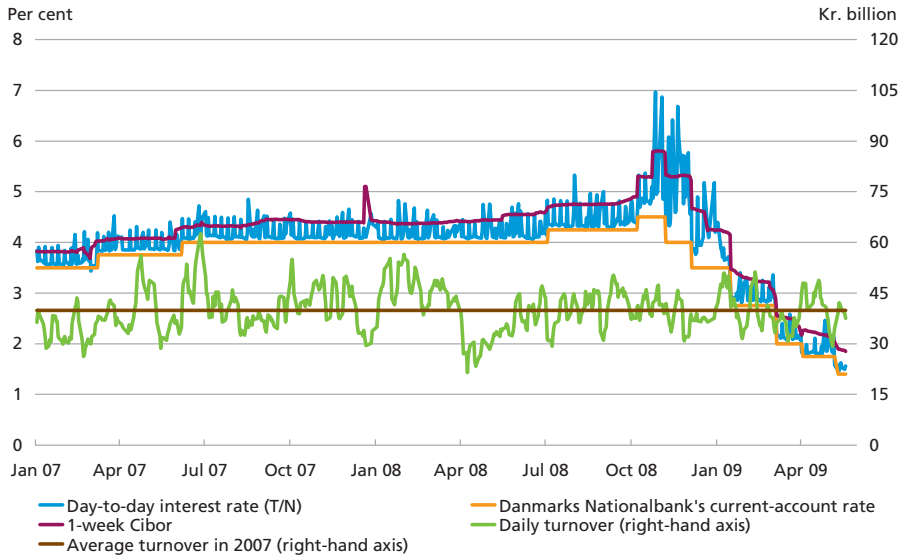
The deadline for applications is 30 June 2009, and the majority of large and medium-sized banks have already announced that they want to make use of the possibility to apply to the government for injections of hybrid core capital. If all credit institutions take full advantage of the offer, approximately kr. 100 billion in new hybrid core capital will be provided by the government – approximately kr. 75 billion to banking institutions and approximately kr. 25 billion to mortgage-credit institutes. In addition, kr. 20 billion will be made available under a new export loan scheme in Eksport Kredit Fonden.

It is in the interest of society that the banks accept the capital provided by the government to ensure continued financing of sound projects, thereby supporting growth in the Danish economy. At the same time, the banks have an interest in capitalising themselves to provide extra financial cushioning. A characteristic feature of capital is that it is hardest to obtain when it is needed the most. Consequently, those credit institutions that have not yet announced whether they are going to apply should seriously consider accepting the capital that is made available. In an uncertain world it is an advantage for banks to have extra buffers against any future losses.

The offer of government capital injections and the option of paying guarantee commission in shares under Bank Rescue Package I open up for potential government ownership of credit institutions. Government ownership should be temporary, and the shareholding sold once market conditions normalise and the sale can be effected in good order.

**SHORT-TERM MONEY-MARKET INTEREST RATES IN DENMARK, AND DAILY
TURNOVER IN THE DANISH DAY-TO-DAY MONEY MARKET**

Chart 5



Note: The day-to-day interest rate is a turnover-weighted Tomorrow/Next interest rate. Daily turnover is a 5-day moving average.

Source: Danmarks Nationalbank.

The decline in money-market transactions has been offset by a significant increase in Danmarks Nationalbank's monetary-policy operations (sale of certificates of deposit and granting of monetary-policy loans), cf. Table 7 in the Appendix of Tables.

CREDIT EXTENDED BY DANMARKS NATIONALBANK

In order to ease the problems in the money market, Danmarks Nationalbank has introduced new temporary credit facilities several times since May 2008. This has led to a significant relaxation of Danmarks Nationalbank's extension of credit to banks and mortgage-credit institutes compared to the framework for credit operations that applied prior to the onset of the crisis, cf. Box 4.

The primary purpose of the new credit facilities is to prevent solvent banks from experiencing difficulties due to insufficient liquidity. This has been done by expanding the collateral base with securities that are not normally eligible as collateral for loans from Danmarks Nationalbank, and by offering uncollateralised credit where the credit line depends on the institutions' excess capital adequacy.

The expansion has also made it easier for banks to meet the statutory liquidity requirements.

DANMARKS NATIONALBANK'S GENERAL FRAMEWORK FOR CREDIT OPERATIONS Box 4

Danmarks Nationalbank grants 7-day loans and intraday credit in Danish kroner to banking institutions and mortgage-credit institutes against approved securities of high credit quality as collateral. Securities pledged as collateral consist predominantly of Danish government securities, mortgage-credit bonds and covered bonds (SDOs).

The eligible assets must be denominated in Danish kroner or euro. In addition, they must be registered in VP Securities and traded on NASDAQ OMX Copenhagen.

Furthermore, Danmarks Nationalbank also provides access to intraday credit in euro against collateral in largely the same securities. For credit in euro the securities must also meet a rating requirement stipulated by the ECB.

The collateral value of the securities is calculated as their market price less a securities-specific haircut. When euro securities are pledged as collateral for credit in Danish kroner or vice versa, an additional exchange-rate haircut of 3 per cent is added.

On determination of haircuts, the securities are divided into four liquidity categories according to their negotiability. Within each category the haircuts of the securities depend on the type of coupon and remaining life as an indicator of price sensitivity to interest-rate changes.

The value of the securities pledged is calculated on a daily basis as the official price on NASDAQ OMX on the preceding day, including accrued interest. If a security has not been traded within the last five banking days, Danmarks Nationalbank operates with a theoretical price.

A detailed description of Danmarks Nationalbank's framework for credit operations is found at www.nationalbanken.dk under "Rules" and "Pledging of collateral".

Temporary credit facilities

Danmarks Nationalbank's framework for credit operations was adjusted for the first time in May 2008 when confidence among the institutions was still relatively high. The institutions had become reluctant to lend to each other, however, as they did not want to tie up liquidity in a money-market loan.

In view of this, Danmarks Nationalbank chose to approve a new type of securities, loan bills, as eligible collateral for loans. Every Friday, these securities, which must meet a number of standard terms, can be pledged as collateral for a 7-day loan from Danmarks Nationalbank. The rate of interest is Danmarks Nationalbank's lending rate plus a premium. The objective was to facilitate lending among the institutions. A banking institution can borrow by issuing a loan bill, and the institution buying the bill can raise liquidity by using it as collateral for a loan from Danmarks Nationalbank. As a result, the latter institution can also include the bill in its liquidity, cf. section 152 of the Danish Financial Business Act.

The loan bill scheme assumes that the banking institutions want to lend to each other. However, confidence among the banking institutions weakened during the summer of 2008 as the scope of the problems in the financial sector became more apparent, and further measures were needed.

In September 2008, Danmarks Nationalbank introduced a new temporary credit facility. Banking institutions and mortgage-credit institutes were given access to borrow an amount depending on their excess capital adequacy, i.e. the difference between their base capital and capital need. The institutions must apply for this, and the governors of Danmarks Nationalbank decide whether to grant the loan. If an application is approved, the institution is granted a credit line equal to its excess capital adequacy less a margin of 1 per cent, but normally not more than kr. 800 million. Every Friday the institution can then borrow an amount within the credit line for seven days at the lending rate plus a premium. As is the case with the loan bills, the credit line can be included in the institution's liquidity.

Unlike the loan bill scheme, the solvency scheme is meant for loans raised directly from Danmarks Nationalbank. The purpose of the latter scheme is to prevent banking institutions with adequate capital from incurring liquidity problems as a result of insufficient assets that can be pledged as collateral to Danmarks Nationalbank. We have no knowledge of any similar schemes in other central banks.

In addition to the solvency scheme, Danmarks Nationalbank expanded the temporary collateral base with quoted shares, investment fund shares and loans issued for financing top-up collateral for covered bonds (known as SDOs in Denmark) and – on request and based on Danmarks Nationalbank's concrete assessment – unquoted shares.

The expansion to include unquoted shares enabled the banking institutions to pledge shares issued by their jointly owned companies, e.g. PBS Holding A/S and VP Securities A/S as collateral. Furthermore, when calculating their liquidity, the institutions can now include these shares in line with liquid securities.

In June 2009, Danmarks Nationalbank expanded the collateral base with bank bonds and loans issued for financing top-up collateral issued in connection with SDOs that are guaranteed by the Danish government. The expansion included both bonds covered by the general government guarantee introduced with Bank Rescue Package I in October 2008, and bonds with individual government guarantees, cf. the Act to Amend the Act on Financial Stability.

The expansion with government-guaranteed bank bonds was a natural adjustment of the collateral base. Quoted shares in banking institutions were already eligible for lending. The expansion also aimed to promote interest in these bonds, thereby supporting long-term market-based loan financing.

The temporary credit facilities will run until 30 September 2010. The expansion of the collateral base with government-guaranteed bank bonds and loans issued for financing top-up collateral in connection with SDOs will apply until 31 December 2013, however.

Use of the credit facilities

The temporary credit facilities at Danmarks Nationalbank have been used only to a limited extent. This is mainly attributable to the government guarantee under Bank Rescue Package I which came into force in October 2008. As a result of that package, the banking institutions started lending to each other in the money market again, and the need to borrow from Danmarks Nationalbank has been modest.

At the end of April 2009, Danish banking institutions had issued loan bills to other institutions amounting to approximately kr. 6 billion. Similarly, credit lines based on excess capital adequacy totalling kr. 14 billion, distributed on 35 banking institutions, had been granted. No institutions have borrowed against loan bills or raised loans under the solvency scheme.

Use of the expanded collateral base has also been limited. At the end of April 2009, 18 Danish banking institutions and mortgage-credit institutes had pledged shares, etc. for approximately kr. 3 billion. While the majority were quoted shares, the institutions had pledged unquoted shares for approximately kr. 1 billion as collateral.

These figures concerning the use of the temporary collateral base should be seen in relation to a total value of assets pledged as collateral to Danmarks Nationalbank at the end of April 2009 of kr. 332 billion. The usual eligible assets thus continue to account for the vast majority of the assets pledged as collateral for loans from Danmarks Nationalbank.

Nevertheless, the temporary credit facilities have been of major importance for the liquidity of several banking institutions. Not least the solvency scheme, which has helped individual banking institutions to meet the liquidity requirements under section 152 of the Danish Financial Business Act.

In addition, the schemes may have contributed to capping the borrowing costs of some banking institutions. A banking institution that wants to borrow from another institution can refer to what it would cost to borrow the amount from Danmarks Nationalbank, e.g. via the solvency scheme. As a result, the institution will not normally borrow from another institution at a higher interest rate.

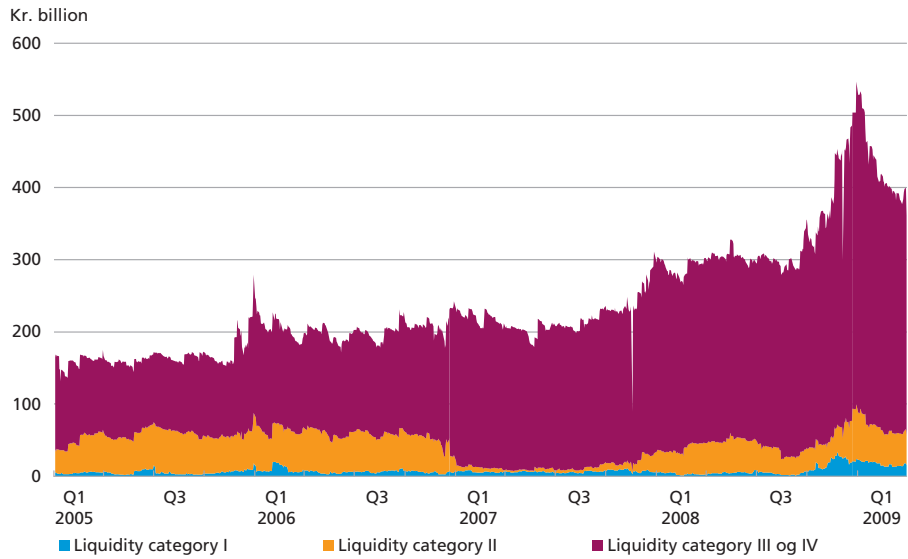
Use of the normal collateral base

The normal collateral base for loans from Danmarks Nationalbank consists predominately of Danish bonds of high credit quality. When calculating the collateral value, the bonds are divided into four liquidity categories depending on their negotiability. Chart 6 shows the distribution of the securities pledged on those categories.

Banking institutions and mortgage-credit institutes pledge government securities (liquidity category I) as collateral only to a limited extent. At the

BREAKDOWN OF COLLATERALISED BONDS BY LIQUIDITY CATEGORIES

Chart 6



Note: The principles for breakdown of bonds pledged as collateral by liquidity categories can be found at www.nationalbanken.dk under Rules/Pledging of collateral.

Source: Danmarks Nationalbank.

end of April 2009, the institutions had pledged government securities for only approximately kr. 10 billion as collateral. Instead, the institutions mainly provided mortgage-credit bonds and SDOs as collateral (liquidity categories II and III). This distribution primarily reflects that liquid government securities are more acceptable in the private lending market than mortgage-credit bonds and SDOs. The banking institutions and mortgage-credit institutes therefore prefer to reserve their government securities for the private lending market and to pledge their less liquid mortgage-credit securities as collateral to Danmarks Nationalbank.

THE INTERNATIONAL ECONOMY

The global economic recession has intensified over the last year, and the world economy is experiencing its worst post-war setback.

The crisis has had a severe effect. Considerable loss of wealth as a result of falling stock indices and housing prices has reduced consumer and business confidence, leading to a general slowdown in demand. Households and the corporate sector are finding it more difficult to obtain credit, which exacerbates the setback. In addition, unemployment is rising rapidly around the globe.

The global economic slowdown is reflected e.g. in a large decrease in industrial production and international trade in 2008, but in the spring of

2009 there have been certain indications of a stabilisation. The economic development remains a matter of considerable uncertainty, however.

THE DANISH ECONOMY

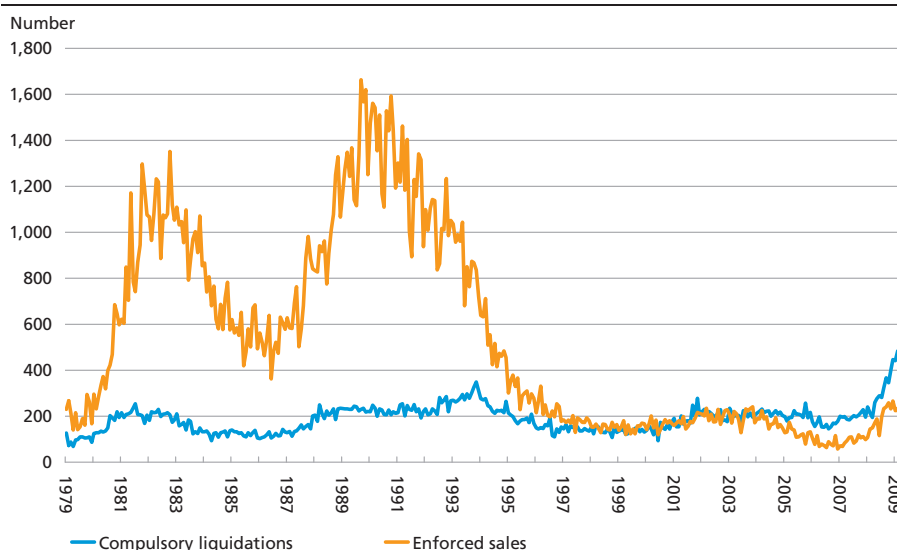
The Danish economy had been slowing down for some time, but even more so in the latter part of 2008. GDP fell by 1.1 per cent in 2008, so that growth was negative for the first time in 15 years. In Denmark, too, there are indications that the economy is stabilising, but the development is not unequivocal and uncertainty remains high.

Both domestic and – as a result of the global economic slowdown – foreign demand for Danish products have declined. Private consumption shows a downward trend although real disposable incomes have risen considerably. The decline in private consumption should be viewed in the light of negative consumer expectations and decreasing wealth, including home equity, due to falling housing prices and stock indices.

An increasing number of enterprises are having difficulties coping with the downturn, resulting in a rise in the number of failures. The last months have seen the highest number of compulsory liquidations since the statistics were published for the first time in 1979, cf. Chart 7. The economic slowdown has also had a severe impact on the labour market

COMPULSORY LIQUIDATIONS IN THE NON-FINANCIAL SECTOR AND ENFORCED SALES

Chart 7



Note: The Chart shows seasonally adjusted monthly data for the number of compulsory liquidations. Enforced sales have not been seasonally adjusted.

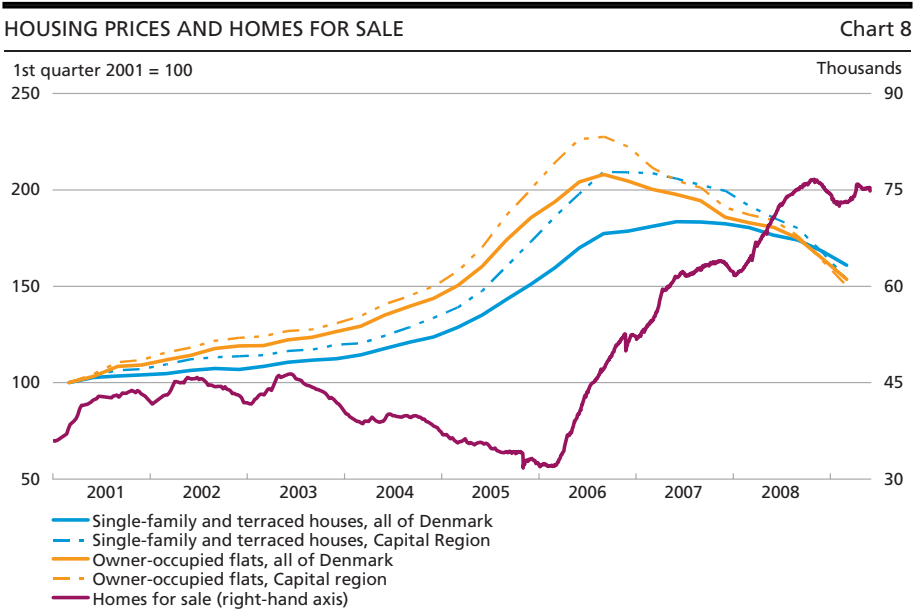
Source: Statistics Denmark.

with unemployment rising by more than 30,000 person in the first four month of 2009 alone.

The housing market and enforced sales

House prices fell during 2008 and into 2009. At the national level, cash prices of single-family and terraced houses have declined by 12 per cent since the peak in the 2nd quarter of 2007, cf. Chart 8. Prices in the Copenhagen area have tumbled by approximately 25 per cent during the same period, while the trend has been more moderate for the rest of Denmark overall. The prices of owner-occupied flats have fallen by even more than those of single-family and terraced houses. In general, the areas most severely affected are those where the rate of price increase was most rapid prior to the reversal, and where the price per square metre is highest.

The number of owner-occupied homes for sale remains high, and sales for the 1st quarter of 2009 were at the lowest level since the statistics began in 1995. The total number of homes for sale masks different development trends for different parts of the market. Since mid-2007, the number of owner-occupied flats for sale has fallen by 30 per cent, while the supply of single-family and terraced houses has increased by 36 per cent. This may indicate that the price adjustment process for owner-occupied flats may be complete, while the prices of single-family and terraced houses are likely to decrease further. A major factor behind the housing market situation is expectations of further price drops.



Source: Association of Danish Mortgage Banks and Danish Association of Chartered Estate Agents, www.boligsiden.dk.

The negative trend in the housing market is also reflected in the increasing number of enforced sales, cf. Chart 7. The level remains low in a long-term perspective, however, which should be viewed in the light of a sustained low rate of unemployment.

THE FINANCIAL INSTITUTIONS

Strong decline in bank earnings in 2008

The financial crisis really impacted on the banks' earnings in 2008, especially in the 4th quarter. The total profits of banks in groups 1 and 2 fell from kr. 31.3 billion in 2007 to kr. 0.4 billion in 2008 (see Box 5 for a description of the groups). The lower earnings in 2008 are mainly attributable to write-downs on loans amounting to kr. 19 billion, corresponding to a weighted write-down ratio of 0.8. Capital losses of kr. 5 billion, the majority on equities, also contributed to the decrease in earnings. On the other hand, net interest income increased by kr. 10 billion due to higher lending margins and increased lending.

Write-downs on loans accelerated throughout 2008. In the 4th quarter alone, write-downs on loans amounted to kr. 14 billion, equivalent to a

OVERVIEW OF FINANCIAL INSTITUTIONS IN THE REPORT

Box 5

The Danish financial sector is dominated by a few large groups whose activities and earnings cover various financial business areas. Banking is by far the largest and most important business area in relation to financial stability. Danish banks are sometimes parent companies, sometimes subsidiaries in groups comprising other financial enterprises too.

Ownership and the chosen group structure affect the earnings and risk profiles of the individual banks. Typically, most of a group's excess capital adequacy is held by the parent company, from which it is easiest to channel the funds to any parts of the group that need further capital. Consequently, subsidiaries often have lower capital adequacy in relation to risks. On the other hand, an assessment of a parent company must take into account that its capital adequacy must to some extent also hedge unexpected losses in subsidiaries.

The mortgage-credit institutes provide credit to finance real estate, which makes them the largest bond issuers in Denmark. The development in the mortgage-credit institutes may have a direct impact on the banks via group structures and cooperation agreements or an indirect impact in that the mortgage-credit institutes compete with the banks in the home-financing market.

Life insurance companies manage considerable assets and can thus impact price formation in the financial markets. They, too, can have a direct impact on the banks via group structures.

Mortgage-credit and life insurance activities are undertaken by special institutions and subject to special rules aimed at mitigating risk.

Asset management, including running investment associations, is assessed to be an area with limited risk for the banks and little impact on financial stability. The risk of investment losses as a result of changing market conditions is typically borne by the customer.

The analyses in this report focus on banks in the Danish Financial Supervisory Authority's groups 1 and 2 (banks with working capital of at least kr. 10 billion) that observed the statutory requirements for solvency, liquidity, etc. at end-2008. The analyses thus comprise 14 Danish banks as well as the mortgage-credit institutes and life insurance companies affiliated with the selected Danish banks, cf. the Table below. FIH Realkredit has however, been omitted as its activities are being phased out.

Danske Bank and Nordea Bank Danmark belong to large groups with activities in most of the Nordic region, the Baltic states and a few other countries. In a group context, they are therefore compared with similar Nordic banking groups.

At end-2008, banks comprised by the report accounted for 93 per cent of the balance-sheet total of the Danish banks and had a market share of 77 per cent of total bank lending in Denmark.

Note that the data in this report concerning bank-specific information such as return on equity, lending growth, etc. is not immediately comparable with the data in *Financial stability 2008*, since e.g. Roskilde Bank and Fionia Bank are no longer part of the population, cf. Box 6.

BANKS IN THE DANISH FINANCIAL SUPERVISORY AUTHORITY'S GROUPS 1 AND 2, AFFILIATED MORTGAGE-CREDIT INSTITUTES AND LIFE INSURANCE COMPANIES, AND NORDIC GROUPS

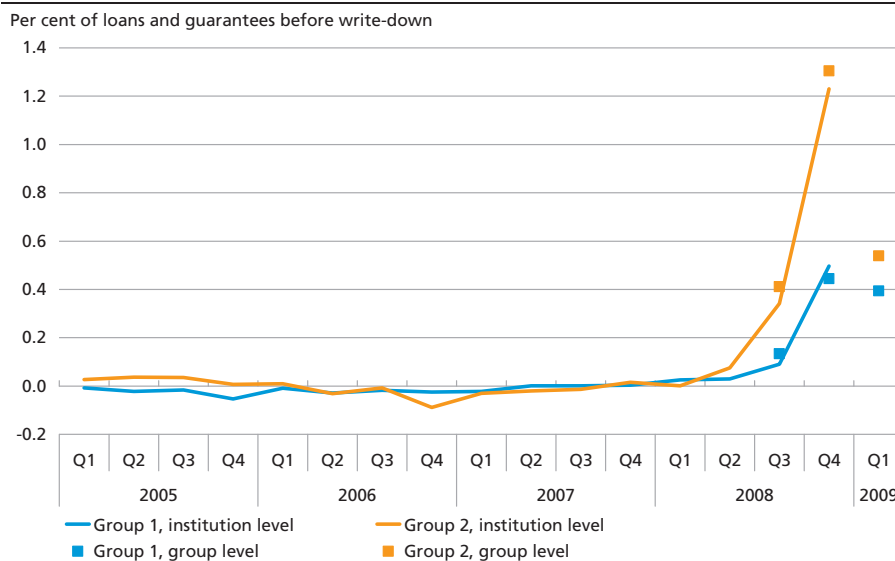
	Activities in Denmark		
	Banking	Mortgage credit	Life Insurance
Group 1			
Danske Bank	Danske Bank	Realkredit Danmark	Danica
FIH Erhvervsbank	FIH Erhvervsbank	FIH Realkredit	
Jyske Bank	Jyske Bank		
Nordea	Nordea Bank Danmark	Nordea Kredit	Nordea Liv & Pension
Sydbank	Sydbank		
Group 2			
Alm. Brand	Alm. Brand Bank		Alm. Brand Liv og Pension
Amagerbanken	Amagerbanken		
Arb. Landsbank	Arb. Landsbank		
Nykredit	Nykredit Bank	Nykredit	
	Forstædernes Bank	Totalkredit	
Ringkjøbing Landbobank	Ringkjøbing Landbobank		
Roskilde Bank	Roskilde Bank		
Spar Nord Bank	Spar Nord Bank		
Sparbank	Sparbank		
Vestjysk Bank	Vestjysk Bank		
Number of institutions	14	5	3
Nordic groups			
Danske Bank			
DnB NOR			
Nordea			
SEB			
Svenska Handelsbanken			
Swedbank			

Note: Nordea Liv & Pension is part of the Nordea Bank AB group. FIH Realkredit has been omitted as its activities are being phased out. Roskilde Bank and Fionia Bank are no longer part of the population, cf. the above and Box 6.

Source: Financial statements.

QUARTERLY WRITE-DOWNS

Chart 9



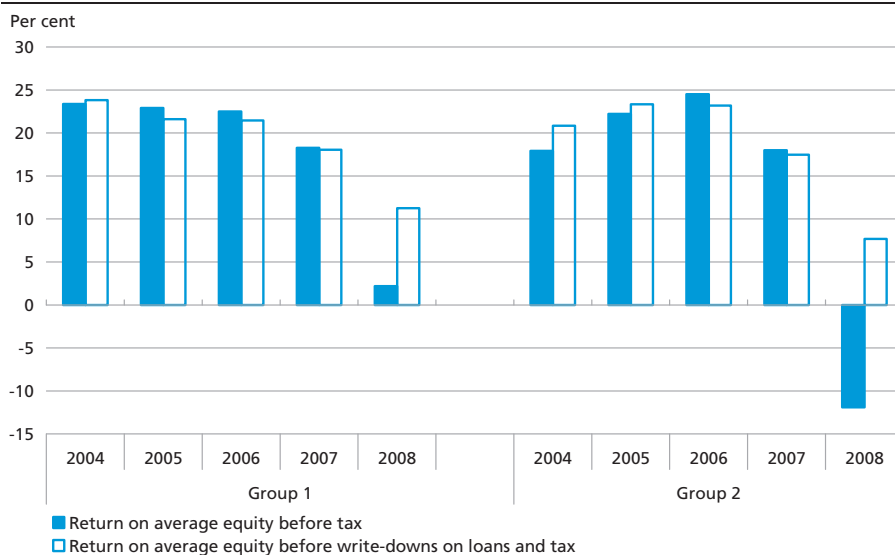
Note: Group-level data is exclusive of Nordea Bank Danmark and Arbejdernes Landsbank.

Source: Danish Financial Supervisory Authority and annual and quarterly financial statements.

weighted write-down ratio of 0.6 in that quarter for the banks in groups 1 and 2 overall. In group 2 alone, the average weighted write-down ratio was 1.2 in the 4th quarter of 2008. Several banks reported that the

RETURN ON EQUITY BEFORE TAX

Chart 10



Note: Return is calculated on the basis of an average of equity and the beginning and end of the year.

Source: Financial statements.

write-downs primarily concerned loans to financial institutions and corporate customers, while the write-downs on private customers remained limited. The write-down ratio was reduced for both groups in the 1st quarter of 2009, cf. Chart 9.

In 2008, the return on equity before tax for the banks in groups 1 and 2 fell to 2.2 per cent and -11.9 per cent, respectively, against 18.3 per cent and 18.0 per cent in 2007, cf. Chart 10. Increased write-downs on loans were the major reason for this. The average return on equity after tax at the end of 2008 was 1.9 per cent for group 1 and 8.8 per cent for group 2.

The financial statements published for the 1st quarter of 2009 show improved earnings capacity compared with the 4th quarter of 2008. The improvement is mainly attributable to fewer write-downs and positive value adjustments.

The recent decline in earnings, tight liquidity conditions, etc. have contributed to a growing number of banks being subject to winding-up, mergers or acquisitions, cf. Box 6. Strong lending growth and considerable exposure to the property sector are among the characteristics of the banks that experience difficulties.

Reclassification of financial assets

With the European Commission's adoption of amendments to the International Financial Reporting Standards on 15 October 2008, banking institutions are now able to reclassify financial assets in rare cases. Reclassification entails that unrealised value adjustments on the assets in question will no longer affect the income statement. Depending on the category to which the asset is reclassified, the unrealised value adjustments will be entered as equity capital or just appear from the notes to the financial statement. For a further description of the various categories, see Box 4 "Reclassification of assets" in Financial Stability 2008, 2nd half.

A few Danish banking institutions chose to make use of this opportunity, thus considerably improving their earnings in 2008.

The argument for reclassification has been to remove part of the financial asset volatility from the income statement. It is worth noting, however, that the quality of the banking institutions' financial assets and thus the risk on individual assets did not change as a result of the reclassification. The reclassification option made it more difficult to compare the banking institutions' profits and return on equity as not all institutions have chosen to make use of it. Moreover, the institutions that did, chose to reclassify the financial assets to different categories with varying effects on their equity capital.

In 2008 and the first few months of 2009, the number of independent banking institutions in Denmark was reduced by 18. This is the result of mergers, acquisitions and winding-up, to some extent as a direct consequence of the financial crisis. A chronological review of events during the last 17 months is provided below.

Banking institutions under the Financial Stability Company or acquired by the Danish Contingency Association

In 2008 and early 2009, five banks have concluded agreements with or been acquired by the Danish Contingency Association or the Financial Stability Company (The winding-up company).

August 2008: On 24 August 2008, Danmarks Nationalbank and Danish Contingency Association acquire the assets and liabilities of *Roskilde Bank* (balance sheet kr. 37 billion), except its subordinated loan capital and hybrid core capital. At end-September most of Roskilde Bank's branch network is sold to Nordea (9 branches), Spar Nord Bank (7 branches) and Arbejdernes Landsbank (5 branches). The remainder of Roskilde Bank, primarily corporate customers, is still being wound up.

November 2008: On 13 November 2008, *ebh Bank* (balance sheet kr. 10 billion) announces that it no longer observes the statutory solvency requirement. The bank is acquired by the Financial Stability Company and is still being wound up. Most branches of ebh Bank were sold to other small banking institutions during the spring of 2009.

February 2009: In February, *Fionia Bank* (balance sheet kr. 33 billion) has to acknowledge that its solvency ratio is below its individual capital need. On 23 February, Fionia Bank concludes a framework agreement with the Financial Stability Company concerning financial support. Under the agreement, Fionia Bank establishes a new bank to which all assets and liabilities of the old bank are transferred, with the exception of share capital and subordinated capital. The Financial Stability Company owns one share in the new bank, while the old bank owns the rest. The old bank pledges its shares and the attached voting rights to the Financial Stability Company, which thus controls the new bank and continues its activities. The Financial Stability Company undertakes an obligation to strengthen the capital base of the new bank by injecting subordinated capital of approximately kr. 1 billion, after which the solvency ratio of the new bank is approximately 13 per cent. The Board and Management and shareholders of the old bank continue in the new bank.

March 2009: Following a series of write-downs in 2008, mainly on large property exposures, *Løkken Sparekasse* (balance sheet kr. 2 billion) no longer meets the solvency requirement. After having sought in vain for a partner to merge with, Løkken Sparekasse on 2 March 2009 enters into a framework agreement with the Financial Stability Company. The bank transfers all assets and liabilities to the Financial Stability Company, except the guarantee capital of kr. 170 million. The Financial Stability Company has subsequently concluded an agreement with Nordjyske Bank on sale of the core activities of Løkken Sparekasse – the bank's green part – as of 1 April 2009.

April 2009: On 16 April 2009, *Gudme Raashcou Bank* (balance sheet kr. 6 billion) enters into a framework agreement with the Financial Stability Company, after having sought in vain to strengthen its capital base for some time. The bank's non-observance of the solvency requirement is attributable to considerable write-downs on its property exposures. Under the agreement, all the bank's assets and liabilities, except share capital and subordinated capital, are transferred to the Financial Stability Company.

The transfer sum is kr. 0 with the option to adjust it at a later date. As of 1 June 2009, Lån og Spar Bank has acquired all of Gudme Raaschou Bank's asset and portfolio management activities, as well as a small lending and deposit portfolio. At the same time, Lån og Spar Bank acquires the goodwill and the intangible rights related to the activities acquired, including the name of Gudme Raaschou Bank. The bank's activities within mortgage deeds are transferred to a newly established subsidiary of the Financial Stability Company.

Mergers and acquisitions in the Danish banking sector in 2008 and early 2009

January 2008: Financial problems in *bankTrelleborg* (balance sheet kr. 8 billion) lead to merger with *Sydbank* (kr. 132 billion).

February 2008: *Sparekassen Himmerland* (balance sheet kr. 10 billion) merges with *St. Brøndum Sparekasse* (balance sheet kr. 0.1 billion) as of 1 January 2008.

February 2008: *Folkesparekassen* acquires *JAK Andelskasse Rødding*. Total balance sheet after the merger: kr. 0.4 billion.

March 2008: *Sparekassen Sjælland* (balance sheet kr. 11 mia.kr.) acquires *Haarslev Sparekasse* (balance sheet kr. 0.2 billion).

September 2008: *Vestjysk Bank* (balance sheet kr. 20 billion) acquires *Bonusbanken* (balance sheet kr. 2 billion) on 29 September 2008. On the same day, the forthcoming merger of *Vestjysk Bank* and *Ringkjøbing Bank* (kr. 10 billion) is announced. The merger is effected as of 3 December 2008, making the new Vestjysk Bank the 9th largest banking institution in Denmark.

September 2008: *Sparekassen Vendsyssel* (balance sheet kr. 7.4 billion) acquires *Ulsted Sparekasse* (balance sheet kr. 0.4 billion) as of 1 January 2008.

October 2008: *Nykredit Realkredit* (balance sheet kr. 1,104 billion) acquires *Forstædernes Bank* (balance sheet kr. 32 billion), which continues as an independent brand and company in the Nykredit group under the existing management.

October 2008: *Handelsbanken i Danmark*, a branch of Svenska Handelsbanken AB (consolidated balance sheet kr. 1,494 billion), acquires *Lokalbanken i Nordsjælland* (balance sheet kr. 6 billion).

October 2008: *Frøslev-Møllerup Sparekasse* acquires *Sparekassen Nordmors* with accounting effect from 1 January 2008. Balance sheet after the merger: kr. 0.4 billion.

November 2008: *Morsø Bank* (balance sheet kr. 4 billion) acquires the activities of *Sparekassen Spar Mors* (balance sheet kr. 0.7 billion), except its guarantee capital.

December 2008: *Sparekassen Hobro* (balance sheet kr. 4.5 billion) acquires *Den Lille Sparekasse* (balance sheet kr. 0.5 billion) as of 1 January 2009.

February 2009: *Den Jyske Sparekasse* (balance sheet kr. 10 billion) acquires *Sparekassen Løgumkloster* (kr. 1 billion).

Note.: Figures in brackets indicate the balance-sheet total at the time of the merger/winding-up or the latest data available.

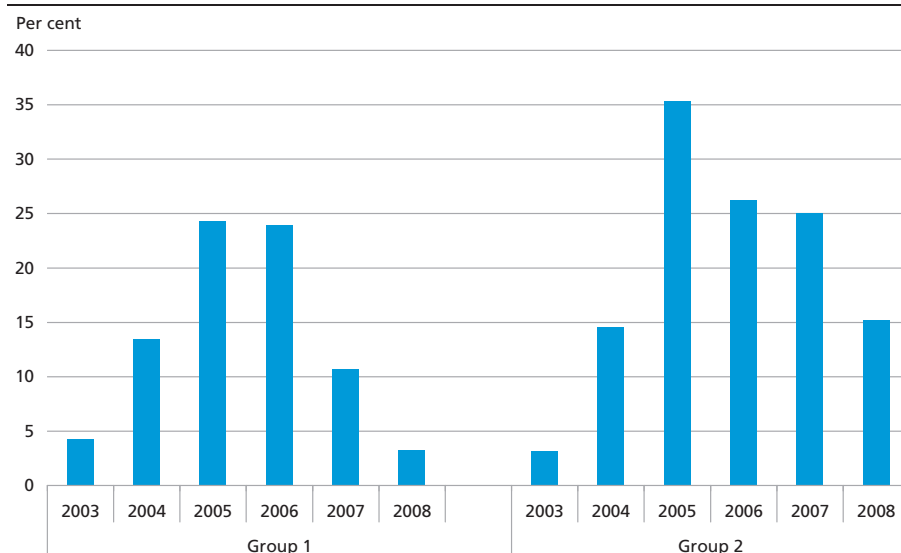
Source: Financial statements, stock-exchange announcements and press releases.

Reduced growth in lending

The decline in the banks' growth in lending in 2007 continued in 2008. Compared to the peak in 2005, the growth in lending for banks in both

GROWTH IN LENDING

Chart 11



Note: Adjusted for the effect of the recognition of Danske Bank's banking activities in the Baltic states as branches, Sydbank's acquisition of BankTrelleborg, Nordea Bank Danmark's, Spar Nord Bank's and Arbejdernes Landsbank's acquisition of branches of Roskilde Bank, Nykredit Bank's acquisition of SEB's Hellerup branch and the merger of Vestjysk Bank and Ringkjøbing Bank. Growth in lending is calculated at year-end, i.e. growth in lending in 2008 is calculated as lending as at 31. December 2008 divided by lending as at 31 December 2007.

Source: Financial statements.

group 1 and group 2 decreased by more than 20 percentage points up to 2008, cf. Chart 11.

Adjusted for large acquisitions and take-overs, almost half of the banks saw negative lending growth in 2008. Only three banks experienced lending growth of more than 10 per cent, in one case primarily caused by growth in repo transactions.

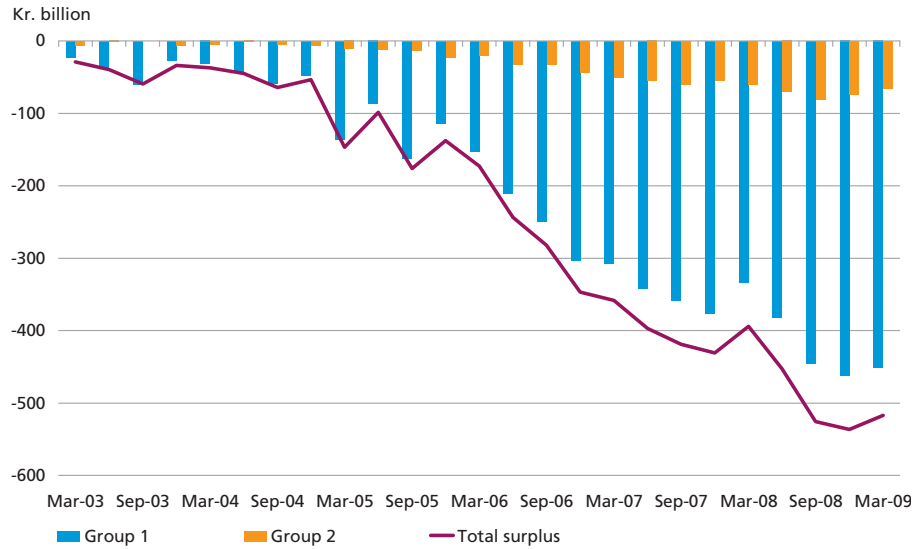
The banks' financial statements showed negative lending growth for banks in groups 1 and 2 in the 1st quarter of 2009 compared with end-2008. The development in lending also reflects the banks' deposit deficits, which decreased in the 1st quarter, cf. Chart 12.

The weaker lending growth is in line with the credit managers' reports in connection with Danmarks Nationalbank's new lending survey, cf. Box 7. According to the survey, the banks will tighten their credit policies even further in the current quarter.

Box 8 compares the development in a number of key parameters for the banking sector as a whole in 2008 with the period up to the onset of the crisis and with the period from 1991 to 2008. The comparison shows that the banks' lending growth was significantly higher up to the onset of the crisis than in the period from 1991 to 2008. In 2008, lending growth fell to below the average for 1991-2008.

DEPOSIT SURPLUS (DEPOSITS LESS LENDING)

Chart 12

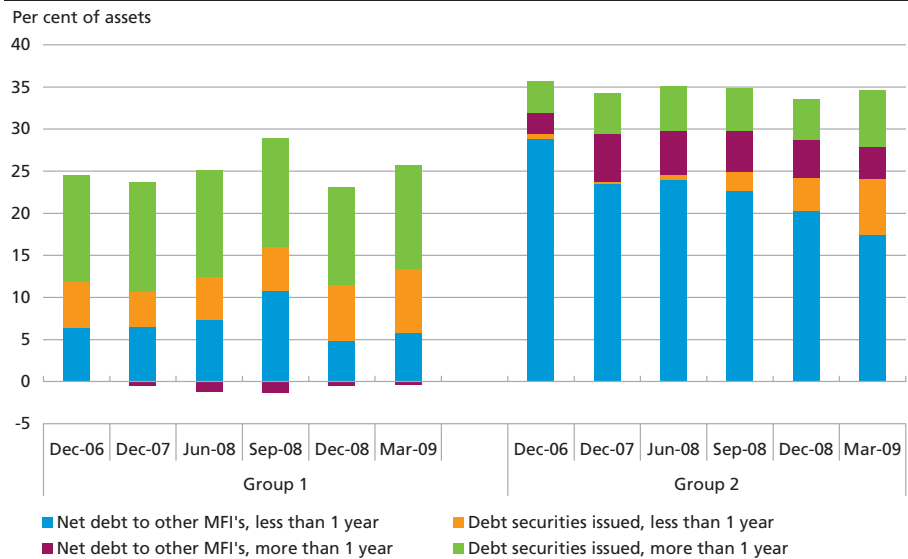


Source: Danmarks Nationalbank.

In addition to deposits, the banks in group 1 primarily rely on issuance of debt securities with maturities of more than one year for financing, cf. Chart 13. The share of debt securities issued with maturities of less than one year has increased since September 2008, while debt to other credit institutions has fallen.

NET DEBT TO OTHER CREDIT INSTITUTIONS, AND DEBT SECURITIES ISSUED

Chart 13



Note: Exclusive of foreign branches and subsidiaries.

Source: Danmarks Nationalbank, MFI statistics.

In January 2009, Danmarks Nationalbank published the results of the first Danish lending survey. The survey was inspired by similar foreign surveys conducted by the Federal Reserve, the Bank of Japan, the ECB, the Bank of England and Norges Bank, among others.

General information about the survey

The survey is conducted on a quarterly basis. The credit managers of a number of banking institutions and mortgage-credit institutes are asked to assess changes in the supply of and demand for loans in the current quarter, as well as expected changes in the coming quarter. Against that background, the survey illustrates changes in the institution's credit policies, i.e. whether it has become easier or more difficult for customers to obtain loans. At the same time it discloses the rationale for changing credit policies and the credit institutions' expectations for future developments in the credit market. The survey also deals with changes in the demand for loans on the part of current and new customers, the purpose being to distinguish whether changes in overall lending are governed by supply or demand. Finally, the survey reviews changes in write-downs and losses on outstanding loans. The survey may also include questions relating to topical issues.

The banking institutions in the Danish Financial Supervisory Authority's groups 1 and 2 and the five largest mortgage-credit institutes participate in the survey. In April 2009, this population covered 74 per cent lending to households and 84 per cent of corporate lending.

Most recent results

In the most recent survey from April 2009, the banking institutions and mortgage-credit institutes stated that they had tightened their credit policies further in the 1st quarter of 2009. The measures were less pronounced for households than for corporate customers. This development is in line with expectations in the previous quarter. The institutions mainly cite deterioration of the risk outlook as the underlying reason. The banking institutions and mortgage-credit institutes state that the risk assessment and the risk appetite contribute substantially to the tightening of their credit policies. Overall, they expect to tighten their policies further in the current quarter, albeit not as much as in the 1st quarter of 2009.

Most institutions report tightening credit policies in the form of higher margins and fees as well as increased collateral requirements. The mortgage-credit institutes did not change the credit conditions noticeably for households. The institutions expect increased prices and stricter collateral requirements in the coming quarter, especially for corporate customers.

The demand for loans is declining for both households and corporate customers, and a moderate increase in write-downs and losses on corporate exposures is expected in the current quarter compared to the 1st quarter of 2009.

The source of financing for group 2 banks has changed over the last year to the effect that they are now relying more on issuance of debt securities and less on debt to credit institutions. Nevertheless, short-term debt to other credit institutions still remains the primary source of financing in group 2.

DEVELOPMENT IN SELECTED KEY PARAMETERS FOR THE DANISH BANKING SECTOR

Box 8

The Chart below shows selected key parameters for the Danish banking sector in the period 1991-2008 and 2005-07 and in 2008.

Prior to the financial crisis, the Danish banking sector was characterised by a rising ratio of lending to deposits and increasing lending gearing, measured as the ratio of lending to equity capital, cf. the Chart below. Compared with the average for the growth years 2005-07, the banks reduced their lending growth considerably in 2008. However, the sector average masks considerable differences between the banks in the population. Lending growth has also been reduced when compared with the average for the period 1991-2008.

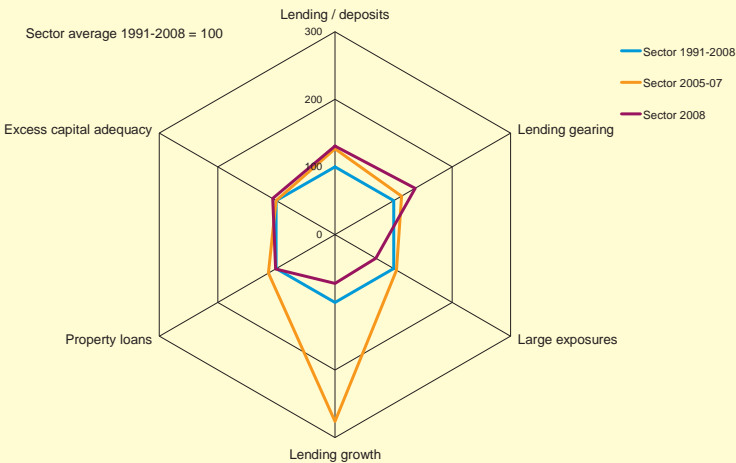
The exposure to the property market, measured as lending to the property market as a percentage to total loans and guarantees was reduced in 2008 and is now in line with the average for the period 1991-2008.

Total large exposures as a percentage of base capital was reduced in 2008 compared with the average for the other two periods; this indicates a declining concentration risk.

Excess capital adequacy, measured as the difference between the base capital and the minimum capital requirement as a percentage of loans and guarantees, rose slightly in 2008 compared with the average for the other two periods. This calculation does not take into account the individual capital need, which exceeds 8 per cent for a number of banks, cf. the section on the banks' solvency.

In summary, the Chart shows that in 2008 several key parameters for the banks were brought more in line with the average for the period 1991-2008.

DEVELOPMENT IN SELECTED KEY RATIOS FOR THE DANISH BANKING SECTOR

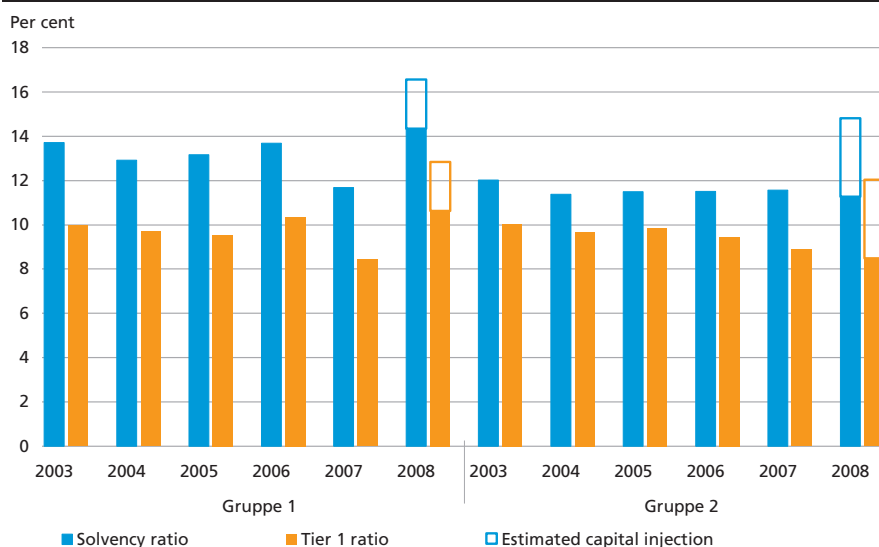


Note: The population is 47 banks from the Danish Financial Supervisory Authority's groups 1-3. Lending gearing is lending as a ratio of equity capital. Large exposures correspond to the Danish Financial Supervisory Authority's key ratio by the same name. The sector average for large exposures is for the period 2003-08 rather than 1991-2008. Lending growth is the average annual growth rate. Property loans are defined as loans and guarantees to the building and construction sector and property administration, etc. The excess capital adequacy is the excess cover as a percentage of loans and guarantees, and the sector average is for 1993-2008 rather than 1991-2008.

Source: Financial statements and own calculations.

SOLVENCY AND TIER 1 RATIOS

Chart 14



Note: The estimated capital injections are based on preliminary announcements in the banks' financial statements and in the press, i.e. only banks that have explicitly stated that they will apply for capital have been included. Capital injections cover banks only, not affiliated mortgage-credit institutes. Capital will be injected in 2009, but is shown in the Chart for 2008.

Source: Financial statements.

Amended rules drive the increase in the banks' solvency ratio

For most Danish banks, the transition to the new capital-adequacy rules (Basel II) in early 2008 meant reduced capital requirements in Danish kroner due. This is because Danish banks are primarily exposed to retail customers and small and medium-sized enterprises, which are given lower risk weights in the new risk calculation. Institutions using the IRB (Internal Ratings-Based) approach to calculating credit risks, of which most are found in group 1, experienced the largest reduction in risk-weighted items.¹ This explains the strong increase in the solvency and Tier 1 ratios of the group 1 banks in 2008, cf. Chart 14. The fact that the solvency and Tier 1 ratios are higher in 2008 than in previous years thus reflects primarily the decrease in the risk-weighted assets due to a changed calculation method and not that the banks have obtained more capital. The lower solvency and Tier 1 ratios in 2008 for medium-sized banks in group 2 are mainly attributable to a single institution with a very strong increase in repo lending and thus risk-weighted assets.

A further reduction of risk-weighted items for the IRB institutions occurred at the turn of the year 2008/09 when the transitional arrange-

¹ The IRB approach is currently used by Danske Bank, Nordea, Jyske Bank, Sydbank, Nykredit Bank and Lån & Spar Bank. Alm. Brand Bank applied to the Danish Financial Supervisory Authority for authorisation as an IRB institution at the end of 2008, and Spar Nord Bank is preparing the process, but has not applied yet. FIH Erhvervsbank has suspended the process for the time being.

ment, under which these institutions are subject to a higher capital requirement for a transition period, was reduced.¹ The new capital-adequacy rules will not be fully implemented until 2010. The purpose of the transitional arrangement has been to prevent a large one-off decrease in the banks' capital requirements.

The injections of hybrid core capital via Bank Rescue Package II will strengthen the banks' capital position. In the financial statements from the 1st quarter of 2009 and subsequent press releases, most banks in the population have indicated the capital injection they will apply for. If the capital had been injected at the end of 2008, the solvency and Tier 1 ratios would be 2.2 percentage points higher for group 1 banks and 3.6 percentage points higher for group 2 banks, corresponding to a total capital injection of just over kr. 40 billion.² The deadline for applications is 30 June 2009.

The banks' buffers

The difference between a bank's actual capital and its capital requirement constitutes the excess capital adequacy or buffer available to cover negative earnings, including losses on loans. A bank's actual capital is reflected in the solvency ratio, while the capital requirement is expressed by the individual capital need (minimum 8 per cent of the risk-weighted items). The capital need reflects the bank's assessment of the capital required to cover its total risks. Among other factors, this individually calculated capital need should take into account any deterioration in the credit quality of exposures that are not included in the write-downs. Consequently, as it is based on a number of estimates and assessments made by the management of the institution, the calculation cannot be made unequivocally.

In the 2008 financial statements very few banks published their individual capital needs. The adoption of Bank Rescue Package II empowered the Danish Financial Supervisory Authority to lay down more detailed rules on disclosure of the banking institutions' and mortgage-credit institutes' individual capital needs and any higher solvency requirement stipulated by the Danish Financial Supervisory Authority. The institutions will therefore be required to disclose information about their individual capital need.

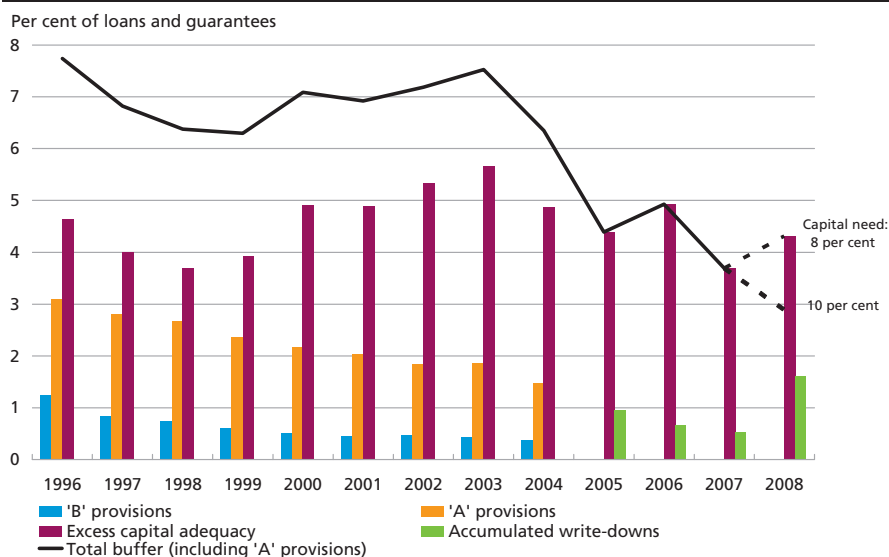
The development in the banks' excess capital adequacy/buffer depends on the size of the individual capital need and the effect of the transitional arrangement, cf. Chart 15. According to the Danish Financial Supervisory

¹ While the base capital was to constitute at least 90 per cent of the solvency requirement under the previous rules (Basel I) in 2008, the requirement is reduced to 80 per cent in 2009.

² The capital injection covers banks only, not affiliated mortgage-credit institutes.

DEVELOPMENT IN BANK BUFFERS

Chart 15



Note: Up to and including 2004, provisions were split into 'A' and 'B' provisions, the former being assumed to have a certain buffer effect. This buffer effect does not exist in write-downs under IFRS. The Chart is based on all banks in the Danish Financial Supervisory Authority's groups 1-3.

Source: Danish Financial Supervisory Authority and financial statements.

Authority, the excess capital adequacy of the banking institutions is 3 per cent of loans and guarantees.¹ This means, cf. Chart 15, that the average individual capital need is close to 10 per cent, and that the banking sector has become more vulnerable to losses over the past year. These aggregate figures mask considerable dispersion across the sector.

If the banks' excess capital adequacy at a 10-per-cent capital need were to be increased to 4.3 per cent of loans and guarantees, which is the level at a capital need of 8 per cent, the banks, other things being equal, would have to reduce their total loans and guarantees by just under one third.

It should be noted that the above calculations do not take into account the fact that the supplementary capital must not be included at more than 100 per cent of the Tier 1 capital, and the buffer at a low level of Tier 1 compared to the capital base may consequently be eroded more quickly than in the calculation, cf. Box 16 in the chapter on the banks' resilience.

In 2008, accumulated write-downs rose to 1.6 per cent of loans and guarantees, which is the highest level since the introduction of the new accounting rules.

¹ The Danish Financial Supervisory Authority's 2008 report on the market development for banking institutions, May 2009 (in Danish only).

In the wake of the financial crisis, the authorities, international collaborative organisations and the financial sector have launched proposals and initiatives to address problems in the financial sector and to prevent a repetition of the crisis. The Ecofin road map was adopted within the EU in the autumn of 2007, and in April 2008, the Financial Stability Forum (FSF) presented its 67 recommendations.¹ In February 2009, the EU published the de Larosière Report² with a number of new proposals, and in April 2009, the G20 countries followed up on the action plan announced in November 2008.

This box describes the principal initiatives. The points of departure are the relatively new G20 initiatives and the European Commission's proposal for strengthened oversight and macroprudential supervision within the EU. Denmark is not a member of the G20, but takes part in the formulation of the common EU position. Eventually, discussions in the various international forums are presumed to lead to consensus on the necessary measures. The details of this consensus will lead to amendments to EU law that must be implemented in Danish law.

Capital requirements, etc. The crisis has shown that the banks' capital is inadequate in relation to the risks they incur. Building up capital in good times is necessary in order to have a buffer that can be used in economic downturns. The crisis has also demonstrated the importance of the capital structure, cf. Box 16. As a consequence, it is internationally agreed that there is a need for more and better capital as well as measures to counter procyclicality. There is also agreement that the international standards for the minimum capital requirement should not be changed until the crisis is over. Stricter requirements at present would only increase the risk of unwanted deleveraging and reduction of the banks' lending.

Looking ahead, it is also necessary to limit strong growth in the banks' balance sheets during upswings, e.g. by supplementing the Basel II capital requirements with a simpler target for gearing.

According to its communication of 4 March 2009, the European Commission will present its proposals regarding capital adequacy in the autumn of 2009.

Liquidity. One of the weaknesses of the current regulation, which has become apparent since the onset of the crisis, is insufficient requirements in the liquidity area.

The Basel Committee on Banking Supervision, BCBS, and the Committee of European Banking Supervisors, CEBS, issued new recommendations in this area already in June 2008. The amendments to the EU Capital Requirements Directive³ adopted in May 2009 are based on those recommendations. The amendments to the Directive include requirements for the credit institutions' strategies and systems to manage and measure liquidity risks over various time horizons, including intraday. In addition, the boards are required to define a tolerance level for liquidity risks. At the same time the requirements regarding the regulatory supervision of liquidity risks and management have been extended.

In April, the G-20 countries agreed on the need to strengthen the liquidity buffers of financial institutions, and further measures are expected in this area.

Accounting rules, including rules concerning provisions and fair value. In 2005, it became mandatory for European groups to present their financial statements in accordance with the International Financial Reporting Standards, IFRS. This implies that in connection with pricing of assets and liabilities, the banks should primarily apply fair value rather than historical cost prices.⁴ Under the "fair value" principle, the values of assets and liabilities are stated at current market prices when they are available, whereas model calculations are used when no current market prices are available. The approach to provisions

was also changed from making provisions for probable losses to a principle of objective indication of a loss.

Since the onset of the crisis, both the new approach to provisions and the valuation methods have been criticised. The approach to provisions has been criticised for contributing to the banks facing a economic downturn with inadequate provisions. The fair value method has been criticised for forcing the banks to recognise losses on shares and bonds which critics attributed to an overreaction in the financial markets. According to critics, this forced banks to hold fire sales of assets to reduce their capital requirements. This has exacerbated the price falls, thereby leading to further losses.

There is broad international consensus that the crisis gives rise to a review of existing accounting rules with a view to improving the accounting standards, including rules concerning write-downs, reducing their complexity, etc. At the same time it G20 leaders reaffirmed the framework of the fair value accounting.

Extending regulation to all systemically important financial institutions, markets and products. At their meeting in April, the G20 countries agreed to extend regulation to all systemically important institutions, including hedge funds. In this process it is important to focus on addressing weaknesses in the current regulation identified during the crisis.

In April 2009, the European Commission presented a proposal regarding regulation and supervision of alternative investment funds (proposal for a Directive on Alternative Investment Fund Managers). Alternative investment funds include hedge funds and private equity funds, among others. The proposed directive calls for minimum limits, to the effect that it will not apply to the administration of small alternative investment units.

Regulation, registration and supervision of credit rating agencies. Credit rating agencies have been widely criticised, especially for their involvement in tailoring credit products that only just make it into the desired rating class. The agencies have had a strong financial interest in the development of the market for structured products – a major source of income – which has given rise to conflicts of interest.

The EU regulation on credit rating agencies, which was adopted in April 2009, contains requirements to apply for registration in the EU. The authorities should also supervise credit rating agencies, and a number of requirements are stipulated with regard to the agencies' handling of conflicts of interest, improvement of credit assessment quality and increased transparency.

In this connection the use of ratings for financial regulation is something that should be given thorough consideration. The Basel II rules gave the credit rating agencies ample opportunity to influence the capital to be held by a bank.

Corporate governance. One of the areas highlighted by the crisis is remuneration in the financial sector and whether inappropriate remuneration structures have contributed to the sector's excessive risk appetite prior to the outbreak of the crisis. Consequently, there is international agreement on the importance of establishing principles/rules in this area.

In April 2009, the Financial Stability Forum, FSF, published "Principles for Sound Compensation Practices", and the European Commission issued a recommendation on remuneration policies in the financial services sector. In overall terms, it is important that remuneration in financial institutions is linked to long-term earnings adjusted for risks.

Oversight and macroprudential supervision. On 27 May 2009, the European Commission presented a proposal for a reform of micro-prudential supervision in the EU and a proposal for macroprudential supervision. The Commission's reform is based on recommendations from the report published by the de Larosière group on 25 February 2009.

The European Commission proposes a new supervisory architecture in the EU to strengthen the oversight of individual financial institutions. Three existing supervisory committees (CEBS, CESR and CEIOPS) will be replaced by the European Banking Authority, EBA, the European Insurance and Occupational Pensions Authority, EIOPA, and the European Securities and Markets Authority, ESMA. These agencies will take over the tasks of the existing supervisory committees and be assigned increased responsibilities and powers. They will be required to contribute to the development of harmonised rules, develop a common supervisory approach to institutions with cross-border activities and help settle any disagreements/disputes between national supervisory authorities. Further strengthening and coordination of the supervision of financial markets and enterprises is important. It should, however, be based on careful consideration of the distribution of competences between the national and European level.

The current crisis has demonstrated the need to strengthen macroprudential supervision. Several risks that have had major consequences for the development of the crisis were insufficiently identified by central banks and international organisations alike. In addition, neither the authorities nor the financial institutions responded to the risks identified before the outbreak of the crisis. The European Commission has therefore proposed the establishment of the European Systemic Risk Council, ESRC, which is to monitor and assess any threats to financial stability arising from macroeconomic developments and developments in the financial system in general. The ESRC will be charged with identifying risks, issuing warnings and recommendations and following up on the recommendations. ESRC membership will consist of central bank governors from the 27 EU countries and the ECB, the chairman of the Committee of European Banking Supervisors, cf. above, and a member of the European Commission. National supervisory authorities will have observer status.

¹ See also Box 1, Danmarks Nationalbank, *Monetary Review*, 2nd Quarter 2008, page 6.

² Report from the High-level Group on Financial Supervision in the EU. The Group's chairman is Jacques de Larosière.

³ Amendments to the EU Capital Requirements Directive also include rules on large exposures, hybrid capital, supervision of banking institutions with cross-border activities, and risk management of securitised products.

⁴ Under the "fair value" principle, the values of assets and liabilities are stated at current market prices, and model calculations are used when such prices are unavailable.

The existing capital-adequacy rules have been criticised for being procyclical. During an upswing, when the risk is considered to be limited, the capital requirement will tend to fall. This allows the banks to increase their lending. On the other hand, lending will decrease and the capital requirement increase during economic downturns, when the risk is considered to be high. This means that the new capital-adequacy rules (Basel II) reinforce cyclical developments and have a negative impact on financial stability.

Limiting procyclicality is one of the central aims of a number of initiatives launched in response to the crisis (for a review of international initiatives as a result of the crisis, see Box 9).

Sensitivity analysis – reduced resilience in 2008

A static sensitivity analysis, based on the banks' earnings and capital structure, shows that their resilience was reduced from 2007 to 2008, cf. Chart 16. At the baseline – the banks' actual financial result before sensitivity analysis – 7 out of 14 banks had deficits in 2008, whereas all banks posted profits in 2007.

It appears that, other things being equal, only one bank's earnings in 2008 would have been sufficient to cover rising financing costs on loans of 1.5 percentage points. In 2007, 10 banks would have been able to cope with a similar scenario.

A loss corresponding to 10 per cent of the sum of large exposures would have resulted in deficits in 10 banks in 2008 (against six in 2007), and in two cases the base capital would have fallen below the capital

SENSITIVITY ANALYSIS

Chart 16



Note: The banks have been listed in random order. Losses on lending in the sector have been distributed on the individual banks in proportion to their credit-risk measures.

Source: Financial statements and own calculations.

requirement. A similar trend is seen in relation to losses on loans in general. None of the banks' earnings in 2008 were sufficient to cover a general increase in losses on loans of 1 percentage point in the sector, and three banks would have had solvency problems, compared with one in 2007.

MORTGAGE-CREDIT INSTITUTES – INCREASED WRITE-DOWNS AND INCREASING ARREARS RATIOS

The mortgage-credit institutes' total earnings in 2008 amounted to kr. 2.2 billion before tax, corresponding to a return on equity of 2 per cent p.a. Compared with 2007, profits decreased by 76 per cent. The development was driven by one institution with a significantly poorer result in 2008 than in 2007. The results of the remaining mortgage-credit institutes improved by approximately 10 per cent in 2008. Net income from interest increased by almost 10 per cent in 2008. This includes both increasing contributions and rising interest income from mortgage-credit loans.

In total, the four mortgage-credit institutes had to write down kr. 841 million on loans in 2008. In comparison, they reversed losses and write-downs of kr. 65 million in 2007. Individual mortgage-credit institutes' write-down ratios were between 0.01 per cent and 0.06 per cent of their total mortgage-credit lending in 2008. The four institutions analysed all reported increasing arrears ratios in 2008, but this was from a very low level compared to previous years.

Portfolio earnings affected the mortgage-credit institutes' results in different ways. Two of them had positive portfolio earnings, while the other two recorded losses on that item in 2008.

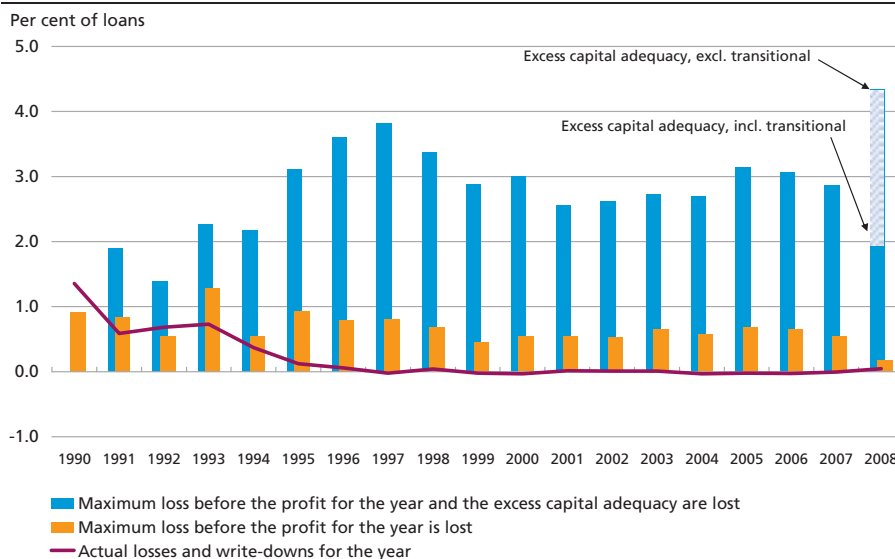
On the balance-sheet side, the total amount of outstanding mortgage-credit loans in the four institutions increased by 8 per cent compared with 2007, to kr. 1,832 billion.

Chart 17 shows the development in the mortgage-credit institutes' buffers against losses. Like the banks, cf. page 33, a limit has also been imposed on the mortgage-credit institutes as regards the decrease in their capital requirement in connection with the transition to Basel II, the so-called transitional arrangement. Chart 17 illustrates the effect of the transitional arrangement, using the Danish Financial Supervisory Authority's calculations.¹ The transitional arrangement accounts for more than half of the credit institutions' buffer in 2008, which indicates that they became more vulnerable to losses from 2007 to 2008.

¹ The Danish Financial Supervisory Authority's 2008 report on the market development for banking institutions, May 2009 (in Danish only).

MORTGAGE-CREDIT INSTITUTES' BUFFERS AGAINST LOSSES

Chart 17

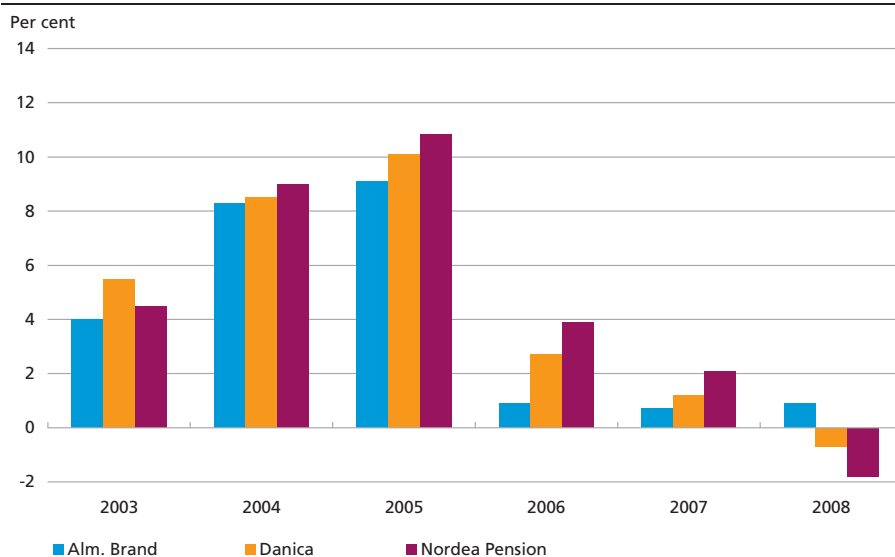


Note: Maximum losses are calculated including actual losses and write-downs. The population changes from 2004 onwards. From 2004, the population comprises Nordea Kredit, Nykredit Realkredit, Realkredit Danmark and Totalkredit. Previously it also included BRFkredit, DLR Kredit, LR Realkredit and FIH Realkredit. The shaded area has been estimated on the basis of data from the Danish Financial Supervisory Authority, covering all eight mortgage-credit institutes.

Source: Financial statements and Danish Financial Supervisory Authority.

RETURN AFTER PENSION-YIELD TAX IN THE FINANCIAL GROUPS' LIFE INSURANCE COMPANIES

Chart 18



Source: Financial statements.

Under the Danish Financial Business Act, life insurance companies must report risk compensation accruing to equity. If in a particular year there is a shortfall in a life insurance company's realised results in relation to the announced level of risk compensation accruing to equity, the company may transfer the amount to a "shadow account". If in subsequent years the life insurance company obtains sufficient realised results, amounts from this shadow account can be added to the equity capital in addition to the reported annual risk compensation. The life insurance company may choose that the amount on the shadow account should carry interest.

However, section 8(1) of the Danish Executive Order on the Contribution Principle states that if a life insurance company has used bonus potential of paid-up policies to cover a loss, they must be re-established before a subsequent profit may be used to reduce (write down) the shadow account.

¹ Bonus potential of paid-up policies means the duty to pay bonus on paid-up premiums.

LIFE INSURANCE COMPANIES' RESERVES HEAVILY REDUCED

The financial groups' life insurance companies (hereafter called the life insurance companies) have had low or negative returns in 2008, cf. Chart 18. This was the third consecutive year that the return on investments was lower than the interest-rate guarantees associated with a large part of the companies' commitments and the rate of interest on policyholders' savings announced by the companies at the beginning of 2008.¹ Consequently, the life insurance companies have not been able to recognise risk compensation as revenue, and the amount has therefore been transferred to shadow accounts, see Box 10. According to the Danish Executive Order on the Contribution Principle, subsequent disbursements from such shadow accounts are conditional on the re-establishment of the companies' "bonus potential in respect of paid-up policies".

The negative development in the financial markets and the resulting low returns on investment led to a considerable reduction of the life insurance companies' reserves. The life insurance companies have had to make inroads into their collective bonus reserves and bonus potential in respect of paid-up policies in order to honour the announced rates of interest on policyholders' savings. The life insurance companies' collective bonus reserves are more or less gone, cf. Table 1, and one company has received a capital injection from the parent company to ensure its continued capital strength and flexibility.

¹ From 1982 up to mid-1994 the life insurance companies were allowed to use a maximum guaranteed interest rate of 5 per cent. This was reduced to 3 per cent in 1994 and further reduced to 2 per cent in 1999.

BONUS RATIO IN SELECTED PENSION COMPANIES			Table 1
Per cent, year-end	2008	2007	2006
Danica	0.9	8.5	8.8
Nordea Liv & Pension	1.2	12.3	14.0
Alm. Brand Liv og Pension	0.0	4.0	4.7

Note: The bonus ratio is the collective bonus potential measured in relation to the sum of retrospective provisions.
Source: Financial statements.

On 31 October 2008, the Danish Insurance Association entered into a stability agreement with the Ministry of Economic and Business Affairs, entailing, among other things, a new method of calculating the yield curve used to discount provisions. This led to a reduction of the current value of about 0.5 per cent of the life insurance companies' provisions. In principle, this is not a major change. It should be noted, however, that no matter how the current value of future liabilities is calculated technically, this does not change the fact that the pension companies' current income over a number of years must be sufficient to enable the companies to fulfil the promises they have made to their customers.

The life insurance companies have generally reduced their equity portfolios in 2008, and highly-rated bonds constitute the largest share of the investment assets, cf. Chart 19. Nonetheless, exposure of the base capital to share price risk¹ increased from end-2007 to end-2008 in all three companies. Generally, the companies' reserves have been reduced, thereby increasing base capital-related risks. This means that owning a life insurance company has become more of a risk for the financial institutions. The probability of the financial groups having to inject new capital into the life insurance companies is assessed to have increased.

All three companies have reduced their rate of interest on policyholders' savings for 2009. This is the first step towards restoring the companies' reserves. This is a precondition if the financial groups are once again to obtain a return on the capital invested in the life insurance companies and reduce the owners' risks.

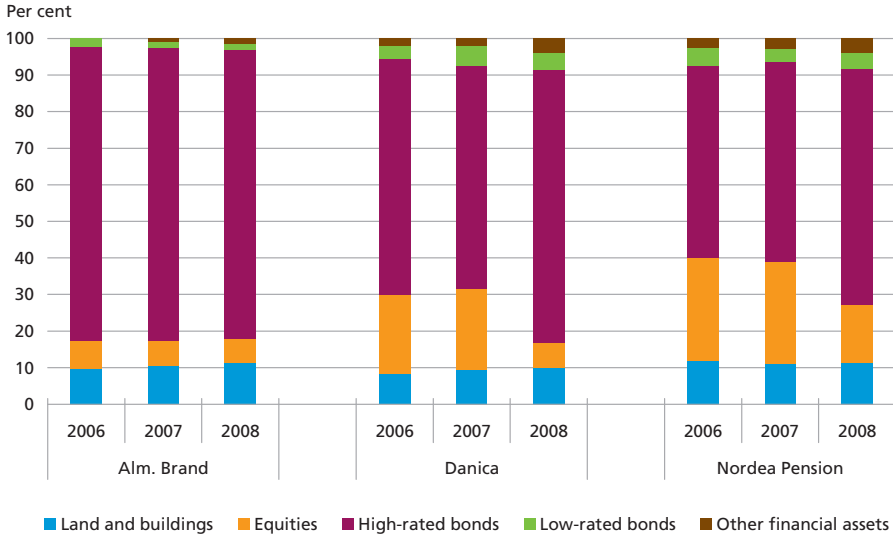
For all three companies green light applied at end-2008, as defined by the Danish Financial Supervisory Authority's risk scenarios. The yellow risk scenario was abolished by the Danish Financial Supervisory Authority in connection with the agreement of 31 October 2008². However, according to the three life insurance companies' financial statements they all ob-

¹ Share price risk indicates the loss to be covered by the base capital if share prices fall.

² In the yellow risk scenario the life insurance companies were required to sustain an interest-rate adjustment of 1.0 percentage point in the most detrimental direction, a fall in equity prices of 30 per cent, a fall in real-estate prices of 12 per cent, and losses in connection with credit, counterparty and exchange-rate risk. The red risk scenario, which is retained, provides for an interest-rate adjustment of 0.7 percentage point in the most detrimental direction, a fall in equity prices of 12 per cent, a fall in real-estate prices of 8 per cent, and losses in connection with credit, counterparty and exchange-rate risk.

BREAKDOWN OF INVESTMENT ASSETS

Chart 19



Source: Financial statements.

served the yellow scenario throughout 2008. The yellow scenario is tougher than the red as it implies providing earlier warnings about problems than the red scenario.

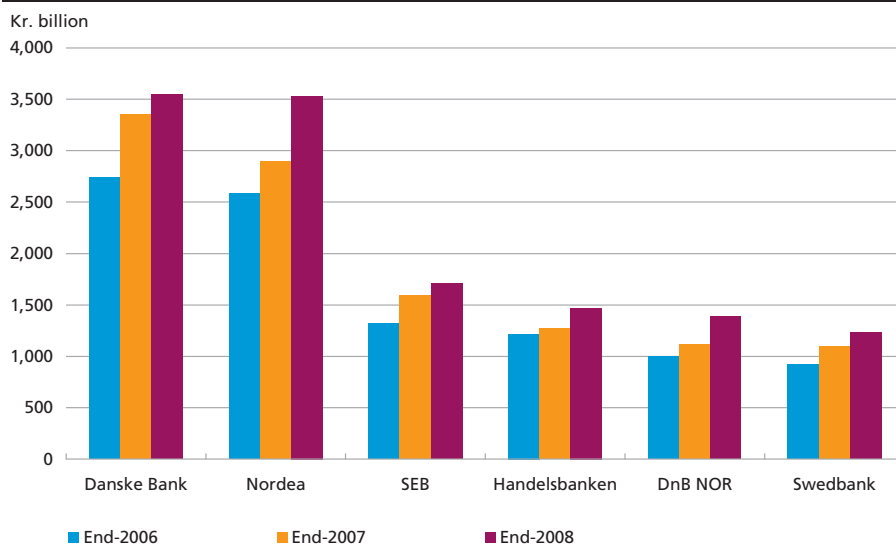
NORDIC GROUPS

Danske Bank and Nordea are the largest banking groups in the Nordic region in terms of balance-sheet assets, cf. Chart 20. The total assets of Nordea and DnB NOR increased by more than 20 per cent in 2008, while Danske Bank and SEB experienced the lowest growth at 6 and 7 per cent, respectively. In terms of the market value of outstanding shares at end-2008, Nordea is the largest group, with a value of kr. 97 billion, compared to 36 billion for Danske Bank.

Earnings in the Nordic groups in 2008 were in line with the global development. Profit for the year and return on equity fell significantly compared to 2007, cf. Chart 21. Net interest income generally increased due to higher lending margins and sustained growth in lending, whereas net fee income was reduced due to lower investment activity and a weak stock market. Reduced valuation adjustments further contributed to the decline in earnings. Write-downs on loans increased significantly, and several groups had to make extraordinarily large write-downs on goodwill relating to activities in countries that are particularly severely affected by the economic slowdown. Cases in point are Danske Bank's activities in Ireland and Swedbank's activities in Ukraine.

BALANCE-SHEET TOTALS, NORDIC BANKING GROUPS

Chart 20

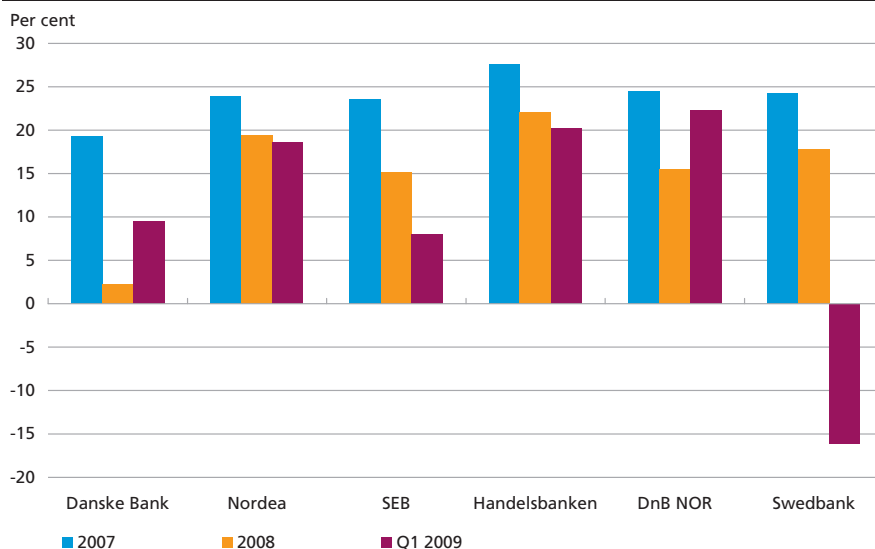


Note: On translation into Danish kroner, the exchange rate at end-2008 has been applied for all years.
Source: Financial statements.

The financial statements for the 1st quarter of 2009 indicate that the development continues, with increasing net interest income, but also substantial write-downs on loans and further write-downs of goodwill in Swedbank and SEB on activities in Ukraine.

RETURN ON EQUITY BEFORE TAX, NORDIC GROUPS

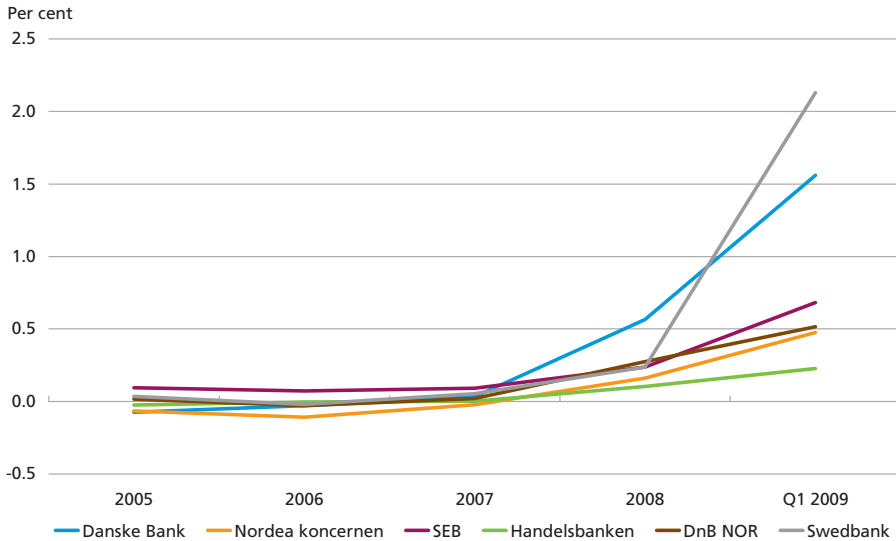
Chart 21



Note: Return on equity is calculated in the local currency on the basis of an average of equity, beginning of period, and equity, end of period. The return on equity for the 1st quarter of 2009 has been annualised.
Source: Annual and quarterly financial statements.

WRITE-DOWNS FOR THE YEAR

Chart 22



Note: Write-down ratios calculated as write-downs for the year as a percentage of loans and guarantees before write-downs. The write-down ratios for the 1st quarter of 2009 have been annualised.

Source: Annual and quarterly financial statements.

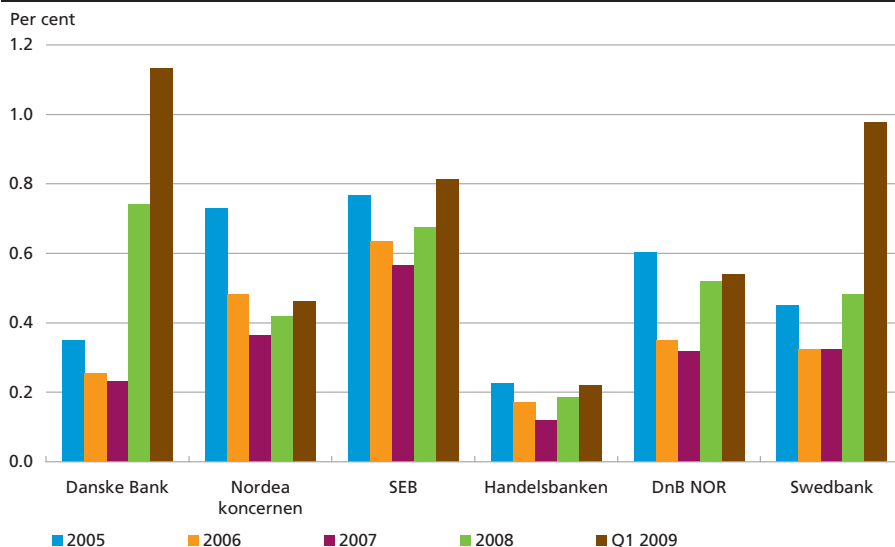
The development in return on equity in all six groups was adversely affected by the decline in earnings in 2008. The return on equity in 2008 and in the 1st half of 2009 is positively affected by the groups' reclassification of financial assets in accordance with the new accounting rules that were implemented in the autumn of 2008.

Write-downs on loans in Danske Bank increased significantly in the 4th quarter of 2008 while the other Nordic groups were still at a relatively modest level, cf. Chart 22. Write-downs in the Nordic groups in the 4th quarter of 2008 were primarily related to financial institutions and corporate customers. In the 1st quarter of 2009, write-downs on loans increased further, and the spread in the groups' write-down ratios became more apparent. Swedbank's write-down ratio amounted to more than 2 per cent p.a., mainly related to the Baltic States.

The accumulated write-down ratio (the corrective account) also varies greatly among the Nordic groups, cf. Chart 23. In the period from 2005 to 2007, Danske Bank was among the groups with the lowest sum of accumulated write-downs. Following substantial write-downs in 2008 and in the 1st quarter of 2009, Danske Bank had the highest write-down ratio on its loans. Handelsbanken's write-downs remain at a very low level. Factors such as the loan distribution on sectors and the value of assets pledged as collateral determine the credit quality of the lending

ACCUMULATED WRITE-DOWNS

Chart 23



Note: Calculated as the sum of accumulated write-downs on loans and provisions for losses on guarantees as a percentage of loans and guarantees without write-downs and provisions.

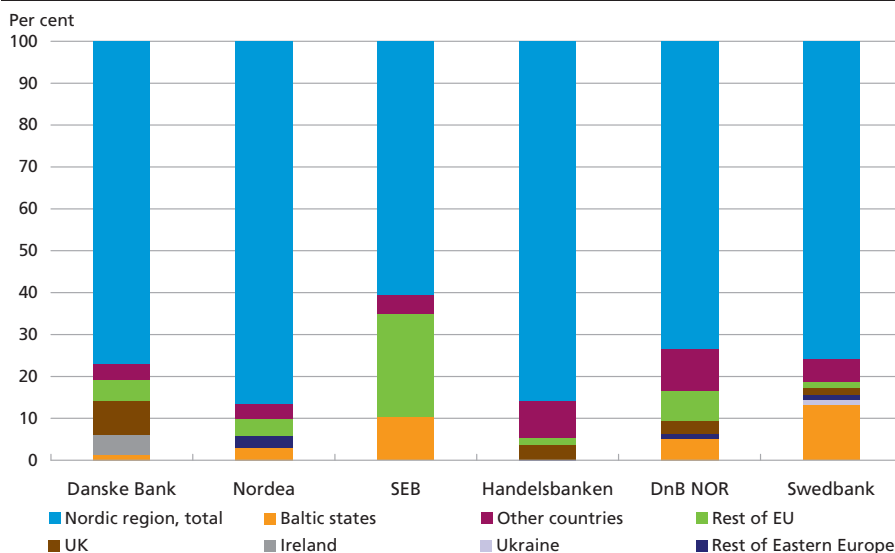
Source: Annual and quarterly financial statements.

portfolio, and certain geographical areas are more severely affected by the economic downturn than others.

More than 10 per cent of Danske Bank's lending activities are in Ireland and the UK, cf. Chart 24. In both these countries, the economic set-

GEOGRAPHICAL DISTRIBUTION OF CREDIT EXPOSURES, END-2008

Chart 24



Note: SEB's share of lending to Ukraine is not specified in the financial statements.

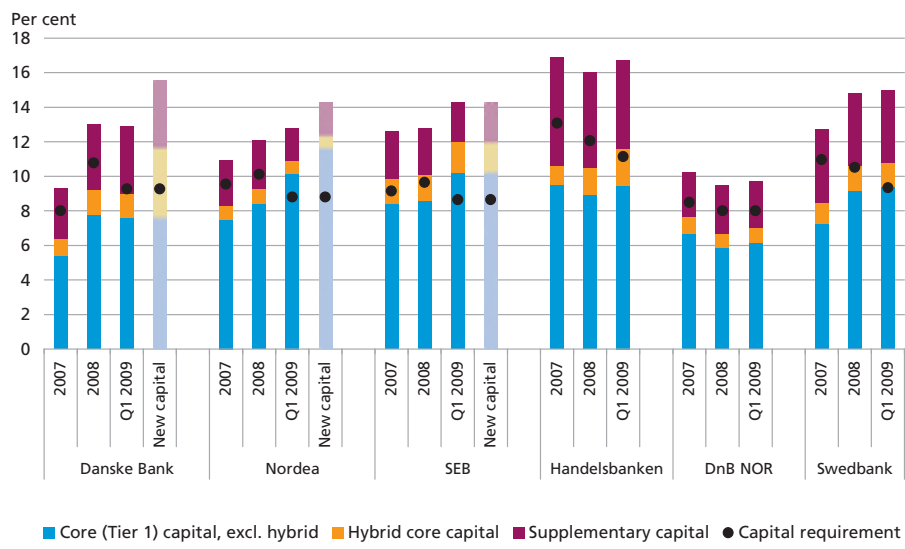
Source: Financial statements.

back was particularly severe in the early stages of the international downturn. Denmark was also affected by the economic decline earlier than the other Nordic countries. Several of the other Nordic groups have a higher exposure to countries that were affected later by the setback. SEB and particularly Swedbank have relatively large exposures to the Baltic States, however.

The global financial crisis has made it extremely difficult for many banks to gain access to new capital, and in anticipation of increased losses in the banks, the focus of the market, including rating agencies, is now on the banks' capital adequacy and the quality thereof. The Nordic groups, with the exception of DnB NOR, have all raised or had injections of new Tier 1 capital since the 4th quarter of 2008, and the Tier 1 capital of the groups concerned has increased significantly, cf. Chart 25.

In May 2009, the Danske Bank group received capital injections of kr. 26 billion from the Danish government under Bank Rescue Package II (kr. 24 billion to Danske Bank and kr. 2 billion to Realkredit Danmark). The capital injections were in the form of hybrid core capital and improved the group's Tier 1 ratio from 9.0 to 11.7 per cent. Danske Bank can convert part of the hybrid capital to share capital if its hybrid core capital exceeds 35 per cent of its total Tier 1 capital. If the hybrid core

DEVELOPMENT IN SOLVENCY RATIO BROKEN DOWN BY TIER 1, HYBRID CORE AND SUPPLEMENTARY CAPITAL Chart 25



Note: Capital adequacy at the end of the 1st quarter of 2009 includes the financial result for the period. For DnB Nor only half of the financial result is included. The "new capital" bar comprises capital adequacy at end-March 2009 plus new capital injections announced but not included in the quarterly financial statements. Calculated on the basis of risk-weighted items in accordance with Basel II, i.e. excluding the transitional arrangement.
 Source: Annual and quarterly financial statements.

capital exceeds 50 per cent of its total Tier 1 capital, Danske Bank is obliged to convert part of the capital injections to share capital.¹

In April 2009, Nordea launched a share issue providing net proceeds of 2.5 billion euro and bringing the group's Tier 1 ratio to 12.4 per cent.

SEB also issued new shares in the 1st quarter of 2009, the proceeds of which amounted to 14.9 billion Swedish kronor within the accounting period and another 212 million after closing of the quarterly accounts. SEB's Tier 1 ratio then amounted to 12 per cent.

Handelsbanken issued new hybrid core capital in both the 4th quarter of 2008 and the 1st quarter of 2009 of 2.6 and 2.7 billion Swedish kronor, respectively, bringing the group's Tier 1 ratio to 11.6 per cent at the end of the 1st quarter of 2009.

Swedbank launched preference share issues in December 2008 and January 2009, the proceeds of which amounted to 12 billion Swedish kronor. The group's Tier 1 ratio at the end of the 1st quarter of 2009 amounted to 10.8 per cent.

DnB NOR differs from the other Nordic groups in that its Tier 1 ratio was 7.0 per cent at the end of the 1st quarter of 2009. Despite having the lowest capital requirement as a ratio of the risk-weighted items, the group's excess capital adequacy is still the lowest. The Nordic groups have not published their individual capital needs, and the capital requirement is therefore calculated as minimum 8 per cent of the risk-weighted items with the addition of any capital requirement in relation to the transitional arrangement for IRB implementation under Basel II.

¹ See "Agreement on state-funded capital injection" and "Terms and conditions of the notes" at www.danskebank.com.

The Risk Outlook

The risk outlook is dominated by the financial crisis and the global recession. Considerable uncertainty prevails as to future developments, and factors such as the depth of the international recession are difficult to assess.

The estimated failure rates of Danish companies are increasing and the value of collateral pledged for bank loans is being eroded as a result of falling housing and land prices. The banks' credit risk is thus rising, and how it evolves is the key factor in terms of the development in bank earnings and solvency.

The mortgage-credit sector is still assessed to be robust. However, the sector is facing substantial credit risk, which may be exacerbated by households' choice of loan types and by housing price developments. Moreover, SDO legislation has exposed the sector to a new risk factor, as it must restore the collateral behind the SDOs issued when property prices fall.

OVERVIEW OF SIGNIFICANT RISKS TO FINANCIAL STABILITY

This chapter describes significant risks to financial stability, i.e. risks associated with financial market developments, macroeconomic risks of both international and Danish origin, and vulnerabilities in the Danish financial sector, cf. Table 2.

In the next chapter, risks to financial stability are translated into two hypothetical stress scenarios which form the basis for stress tests of the Danish financial sector.

OVERVIEW OF RISKS TO FINANCIAL STABILITY IN DENMARK		Table 2
Risk	Origin	
Global recession	International	
Turmoil in the financial markets flares up again	International	
Liquidity risk – including financing of deposit deficit	International/Danish	
Credit crunch	Danish	
Property price fall	Danish	
Fall in agricultural land prices	Danish	

RISKS ASSOCIATED WITH GLOBAL MACROECONOMIC AND FINANCIAL DEVELOPMENTS

What started as a purely financial crisis has evolved into a global economic recession, leading to rising credit losses for the banks. Loss trends will determine the development in bank earnings and solvency. The situation of the banks affects – and is affected by – future economic developments in a potentially self-reinforcing interaction process.

Recent months have seen signs of a slowdown in the recession, but it is still too early to call off the risk of further deterioration. A protracted decline in global trade, further drops in housing prices in many countries, including the USA, and significant consumer restraint could all make the downturn deeper and longer than expected. Macroeconomic conditions have deteriorated particularly sharply in several Eastern European countries, posing a risk to banks with large exposures in these countries.

Developments in the financial sector may also lead to further deterioration in the macroeconomic outlook. The banking sector is deleveraging, which could be an extensive process if the risk profile is to be brought back to the historical average. In other words, there is a risk that the banks will actively seek to reduce their lending portfolios, with further negative implications for private consumption and investment. In a worst-case scenario, this could send the global economy into a deep and prolonged recession, causing a significant increase in credit losses.

Many countries have adopted extensive fiscal-policy stimulus packages in an attempt to stem the tide of the recession. Quite a few countries, not least the USA, are thus rapidly increasing their public debts. This is leading to a greater supply of government bonds, which could have a substantial impact on future interest-rate developments. Other things being equal, an increase in market interest rates will dampen demand for goods and services and thus poses a risk to macroeconomic developments. The increase in the supply of government bonds and government-guaranteed bonds could also affect financial stability by partly "crowding out" private-sector bond issues, thereby reducing private-sector financing opportunities.

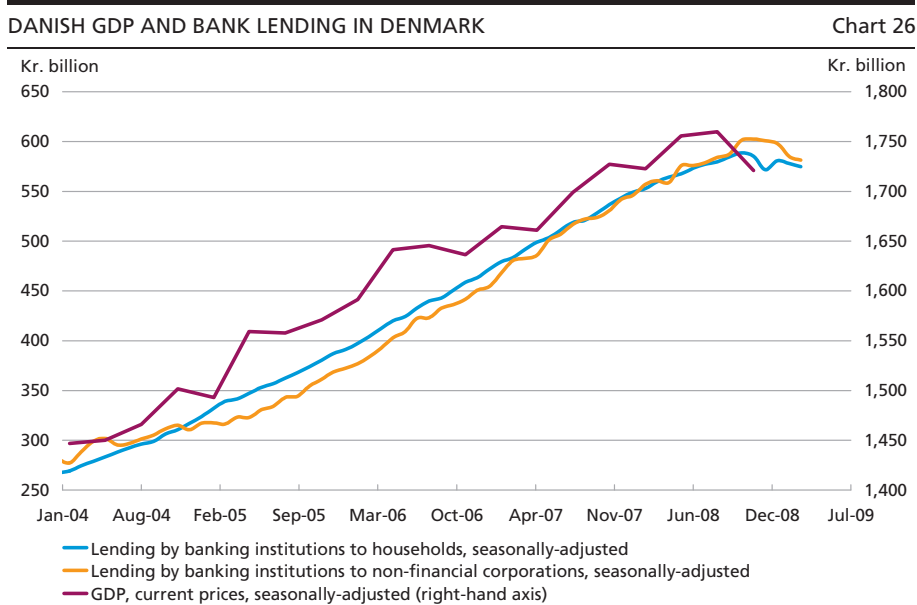
Though rescue packages have helped to stabilise global financial conditions, the situation is still far from normal. Due to the significant uncertainty and nervousness, even incidents that would, in normal circumstances, have a limited impact could have systemic consequences.

RISKS TO THE DANISH ECONOMY

The outlook for the Danish economy is more uncertain than usual. Danmarks Nationalbank expects unemployment to peak, at just over 190,000, in the 1st half of 2011. This figure is subject to considerable uncertainty, however, and higher unemployment figures cannot be ruled out, especially if the international economic outlook turns out to be more dire than expected.

As Chart 26 shows, growth in bank lending and cyclical developments have been very subdued in recent quarters. In Denmark, as in the international economy, the financial sector and the real economy may interact in a self-reinforcing process. Limited banking buffers and declining values of borrower collateral may translate into a significant drop in lending, fuelling a downward spiral by affecting the real economy and prices of financial and real assets.

Another risk is associated with housing-price developments. The downward pressure on housing prices is reflected in the continued high number of homes on the market. Against this backdrop, cash prices are expected to decline further in 2009 and then gradually approach normal price development. However, there is a risk of stronger price drops, especially if the banks cut back significantly on lending, unemployment exceeds expectations, or interest rates rise to a considerably higher level. In this scenario, the financial position of Danish households will deteriorate.



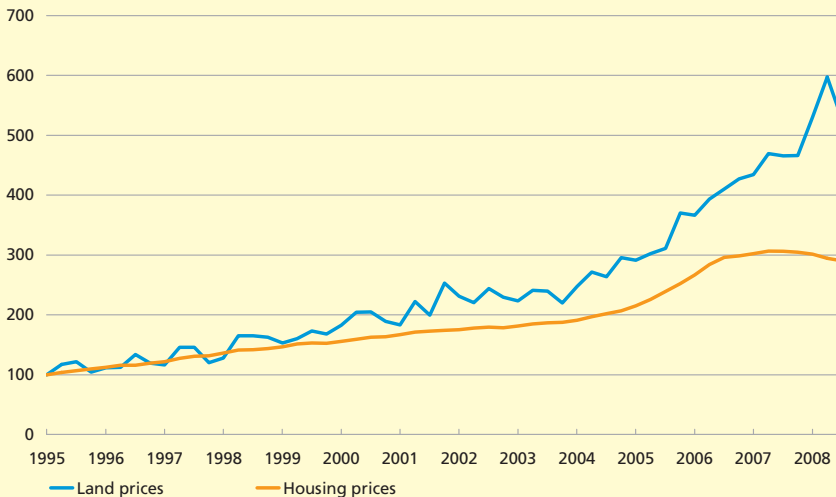
Source: Statistics Denmark and Danmarks Nationalbank.

Credit risk on lending to Danish agriculture depends, in part, on the agricultural sector's ability to generate a profit large enough to service the debt and, in part, on value developments for the collateral pledged as security for the debt. This Box analyses the risk that land prices, and thus the value of the collateral, will fall.

Over the last 20 years, the price per hectare of agricultural land has been surging in most EU member states. This trend has been particularly pronounced in Denmark where land prices began to take off at the end of 2003, cf. the Chart below. Overall, land prices sextupled during the period from the 1st quarter of 1995 to the 2nd quarter of 2008. In comparison, housing prices tripled during the same period. Subsequently, the trend has been reversed, with land prices tumbling by 12 per cent from the 2nd to the 3rd quarter of 2008.

PRICES OF AGRICULTURAL LAND AND HOUSING

Q1 1995 = 100



Note: Land prices are measured in terms of the selling prices for agricultural properties of 60-100 hectares. Housing prices are measured in terms of the prices of single-family and terraced houses.

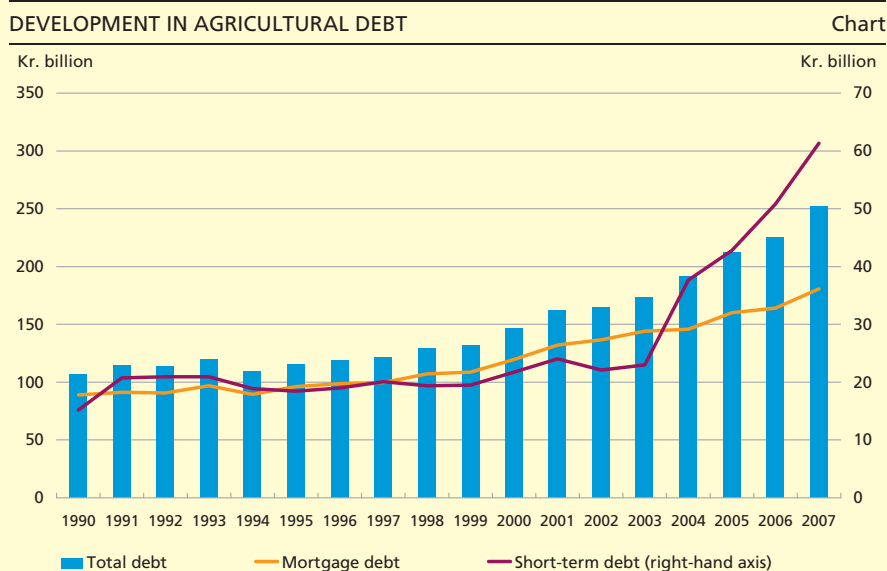
Source: Statistics Denmark and the Association of Danish Mortgage Banks.

The steep rise in land prices does not seem to reflect a similar increase in the output value of the agricultural sector. Measured in terms of gross value added, Danish agriculture was the only sector to experience a decrease from 1995 to 2008 (at constant prices), gross value added declining by about 12.5 per cent over the period. In comparison, overall Danish gross value added rose by 24.5 per cent¹ during the same period.

The agricultural sector in the EU is highly regulated and subsidised, entailing that regulatory changes could affect land prices. However, EU subsidies to agricultural producers fell by 0.8 per cent p.a. in real terms² during the period 1996-2006. On the other hand, the total area required by public authorities as separation distances for application of semi-liquid manure increased by 17.2 per cent³ during the same period. Other things being equal, this increased demand, and thereby the price of agricultural land. However, this increase took place mainly in the period 1995-2002 – and thus before land prices took off.

CREDIT RISK RELATED TO LENDING TO DANISH AGRICULTURE – CONTINUED Boks 11

During the period of rising land prices, there has been an increase in the debt of the agricultural sector, cf. the Chart below. When land prices took off around 2003, short-term debt began to soar. The rise in mortgage debt has been more moderate and even. Overall, the agricultural sector's debt has not risen nearly as much as land prices.



The steep rise in land prices is not immediately attributable to changes in fundamental economic conditions within the agricultural sector. Therefore, there is a risk that land prices will plunge in the coming years. As the banks' exposure to the agricultural sector has increased substantially, there is a risk that the banks will suffer increased write-downs on agricultural exposures. It is important to the banks that agriculture can generate earnings that are sufficient to service its debt.

¹ Gross value added is defined as the value of output less the value of intermediate consumption.

² EU subsidies are deflated by the GDP deflator.

³ Source: Own calculations, based on Statistics Denmark and various versions of the Executive Order on Animal Farming, Livestock Manure, Silage, etc. (available in Danish only), the Danish Ministry of the Environment.

At the same time, the value of the banks' collateral will be reduced. The combination of households' inability to meet their payment obligations and declining collateral values will affect the banks.

A continued decline in housing prices will also render a large number of construction projects unprofitable, meaning that banks exposed to non-residential lending and developers may incur losses.

The price per hectare of agricultural land has been surging in Denmark in recent decades, cf. Box 11. The price per hectare sextupled during the

period from the 1st quarter of 1995 to the 2nd quarter of 2008. The 3rd quarter of 2008 saw a reversal of this trend, with prices of agricultural land tumbling by 12 per cent relative to the preceding quarter. The steep rise in land prices is not immediately attributable to changes in fundamental economic conditions within the agricultural sector, so there is a risk that land prices will plunge over the coming years. As the bank debt of farms rose in tandem with land prices, developments in agricultural land prices pose a risk to the banks.

Danmarks Nationalbank's task in relation to assessment of financial stability is to analyse risks. However, Danmarks Nationalbank's expectations may turn out to be over-pessimistic. Thus global fiscal relaxation could lead to stabilisation of the international economy and the various bank rescue packages in Denmark and abroad could prevent negative interaction between financial and macroeconomic developments.

CREDIT RISK FOR DANISH BANKS CONTINUES TO RISE

According to Danmarks Nationalbank's failure-rate model, KIM, the probability that Danish companies will fail over the coming years increased in 2008, cf. Chart 27.¹ In 2008, the estimated failure rate of the weakest 10 per cent of the companies exceeded 14 per cent, double the rate in 2005.

The steep increase in 2008 relative to 2007, for both the weakest companies and the median company, is primarily attributable to negative cyclical expectations. In 2008, the indebtedness of Danish companies increased and several companies posted negative earnings. Traditionally, these factors all imply a higher probability that a company will fail.

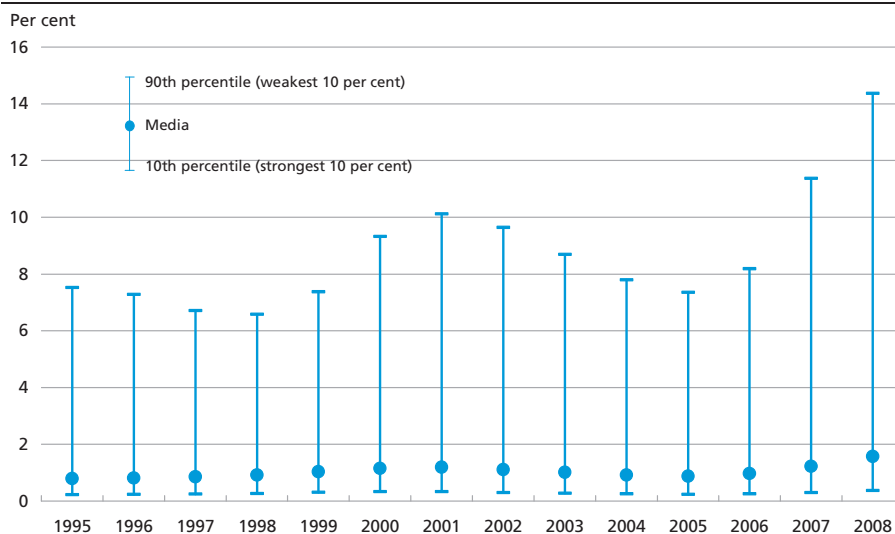
Among the various sectors, construction and trade, etc., experienced the greatest increases in estimated failure rates from 2007 to 2008, cf. Chart 28. Accordingly, banks that are exposed to these sectors are faced with the prospect of increased losses and provisions. Agriculture is not included in KIM, but the agricultural sector must also be considered to be one of the exposed sectors, cf. Box 11.

Another factor that may affect the banks' credit risk is exposure to companies owned by private equity funds. These companies tend to be thinly capitalised and are thus particularly sensitive to recessions.

¹ Danmarks Nationalbank's failure-rate model, KIM, has been used to estimate the probability that a company will fail. See *Financial stability 2007* for further details of KIM.

ESTIMATED FAILURE RATES FOR DANISH COMPANIES

Chart 27



Note: 2008 is a preliminary estimate based on a limited number of financial statements.

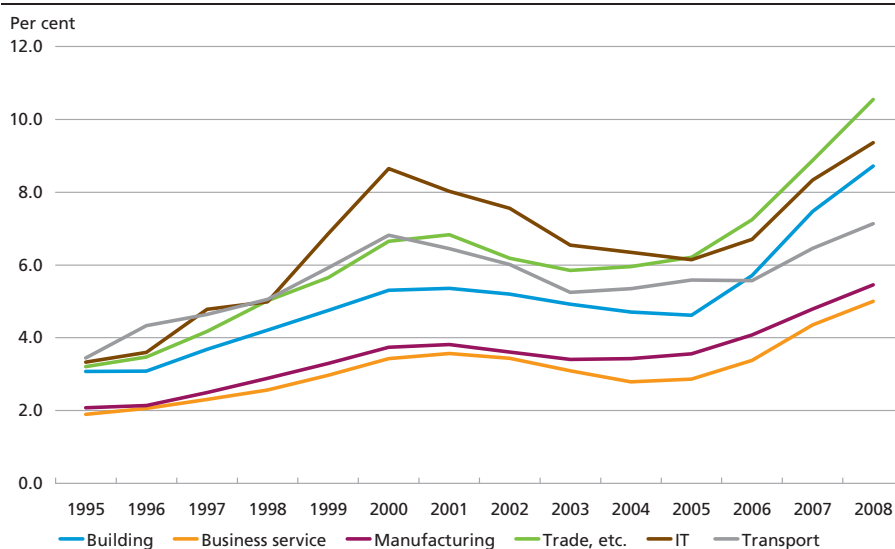
Source: Own calculations based on data from Experian A/S.

Therefore, the banks may be faced with the choice of acquiring the company or writing down its loans.

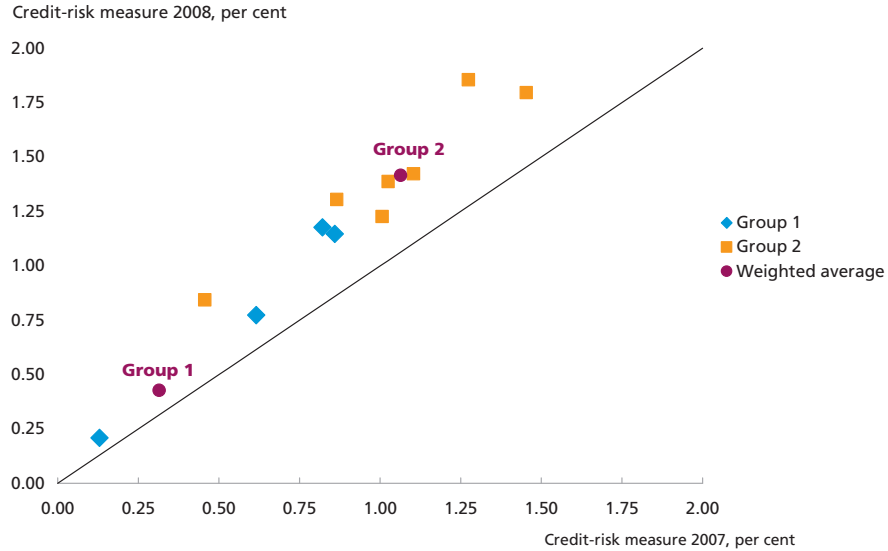
Danmarks Nationalbank uses KIM and assumptions of expected losses on exposures to households and agriculture to calculate a credit-risk

ESTIMATED FAILURE RATES OF WEAKEST COMPANIES, BROKEN DOWN BY SECTOR, 90TH PERCENTILE

Chart 28



Note: Own calculations based on data from Experian A/S.



Note: The analysis includes only institutions having at least 30 companies as customers. The sum of loans and guarantees is used as weights in the weighted averages.

Source: Danish Financial Supervisory Authority, financial statements and own calculations.

measure for each bank.¹ The credit-risk measure expresses the individual bank's expected loss ratio on its entire lending portfolio. According to the credit-risk measure, the banks' overall credit risk on exposures to households and the corporate sector, including agriculture, increased from 2007 to 2008, cf. Chart 29. All institutions are above the line indicating unchanged credit risk. The increase is primarily attributable to higher credit risk on exposures to the non-agricultural sector, but the credit risk on exposures to agriculture and households has also shown a rising trend. Furthermore, the banks have increased the proportion of exposures to the non-agricultural sector, cf. Chart 31. Moreover, there was a clear tendency for the banks with the highest credit-risk measures to experience the highest increase in the credit-risk measure from 2007 to 2008.

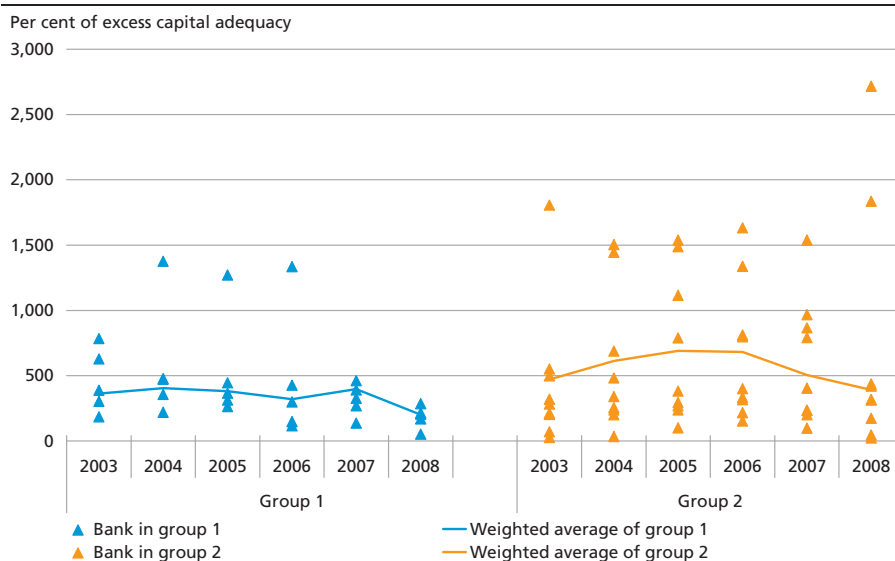
The banks have reduced their large exposures

The banks have significantly reduced large exposures over the last year, thereby – other things being equal – lowering the risk of large losses on individual exposures. However, some banks still have significant exposures.

¹ The credit-risk measure is calculated as $PD_{i}^{corporate} \cdot U_{i}^{corporate} + PD_{i}^{households} \cdot U_{i}^{households} + PD_{i}^{agriculture} \cdot U_{i}^{agriculture}$. $PD_{i}^{corporate}$ is the debt-weighted estimated failure rate in Denmark's Nationalbank's failure-rate model, KIM, for companies using bank i . The year's average loss ratio for each of the two groups is applied as an approximation of the estimated failure rate for households ($PD_{i}^{households}$) and agriculture ($PD_{i}^{agriculture}$). U_{i} is the proportion of bank i 's lending to the corporate sector, the households and agriculture, respectively. The credit-risk measure is specified in the glossary in *Financial stability 2007*.

LARGE EXPOSURES, PER CENT OF EXCESS CAPITAL ADEQUACY

Chart 30



Note: Calculated on the basis of the Danish Financial Supervisory Authority's key ratio for large exposures.
Source: Financial statements.

The Danish Financial Supervisory Authority's key ratio for large exposures¹, a measure of large exposures as a percentage of the base capital, was reduced from 125 per cent in 2007 to 89 per cent in 2008 for the banks in group 1, while the ratio for the banks in group 2 was reduced from 155 per cent to 113 per cent. This trend continued in the 1st quarter of 2009. Measured in kroner, 13 of the 14 banks reduced the total amount of large exposures from 2007 to 2008.

Chart 30 shows large exposures as a ratio of the excess capital adequacy (measured as the difference between the base capital and the minimum capital requirement of 8 per cent). This provides an indicator of the concentration of the lending portfolio relative to the banks' buffers. Measured as a ratio of the excess capital adequacy, the weighted average of large exposures for the banks in group 1 fell from 397 per cent in 2007 to 201 per cent in 2008, while the weighted average for the banks in group 2 was reduced from 505 per cent in 2007 to 390 per cent in 2008. The reduction for the banks in group 1 is, to some extent, attributable to the transition to Basel II, which has resulted in a fall in risk-weighted assets, thereby increasing the excess capital adequacy. In 2008, two institutions among the banks in group 2 stood out by having a significantly higher risk concentration than the other banks.

¹ An exposure is defined as large if it amounts to 10 per cent or more of the institution's base capital.

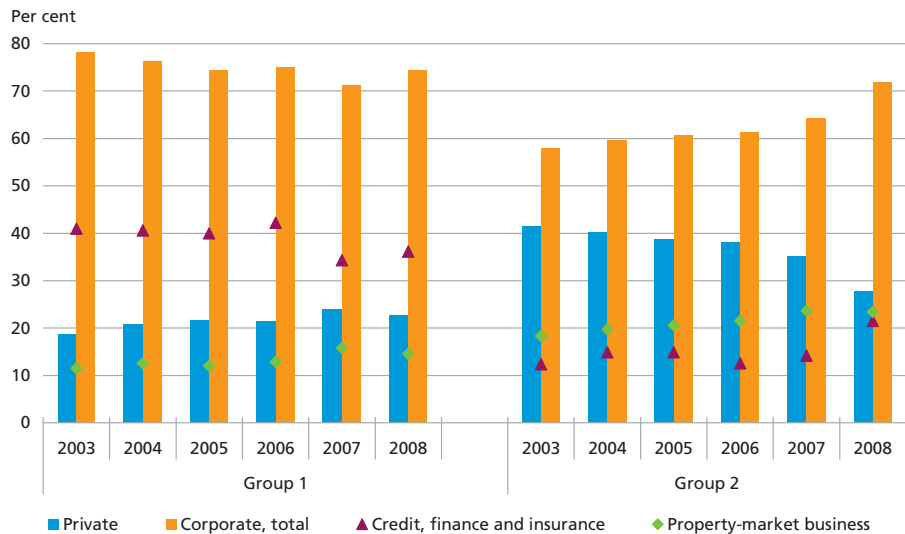
Medium-sized banks increased their exposure to the corporate sector

The banks in group 2 increased their ratio of loans and guarantees to the corporate sector from 58 per cent at the end of 2003 to 72 per cent at the end of 2008. During the same period, the banks in group 1 reduced the ratio of lending to the corporate sector from 78 to 74 per cent, cf. Chart 31. The opposite trend applies to lending to the private sector. The ratio of loans and guarantees to the public sector was unchanged for both groups from 2003 to 2008.

The largest corporate lending sectors are shown in Chart 31. Both large and medium-sized banks have increased their ratio of loans and guarantees to the property market in recent years. With a lending ratio of 23 per cent, the banks in group 2 continue to be more exposed to this sector than the banks in group 1 (15 per cent). The banks in group 2 became significantly more exposed to credit, financing and insurance business from 2007 to 2008, the ratio of loans and guarantees increasing from 14 to 22 per cent.

Compared with the banks in group 1, the banks in group 2 are more exposed to the sectors agriculture, property market, other corporate sectors and private individuals.

BREAKDOWN OF LOANS AND GUARANTEES ON SELECTED SECTORS Chart 31



Note: Exposure to the property market is calculated as the proportion of loans and guarantees to the sectors property administration, etc., as well as building and construction. Nordea Bank Danmark is not included in Chart due to lack of data.

Source: Financial statements.

UNEVEN PICTURE OF THE BANKS' INTEREST-RATE RISK

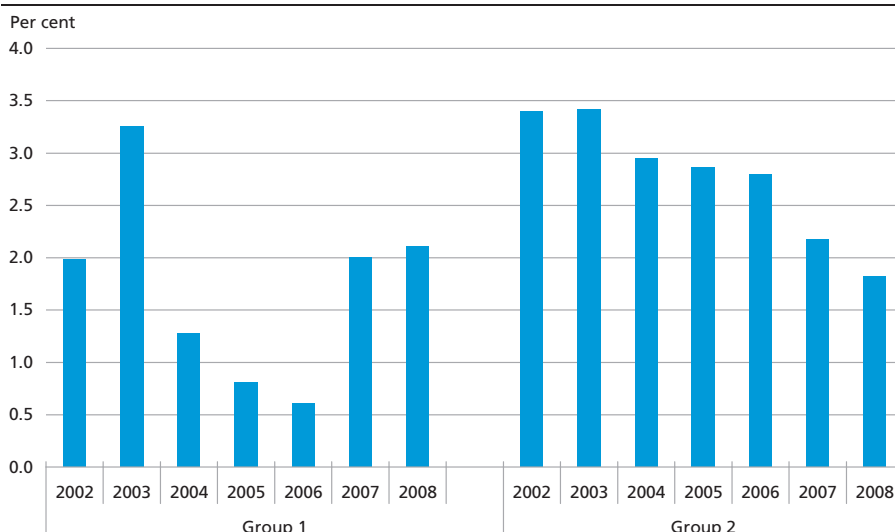
Interest-rate risk is the risk of losses as a consequence of changes in interest rates in the financial markets and constitutes a major part of the banking institutions' market risk. The last year has seen extremely volatile financial markets. Other things being equal, this, in combination with difficult financing conditions and rising risk premiums, has rendered it more difficult for the banks to manage their interest-rate risk.

Eight of 14 of the banks in groups 1 and 2 experienced increasing interest-rate risk in 2008 – expressed as the part of the core capital after deductions that is lost on an increase in interest rates by 1 percentage point. For the banks in groups 1 and 2 as a whole, the interest-rate risk is unchanged and declining, respectively, cf. Chart 32.

As more banks have become more exposed to increases in interest rates, the banks have also become vulnerable to falling interest rates due to "floor risk". Floor risk reflects the fact that the deposit rate cannot be negative. In a situation where the market rate is so low that, if it declines further, the deposit rate cannot be lowered correspondingly, the banks' interest-rate margin, and thus their core earnings, may come under pressure.

INTEREST-RATE RISK OF DANISH BANKS

Chart 32



Note: Calculated on the basis of the Danish Financial Supervisory Authority's key ratio, "interest-rate risk". The ratio is an expression of the part of the core capital after deductions that is lost on a parallel shift of the yield curve by 1 percentage point.

Source: Financial statements.

LIQUIDITY MAINTAINED AFTER GOVERNMENT GUARANTEE

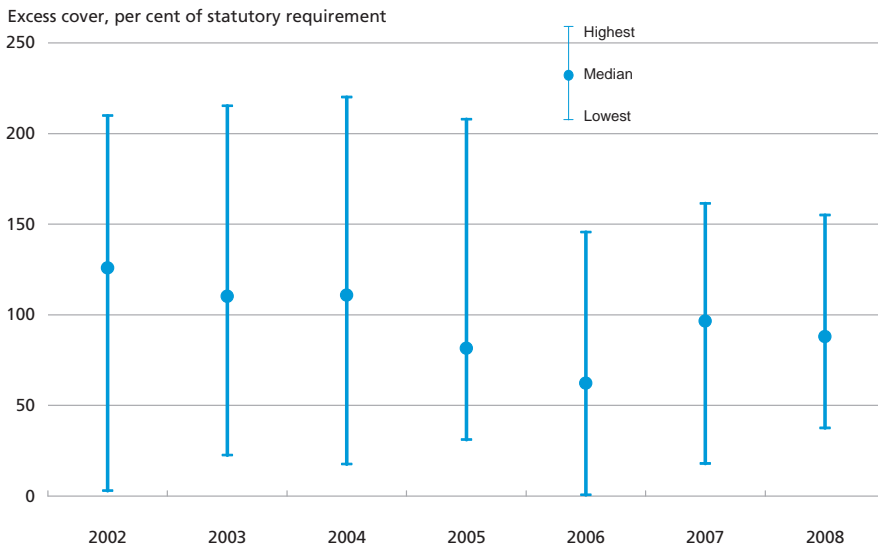
The financial crisis has put the liquidity and capital contingency planning of Danish banks under strong pressure. The government guarantee for most non-subordinate claims has been crucial in ensuring that a number of banking institutions have been able to maintain their liquidity. Moreover, Danmarks Nationalbank expanded the credit facilities available to banks and mortgage-credit institutes at Danmarks Nationalbank in the course of 2008 to facilitate access to liquidity. These facilities, which are temporary and run until 30 September 2010, are included in the calculations of liquidity by the institutions.

The Danish Financial Supervisory Authority's key ratio for liquidity provides an indication of the banking institutions' excess liquidity cover. The ratio shows excess liquidity in relation to the statutory minimum requirement under which liquidity must constitute at least 10 per cent of the total debt and guarantee commitments less subordinated capital, which can be included in the capital base.

In 2008, the banks' excess liquidity cover was reduced slightly relative to 2007, cf. Chart 33. The Chart also shows that the spread in the banking institutions' excess liquidity cover has been reduced in recent years.

EXCESS LIQUIDITY COVER IN DANISH BANKS

Chart 33



Note: The Chart is based on the Danish Financial Supervisory Authority's key ratio, "cover relative to statutory liquidity requirement", which shows excess liquidity after compliance with the 10-per-cent requirement, cf. section 152 of the Danish Financial Business Act. Liquidity must amount to at least 10 per cent of the total debt and guarantee commitments less subordinated capital investments, which can be included in the calculation of the base capital.

Source: Financial statements.

Thus the institutions with the smallest buffers have built up liquidity reserves, while the institutions with the largest buffers have reduced theirs. In 2008, the lowest excess cover increased to 38 per cent from 18 per cent in 2007, while the highest excess cover in 2008 declined to 155 per cent from 161 per cent in 2007. In 2008, five banks – all of them from group 2 – had excess liquidity cover of more than 100 per cent.

The government guarantee on bank debt is temporary and the banks should therefore prepare strategies for obtaining funding when the schemes are discontinued.

SUMMARY OF RISKS FACING THE BANKS

Credit risk is currently the key factor in terms of the development in bank earnings and solvency. The estimated failure rates of Danish companies are increasing and the value of collateral pledged for bank loans is being eroded by falling housing and land prices.

At the same time, the banks are vulnerable to falling interest rates due to "floor risk", as the banks' interest-rate margin, and thus their core earnings, may come under pressure in a situation where the market rate is so low that, if it declines further, the deposit rate cannot be lowered correspondingly.

The government guarantee on bank debt has been crucial in ensuring that banks have had access to liquidity, thereby contributing to reducing the banks' liquidity risks.

RISKS TO THE DANISH MORTGAGE-CREDIT SECTOR

The Danish mortgage-credit system is, and always has been, exposed to credit risk. This risk depends, in part, on the households' ability to service their debt and, in part, on price developments for the homes mortgaged. As the banks often assume some of the credit risk associated with the mortgage-credit loans they arrange, this also poses a risk to the banks. For many adjustable-rate loans, there is a significant mismatch between maturity and financing. Thus the system is dependent on continued access to the capital markets, cf. the section on "Refinancing risks". Covered bonds (known as SDOs in Denmark) have introduced a new risk element, as the credit institutions must restore the collateral underlying the SDOs issued when house prices fall.

The rating agencies are currently reviewing their rating methodologies in light of the financial crisis. The impact of the review on the assessment of covered bonds remains to be seen. Preliminary announcements indicate e.g. enhanced focus on liquidity risk. Moreover, increased em-

Data in the analysis contains data on individual loans and an estimate of the market value of the homes. Data also includes income data for customers wishing to mortgage more than 60 per cent of the value of their home at the time of mortgaging. Accordingly, data has a bias when selected on the basis of income. With this selection, homeowners that are not included are generally in a better position than homeowners who are included. When income data is used, only households with debt exceeding kr. 50,000 and at least one loan raised after 2002 are included.

phasis will probably be placed on the credit rating of the issuer in the assessment of individual issues.

Credit risk

Rising unemployment and falling housing prices reduce both the households' ability to service their debt and the collateral value, thereby increasing the credit risk faced by the mortgage-credit sector.

Below, the interest-rate exposure of Danish homeowners, the link between homeowners' choice of loans and the mortgaging ratio of the homes, and the homeowners' mortgage debt as a ratio of gross income are analysed. The analysis is based on a cross-section of the mortgage-credit loans of Danish households.

Homeowners with a high mortgaging ratio have more interest-rate sensitive loans

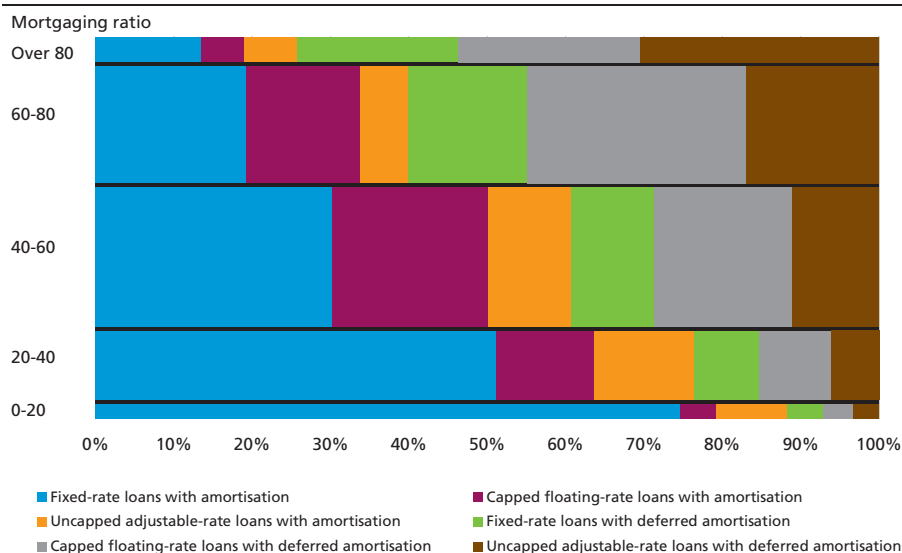
Today, homeowners have a choice between a number of different mortgage-credit loans ranging from fixed-rate loans with amortisation to uncapped adjustable-rate loans without amortisation. As illustrated by Chart 34, there is a strong tendency for homes with a high mortgaging ratio, on average, to be financed via interest-rate-sensitive loans, often with deferred amortisation. 38 per cent of the outstanding bond debt is invested in homes with a mortgaging ratio of between 40 and 60 per cent.¹ 61 per cent of the outstanding debt on these homes is with amortisation. In contrast, for the 7 per cent of the bond debt invested in homes with a mortgaging ratio of more than 80 per cent, only 26 per cent of the outstanding debt is with amortisation.

Part of the explanation for the substantial difference in loan types for the various mortgaging ratios is that, previously, homeowners had access only to traditional loan types. Thus the households with the new loan types tend to be fairly new homeowners with a high mortgaging ratio.

¹ The area of the Chart that is in the 40-60 range on the y axis.

CORRELATION BETWEEN LOAN TYPES AND MORTGAGING RATIOS

Chart 34



Note: The outstanding bond debt is stated at fair value on 28 November 2008 and property values are estimated on 30 November 2008. Adjustable-rate loans are refinanced via new bonds at a refinancing auction, while interest on floating-rate loans is determined on the basis of a reference rate, i.e. without issue of new bonds.

Source: Own calculations.

Nevertheless, these homeowners are more vulnerable to rising interest rates or loss of income.

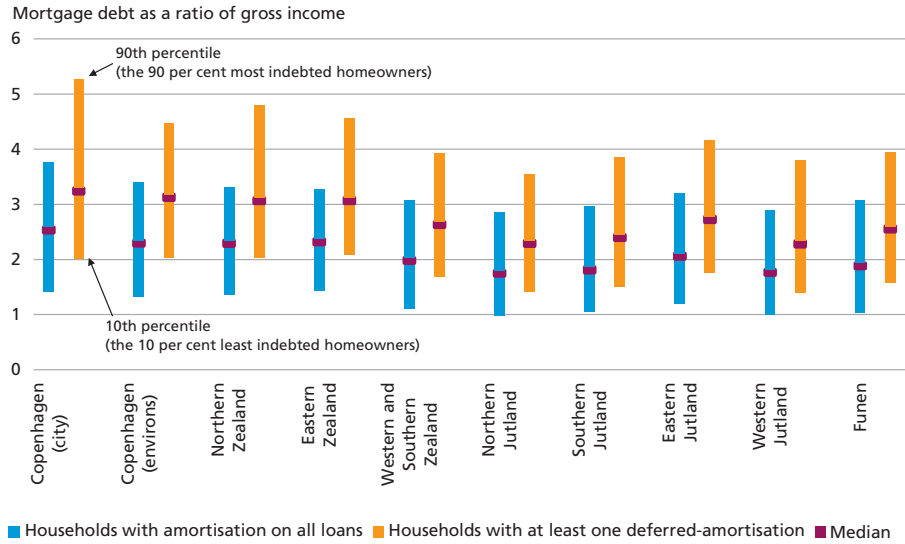
Homeowners with deferred-amortisation loans have the highest debt burden

There are wide regional differences in the homeowners' debt as a ratio of income, cf. Chart 35. The highest debt burden is found in the Copenhagen area, in Northern and Eastern Zealand and in Eastern Jutland. These areas saw the largest price increases for single-family and terraced houses and owner-occupied flats in the period 2004-06, and some of these areas have taken the brunt of the recent price falls, translating into higher credit risk.

Across Denmark, there is a clear tendency for homeowners with deferred-amortisation loans to have a higher debt burden than those who have loans with amortisation. The debt burden of the median household with at least one deferred-amortisation loan is between 28 and 36 per cent higher than that of the median household with amortisation on all loans. As previously stated, one explanation could be that deferred amortisation was not an option when some of the households with a relatively low current debt burden took out their loans. Another explanation could be that some households have utilised deferred amortisation to increase their debt burden. The latter could have contributed to the rise in housing prices.

MORTGAGE DEBT AS A RATIO OF INCOME – LOANS WITH AND WITHOUT AMORTISATION, BROKEN DOWN BY AREAS

Chart 35



Note: Mortgage debt is outstanding debt in cash. Income is gross income.

Source: Own calculations.

In the current situation of falling housing prices, homeowners with deferred-amortisation loans are the most vulnerable. Firstly, they tend to have a higher rate of indebtedness than other homeowners. Secondly, they have already utilised the buffer that deferred amortisation could provide to other homeowners.

Homeowners with uncapped adjustable-rate loans

Homeowners with uncapped adjustable-rate loans are another potentially exposed group in the housing market. Table 3 shows the change in the interest burden if the short-term interest rate goes up by 1 percentage point. In this context, the short-term interest rate is defined as the rate of interest on an adjustable-rate loan, irrespective of the fixed-interest period.

The interest-rate exposure varies considerably – both within and between various parts of the country, reflecting both differences in the debt burden and the fact that, for some households, the adjustable-rate option applies only to part of their debt. If interest rates go up by 1 percentage point, the 10 per cent most interest-rate sensitive households in Copenhagen will e.g. see a rise in their interest expenses equivalent to at least 4.2 per cent of their gross income, while the corresponding figure for Western Jutland is 3 per cent. The pattern from Chart 35 is also seen in Table 3, i.e. that the most vulnerable households are the ones located in the areas

CHANGE IN INTEREST BURDEN, IN PERCENTAGE POINTS, IF THE SHORT-TERM INTEREST RATE INCREASES BY 1 PERCENTAGE POINT, END OF NOVEMBER 2008 – HOUSEHOLDS WITH AT LEAST ONE UNCAPPED ADJUSTABLE-RATE LOAN

Table 3

Areas	Average	Percentiles		
		10th	50th	90th
Copenhagen (city)	2.6 (16.3)	0.7 (7.2)	2.4 (14.4)	4.2 (25.8)
Copenhagen (environs)	2.3 (15.5)	0.5 (7.7)	2.1 (13.8)	3.8 (23.7)
Northern Zealand	2.3 (16.6)	0.4 (7.8)	2.1 (14.5)	4.1 (25.7)
Eastern Zealand	2.3 (15.2)	0.5 (7.6)	2.2 (13.3)	3.7 (22.5)
Western and Southern Zealand ...	2.0 (13.4)	0.6 (6.2)	1.9 (12.0)	3.5 (21.8)
Northern Jutland	1.9 (12.3)	0.6 (5.5)	1.8 (10.8)	3.2 (19.6)
Southern Jutland	1.9 (11.7)	0.5 (5.6)	1.7 (10.3)	3.1 (18.8)
Eastern Jutland	2.2 (14.5)	0.6 (6.7)	2.1 (12.6)	3.6 (22.1)
Western Jutland	1.8 (11.9)	0.5 (6.0)	1.7 (10.7)	3.0 (19.4)
Funen	2.0 (13.3)	0.5 (6.1)	1.8 (11.4)	3.4 (21.7)

Note: Interest burden is defined as gross interest as a ratio of gross income. Figures in brackets denote the actual interest burden in per cent before the interest-rate rise.

Source: Own calculations.

that experienced the largest price increases for single-family and terraced houses and owner-occupied flats in the period 2004-06. Thus some of the households whose housing values have declined the most are also the households most sensitive to interest-rate rises.

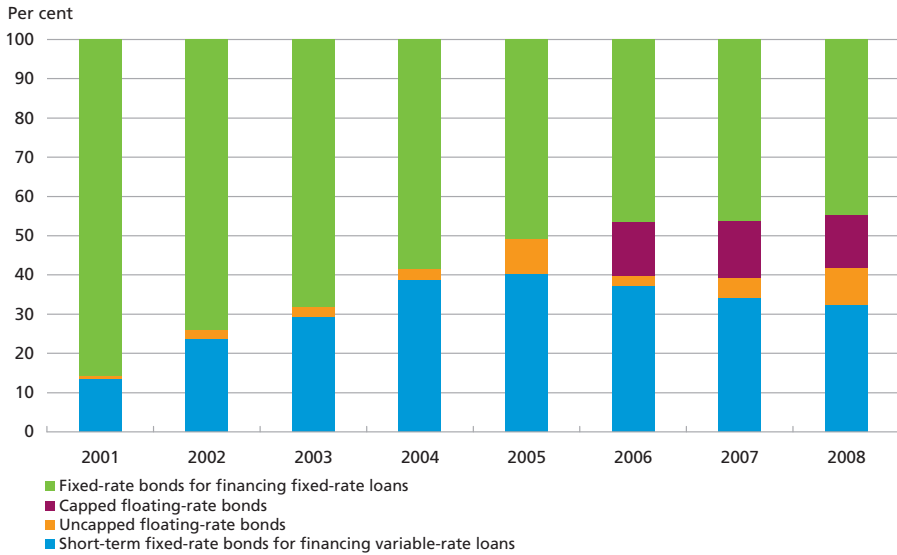
Refinancing risks

For adjustable-rate loans financed via short-term fixed-rate bonds, a mismatch exists between the maturity of the loan and the underlying bonds. The proportion of this loan type was increasing until 2005, at which time it accounted for about 40 per cent of the bonds issued by the mortgage-credit institutes, cf. Chart 36. Over the last three years, floating-rate bonds have won market shares from fixed-rate bonds for financing of variable-rate loans. However, the latter type still accounts for more than 30 per cent of the bonds outstanding.

Short-term fixed-rate bonds underlying variable-rate loans are predominately refinanced in December. The financial turmoil last autumn demonstrated that considerable risk is incurred by both borrower and issuer when the entire refinancing process takes places within a relatively short time span. There were periods of considerable uncertainty as to the level of interest rates and the opportunity, in general, to sell the bonds. Therefore, it is positive that one institution has already spread the refinancing process across the year, while other institutions are preparing to do so.

OUTSTANDING VOLUME OF MORTGAGE-CREDIT BONDS, BROKEN DOWN BY LOAN TYPE

Chart 36



Note: Nominal value, average for the year. Before 2006, capped floating-rate bonds are included under uncapped floating-rate bonds.

Source: Danmarks Nationalbank.

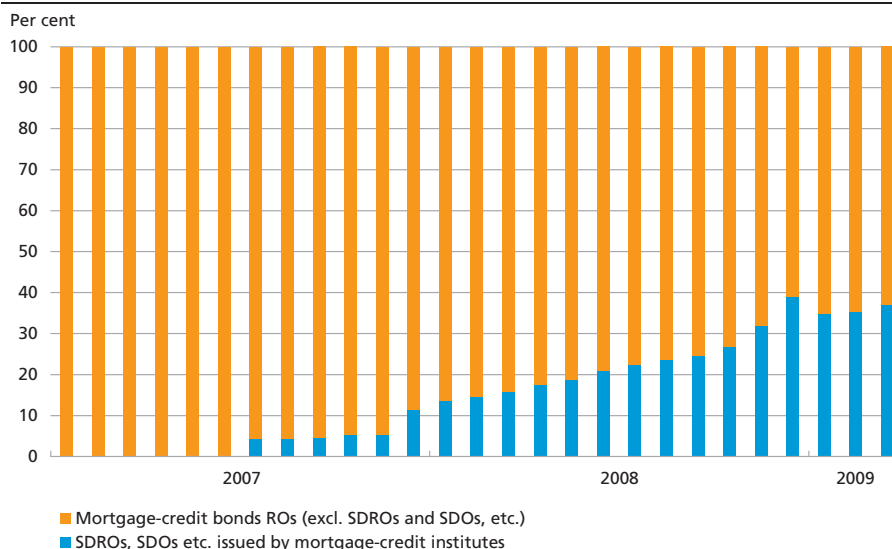
Another way to eliminate the refinancing risk is by issuing floating-rate bonds with the same maturity as the loan. However, the use of floating-rate bonds is hampered by the fact that interest-rate fixing typically follows the CIBOR rate – a reference rate for uncollateralised interbank loans. During the financial crisis, CIBOR has been highly volatile and relatively high.

Top-up collateral for covered bond loans (SDOs)

New legislation on covered bonds (SDOs) and covered mortgage-credit bonds (SDROs) took effect on 1 July 2007. Below, SDOs and SDROs are referred to collectively as SDOs. As a result of this legislation, mortgage-credit institutes have almost exclusively been issuing SDOs since 1 January 2008. The capital requirement for acquiring SDOs is lower than for acquisition of traditional mortgage-credit bonds (ROs) issued after 1 January 2008. Consequently, SDOs are a more attractive investment than ROs for credit institutions subject to capital requirements. SDOs account for an increasing share of the total outstanding volume of bonds issued by mortgage-credit institutes, reaching approximately 37 per cent in March 2009, cf. Chart 37.

OUTSTANDING VOLUME OF MORTGAGE-CREDIT BONDS, BROKEN DOWN
BY ROs AND SDOs/SDROs

Chart 37



Note: Nominal value, end of month.

Source: Danmarks Nationalbank.

Statutory requirements for top-up collateral

Under SDO legislation, LTV (loan-to-value) limits must be observed on an ongoing basis for each individual loan.¹ For a housing loan, the LTV limit is 80 per cent, which means that the credit institution must immediately pledge top-up collateral if the market value of the home declines, or the market value of the SDOs increases to the point that the LTV limit is breached. Top-up collateral is placed in a cover pool², pledged as collateral for the series under which the bonds are issued. Assets that can be included as top-up collateral must be comprised of secure assets, such as government bonds. Moreover, receivables and guarantees issued by credit institutions can be used for up to 15 per cent of the nominal value of the SDOs issued. The credit institution may choose either to transfer existing assets from its reserves³ or to borrow to finance new assets as

¹ For a more detailed description of SDO legislation, see the sections on SDOs in the chapter "Recent Economic and Monetary Trends" in Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2007 and the chapter "Framework Conditions for the Financial System" in *Financial stability 2007*.

² For a mortgage-credit institute, a cover pool is a capital centre in the form of a series or a group of series with an associated series reserve fund.

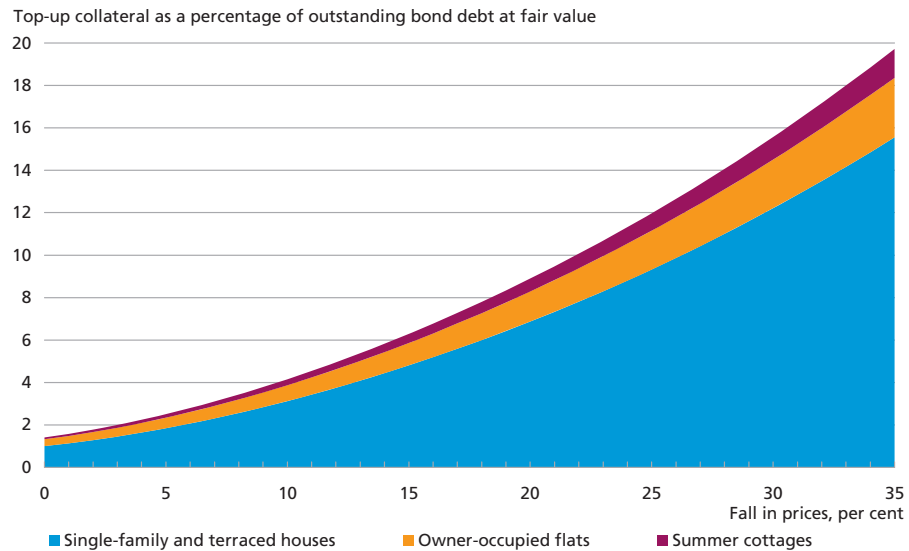
³ It appears from the Danish Mortgage-Credit Loans and Mortgage-Credit Bonds Act that loans financed via SDOs or SDROs must be issued in separate series with a series reserve fund. The assets of a series reserve fund must be sufficient for the series to comply with the solvency requirement. Assets allocated to a series reserve fund by the mortgage-credit institute are included in its base capital. On 3 October 2007, the Danish Financial Supervisory Authority decided that all assets under a series invested in sufficiently secure assets may be included in the calculation of whether the LTV requirement has been met for the series in question, i.e. that the mortgage-credit institutes – to the extent that their base capital is allocated in series under which SDOs are issued and their base capital is invested in sufficiently secure assets – may include their base capital as top-up collateral without making a deduction in the base capital.

top-up collateral. If the credit institution chooses to borrow to finance the top-up collateral, it may do so by raising loans against collateral in the cover pool after the SDOs issued. The Danish Financial Supervisory Authority has requested institutions authorised to issue SDOs/SDROs to state their total SDO/SDRO issues, the volume of top-up collateral pledged by the institution, and the volume of top-up collateral the institution is able to pledge without having to issue new debt against the cover pool as collateral, calculated at the end of February 2009 or the closest possible date. The institutions stated that SDOs totalling kr. 965 billion had been issued. Top-up collateral amounting to a total of kr. 29 billion, equivalent to 3 per cent of the SDOs issued, had been pledged. The top-up collateral was financed by kr. 20 billion from the institutions' reserves, kr. 5 billion from guarantees issued by credit institutions and kr. 3 billion from loans against collateral in cover pools. The institutions stated that at the time of calculation, they were able to pledge top-up collateral of a further kr. 55 billion, equivalent to 6 per cent of the SDOs issued, without issuing new debt.

Top-up collateral requirements

Following recent price developments in the housing market, credit institutions may be required to provide top-up collateral. As previously stated, the LTV limit must be observed for each individual loan. In order to calcu-

TOP-UP COLLATERAL REQUIREMENTS, GENERAL FALL IN HOUSE PRICES Chart 38

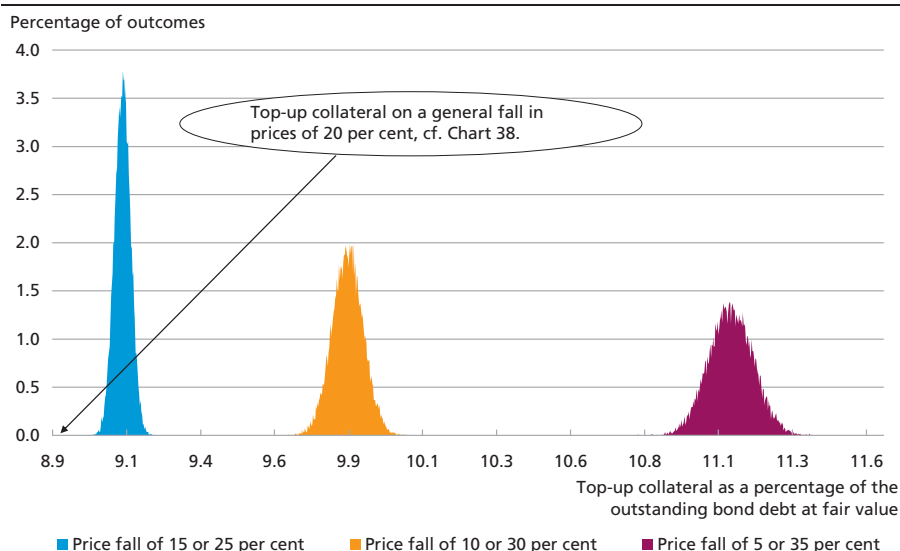


Note: The point of departure is outstanding bond debt stated at fair value on 28 November 2008 and property values estimated on 30 November 2008.

Source: Own calculations.

TOP-UP COLLATERAL REQUIREMENTS, SPREAD IN FALL IN HOUSE PRICES

Chart 39



Note: The Chart is based on three experiments in which the fall in prices may result in one of two possible outcomes.
Source: Own calculations.

late a credit institution's top-up collateral requirements, information is thus required on the market value of each property and each loan.

Below, a data selection, cf. Box 12, is used to calculate top-up collateral requirements for single-family and terraced houses, owner-occupied flats and summer cottages. For these types of property, the LTV limit is 80, 80 and 60 per cent, respectively. If all housing prices drop by the same percentage, the top-up collateral requirement increases more than proportionally, cf. the convex curve in Chart 38. The reason is that an increasing number of loans require top-up collateral.

Due to the convexity of Chart 38, the requirement for mortgage-credit institutes to pledge top-up collateral is higher if the prices of some properties fall sharply, while others see only a limited price fall, than when the fall is evenly distributed. This is illustrated by Chart 39 in three experiments. In all three cases, prices drop by an average of 20 per cent, but the pattern differs. Each of the three experiments consists of 20,000 outcomes under which the price of each property could, with the same probability, have one of two outcomes, as prices fall by 15 or 25 per cent, 10 or 30 per cent, or 5 or 35 per cent, respectively.¹ In Chart 39, the intersection between the first and the second axes indicates the requirement for top-up collateral on a general property-price drop of 20 per cent. The experiment illustrates that very uneven falls in housing

¹ Each outcome has been adjusted, so exactly half of the properties have each of the two outcomes.

prices increase the requirement in terms of top-up collateral. Moreover, the spread, in itself, means that the actual top-up collateral required becomes more uncertain.

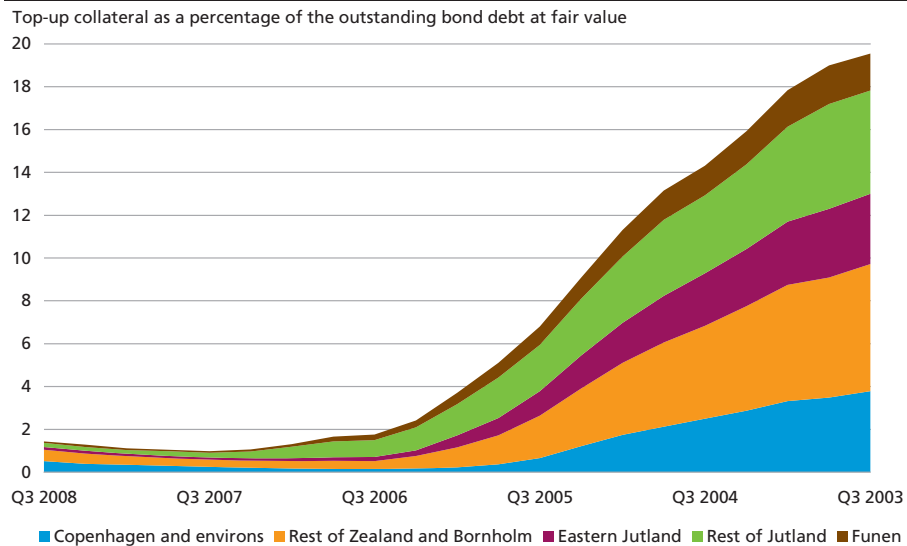
When house prices fall, the decline in the prices of various properties usually varies considerably. Thus, it is very likely that the actual requirement on an average fall in prices of 20 per cent is to be found somewhere along the first axis in Chart 39 rather than in the intersection with the second axis.

It is obviously difficult to predict the probability distribution for future developments in housing prices. However, recently the largest declines in prices have tended to be in areas that saw the strongest increases within a relatively short time span. It is not given that this will always be the case, as property prices may be affected by various structural changes that could permanently change the relative prices in various geographical areas. Despite this reservation, it could be a useful test of the potential top-up collateral requirement to allow housing prices to fall back to the level seen a number of years earlier.

Chart 40 calculates the top-up collateral requirement if the Association of Danish Mortgage Banks' real-property price statistics were reversed from the 3rd quarter of 2008. (Thus, the price of an owner-occupied flat in Copenhagen in the 3rd quarter of 2005 is calculated as the current

TOP-UP COLLATERAL REQUIREMENTS, PRICE FALL TO HISTORICAL LEVELS

Chart 40



Note: The point of departure in the 3rd quarter of 2008 is outstanding bond debt stated at fair value on 28 November 2008 and property values estimated on 30 November 2008. Prices of owner-occupied flats on Bornholm and summer cottages in Copenhagen city and environs are kept constant due to a lack of data for price developments for these areas.

Source: Association of Danish Mortgage Banks and own calculations.

price multiplied by the price ratio between owner-occupied flats in Copenhagen in the 3rd quarter of 2008 and 2005, respectively.) As prices of owner-occupied flats in Copenhagen, in particular, have already dropped sharply, a resulting fall in all property types in all parts of Denmark will not be seen until the 2nd quarter of 2005.

A comparison between Charts 38 and 40 shows that a price adjustment using prices from the 3rd quarter of 2003 requires the same top-up collateral as a general drop in prices of 35 per cent.

Financing of top-up collateral

As already stated, the credit institutions, in addition to using existing reserves and guarantees, may finance top-up collateral by raising debt against cover pools as collateral. Bank Rescue Package II also enabled the institutions to issue this type of debt against a government guarantee that may run until the end of 2013. Great uncertainty obviously prevails as to the rate of interest on debt issued against cover pools as collateral if the housing market weakens further, causing the issuance requirement to increase. Viewed in isolation, the government-guarantee option can be expected to improve issuance opportunities. However, as evidenced by the financial crisis, when the need for capital is greatest, access to capital may be limited.

Opportunities for reducing risks

There are various ways to reduce the three risks identified above for the Danish mortgage-credit system. However, it is difficult to do anything about the credit risks already on the books. Developments have shown that, over the longer term, the sector should take special care that households do not use deferred-amortisation loans and adjustable-rate loans as an entry ticket to a property market in which prices are soaring. This could exert further upward pressure on the market, thereby increasing the risk of future price falls.

Overall, there are two ways to reduce refinancing risks. Firstly, the sector can work towards ensuring that a smaller part of the lending portfolio consists of adjustable-rate loans financed via fixed-rate bonds. This does not necessarily limit the opportunity for variable-rate loans, as these can also be financed via floating-rate bonds. Secondly, the sector may spread out refinancing over the year, thereby reducing systemic risk.

The financial crisis has shown that there may be significant correlation between developments in the property markets and risk aversion in international markets. This could cause uncertainty as to the opportunities for credit institutions to pledge top-up collateral and thus maintain the

SDO status of the bonds issued. In the short term, this problem has been partly alleviated by the possibility of obtaining a government guarantee. Looking forward, it is important, however, that a more permanent solution be found.

Again, there are two solutions, which may be combined. The credit institutions may be required to contribute a significant buffer to the cover pool at the time the loan is offered. Alternatively, the lending limit for SDO loans at the time of issue may be lowered relative to the LTV limit. In that case, the institutions may finance the "last-ranking" part of the loan against ROs, the LTV limit of which must be observed only at the time of issue.

REDEMPTION AT PAR

Box 13

In the report on the statutory basis for SDO loans, the parties involved in the political accord specified that they expect SDO loans to be redeemable through purchase of the underlying bonds or at a price that does not deviate significantly from par and that, if there are no underlying bonds, the loan is to be redeemable at par.

Historical evidence shows that if borrowers do not have the opportunity to redeem loans at par, they could subsequently find themselves in an unfavourable situation. Such a situation could occur either if the borrower is stuck with a high-interest loan, or if the market in which the loan is to be redeemed becomes illiquid, resulting in a scarcity premium.

Pension-fund loans, which were offered by pension funds until the mid-1980s, often contained a stipulation to the effect that, in case of early redemption, the borrower was to pay a premium equivalent to the interest the pension fund would have earned, had the loan continued until expiry. Some loans were even non-terminable. As the rate of interest could be 16-17 per cent, it subsequently became very expensive for borrowers to redeem loans prematurely.

In 1995, Folketinget (the Danish Parliament) felt compelled to adopt "Act to counter lock-in effects in non-callable mortgage-credit loans, etc.". This Act enabled borrowers to redeem non-callable, nominally fixed-rate mortgage-credit loans disbursed by 5 April 1995. In practice, the Mortgage Bank of the Kingdom of Denmark could assume liability for the loan against receiving an amount to cover the bank's expenses related to servicing the loan. This allowed the borrower to redeem the loan without having to pay the scarcity premium of an illiquid market.

For SDO loans, the illiquidity problem could be particularly relevant in connection with customised loans, financed e.g. through bullet loans and hedged using complex financial instruments, the reason being that liquidity on the financing side could vanish during the term of the loan. In this case, only the credit institution will be able to calculate the redemption price and, thus, there is no way for the borrower to assess the risk.

The above examples show that, in some cases, it could be appropriate to protect consumers from entering into contracts, the future outcomes of which cannot be assessed. From a consumer-protection perspective, it is therefore important to maintain the opportunity to redeem loans at par.

The implications of the SDO legislation are being evaluated. At present, it is clear that the requirement for constant observation of the LTV limit has introduced a new risk, which also contains a clearly procyclical element. Danmarks Nationalbank will attach importance to ensuring that the evaluation carefully considers how this risk could be reduced. In its consultation response on SDO legislation in 2007, Danmarks Nationalbank expressed that it would prefer a robust and simple SDO model and that the lending limit at the time of lending was to be set at 70 per cent for residential properties. Danmarks Nationalbank still finds that lowering the lending limit will translate into a significant reduction of the risks facing the Danish mortgage-credit system.

Obviously, it should be ensured that a statutory amendment does not exacerbate the problems of an already pressured housing market. One possibility is to introduce a gradual reduction of the lending limit at the time of issue in a few years when the housing market has stabilised.

Assessment of the Banks' Resilience

The negative economic development will induce the banks to make higher write-downs in the coming years than seen in recent years. Estimates of bank losses over the coming years are subject to great uncertainty, both in terms of the economic outlook and the size of write-downs resulting from a given economic development.

In the baseline scenario, the banking sector as a whole will meet the statutory solvency requirement throughout the period, if the banks exploit the opportunity to receive capital injections under Bank Rescue Package II. The stress test shows that if the economy is hit by more very negative shocks, the banks may need to strengthen their capital base further. The banks' resilience will increase significantly if they exploit the opportunity under Bank Rescue Package II to receive capital injections where the injected capital may be converted into share capital.

The financial markets currently expect the financial strength of the banks to exceed the statutory minimum requirement, highlighting the importance of injected capital of high quality.

Market expectations in relation to the banks, expressed as equity prices and credit spreads, emphasise the uncertainty about the banks' capital adequacy and capital base.

MACRO STRESS TEST – SCENARIOS

The robustness of the banking sector is tested by means of Danmarks Nationalbank's stress test model, cf. Box 14. The development in the banking sector is modelled in a baseline scenario and two stress scenarios, all of which cover the period from 2009 to 2011.

Baseline scenario

The baseline scenario is believed to be the most probable development in the Danish economy and the financial sector. The scenario reflects the expected impacts of the financial crisis, including some degree of credit rationing and the global recession.

In the baseline scenario, GDP contracts by just under 2.5 per cent in 2009, cf. Table 4. From 2010, the economy will begin to pick up again, albeit at a slow pace. GDP growth for 2010 and 2011 is 0.5 and 1.5 per cent, respectively. In the baseline scenario, unemployment is expected to rise sharply, from 1.8 per cent in 2008 to 4.5 per cent in 2009, increasing

DANMARKS NATIONALBANK'S STRESS TEST MODEL

Box 14

The macro stress test model is described in *Financial stability 2008*. In comparison with *Financial stability 2008*, the model is estimated on the basis of quarterly data from the period 1991-2008 for the 14 largest banks. The model architecture is unchanged. Model projections are based on the banks' financial statements for 2008. A few adjustments have been made to the model projections as a result of the financial statements for the 1st quarter.

The data basis for the stress test model includes few observations from periods of intense pressure on the banking sector. Accordingly, it is difficult for the model to map the historically tough economic environment in the scenarios directly onto the banks' financial results. This makes the projection of the banks' losses particularly challenging and, therefore, pure model projections have been adjusted, cf. Box 16. In addition, the model has been adjusted to take Bank Rescue Packages I and II into account: Under the government guarantee issued in October 2008, the banks are not allowed to pay dividends until end-2010, and the government guarantee puts the banks to expense in the form of own contributions to the government guarantee scheme. Moreover, the interbank contagion module has been removed as a result of the government guarantee.

The model results should be interpreted with caution. For example, the stress test model does not take liquidity risk into account, including the fact that, during some periods, the banks may be unable to raise funds in the capital markets. Another factor not taken into account is that the management of a bank can react and change its strategy – for better or for worse – as the scenarios unfold. It is assumed that the development of a bank's foreign branches mirrors the development of its Danish branches. Finally, the model considers the impact of economic development on the banks' credit exposures at sector level. This means that the model cannot take into account differences in the credit quality of different banks, cf. Box 15.

BASELINE SCENARIO AND SCENARIOS FROM FINANCIAL STABILITY 2008, 2ND HALF Table 4

	Baseline scenario	Scenarios from <i>Financial stability 2008, 2nd half</i>			
		Baseline scenario	International recession	Credit crunch	Combination
2009					
GDP, per cent, year-on-year	-2.4	-0.0	-1.6	-1.6	-2.4
Unemployment rate, year-end	4.5	3.2	4.5	4.3	5.0
2010					
GDP, per cent, year-on-year	0.5	0.4	-0.8	-1.5	-1.8
Unemployment rate, year-end	6.5	4.2	6.5	6.4	7.6
2011					
GDP, per cent, year-on-year	1.5	NA	NA	NA	NA
Unemployment rate, year-end	6.3	NA	NA	NA	NA

Macro stress tests distinguish between "bottom-up" and "top-down" calculations. The basis of both methods is a stress scenario, typically a scenario for a stressed economic environment. The scenario may be based on a historical event or a hypothetical future event. In the bottom-up approach, a stress test is conducted on the specific exposures and other risk factors of the banks and the figures are subsequently aggregated. In the top-down approach, a stress test is conducted on the aggregated exposures and other risk factors of the banks and the stressed figures are subsequently allocated to the individual banks. The advantage of the bottom-up approach is that the results best reflect differences in the risk profiles of the individual institutions. The drawback of the approach is that it is highly data-intensive. The stress scenarios are often determined centrally, while the banks themselves perform the analysis of the impact on their exposures and other risk factors. Differences in the calculation methods of the institutions can make aggregation difficult. At the same time, it may be expensive for the institutions. Conversely, the advantage of the top-down approach is that it is relatively easy to implement. The drawback is that aggregated data capture only the effects for the sector as a whole, which can make it difficult to take the risk profiles of the individual institutions into account.

Danmarks Nationalbank's stress test model is a top-down model for stress testing the Danish financial sector. This means that only minor allowance is made for differences in the banks' risk profiles; accordingly, the model results should be interpreted as a stress test of the system of banks, rather than a test of the individual banks. Therefore, the model results are not published for the individual banks.

The stress test conducted by the Federal Reserve of the 19 largest US banks, as part of the Capital Assessment Program (CAP), is a bottom-up assessment of the effect on each bank in a centrally determined stress scenario.¹ Methodologically, the stress test was conducted in compliance with the description above. The results were published for each bank on 7 May 2009. A key element of CAP is that banks assessed as needing to augment their capital base have access to government capital injections immediately after the stress test. Had this not been the case, the market response to the publication of the results could have had disastrous consequences – both for the banks performing poorly in the stress test and for the financial system as a whole.

The CAP stress test showed that in the stress scenario, the 19 participating banks stood to lose 9.1 per cent of their total lending during the two-year horizon of the scenario. 10 of the 19 banks needed to augment their capital base to meet the requirements specified for the stress test. Most of the banks that failed the stress test requirement failed on account of the non-hybrid core capital requirement. In principle, they had sufficient capital, but the quality of the capital was too poor, cf. Box 17. Allowing for the measures already implemented by the banks in the 1st quarter of 2009, the 10 banks need to increase their core (Tier 1) capital by 75 billion dollars.

In Europe, CEBS (Committee of European Banking Supervisors) will conduct a stress test of the European banking system.² No groups based in Denmark participate in the stress test. The purpose of the stress test is not to establish whether individual banks may need recapitalisation. The result of the test will not be published.

¹ The approach and the two scenarios are described in The Supervisory Capital Assessment Program: Design and Implementation. The results are described in The Supervisory Capital Assessment Program: Overview of Results. Both can be found on the Federal Reserve's website: www.federalreserve.gov.

² Cf. CEBS press release of 12 May 2009.

further to 6.5 per cent in 2010. After 2010, unemployment is expected to stabilise. The banks will see an average annual loss ratio of around 1.3 per cent in each of the three years of the scenario.

Compared with the baseline scenario in *Financial stability 2008, 2nd half*, this represents a substantial downward revision of the forecast of economic growth, cf. Table 4, prompted by a real-economic deterioration in Denmark and internationally. The new baseline scenario includes a downward revision of GDP growth by just under 2.5 percentage points (from zero growth to negative growth of 2.4 per cent) for 2009 relative to the previous baseline scenario. Similarly, unemployment has been revised upwards by around 2 percentage points at end-2010, which was the end of the previous baseline scenario. The current baseline scenario mostly resembles the scenario of international recession from *Financial stability 2008, 2nd half*.

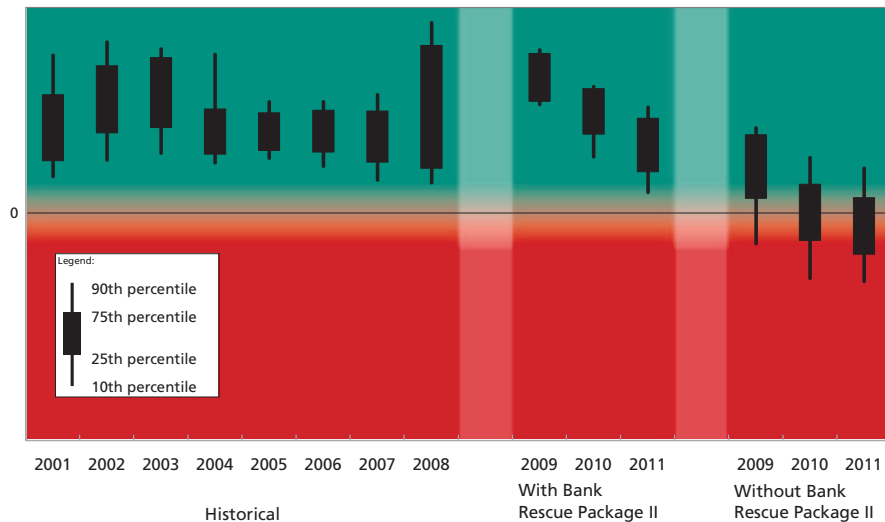
The results below assume that all banks receive hybrid core capital injections, bringing their Tier 1 ratio to 12 per cent of risk-weighted assets, but ensuring that their Tier 1 capital is increased by at least 3 percentage points. That is, the banks will receive the maximum capital injection under Bank Rescue Package II. It has been assumed that the hybrid core capital injected cannot be converted into share capital. For calculation purposes, it has also been assumed that all banks pay an annual rate of interest of 10 per cent on the government capital received.

As the banks receive capital injections, their excess capital adequacy, in general, will be higher at end-2009 than a year earlier, cf. Chart 41 illus-

EXCESS CAPITAL ADEQUACY IN THE BASELINE SCENARIO – WITH AND WITHOUT BANK RESCUE PACKAGE II

Chart 41

Excess capital adequacy



Source: Danish Financial Supervisory Authority, banks' financial statements and own calculations.

trating the development in the banks' excess capital adequacy in the baseline scenario with and without Bank Rescue Package II. In 2010 and 2011, the banks' excess capital adequacy shows a declining trend. If the banks do not receive capital injections, approximately half of them will have problems meeting the solvency requirement during the scenario period. This highlights the importance for the banks of strengthening their capital base, e.g. through Bank Rescue Package II.¹

The macro stress test model assumes that the banks do not actively adapt their business models to macroeconomic developments beyond what is implied in the model through the estimated relations. However, there are recent indications that the banks have been able to significantly increase their interest margins, bolstering their ability to absorb losses. Similarly, other things being equal, it will be easier for the banks to meet the solvency requirement if they reduce their risk-weighted assets. One way to reduce risk-weighted assets is by reducing lending. Contraction of bank lending is known from previous crises. Total lending e.g. dropped by approximately 10 per cent from 1993 to 1994 towards the end of the Nordic banking crisis.

Actually, the financial markets of today very rarely accept that a bank only just meets the statutory solvency requirement. Before getting to this point, the bank's counterparties will reduce its credit and trading lines, which will, in practice, put a stop to the bank's operations. Consequently, most banks are well advised to stay comfortably above the statutory minimum requirement.

Stress scenarios

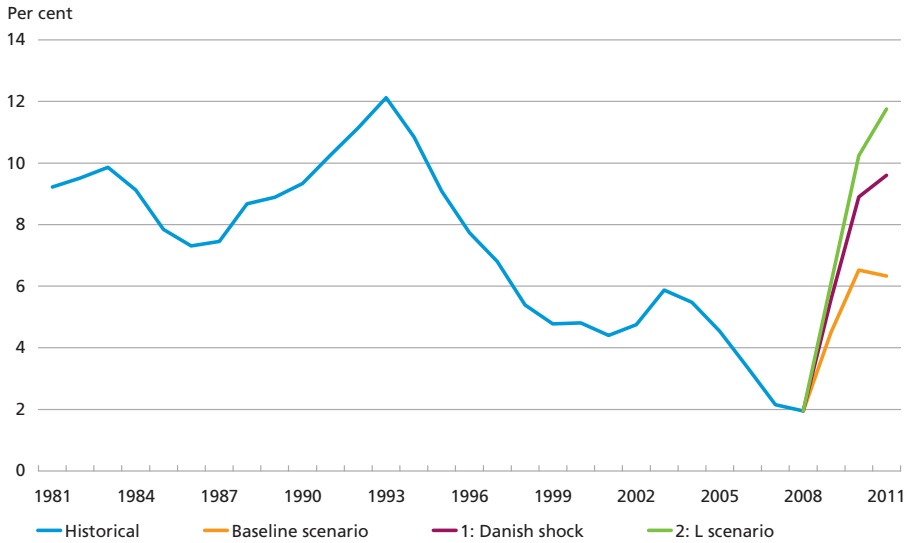
In addition to the baseline scenario, two stress scenarios have been constructed. These scenarios are deemed to be very improbable and have primarily been constructed to test the resilience of the banks. Unemployment developments in these scenarios are illustrated by Chart 42, while selected key ratios are shown in Table 5. The rise in unemployment in the stress scenarios is much steeper than previously seen and GDP growth is at a 50-year low. For both stress scenarios, the main reason for the pressure on the banks' financial results is the impact of economic development on the banks' write-downs.

The two scenarios envisage a negative shock to the Danish economy and a long, deep recession, an "L scenario", combining the negative shock to the Danish economy with a negative shock to the international economy. The economic situation and uncertainty as to how the various stimulus

¹ 11 of the 14 banks analysed have indicated that they will apply for capital injections under Bank Rescue Package II. The three banks that have not indicated an intention to apply for capital are Nordea, Arbejdernes Landsbank and Ringkjøbing Landbobank.

DEVELOPMENT IN UNEMPLOYMENT

Chart 42



Note: The most recent actual observation is 2008.

Source: Statistics Denmark and own calculations.

packages will affect the economy imply that the scenarios and their impact on the banking sector are subject to unusually high uncertainty.

Scenario 1: Negative shock to the Danish economy

The Danish economy is hit by a further negative shock, e.g. in the form of a severe credit crunch, causing the banks to cut back further on lending rela-

DEVELOPMENT IN SELECTED KEY RATIOS IN THE SCENARIOS

Table 5

	Baseline sce- nario	1: Danish shock	2: L scenario
2009			
GDP, per cent, year-on-year	-2.4	-4.0	-4.5
Unemployment rate, year-end	4.5	5.6	6.1
Average bond yield, per cent p.a.	4.1	4.1	3.9
2010			
GDP, per cent, year-on-year	0.5	-1.9	-2.9
Unemployment rate, year-end	6.5	8.9	10.2
Average bond yield, per cent p.a.	4.6	4.6	3.2
2011			
GDP, per cent, year-on-year	1.5	-0.0	-0.6
Unemployment rate, year-end	6.3	9.6	11.8
Average bond yield, per cent p.a.	5.3	5.3	2.8

tive to the baseline scenario. This effect is reinforced by widespread pessimism among households and companies. The trend of the international economy mirrors the baseline scenario, thus the interest-rate developments also mirror the baseline scenario. Compared with scenario 2, cf. below, interest rates thus put further pressure on the domestic economy, including housing prices. The scenario operates with an unemployment rate of 9.6 per cent at end-2011, and the average loss ratio is approximately 2.2 per cent of total loans and guarantees for each of the three years.

Scenario 2: Long, deep recession

While Denmark is hit by a domestic shock, as envisaged by scenario 1, the financial crisis also leads to an international recession that is longer and deeper than expected. Thus, the export markets fail to make a positive growth contribution to the Danish economy. Monetary policy is eased further, where possible. The effects of an international and a domestic shock are mutually reinforcing, providing for a far worse economic environment than envisaged by scenario 1. The result is a very negative economic development for all three years of the scenario. However, falling interest rates will help to cushion the impact on the banks' financial results. In this scenario, the rate of unemployment is 11.8 per cent at end-2011, and the average loss ratio is approximately 2.9 per cent of total loans and guarantees for each of the three years of the scenario.

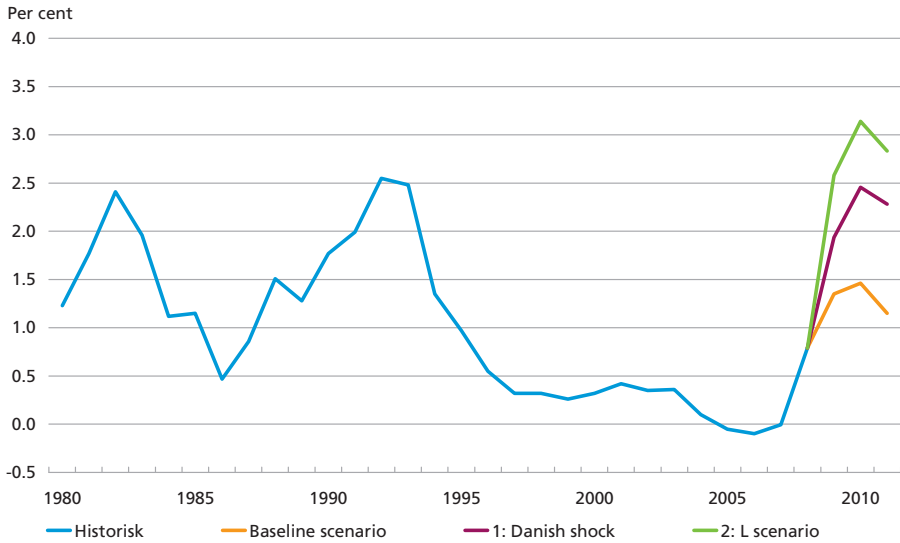
RESULTS OF THE STRESS SCENARIOS

In all of the scenarios, the negative development of the economy impacts the loss ratio of the banks, cf. Chart 43. In the baseline scenario, losses are expected to rise further in 2009, to 1.34 per cent of total loans and guarantees. The high loss ratio will be maintained throughout the period. The scenario is underpinned by rising failure rates observed in Danmarks Nationalbank's failure-rate model, cf. Chart 27, and an increase in the banks' credit-risk measures, cf. Chart 29.

In both of the stress scenarios, the pace of increase in the loss ratio is unusual. It should be noted, however, that some uncertainty prevails as to the level and timing of write-downs, cf. Box 16. In the Danish shock scenario, the loss ratio increases to the level seen during the Nordic banking crisis in the early 1990s. The high loss ratio will be maintained throughout the period. In the scenario with a long, deep recession, loss ratios reach a level of around 3 per cent, or approximately 0.5 percentage points above the level seen in Denmark during the Nordic banking crisis. The loss ratio will remain at the historically high level throughout the period.

BANKING SECTOR'S OVERALL LOSS RATIOS

Chart 43



Source: Danish Financial Supervisory Authority, banks' financial statements and own calculations.

BANK LOSSES IN THE STRESS TEST MODEL

Boks 16

The credit-risk module of Danmarks Nationalbank's stress test model is continuously developed and updated. Under the current circumstances, the credit-risk model provides unrealistically low estimates of the development in the banks' losses – both in terms of the level and timing of losses.

The data basis for the estimations includes only few observations of the banking sector under intense pressure, all of which originate from the Nordic banking crisis in the early 1990s. At the beginning of the 1990s, unemployment rose from an already high level, interest rates were high and bank losses were heavy. Now interest and unemployment rates are very low, keeping estimated losses down. The estimated loss level is significantly lower than the loss levels seen in the 4th quarter of 2008 and the 1st quarter of 2009. Part of the explanation could be that the model applied attaches too much weight to the levels of both interest and unemployment rates relative to other economic variables, including the change in the variables in question which do not form part of the estimation. Moreover, accounting rules were changed in 2005, meaning that write-downs were to be booked at a later date. The result has been a number of years with very low write-downs. In terms of the timing of bank write-downs, the absence of a history of high losses under the current accounting rules also complicates matters.

In the context of the above, the estimated loss ratios of the credit-risk module have been manually adjusted, based on an assessment of the appropriate weighting of the various elements of the crisis relative to future losses. This approach has been chosen because it provides the best opportunities for taking into account the elements specific to the ongoing crisis.

BANK LOSSES IN THE STRESS TEST MODEL – CONTINUED

Box 16

Other, more model-based approaches could have been chosen. The table below illustrates the estimated losses, along with the losses under three alternative projection approaches. The first alternative approach (basic estimation) is based on "pure" estimated loss ratios from the credit-risk module. This estimation provides the basis for the manually-adjusted loss ratios applied in the stress test. The second alternative approach (level-shift estimation) is based on an addition to the loss ratios of the basic estimation to enable them to recreate the level of loss ratios in the 1st quarter of 2009. In the third alternative approach (estimation without interest-rate effect), the credit-risk module has been re-estimated without using the interest rate as an explanatory variable.

For the baseline scenario, both the basic estimation and the estimation without interest-rate effect are significantly below the level of the 1st quarter of 2009 – about 140 basis points on an annual basis. The greatest weakness of the level-shift estimation is that the differences between the scenarios seem too small compared with other banking crises.

LOSSES UNDER DIFFERENT PROJECTION APPROACHES

Basis points	2009	2010	2011	Total
<i>Baseline scenario</i>				
Estimates applied	135	146	115	396
Basic estimation ¹	33	58	50	141
Level shift to 2009 Q1 ²	179	204	198	581
Estimation w/o interest-rate effect ³	27	54	52	133
<i>Scenario 1: Danish shock</i>				
Estimates applied	194	246	228	667
Basic estimation ¹	45	128	125	298
Level shift to 2009 Q1 ²	190	274	273	737
Estimation w/o interest-rate effect ³	42	161	218	421
<i>Scenario 2: Long, deep recession</i>				
Estimates applied	258	314	283	855
Basic estimation ¹	50	137	117	304
Level shift to 2009 Q1 ²	194	282	265	741
Estimation w/o interest-rate effect ³	47	249	454	750

Source: Own calculations.

¹ In the basic estimation, the banks' (transformed) loss ratios are regressed on a number of explanatory variables. The loss ratios of different sectors are modelled separately. Explanatory variables include developments in unemployment, interest rates and housing prices.

² The loss ratios of the basic estimation have been level shifted, so that the adjusted loss ratio is equivalent to the observed aggregated loss ratio of the 1st quarter of 2009.

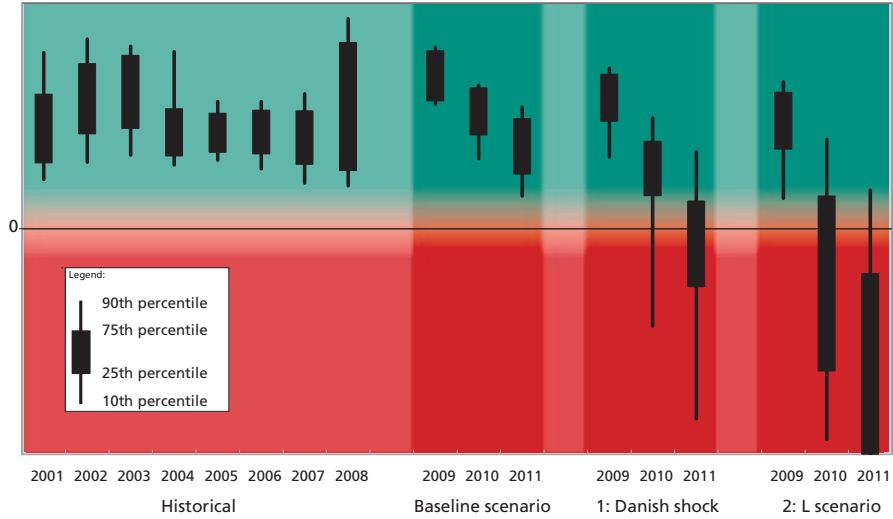
³ Modelled as the basic estimation. All relationships are re-estimated without interest rates in the set of potential explanatory variables.

The steep increase in loss ratios causes bank profitability to drop sharply, leading to a general decline in the banks' excess capital adequacy, cf. Chart 44. In the Danish shock scenario, a few banks will have problems meeting the solvency requirement during 2010, while just under half of the banks will have problems meeting the requirement in the third year of the scenario. In the scenario with a long, deep recession, in which the banks annually lose almost 3 per cent of their total loans and guarantees, the bank-

BANKS' EXCESS CAPITAL ADEQUACY IN THE SCENARIOS – WITH BANK RESCUE PACKAGE II

Chart 44

Excess capital adequacy



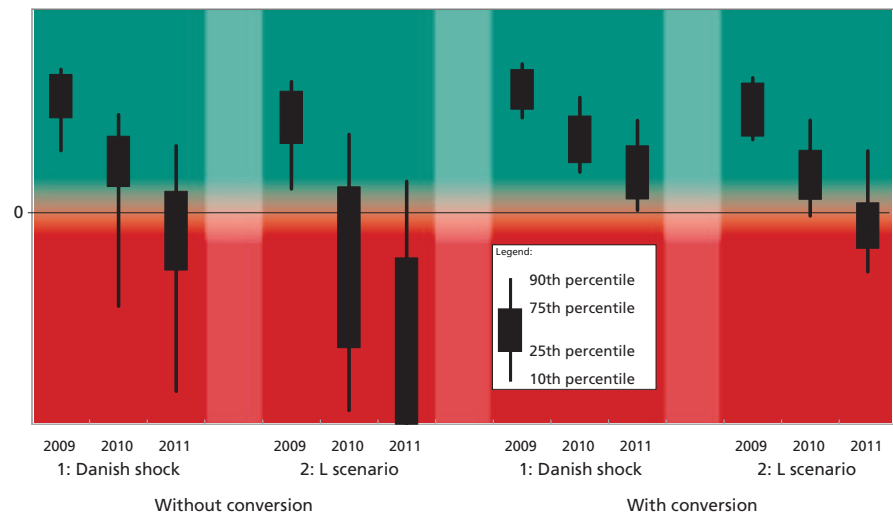
Source: Danish Financial Supervisory Authority, banks' financial statements and own calculations.

ing sector is hit hard. More than half of the banks analysed will find it difficult to meet the solvency requirement in the course of 2010, and few banks will meet the solvency requirement by the end of 2011. Above it is assumed that the capital injections cannot be converted into share capital.

BANKS' EXCESS CAPITAL ADEQUACY – WITH BANK RESCUE PACKAGE II – WITH AND WITHOUT CONVERSION OF HYBRID CORE CAPITAL INTO SHARE CAPITAL

Chart 45

Excess capital adequacy



Note: In the calculations for the scenario with conversion, it has been assumed that the entire capital injection will be converted in 2009, meaning that no interest is payable on the capital injection.

Source: Danish Financial Supervisory Authority, banks' financial statements and own calculations.

Quality of capital injections

As previously stated, the calculations above assume that the capital injections are not converted into share capital. If, on the other hand, it is assumed that the capital injections are converted into share capital, the banking sector performs significantly better, cf. Chart 45. The main reason is that share capital is regarded as being of higher quality than hybrid core capital in the calculation of the banks' solvency, cf. Box 17. Moreover, the banks' core earnings are positively impacted by a conversion, as interest is payable on hybrid core capital, while this is not the case for share capital. In the Danish shock scenario, the banking sector as a whole pulls through the entire scenario. In the long, deep recession scenario, the banking sector will not have problems meeting the solvency requirement until 2011.

CAPITAL REQUIREMENTS AND SOLVENCY PROBLEMS IN THE STRESS TEST MODEL

Box 17

The solvency ratio of a bank is calculated on the basis of its capital base, made up of three elements: non-hybrid core capital (roughly equivalent to the share capital), hybrid core capital and supplementary capital. Use of the three types of capital is subject to two restrictions. Supplementary capital must not exceed 50 per cent of the capital base. Hybrid core capital must not exceed 50, 35 or 15 per cent of the Tier 1 capital (the sum of non-hybrid and hybrid core capital), depending *inter alia* on the bank's opportunity to convert hybrid core capital into share capital. This means that the composition of the capital base may have an impact on when a bank will have problems meeting the statutory solvency requirement.

In the Chart below, the bank in the example needs a capital base of at least 300 to be solvent. Assume that the bank has a capital base of 400, its supplementary capital accounts for 50 per cent of the capital base, and the hybrid core capital accounts for 35 per cent of the Tier 1 capital (and its quality is such that it must not exceed 35 per cent of the Tier 1 capital), as illustrated by example 1. Assume that the bank suffers a loss of 65, bringing its non-hybrid core capital down to 65. As both limits are binding, the hybrid core capital and the supplementary capital can be included in the solvency calculation only to an extent equivalent to 35 and 100, respectively, as in example 1b. In this case, the bank no longer meets the statutory solvency requirement.

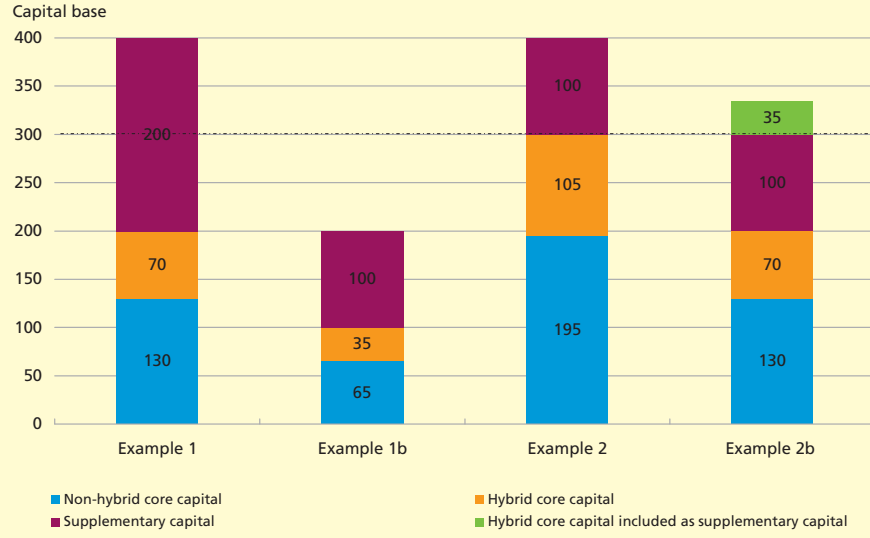
Now consider example 2 in the Chart. In this case, the bank also has a capital base of 400, but the composition is different: 195 is non-hybrid core capital, 105 is hybrid core capital and 100 is supplementary capital. Assume, as in example 1, that the bank loses 65. Because the composition of the capital base is different, there is no reduction in the extent to which supplementary capital can be included in the solvency calculation. On the contrary, the bank can now include 35 of its hybrid core capital, which can no longer be included in its hybrid core capital (as the hybrid core capital must not exceed 35 per cent of the Tier 1 capital) in its supplementary capital.

CAPITAL REQUIREMENTS AND SOLVENCY PROBLEMS IN THE STRESS TEST MODEL – CONTINUED

Box 17

Even though the capital base and the loss are, from the outset, the same, in example 1 the bank does not meet the solvency requirement after losses, while it does meet the requirement in example 2. The explanation is that the capital in example 1 is of poorer quality to that in example 2.

EXAMPLES OF CAPITAL BASE COMPOSITION



In the stress test model, a bank is considered to have problems meeting the statutory solvency requirement if it fails to comply with the conditions specified above. The model calculations assume that the capital injections under Bank Rescue Package II are in the form of hybrid core capital of a quality that enables it to account for 35 per cent of the Tier 1 capital. In the example, it is assumed that the hybrid capital is not converted into share capital. However, Danish legislation allows banks to apply for the injected hybrid core capital to be convertible into share capital, cf. Box 3.

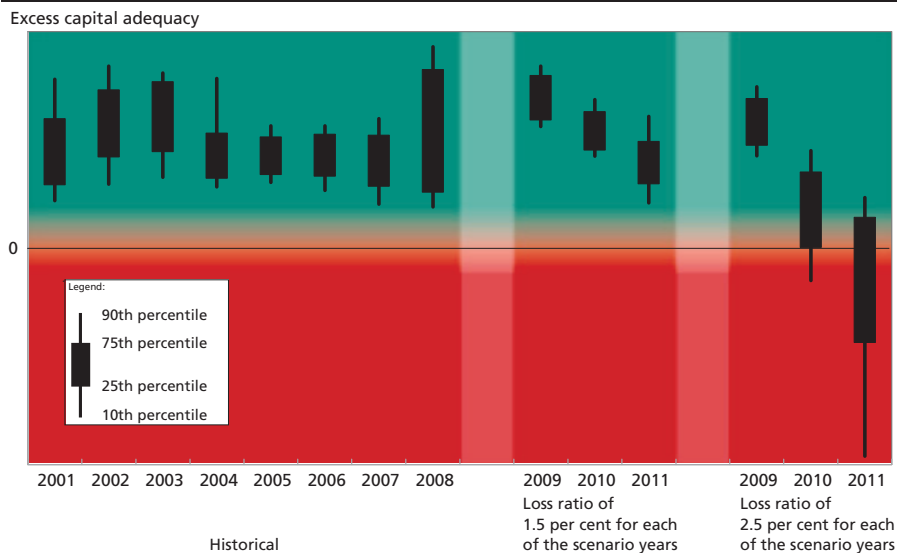
Sensitivity of the results in terms of the loss ratio

The estimates of the development in bank losses under different economic assumptions are subject to considerable uncertainty. Therefore, it can be relevant to decouple the relationship between economic development and bank losses in the stress test model and instead perform sensitivity calculations of the development in the banks' solvency subject to different loss ratios.

Chart 46 illustrates the development in the banks' excess capital adequacy, assuming that each bank in each of the three years of the scenario has a loss ratio of 1.5 and 2.5 per cent, respectively. The banks

BANKS' EXCESS CAPITAL ADEQUACY, SENSITIVITY RELATIVE TO THE LOSS RATIO – WITH BANK RESCUE PACKAGE II

Chart 46



Note: Calculations are based on core and market earnings from the baseline scenario.

Source: Danish Financial Supervisory Authority, banks' financial statements and own calculations.

will suffer a loss each year under both assumptions, putting pressure on their excess capital adequacy. If the loss ratio is approximately 1.5 per cent, the banking sector will get relatively safely through the crisis. If, on the other hand, the loss ratio is approximately 2.5 per cent, which was the case during the crisis of the early 1990s, approximately half of the banks will need to further strengthen their capital base.

As before, if the capital injections are convertible, the banks can also strengthen their capital base in this situation. If the banks have the option of converting capital injections, most of them will get through the scenario with an annual loss ratio of 2.5 per cent.

Summary of the stress test

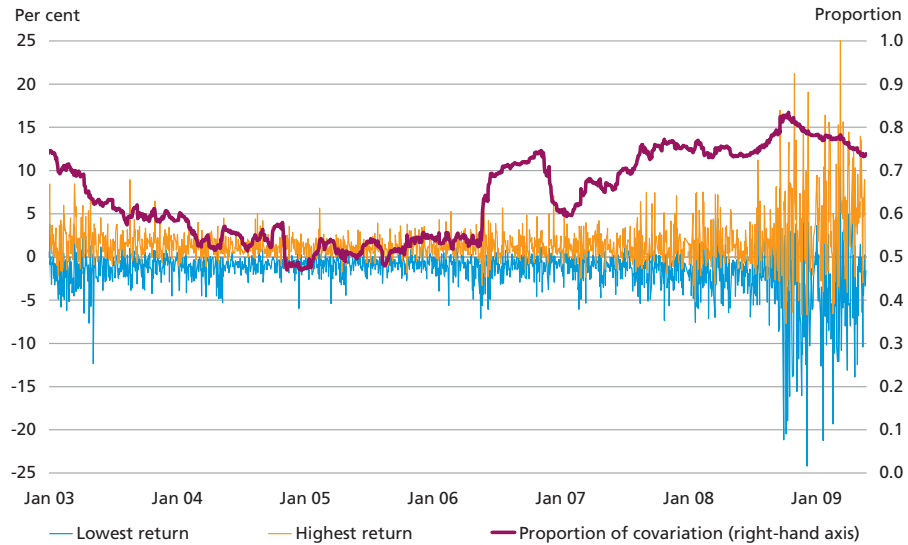
Overall, it is the assessment of Danmarks Nationalbank that, with capital injections under Bank Rescue Package II, Danish banks are well positioned to withstand the expected economic developments.

Due to the economic uncertainty, the banks should carefully consider the option of being able to convert capital injections into share capital.

If the economic situation deteriorates markedly in relation to current expectations, further capital injections may be required.

RETURN AND COVARIATION FOR EQUITY PRICES OF THE NORDIC GROUPS

Chart 47



Note: Highest and lowest returns are calculated on the basis of daily logarithm returns. The proportion of covariation is calculated as the proportion of the total variation attributable to the first principal component over a rolling window of 125 trading days, equivalent to about six months.

Source: Bloomberg and own calculations.

MARKET ASSESSMENT OF THE BANKS

Large, systematic fluctuations in equity prices

A systemic shock has rippled through the financial system, affecting the valuation of all assets. The focus has been on the system as such, rather than on individual banks. At the same time, risk aversion has been increasing rapidly.

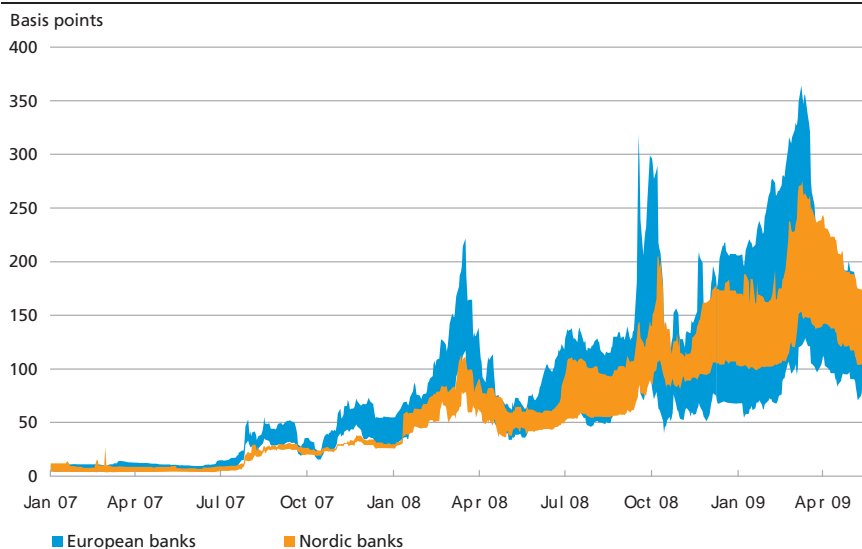
Since the collapse of the investment bank Lehman Brothers in mid-September 2008, daily returns of the Nordic groups, positive as well as negative, have been significantly higher than experienced during the initial stages of the crisis from August 2007 to September 2008, cf. Chart 47. The covariation between equities has also been rising. For a period beginning in mid-September 2008, the equity-price covariation of the Nordic groups was over 80 per cent. Subsequently, the trend of covariation has been declining, but remains high. Fluctuations in market valuations of the Nordic groups continue to be strongly affected by the development of the financial system as a whole.

Banks' CDS spreads remain high

A credit default swap, CDS, is a financial instrument used to hedge the credit risk e.g. on a bank. The price development, typically measured as

**CDS SPREAD FOR SELECTED NORDIC AND EUROPEAN BANKING GROUPS –
5-YEAR SENIOR DEBT**

Chart 48



Note: European banks are comprised of Deutsche Bank, ABN Amro, BNP Paribas, Barclays, HSBC, Royal Bank of Scotland and UBS, while Nordic banks are comprised of Danske Bank, DnB Nor, Nordea, SEB and Handelsbanken. The Chart shows the development in the range between the maximum and the minimum CDS spread, respectively, for each category.

Source: Fitch.

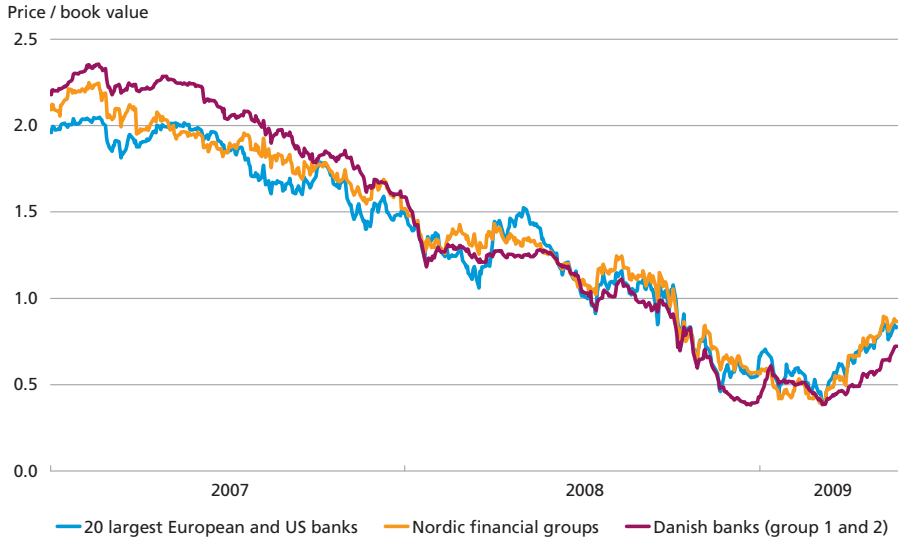
interest-rate spreads, of a bank's CDS reflects the market's assessment of the probability that the bank in question will fail within a given period. The spread is affected not only by credit risk, but also by other factors. A key factor is the value of the bank's debt if it fails.

Lower expectations of the value of the debt will cause the spread to widen. The spread is also affected by investor requirements in terms of the risk/return ratio. Currently, the credit risk on a bank is impacted strongly by risks to the financial system as a whole. Thus, hedging achieved through a CDS on a bank also provides some measure of protection against the financial crisis as a whole. Other things being equal, increasing covariation between the banks, cf. Chart 47, will therefore prompt investors to demand a higher premium for hedging the credit risk on banks.

CDS spreads for financial companies widened considerably in early 2009, reaching a new record in mid-March, cf. Chart 48. During the last two months, the spreads have fallen back somewhat, but still remain high. The level may probably be attributed, in part, to market expectations that the value of the debt will be very low in case of failure compared with the value prior to the financial crisis.

PRICE/BOOK VALUE FOR GLOBAL, NORDIC AND DANISH BANKS,
RESPECTIVELY

Chart 49



Note: The selection of the 20 largest European and US banks complies with Box 2 of *Financial stability 2008*. Merrill Lynch, HBOS and Fortis were removed from the list of the 20 largest European and US banks on 15, 18, and 29 September, respectively. Roskilde Bank and Forstædernes Bank were removed from listed banks in groups 1 and 2 on 10 July and 15 September 2008, respectively, while Fionia was removed on 23 February 2009. Price/book value is calculated as a simple average for each of the three groups.

Source: Bloomberg and financial statements.

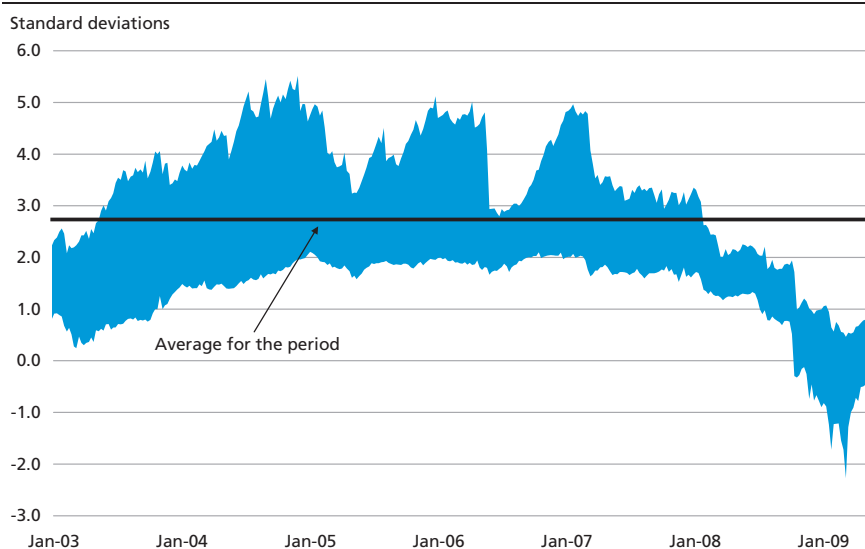
The market expects further losses and a high risk of solvency problems

Overall, the banks have seen a significant decline in the "price/book value" since the onset of the crisis, cf. Chart 49. When the markets were at their lowest in mid-March, both global, Nordic and Danish banks were priced, on average, at around 40 per cent of their book value. However, this figure covers significant variation, and in mid-March a few banks were trading at below 15 per cent of their book value. Since then, the banks have seen significant increases in equity prices and global and Nordic banks are now trading at around 85 per cent of their book value, while Danish banks in groups 1 and 2 are trading slightly lower. Pricing somewhat below book value indicates that the market still expects further write-downs and losses over the coming years.

On the basis of equity prices and accounting data, Danmarks Nationalbank has estimated a market-based risk measure, distance to insolvency, for the Nordic groups. The distance to insolvency measures the fluctuations in the market valuation of assets that can be tolerated by a group, while still meeting the minimum capital requirement of 8 per cent.

DISTANCE TO INSOLVENCY FOR NORDIC GROUPS

Chart 50



Source: Financial statements, Bloomberg and own calculations.

The distance to insolvency is a forward-looking risk measure, assessing the risk of solvency problems over a time horizon of one year. The distance to insolvency is measured by the number of standard deviations for the estimated market value of the banks' assets. The shorter the distance to insolvency, the more exposed a bank is, according to the market assessment. A distance to insolvency of zero can be interpreted as the market's assessment, in a risk-neutral world, that the probability of the group encountering solvency problems is 50 per cent. Chart 50 shows that, since October 2008, the market has priced some of the Nordic groups at an implied probability of solvency problems in excess of 50 per cent.

It should be noted, however, that if risk aversion prevails, the assumption of risk neutrality always means that derived probabilities of solvency problems are higher than objective, but unobservable probabilities. In the current situation, the results of the model should thus be interpreted with caution, as they must, to a great extent, be assumed to reflect increased risk aversion in the market.

Summary of market assessment of the banks

The analysis of market assessment of the banks shows widespread uncertainty about the banks' capital adequacy and capital base. Taking

into account that the risk aversion in the market is higher than usual and that the value of a bank's debt drops dramatically the moment it no longer meets the solvency requirement, the market assessment of the banks is believed to underpin the results of the stress test.

Danmarks Nationalbank's Oversight of the Financial Infrastructure in Denmark

The current financial crisis has had a negative impact on the banking institutions' liquidity. Settlement of payments in Denmark is, however, generally secure and efficient. The crisis nevertheless underscores the need for effective liquidity management, taking into account unforeseen events such as temporary failure of core settlement systems and delayed receipt of liquidity from other system participants.

In general, the participants have not found it difficult to meet their payment obligations in the core systems overseen by Danmarks Nationalbank, cf. Box 18. Thus, most payments have constituted only a modest share of the disposable amount in the participant's current account at Danmarks Nationalbank at the time of settlement. Even on the peak settlement day in connection with the turn of the year 2008/09, when the liquidity requirement exceeded kr. 200 billion, settlement could take place without major problems due to the participants' flexible access to liquidity at Danmarks Nationalbank. On this day, Danmarks Nationalbank and the financial sector had jointly established contingency measures to resolve any problems.

Several times during the crisis, payments in foreign exchange by Danish banking institutions have been affected by the increased pressure on the global money markets. Danmarks Nationalbank's oversight disclosed an increase in the number of days when difficulties in raising euro liquidity delayed settlement in VP Securities.

The crisis has not halted the current development in retail payments. The trend is shorter settlement times, and new payment instruments are being introduced, e.g. payment by mobile phone.

Since March 2009 it has been possible to settle equity transactions in Denmark via a central counterparty that assumes the counterparty obligations in relation to both the buyer and the seller on NASDAQ OMX Copenhagen. Moreover, VP Securities has set up a central securities depository in Luxembourg to enable Danish issuers to issue euro-denominated bonds within the euro area so that they can be pledged as collateral to the Eurosystem. Danmarks Nationalbank participates actively in this process so as to ensure that the Danish infrastructure meets international standards and best practice.

Danmarks Nationalbank oversees the financial infrastructure in Denmark in order to promote safe and efficient settlement of payments, securities transactions, etc.

Oversight focuses on the core payment and settlement systems in the infrastructure: 1) Kronos, Danmarks Nationalbank's system for settlement of primarily large, time-critical payments between banking institutions, etc., 2) the Sumclearing, the Danish Bankers Association's system for settlement of retail payments such as Dankort transactions and Betalingservice (direct debit) and 3) VP settlement, which settles securities registered with and deposited at VP Securities. In addition, oversight comprises foreign systems of particular significance to the Danish financial system.

Danmarks Nationalbank's oversight is planned in accordance with internationally recognised principles for oversight by central banks and within the scope laid down in the Danmarks Nationalbank Act and the Securities Trading Act. Oversight is aimed at ensuring that the systems comply with international standards in respect of risk management and efficiency.

Danmarks Nationalbank oversight policy was published in *Financial stability 2007*.

THE FINANCIAL SYSTEM'S PAYMENTS VIA DANMARKS NATIONALBANK

Settlement of krone-denominated payments via Danmarks Nationalbank is of major significance to liquidity redistribution in the Danish financial system. Therefore, it is important for banking institutions to ensure robust management of intraday liquidity risks. It is also important that Kronos has systems and procedures in place to ensure settlement of time-critical payments in the event of a system failure, and that normal operation can be resumed within 4 hours.

The current crisis has not caused any major problems for Danish banking institutions in terms of meeting payment obligations in kroner in Kronos, the Sumclearing and VP settlement. On the other hand, 2008 and early 2009 have witnessed an increase in the number of occasions where settlement of payments in euro via Danmarks Nationalbank has been delayed – albeit without significant consequences to system participants.

Sustained increase in settlement of payments via accounts at Danmarks Nationalbank

The total volume of payments settled via accounts at Danmarks Nationalbank rose by almost 13 per cent in 2008, to kr. 76,933 billion, equivalent to kr. 308 billion per day, cf. Table 7 in the Tables section. The observed increase is to a large extent attributable to transactions related to market operations, which rose by 62 per cent, to a total of kr. 22,181 billion. This reflects how the financial turmoil has led participants to place excess liquidity at Danmarks Nationalbank rather than in the

money market. Danmarks Nationalbank reinvests these deposits in the form of monetary-policy loans to participants whose liquidity requirements cannot be met in the money market. In this way, Danmarks Nationalbank de facto acts as a central counterparty in the money market, as do many other central banks.

In the RTGS system, Kronos, payments are settled in real time via the participants' accounts at Danmarks Nationalbank when payment instructions are received. In practice, this eliminates the credit risk on settlement in Kronos, but it also increases the liquidity requirement – compared with settlement at fixed times after netting of opposite payments. To meet this requirement, Danmarks Nationalbank offers participants intraday credit against collateral, typically government, mortgage-credit or covered bonds. In view of the financial turmoil, the range of securities eligible as collateral has been extended to facilitate access to liquidity at Danmarks Nationalbank, cf. the section on Danmarks Nationalbank's lending, p. XX.

A calculation of the size of the participants' interbank payments in relation to their disposable amounts at the time of settlement shows that participants continue to reserve considerable liquidity for settlement of payments. The intraday credit extended by Danmarks Nationalbank is not the only explanation; the participants' payment behaviour is equally important, as over 90 per cent of all payments are settled by noon. Even on days with large payment volumes, e.g. the first banking day of the year, most payments constitute only a modest share of the participant's disposable amount at the time of payment, although on the first banking day in 2009 an increasing number of payments constituted more than 40 per cent of the disposable amount, cf. Chart 51.

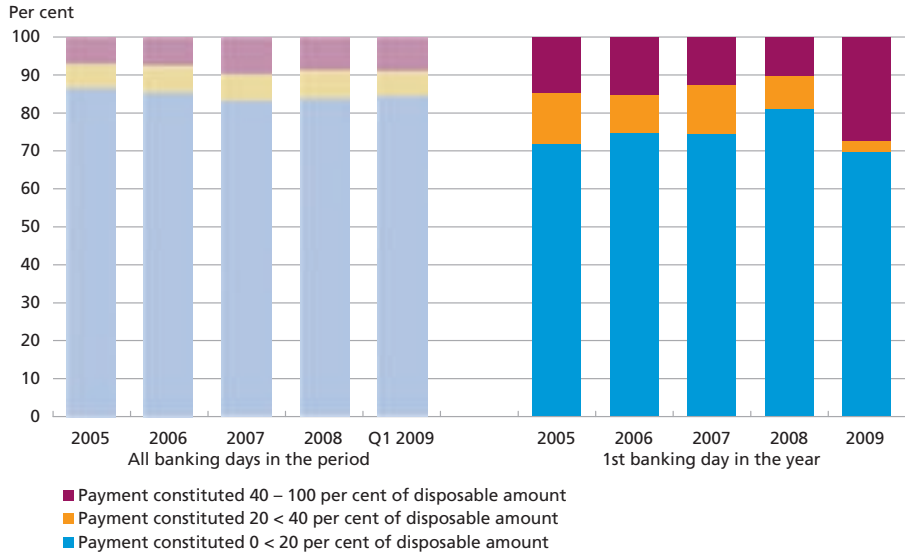
Chart 52 shows that liquidity redistribution among participants was considerably greater on the first banking days in both 2008 and 2009 than on other days. This is attributable to annual refinancing of adjustable-rate mortgages, which takes place on this day, as do considerable mortgage and dividend payments¹.

The first banking day in 2009 was a Friday, a day when liquidity redistribution among participants is systematically greater than on other days – which could explain the substantially higher redistribution on the first banking day of the year compared with previous years. Friday is the day when Danmarks Nationalbank conducts its ordinary market operations with banking institutions and mortgage-credit institutes, and in addition liquidity redistribution in the VP settlement is normally somewhat greater than on other days of the week due to greater securities and repo activity.

¹ For a more detailed description of payments settlement on the first banking day of the year, see Danmarks Nationalbank, *Financial stability 2nd half 2008*.

INTERBANK PAYMENTS IN PER CENT OF DISPOSABLE AMOUNT AT TIME OF SETTLEMENT

Chart 51

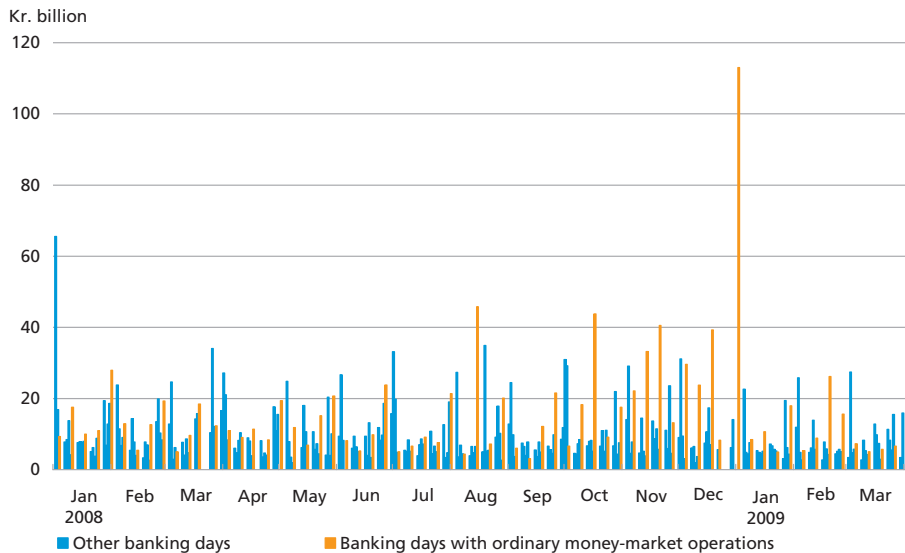


Note: Payments have been weighted by size. Payments below kr. 1 million have been omitted. In the Chart, each payment has been related to the participant's disposable amount at the time the payment was settled. A participant's disposable amount is calculated on an ongoing basis during Kronos' opening hours and corresponds to the participant's maximum credit line at Danmarks Nationalbank plus the balance of the participant's current account.

Source: Danmarks Nationalbank.

REDISTRIBUTION OF KRONE LIQUIDITY BETWEEN BANKING INSTITUTIONS

Chart 52



Note: The total krone liquidity redistributed via accounts at Danmarks Nationalbank is derived from the participants' net positions in connection with retail payments, as well as securities and foreign-exchange trading – linked to the Sumclearing, VP settlement and CLS, respectively.

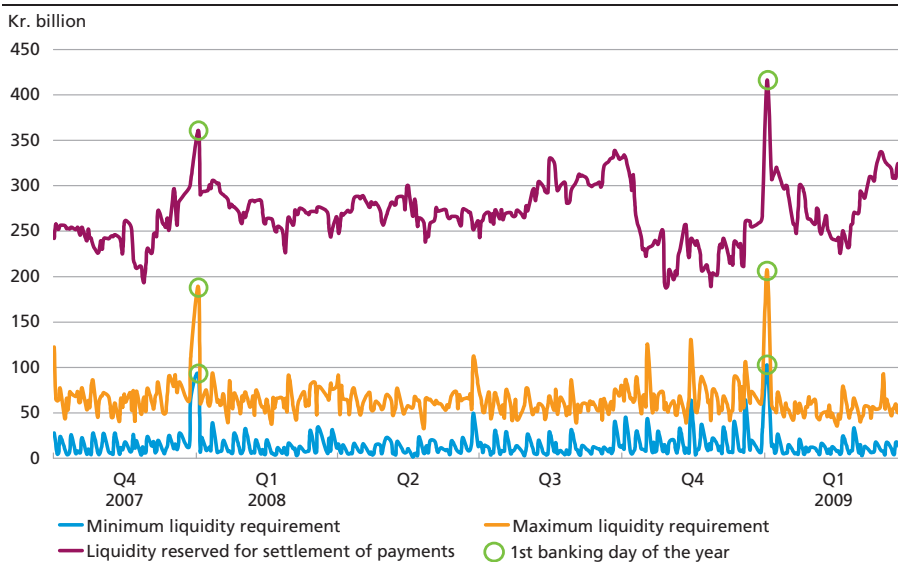
Source: Danmarks Nationalbank.

The banking institutions' intraday liquidity requirement at Danmarks Nationalbank

The substantial redistribution of krone liquidity via payment and settlement systems makes great demands on the banking institutions' ability to monitor and manage intraday liquidity. This can be seen from Chart 53, which illustrates the fluctuations in the banking institutions' daily liquidity requirements for settlement of payments at Danmarks Nationalbank during the Kronos opening hours (7:00 a.m. to 3:30 p.m.). Since the beginning of 2008, the minimum daily liquidity requirement has averaged kr. 12 billion, but on some days it has been much higher, notably on the first banking days in 2008 and 2009, when it reached kr. 92 and 103 billion, respectively. In practice, however, the banking institutions made extensive use of their intraday overdraft facilities on their current accounts at Danmarks Nationalbank as their maximum liquidity requirements within the day reached kr. 189 and 207 billion, respectively. Even on these days, the maximum liquidity requirement constituted only a limited share of the liquidity reserved by the banking institutions for settlement of payments at Danmarks Nationalbank, i.e. kr. 361 and 416 billion, respectively.

LIQUIDITY REQUIRED FOR KRONOS SETTLEMENT

Chart 53



Note: Liquidity reserved for settlement of payments at Danmarks Nationalbank is equivalent to the banking institution's maximum credit line plus its current-account balance when Kronos opened (7:00 a.m.) and is often referred to as its disposable amount. The maximum liquidity requirement corresponds to the liquidity needed by the banking institutions for settling all outgoing payments over the day without delay. The calculated maximum liquidity requirement depends on the order in which payments were settled during the day. Likewise, the minimum liquidity requirement corresponds to the liquidity needed by the banking institutions for settling all payments over the day with maximum netting of incoming and outgoing payments.

Source: Danmarks Nationalbank.

Against this background, Danmarks Nationalbank still believes that the banking institutions overall have sufficient liquidity scope to meet their payment obligations as they fall due. Nevertheless, the current financial crisis has shown that intraday liquidity risk remains an important element of the risk management of banking institutions, etc. This is reflected in the Principles for Sound Liquidity Risk Management and Supervision published by the Basel Committee in September 2008. Here, intraday liquidity risk has been given much more attention than in the Committee's 2000 report on managing liquidity risk, cf. Box 19.

Intraday liquidity requirements in kroner outside Danmarks Nationalbank

Due to the large number of direct Kronos participants, krone-denominated transactions between Danish banking institutions without the involvement of Danmarks Nationalbank – and the associated liquidity requirements – are insignificant when compared with the situation in other small European countries.¹ Only very small banking institutions do not participate in Kronos.

A number of banking institutions have significant transactions in kroner with abroad. Such transactions are settled via correspondent banks, which may give rise to substantial settlement risks.

For krone transactions linked to foreign-exchange trades, the establishment of CLS has limited the need for liquidity considerably due to substantial netting of opposite payments prior to settlement. In 2008, netting of opposite payments, e.g. Danish kroner purchased and sold with the same value date, meant that the participants' pay-ins in kroner constituted less than 4 per cent of the gross value of kroner settled in CLS, cf. Table 10 in the Tables section. To support liquidity in CLS settlement, all pay-ins to CLS take place via central-bank payment systems so that, if necessary, the payments can be financed immediately through credit lines granted by the central banks. This is a core feature of CLS settlement as pay-ins – from banks worldwide – must meet fixed deadlines.

The banking institutions' payments in foreign exchange

In the course of 2008, it became increasingly difficult for banking institutions to conduct payments in foreign exchange due to mounting pressures in the money markets that made it hard to raise the necessary liquidity to meet short-term requirements, including payment obligations in foreign exchange. Payments in euro and dollars are particularly important to Danish banking institutions, and consequently in the autumn

¹ See Irene Madsen, The Financial Sector's Payments via Kronos, Danmarks Nationalbank, *Monetary Review*, 1st Quarter 2008.

In September 2008, the Basel Committee published a report with recommendations for liquidity risk management by banking institutions.¹ Principle 8 says, "A bank should actively manage its intraday liquidity positions and risks to meet payment and settlement obligations on a timely basis under both normal and stressed conditions and thus contribute to the smooth functioning of payment and settlement systems."

Banking institutions should be able to identify time-critical payments and give these payments higher settlement priority than other payments, i.e. postpone payments without an intraday deadline for later settlement, if necessary. Time-critical payments are e.g. payments to foreign-exchange and securities settlement systems where large sums are typically settled en bloc at fixed times. If incoming payments from a participant have not been received, this may have a severe negative impact on the liquidity positions of other system participants and completely halt the settlement process.

In addition, liquidity management by banking institutions should take into account that incoming and outgoing payments during a day may add up to very large sums that cannot be calculated with certainty as they depend on factors beyond the control of the individual banking institution.

Moreover, for many expected payments the settlement time is not known beforehand. This may lead to considerable liquidity withdrawal from a banking institution within a day, in many cases exceeding the liquidity held by the banking institution at the start of the day.

In view of the above, intraday operational liquidity management by banking institutions should be based on:

- Calculations of the expected daily gross liquidity flows, with estimates of potential liquidity deficits that may arise at different times of the day. The calculations should identify the most important sources (counterparties and payment and settlement systems) for both incoming and outgoing liquidity flows.
- Continuous monitoring of liquidity positions during the day in relation to the development in expected payment activities and the available liquidity, including any unutilised intraday credit lines and assets eligible as collateral. This procedure should support the postponement of payments to ensure the settlement of time-critical payments.
- Sufficient access to intraday funding from central banks and correspondent banks in the currencies in which payments are transacted.
- Systems, procedures and legal arrangements enabling procurement of intraday liquidity by pledging securities, etc. as collateral, if necessary. Awareness of how fast liquidity can be procured by pledging of specific assets as collateral.
- Systems to ensure that outgoing payments are checked. This involves an overview of outgoing payments by large customers, as well as the option to regulate their intraday credit lines fast, if necessary. Effective control of outgoing payments also requires that payments by different business units are coordinated.
- Efficient management of operational risk and contingency planning, taking into account the potential liquidity effects of unforeseen incidents such as IT system failures in payment and settlement systems. The capacity of the contingency plans should be based on stress testing of various scenarios and should include procedures for fast bridging of unforeseen liquidity gaps in emergency situations.

¹ See Principles for Sound Liquidity Risk Management and Supervision, Bank for International Settlements, 2008.

DELAYED SETTLEMENT OF THE CENTRAL GOVERNMENT'S INTEREST AND REPAYMENTS ON DEBT DENOMINATED IN EURO

Box 20

The VP45 settlement block, in which periodic payments (interest, repayments, dividend, etc.) in euro is settled, was delayed by 1½ hour on 14 November 2008. The reason was that on that day Danmarks Nationalbank did not receive euro from counterparties – to be used for payment of interest and repayments on euro-denominated bonds issued by the central government – before the deadline for transfer of cash for the VP45 settlement block (11:50 a.m.). Under the existing market practice, the counterparties only had an obligation to deliver within the day, i.e. by the close of business (5:00 p.m.).

Previously, it had not been a problem for Danmarks Nationalbank to raise the necessary liquidity from other sources at very short notice so that payment deadlines in payment and settlement systems were always met. Because of the current financial crisis this was not possible on 14 November 2008. As a consequence of the incident, Danmarks Nationalbank has adjusted its internal procedures to avoid late procurement of liquidity to cover payment obligations in euro in the VP settlement.

of 2008 Danmarks Nationalbank, like the central banks of several other small countries, established temporary mutual swap lines with the Federal Reserve and the ECB.¹

In Denmark, one consequence of the pressure on the euro money market was that VP Securities settlement with the cash leg in euro was more frequently delayed in 2008 than in previous years. Danmarks Nationalbank was also affected on one occasion in 2008, cf. Box 20.

Business continuity in Kronos

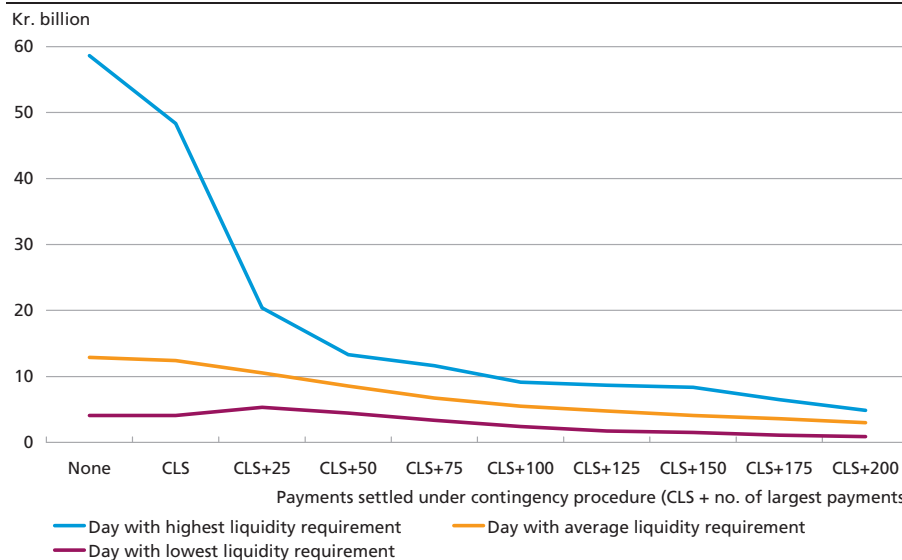
Because payment systems are so important to liquidity redistribution between banking institutions, the requirements for the operational stability and business continuity of such systems are high. Against that background, Danmarks Nationalbank has analysed the need for settlement of payments via manual contingency procedures (processing of payment requests sent by fax) in the event that normal settlement of payments in Kronos is not possible.

As regards liquidity redistribution between system participants, settlement of all CLS payments and the largest 200 payments would comprise a reasonable share of the banking institutions' liquidity requirements that are met through payment settlement in Kronos, cf. Chart 54. This also applies on days with large liquidity requirements. CLS payments and the largest 200 payments constitute approximately 10 per cent of

¹ See Danmarks Nationalbank's press releases of 24 and 29 September 2008 on the swap line with the Federal Reserve and of 27 October 2008 on the swap line with the European Central Bank.

UNMET LIQUIDITY REQUIREMENTS IN CASE OF FULL-DAY FAILURE OF KRONOS

Chart 54



Note: The participants' liquidity requirements have been calculated as the minimum liquidity required to settle one day's interbank payments after maximum netting of incoming and outgoing payments adjusted for the liquidity requirements met by payments settled under the contingency procedure. The Chart has been compiled on the basis of interbank payments settled on 22 days in January 2008.

Source: Kristian Sparre Andersen and Irene Madsen (2009), A quantitative assessment of international best practice for business continuity arrangements in payment systems, in Harry Leinonen (ed.), Proceedings from the Bank of Finland Payment and Settlement System Seminars 2007-2008, *Bank of Finland Scientific monographs E:42*, 2009 (forthcoming).

the daily transactions and can be settled without major delays to participants within the normal Kronos opening hours.

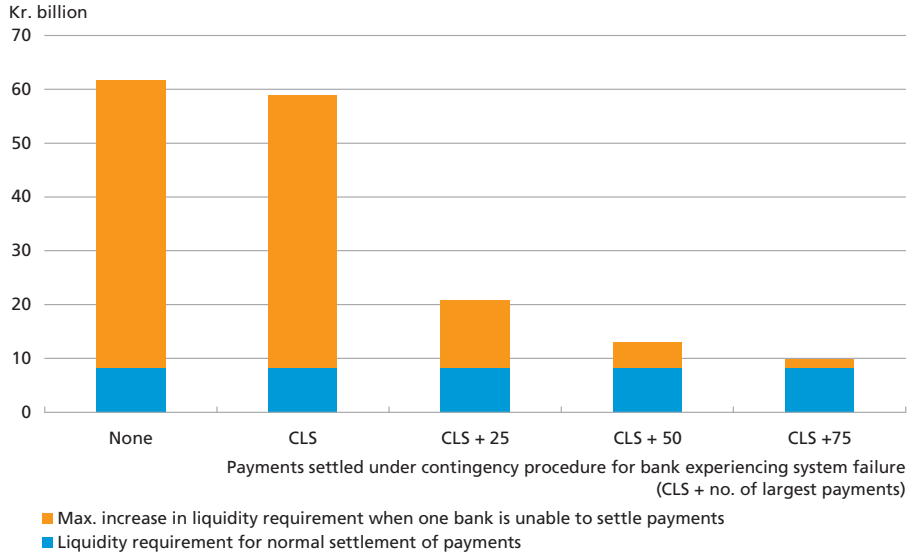
Besides systemwide failures, other incidents also affect the banking institutions' ability to meet liquidity requirements via Kronos settlement. If internal problems prevent a participant from remitting payments via Kronos, this could mean that other participants must raise considerably more liquidity elsewhere, cf. Chart 55.

Although most of the daily liquidity requirement that the participants cover via Kronos can be met by settling a limited number of transactions, it would not be prudent to rely on contingency procedures to mitigate the impact of a system failure. If the system is down for a full day or more, settlement of payments in contingency mode and the subsequent "tidying up" (settlement of postponed payments) will involve a considerable manual effort on the part of Denmark's Nationalbank and Kronos participants. It is therefore important that normal settlement of payments can be resumed within a few hours following a failure.

For Kronos, 75-90 per cent of all payments during a day are settled within 4 hours and before 1 p.m. (2½ hours before the system closes).

PARTICIPANTS' LIQUIDITY REQUIREMENTS WHEN A LARGE PARTICIPANT IS UNABLE TO SETTLE PAYMENTS IN KRONOS

Chart 55



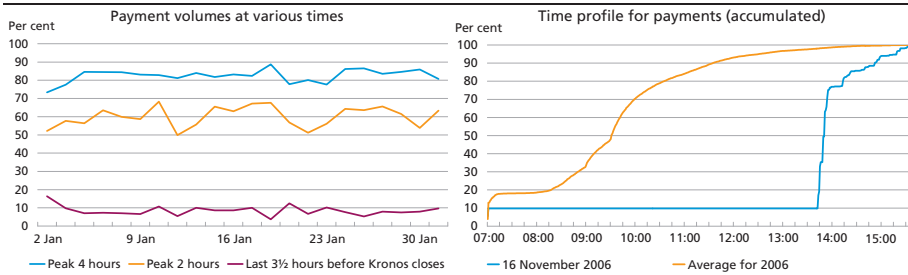
Note: The participants' liquidity requirements have been calculated as the minimum liquidity required to settle one day's interbank payments after maximum netting of incoming and outgoing payments adjusted for the increase in the liquidity requirement arising when a large bank is unable to settle payments in the normal way, taking into account the payments settled under the contingency procedure. The Chart has been compiled on the basis of interbank payments settled on 22 days in January 2008.

Source: Kristian Sparre Andersen and Irene Madsen (2009), A quantitative assessment of international best practice for business continuity arrangements in payment systems, in Harry Leinonen (ed.), Proceedings from the Bank of Finland Payment and Settlement System Seminars 2007-2008, *Bank of Finland Scientific monographs E:42*, 2009 (forthcoming).

Since a day's planned payments can easily be processed within a very short interval (1-2 hours), system failure within the peak 4 hours can be handled by settling time-critical payments and large-volume payments using the contingency procedure while the system is down and postpon-

EFFECT ON PAYMENT SETTLEMENT OF KRONOS FAILURES OF SHORT DURATION

Chart 56



Note: The left-hand chart has been compiled on the basis of interbank payments settled on 22 days in January 2008. The right-hand chart shows the time profile for settlement of payments on 16 November 2006, when Kronos was down for 6½ hours, compared with the normal time profile.

Source: Kristian Sparre Andersen and Irene Madsen (2009), A quantitative assessment of international best practice for business continuity arrangements in payment systems, in Harry Leinonen (ed.), Proceedings from the Bank of Finland Payment and Settlement System Seminars 2007-2008, *Bank of Finland Scientific monographs E:42*, 2009 (forthcoming).

SETTLEMENT RISK IN FOREIGN-EXCHANGE TRANSACTIONS AND FINANCIAL STABILITY

Box 21

When a foreign-exchange transaction has been concluded, it is settled via two opposite payments between the parties. A transaction in e.g. kroner against euro involves a payment in kroner by one party to the other and a payment in euro in the opposite direction. This entails a risk that a foreign-exchange dealer sends the sold amount in one currency to the counterparty without receiving the purchased amount in the other currency, e.g. if the counterparty goes into liquidation. This risk is known as settlement risk and is thus a mutual credit risk incurred by the parties to a foreign-exchange transaction, with an exposure corresponding to the full amount of the transaction.

Since foreign-exchange transactions are very large nowadays, the settlement risk can potentially have an impact on financial stability. This is why the CLS system was launched in 2002 by around 70 of the largest banks worldwide, with support from the central banks. CLS currently offers settlement of foreign-exchange transactions without settlement risk in 17 currencies, including the Danish krone. CLS is based on the principle of Payment-versus-Payment (PvP), i.e. simultaneous settlement of the two opposite legs of a transaction. In this way, foreign-exchange dealers are always certain of receiving the currency purchased when payment has been effected in the currency sold.

ing other payments until normal operation has been resumed. The combined effect of ample system capacity and the modest number of transactions in the last few opening hours, cf. Chart 56, imply a timeframe of 4 hours, which is long by international standards, for resumption of normal settlement.¹

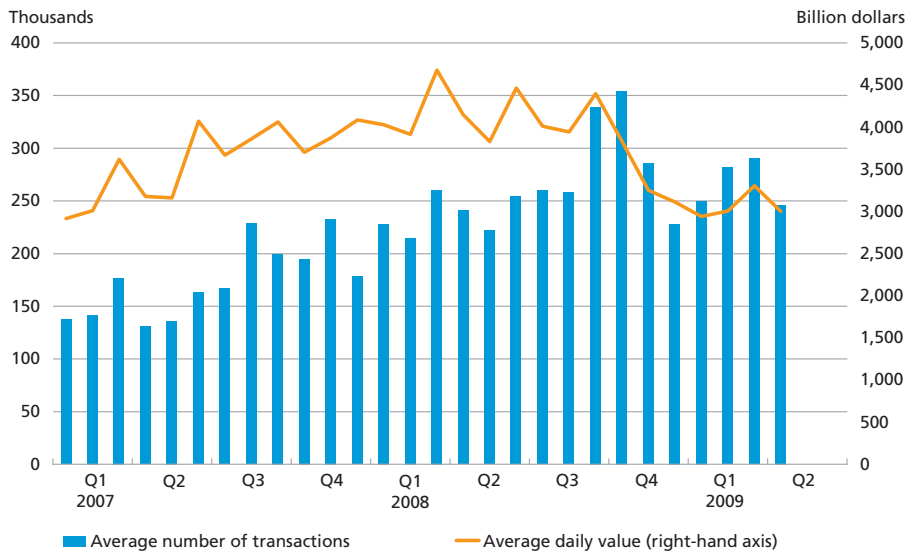
FOREIGN-EXCHANGE SETTLEMENT

Third-party participation in CLS, the international settlement system for foreign-exchange transactions, has grown substantially. The number of Danish foreign-exchange dealers that joined CLS as third-party participants in 2007 and 2008 was greater than at any other time since the system was established in 2002. A major contributing factor is that a number of dealers – including Danish banks – that have not been connected to CLS have found it difficult to trade foreign exchange during the financial crisis. The reason is that transactions settled outside CLS typically involve settlement risk for the parties, cf. Box 21.

In order for a foreign-exchange transaction to be settled via CLS, both parties must be connected to the system, either directly as members or indirectly as third-party participants, and therefore it has become a challenge for foreign-exchange dealers not connected to CLS to find trading

¹ The Federal Reserve and the ECB have set a limit of 2 hours for resuming settlement of payments in systemically important payment systems in the USA and the euro area after a failure.

NUMBER AND VALUE OF FOREIGN-EXCHANGE TRANSACTIONS SETTLED IN CLS Chart 57



Note: Value of foreign-exchange transactions in the current 17 CLS currencies converted into US dollars.
Source: CLS Bank.

partners who are willing to take on the settlement risk during the financial crisis. CLS is currently the only global foreign-exchange settlement system that eliminates settlement risk.

The increasing number of third-party participants, primarily small foreign-exchange dealers, affects e.g. the number and value of transactions settled via CLS, as illustrated in Chart 57. The average value of transactions settled via CLS has thus declined.

Moreover, the number of transactions settled via CLS soared during September-October 2008 – when the financial market turmoil culminated following the collapse of Lehman Brothers. This episode highlights the need for central banks whose currencies are settled in CLS regularly to oversee and ensure that CLS' IT system capacity is dimensioned to allow CLS to process a very high number of foreign-exchange transactions in periods of financial turmoil.

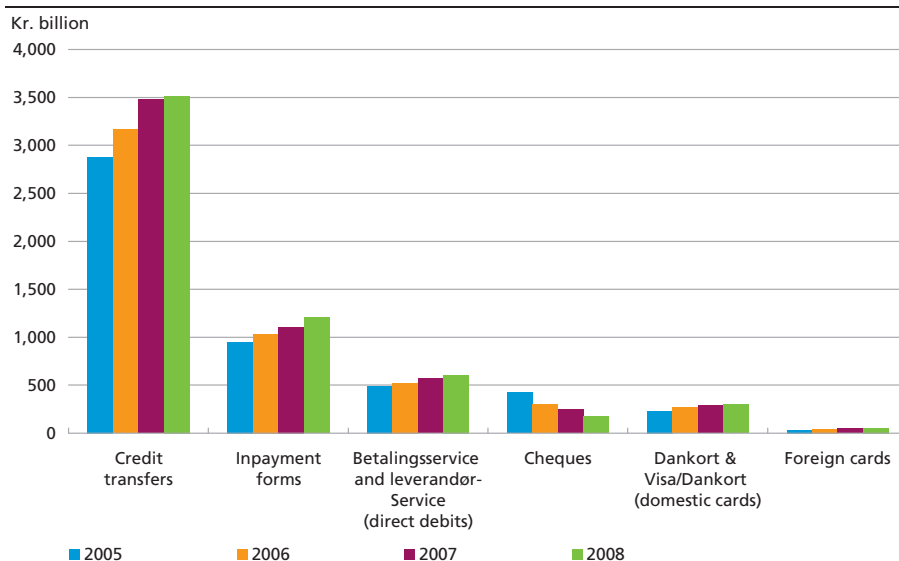
The Federal Reserve acts as lead overseer, coordinating CLS oversight by the central banks with CLS currencies. The framework for coordinated oversight is laid down in a protocol.

RETAIL PAYMENTS

Payments settled in the Sumclearing, the Danish Bankers Association's retail settlement system, increased by 2 per cent in 2008, to a total of kr. 5,876 billion, the lowest rate of increase in several years, cf. Chart 58.

SUMS SETTLED IN THE SUMCLEARING

Chart 58



Source: Danish Bankers Association.

This is primarily attributable to a slowdown in credit transfers, which rose by only 1 per cent in 2008 compared with 10 per cent in the preceding two years. As regards card transactions, use of foreign cards continues to rise more rapidly than use of the Dankort, although foreign cards still account for only a small share – 15 per cent in 2008 – of the aggregate card turnover.

Low liquidity risk in the Sumclearing

The Sumclearing is a multilateral net settlement system in which retail payments on behalf of customers are settled during the night. Netting of payments between participants prior to each settlement meant that in 2008 the cash sums exchanged constituted only 24 per cent of the underlying gross payments, cf. Table 8 in the Tables section.¹

Compared with Kronos, Sumclearing settlement involves relatively modest liquidity risk on most days. However, the Sumclearing plays a key role in the banking institutions' liquidity management, as liquidity received in the Sumclearing has often been reserved for other payment obligations the same day. On certain days with extensive liquidity redistribution among participants, it is therefore important that Sumclearing settlement is not delayed.²

¹ For a more detailed analysis of credit and liquidity risks in the Sumclearing, see *Financial stability 2006*.

² The role of the Sumclearing in the daily redistribution of liquidity among participants is described in *Financial stability 2008, 2nd half*.

Improved Sumclearing operations

In recent years, cash settlement in the Sumclearing has not been fully satisfactory as it has often been impossible to complete night-time settlement in a timely manner.¹ This was the case on 21 days in both 2007 and 2008 because some banking institutions had not reserved sufficient liquidity beforehand to meet their payment obligations in the system. As of 1 January 2009, the Danish Bankers Association has therefore increased the fee for postponement due to insufficient liquidity reservation considerably and emphasised the importance of settlement discipline to participants. These measures seem to have had the desired effect as only two postponements were seen in the first four months of 2009.

In 2007, one incident experienced by a participant meant that a very substantial number of transactions were not settled on time; in fact, they were not finalised until several days later. This episode led to the establishment of a special contingency procedure to address such incidents. Moreover, the Danish Bankers Association has introduced mandatory control of credit transactions so that they do not exceed an upper limit set by the participants. This control is expected to be implemented by all participants in mid-2009. Finally, PBS – on behalf of the participants – has developed an enhanced solution for handling reversal transactions that will facilitate the process of "tidying up" after such incidents in future. Implementation of this solution has begun and is expected to be completed in early 2010.

Settlement times for payment transfers

Retail payment solutions are undergoing rapid development. In many European countries it is now possible to execute and settle retail payments intraday, and in several countries – including the Netherlands and the UK – such payments can be completed almost in real time. In addition, the retail payment infrastructures in countries such as Belgium, Finland and the Netherlands permit same-day settlement of all retail payment instruments.

Against that background, the Minister for Economic and Business Affairs has asked Danmarks Nationalbank to chair a working group with representatives from relevant stakeholders to analyse settlement times in Denmark. Shorter settlement times would also reduce the participants' risks in connection with settlement of retail payments and support the use of new payment instruments.

¹ See *Financial stability 2008*.

Sector agreement on bank transfers via Danmarks Nationalbank on behalf of customers

The need to look into settlement times was highlighted in May 2008, when a foreign financial enterprise contacted Danmarks Nationalbank concerning execution and settlement of retail payments. The enterprise found it inexpedient that, apparently, it was not able to make payments between accounts at two Danish banks with the same value date at both the remitting and receiving bank.

A sector agreement on "good value in connection with group transfers at Danmarks Nationalbank" is aimed at ensuring that customers need not suffer value-date losses on transfer of kr. 5 million or more via current accounts at Danmarks Nationalbank.

When the foreign financial enterprise contacted Danmarks Nationalbank, the Danish Bankers Association became aware that a few members had misinterpreted the agreement to the effect that it was not possible to execute and settle payment transfers below kr. 5 million via current accounts at Danmarks Nationalbank without value-date loss. After having been contacted by Danmarks Nationalbank, the Danish Bankers Association therefore sent out a letter to the managements of its member banks, stipulating that the agreement did not prevent customers from negotiating arrangements whereby payments below kr. 5 million could be executed and settled with the same value date.

New payment instruments

In many countries – including Denmark – considerable development and innovation is taking place within payment instruments. A case in point is payments initiated by mobile phone, i.e. mobile payments.

Technological advances in recent years have transformed mobile phones into efficient payment instruments and in many countries mobile phones are now used as direct replacements for payment cards and cash.

This innovation has also reached Denmark. Today, it is possible to buy e.g. tickets for certain types of public transport via a mobile phone. The price payable is then added to the user's next phone bill.

In several European countries, including France, projects have been launched to promote the use of mobile phones in retail trade. With Near Field Communication technology, the mobile phone is swiped past a terminal and payment is effected immediately. The settlement procedures are the same as for traditional card systems.

Although the volume of mobile payments in Denmark is still modest, mobile phones could potentially become an important payment instrument for consumers.

New act to comprise all types of retail payments

On 28 January, the Minister for Economic and Business Affairs presented a Payment Services Bill. The Bill is currently being processed by the Folketing (Danish parliament).

The aim is to lay down uniform rules for all payment services, both those that are comprised by the existing Act on Certain Means of Payment and those that are not, e.g. credit transfers.

If the Bill is passed, it will implement the EU Payment Services Directive, which was adopted in 2007 and must be transposed into national legislation by 1 November 2009. The Directive is the legal foundation for the efforts by European banks to establish a Single Euro Payments Area, SEPA.

SECURITIES SETTLEMENT

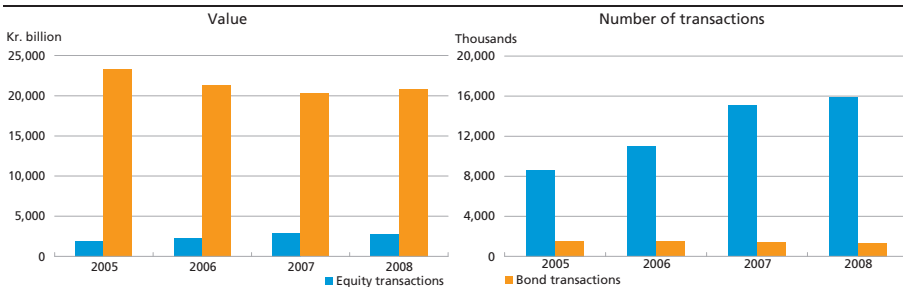
The value of trading transactions in the VP settlement increased by 1.7 per cent in 2008, to kr. 23,555 billion, cf. Chart 59, on account of an increase by 2.8 per cent in the bond trading volume. In contrast, the value of equity transactions fell by 6.5 per cent during 2008, to kr. 2,701 billion as a result of the lower general price level. Due to higher activity in the Danish stock market, the number of VP settlement transactions set a new record in 2008, reaching 17.2 million, which was an increase of 4.5 per cent on 2007. The number of equity trades rose by 5.2 per cent to 15.9 million, while the number of bond transactions fell by 3.1 per cent.

High operational stability in VP Settlement

The rising number of trades in 2008 meant that at times the VP settlement had to process extraordinarily large numbers of transactions, up to five times the normal volume of securities. During a few spells, the subsequent cash settlement on participants' accounts was therefore eight

EQUITIES AND BONDS SETTLED IN THE VP SETTLEMENT

Chart 59



Note: Exclusive of transactions denominated and settled in euro.

Source: VP Securities.

times as high as usual. In spite of these few peak days, settlement was very stable, as in previous years, and VP Securities got through 2008 without major disruptions or delays. On one day in early 2009, VP settlement was, however, affected by IT problems experienced by a large participant, which led to delays and postponements.

Participants' handling of securities settlement has improved slightly

For a number of years, the settlement rate, i.e. the percentage of securities transactions settled on the agreed date, has been falling marginally, cf. Chart 60, particularly for equities. The main reason is an increasing number of foreign participants who have not met their delivery obligations.

VP has monitored developments and in mid-August 2008 introduced a sanctions scheme at the request of the financial sector. The first step has been to contact participants who do not meet their deadlines. Actual fees are expected to be introduced during 2009.

The settlement rate for equity transactions improved slightly after the scheme was introduced, rising by 3.2 percentage points from 94.4 per cent in August to 97.6 per cent in December 2008, but subsequently fell back a little in early 2009. The target is that 98 per cent of all transactions should be settled on time, equivalent to the European benchmark, and equivalent to the percentage for bond trading.

SETTLEMENT RATES FOR SECURITIES TRANSACTIONS IN THE VP SETTLEMENT

Chart 60



Source: VP Securities.

DELAYS IN DAY-TIME SETTLEMENT IN DANISH KRONER

Table 6

Days when settlement was delayed for more than 1 hour	2005	2006	2007	2008	Q1 2009
VP33 (PvP exchange of euro for kroner)	1	0	2	6	2
VP35 (periodic payments)	1	2	1	2	1
VP40 (trading settlement)	1	0	0	1	0
VP60 (trading settlement)	0	1	1	0	0
Total delays in day-time krone blocks	3	3	4	9	3

Note: Categorisation based on the time elapsed between the planned time when then individual blocks were to be run and the time of entry of the net settlement amounts to the participants' settlement accounts at Danmarks Nationalbank.

Source: Danmarks Nationalbank.

Timely settlement of the individual blocks

VP settlement is divided into two separate settlement procedures, for securities and periodic payments (interest, dividends, etc.) respectively, each comprising a number of settlement blocks. In addition, transactions can be settled in real time.

In general, the individual blocks are settled in a timely manner with very few delays. However, a review of all delays in VP settlement shows that the block for settlement of liquidity in euro against kroner, VP33, has been delayed more frequently in recent years than it used to be, cf. Table 6. All delays in 2008 were attributable to one or more participants having reserved euro liquidity too late. This development continued into the 1st quarter of 2009.

CCP for clearing of trades concluded at NASDAQ OMX

On 16 October 2008, NASDAQ OMX announced the introduction of a central counterparty (CCP) for clearing of equity trades concluded in the Nordic stock markets. Since March 2009, participants have thus been able to settle their equity trades through a CCP, and from 9 October 2009 CCP clearing will be mandatory for equity trades. A CCP acts as an intermediary by stepping in after the conclusion of the trade and taking over the counterparty obligations vis-à-vis both the buyer and the seller. In this way, the CCP assumes the settlement risk (counterparty risk) on the trade.

The rapid introduction of a CCP reflects the fact that CCP clearing of trades in Danish equities already exists on various trading platforms that have emerged after the implementation of the Markets in Financial Instruments Directive (MiFID). This makes it more difficult for the Danish market to maintain a non-standard settlement model. In the EU, CCP clearing is the standard for all large stock markets, and the crisis has amplified the wish to trade via a central counterparty rather than a number of more or less familiar counterparties.

As part of its oversight of Danish payment and settlement systems and to follow up the IMF's assessment thereof in 2005-06, Danmarks Nationalbank performed an analysis of the pros and cons of introducing a central counterparty in the Danish securities market¹. The conclusion was, that the need for a central counterparty seemed to be limited as regards spot trading. However, it was recommended that an investigation be performed of whether the introduction of a CCP would be expedient in the repo market, where the risk is greater and the advantages of a CCP in terms of administration and capital adequacy are more pronounced. The recently introduced CCP clearing comprises NASDAQ OMX Copenhagen's Large Cap equity market. Danmarks Nationalbank therefore recommends that market participants investigate the potential advantages of extending CCP clearing to include not only the equity market, but also the repo market.

The central counterparties that will undertake CCP clearing in the Danish equity market are based abroad. To some extent they already clear trades in Danish equities concluded on existing trading platforms, so equity trades on these platforms can be included in the same CCP clearing as trades on NASDAQ OMX. Danmarks Nationalbank and the Danish Financial Supervisory Authority are therefore working with the authorities of the jurisdictions where these CCPs are based or are active to prepare a memorandum of understanding (MoU) on oversight in accordance with the international standards for CCP activities.

VP Lux S.à r.l.

VP Securities (VP) has established a central securities depository in Luxembourg. The main aim is to give Danish banks and mortgage-credit institutes access to issue euro-denominated bonds in the euro area so that these bonds can be pledged as collateral to the Eurosystem with a view to obtaining euro liquidity – a need that has increased strongly as a result of the financial crisis.

For securities to be pledged as collateral to the Eurosystem, they must be on the ECB's list of eligible assets. An application to this effect must be sent to the central bank of the country where the securities are quoted. As most of the securities issued in VP Lux are quoted on NASDAQ OMX Copenhagen, Danmarks Nationalbank is responsible for accepting them. Danmarks Nationalbank thus ensures that the ECB's eligibility requirements are met, and if so Danmarks Nationalbank trans-

¹ See *Working Paper 49/2007*, Torben Nielsen and Peter Restelli-Nielsen, Analysis of the pros and cons of introducing a central counterparty in the Danish securities market.

fers the relevant securities data to the ECB's list, after which the securities can be pledged to the Eurosystem.

At end-2008, total bond issuance in VP had a market value of kr. 3,372 billion, of which approximately 5 per cent was denominated in euro, equivalent to approximately kr. 168 billion (23 billion euro). Around half of the bonds are short-term mortgage-credit bonds to finance adjustable-rate loans, the majority of which are refinanced at the end of each year. In connection with refinancing at end-2008 new issuance took place in VP Lux, whose outstanding issuance now totals approximately 14 billion euro.

Securities issued in VP Lux can also be pledged to Danmarks Nationalbank as collateral for krone liquidity as well as intraday liquidity in euro, since they can be transferred to VP via a link from VP Lux and can then be pledged in accordance with Danmarks Nationalbank's existing procedures.

The Luxembourg authorities supervise and oversee VP Lux. As operation of VP Lux has on the whole been outsourced to VP, Danmarks Nationalbank and Banque Centrale du Luxembourg have concluded an MoU on oversight of VP Lux. The MoU defines the framework for cooperation between the two central banks in terms of oversight of securities settlement with a view to ensuring effectiveness and stability in accordance with international recommendations.

Appendix: Selected Events up to and during the Financial Crisis

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, a major provider of mortgage financing.

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 British 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.

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.

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

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

15 September 2008 Svenska Handelsbanken submits a recommended tender offer for the total outstanding share capital of Lokalbanken i Nordsjælland. The purchase takes place 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 common 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.

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 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.

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 Federal Deposit Insurance Corporation, 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 and 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.

9 October 2008 The Icelandic financial supervisory authority 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 preference 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 Tier 1 capital.

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

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 concerning a portfolio of lending, etc. 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.

19 December 2008 The US Department of the Treasury grants loans for up to 13.4 billion dollars to General Motors Corp. and 4 billion dollars to Chrysler under the TARP.

21 December 2008 The Irish government announces that it will recapitalise Anglo Irish Bank, Allied Irish Banks and Bank of Ireland.

15 January 2009 The Irish government announces that it will nationalise Anglo Irish Bank, thereby abandoning the recapitalisation plans announced on 21 December 2008.

16 January 2009 The US Department of the Treasury and FDIC announce a loss-sharing agreement with Bank of America for a portfolio comprising loans, securities, etc. for a total of 118 billion dollars in return for preference shares in the bank. Moreover, if required, the Federal Reserve will provide a "back-stop" loan to cover the remaining risk on the portfolio. This loan is a "non-recourse loan", meaning that in the event of bankruptcy or other default, the Fed's recovery is limited to the assets pledged as collateral for the loan. Finally, the Department of the Treasury will invest 20 billion dollars in TARP funds in the bank.

3 February 2009 The Act on State-Funded Capital Injections (Bank Rescue Package II) is adopted by the Folketing (Danish parliament).

17 February 2009 The US President signs a 787 billion dollar stimulus package comprising tax cuts and increased government spending.

25 February 2009 The US authorities announce that US banks with assets of at least 100 billion dollars must pass a mandatory stress test by the end of April 2009. Banks that fail the test must, within the following six months, either procure the necessary private capital or accept government capital in the form of convertible preference shares.

26 February 2009 The Royal Bank of Scotland announces plans to participate in the British government's "Asset Protection Scheme" with assets of 325 billion pounds. In addition, Her Majesty's Treasury will purchase 13 billion pounds' worth of 'B' shares, to be included in the Tier 1 capital, and another 6 billion pounds' worth if the RBS so wishes.

27 February 2009 The US Department of the Treasury announces that it is willing to convert up to 25 billion dollars in Citigroup preference shares into common shares if private investors are willing to do the same.

2 March 2009 AIG announces a loss of 61.7 billion dollars in the 4th quarter of 2008. The US Department of the Treasury and the Federal Reserve announce a restructuring of the government's assistance to AIG, which will receive up to 30 billion dollars in additional

TARP funds. Moreover, the Department of the Treasury will exchange its existing position of 40 billion dollars in AIG preference shares for new preference shares that more closely resemble common shares.

7 March 2009 Lloyds Banking Group announces that it will apply for insurance of assets for 260 billion pounds under the British government's "Asset Protection Scheme". At the same time, Lloyds accepts that the government can convert preference shares into common shares. The result of this agreement could be that the government controls up to 75 per cent of the voting rights in Lloyds.

7 May 2009 The US Department of the Treasury publishes stress-test results for the 19 largest US banks. The stress test is aimed at assessing whether the banks' capital buffers are sufficient, cf. Box B2.

Appendix of Tables

The Appendix of Tables provides an outline of developments in the financial statements of the institutions included in the report with corresponding data for a number of smaller banks. "Group 3*" is a selection of approximately 30 financial institutions in the Danish Financial Supervisory Authority's Group 3.

PROFIT/LOSS	Group 1			Group 2			Group 3*			Table 1 Index 08/07
	2008	2007	Index 08/07	2008	2007	Index 08/07	2008	2007	Index 08/07	
<i>Kr. million</i>										
<i>Income</i>										
Net interest income	35,905	26,775	134	7,184	6,041	119	5,404	4,723	114	
Net fee income	13,395	13,648	98	2,049	2,449	84	1,837	1,966	93	
Value adjustments, securities, etc.....	-3,620	4,449	•	-1,219	912	•	-1,254	271	•	
Value adjustments, capital investments	4,279	8,686	49	-125	359	•	70	145	48	
Other income from ordinary activities .	3,507	2,752	127	479	207	231	319	209	153	
<i>Expenses</i>										
Operating expenses	36,391	29,500	123	6,481	5,877	110	5,031	4,439	113	
Write-downs on loans	13,755	-326	•	4,821	-120	•	1,973	-115	•	
Profit/loss before tax	3,320	27,136	12	-2,934	4,211	•	-627	2,989	•	
Profit/loss after tax	2,808	22,557	12	-2,166	3,289	•	-416	2,369	•	

Source: Financial statements.

Table 2

BALANCE SHEET	Group 1		Group 2		Group 3		Index 08/07
	2008	2007	2008	2007	2008	2007	
Kr. million							
<i>Selected assets</i>							
Cash in hand, etc.	19,122	14,573	2,231	2,200	3,641	4,223	86
Claims on credit institutions and cen- tral banks	452,505	637,128	54,650	41,593	15,642	12,420	126
Loans	1,737,610	1,649,360	252,535	216,166	118,415	113,382	104
Bonds	749,474	638,235	88,028	83,108	19,541	17,289	113
Equities	16,774	22,209	4,015	4,459	4,749	5,841	81
<i>Selected liabilities</i>							
Debt to credit institutions and central banks	1,013,278	1,071,860	155,483	149,479	33,941	32,650	104
Deposits and other debt	1,298,381	1,268,002	180,597	156,332	102,455	96,965	106
Bonds issued	542,087	424,358	34,394	12,263	4,961	2,656	187
Subordinated debt	69,727	70,651	10,884	9,477	4,880	5,258	93
Equity	148,898	154,966	25,010	25,301	21,219	22,262	95
Total assets/liabilities	3,932,984	3,546,402	453,638	376,205	173,027	163,386	106

Note: Cash in hand, etc. is cash in hand and demand deposits with central banks. Lending and deposits are actual lending and deposits, not adjusted for mergers and acquisitions.
Source: Financial statements.

Table 3

CAPITAL STRUCTURE	Group 1		Group 2		Group 3*		Index 08/07
	2008	2007	2008	2007	2008	2007	
Tier 1 (incl. hybrid core capital)	144,159	139,524	24,940	24,881	20,204	21,212	95
Capital base	194,576	193,220	33,110	32,350	24,744	25,161	98
Risk-weighted items	1,356,390	1,654,104	293,923	279,793	161,151	174,345	92

Source: Financial statements.

KEY RATIOS FOR GROUP 1

Table 4

Per cent	2003	2004	2005	2006	2007	2008
<i>Solvency</i>						
Solvency ratio	13.7	12.9	13.2	13.7	11.7	14.3
- 25th percentile	10.4	11.0	10.7	10.2	11.5	12.5
Tier 1 ratio	10.0	9.7	9.5	10.3	8.4	10.6
- 25th percentile	9.2	8.8	8.0	8.3	8.3	10.5
<i>Earnings</i>						
Return on equity before tax	21.9	23.4	22.2	22.5	18.3	2.2
Return on equity after tax	15.6	16.9	17.4	17.8	15.2	1.9
Income/cost ratio	182.9	197.4	207.4	218.7	193.0	106.6
<i>Market risk</i>						
Interest-rate risk	3.3	1.3	0.8	0.6	2.0	2.1
Currency position	0.0	0.1	2.9	3.4	3.9	4.4
<i>Credit risk</i>						
Lending/deposit ratio	102.9	105.6	113.4	130.6	130.0	134.9
Lending/equity ratio	762.0	869.9	919.2	926.0	1,064.3	1,167.0
Lending growth	4.3	13.5	24.6	23.9	25.3	5.4
Sum of large exposures	151.3	154.2	149.5	133.2	125.3	88.7
Impairment ratio	0.3	0.0	-0.1	-0.1	0.0	0.6
<i>Liquidity risk</i>						
Lowest excess cover in relation to statutory minimum	22.5	17.6	33.3	31.8	18.0	37.6
25th percentile, excess cover in relation to statutory minimum ...	93.9	103.1	90.4	70.4	87.8	66.3

Note: Unless otherwise stated, the figure is a weighted average. Key ratios are based on the Danish Financial Supervisory Authority's key ratios. Lending growth has not been adjusted for acquisitions, etc.
Source: Financial statements and own calculations.

KEY RATIOS FOR GROUP 2 Table 5

Per cent	2003	2004	2005	2006	2007	2008
<i>Solvency</i>						
Solvency ratio	12.0	11.4	11.5	11.5	11.6	11.3
- 25th percentile	12.0	10.4	11.2	10.8	11.1	10.2
Tier 1 ratio	10.0	9.7	9.9	9.4	8.9	9.2
- 25th percentile	8.5	8.3	8.3	8.3	7.8	7.3
<i>Earnings</i>						
Return on equity before tax	19.0	17.9	21.8	24.5	18.0	-11.9
Return on equity after tax	14.8	13.6	16.3	19.1	14.0	-8.8
Income/cost ratio	151.5	155.7	178.5	200.4	173.1	74.0
<i>Market risk</i>						
Interest-rate risk	3.4	3.0	2.9	2.8	2.2	1.8
Currency position	0.0	0.0	0.0	8.0	17.0	9.7
<i>Credit risk</i>						
Lending/deposit ratio	108.7	104.8	120.2	135.6	138.2	142.5
Lending/equity ratio	676.7	704.8	741.4	801.6	854.4	1,009.7
Lending growth	3.1	14.6	31.8	26.3	25.0	16.8
Sum of large exposures	157.1	182.2	208.4	203.0	154.6	113.0
Write-down ratio	0.7	0.3	0.1	-0.1	-0.1	1.6
<i>Liquidity risk</i>						
Lowest excess cover in relation to statutory minimum	25.1	23.5	31.1	0.6	47.5	71.6
25th percentile, excess cover in relation to statutory minimum ...	79.2	43.6	51.2	27.7	77.7	82.1

Note: Unless otherwise stated, the figure is a weighted average. Key ratios are based on the Danish Financial Supervisory Authority's key ratios. Lending growth has not been adjusted for purchases, etc.
Source: Financial statements and own calculations.

KEY RATIOS FOR GROUP 3* Table 6

Per cent	2003	2004	2005	2006	2007	2008
<i>Solvency</i>						
Solvency ratio	15.7	15.1	14.2	13.9	14.4	15.4
- 25th percentile	13.4	13.2	12.5	11.9	12.5	13.4
Tier 1 ratio	15.7	15.2	13.7	13.1	12.2	12.5
- 25th percentile	12.6	12.5	11.0	10.4	9.1	9.4
<i>Earnings</i>						
Return on equity before tax	18.6	15.0	17.9	19.1	14.2	-2.9
Return on equity after tax	14.8	11.3	13.3	14.9	11.3	-1.9
Income/cost ratio	156.0	153.9	174.4	189.0	169.1	91.0
<i>Market risk</i>						
Interest-rate risk	4.0	3.6	3.0	2.7	2.1	2.6
Currency position	0.7	1.5	4.6	11.5	15.9	12.8
<i>Credit risk</i>						
Lending/deposit ratio	80.6	86.5	93.4	109.1	116.8	117.5
Lending/equity ratio	369.1	392.1	423.3	472.7	509.3	558.1
Lending growth	6.7	18.7	24.6	31.9	24.3	4.4
Sum of large exposures	64.6	72.2	88.9	106.4	94.0	77.7
Write-down ratio	0.8	0.4	0.1	-0.1	0.1	1.2
<i>Liquidity risk</i>						
Lowest excess cover in relation to statutory minimum	90.2	49.1	3.9	13.1	26.4	40.4
25th percentile, excess cover in relation to statutory minimum ...	120.4	84.8	47.3	50.5	57.2	112.3

Note: Unless otherwise stated, the figure is a weighted average. Key ratios are based on the Danish Financial Supervisory Authority's key ratios. Lending growth has not been adjusted for purchases, etc. Source: Financial statements and own calculations.

PAYMENT TRANSACTIONS VIA KRONOS/CURRENT ACCOUNTS AT DANMARKS NATIONALBANK Table 7

Kr. billion	2005	2006	2007	2008
Interbank payments	31,792	33,310	30,876	29,954
Monetary-policy operations	7,855	8,130	13,662	22,181
Transfers to other payment and settlement systems	18,604	22,119	23,167	24,292
Other transactions	728	450	535	508
Transactions via Kronos/current accounts at Danmarks Nationalbank, total	58,978	64,009	68,240	76,933

Note: Payment transactions in Kronos/Danmarks Nationalbank are calculated as current-account debits, excl. CLS Bank's current account. Transfers to other payment and settlement systems are exclusive of withdrawals from automatic collateralisation accounts.

Source: Danmarks Nationalbank.

SUMCLEARING (RETAIL PAYMENTS) Table 8

Kr. billion	2005	2006	2007	2008
<i>Retail payments settled in the Sumclearing</i>				
Credit transfers	2,879	3,165	3,476	3,515
Dankort and VISA/Dankort and cash cards	254	287	311	322
Inpayment forms	949	1,033	1,104	1,209
Betalingservice (direct debit)	490	523	567	606
Cheques	423	302	247	170
International payment cards	32	39	45	53
All retail payments	5,027	5,349	5,750	5,876
<i>Liquidity reserved by participants in settlement accounts</i>				
Transferred from current accounts	5,918	7,171	9,857	10,642
Transferred from automatic collateralisation accounts	1,864	2,135	2,366	2,397
Total liquidity reserved	7,782	9,306	12,223	13,039
<i>Settlement of payments in settlement accounts after netting</i>				
Night-time settlement	1,099	1,183	1,324	1,390
Day-time settlement	14	11	15	7
Total settlement of payments	1,113	1,194	1,339	1,397
Settlement of payments at Danmarks Nationalbank, per cent of liquidity reserved	14.3	12.8	11.0	10.7
Payments settled at Danmarks Nationalbank, per cent of all retail payments	22.1	22.3	23.3	23.8

Note: Settlement in settlement accounts takes place after multilateral netting of payments between Sumclearing participants.
Source: PBS, Danish Bankers Association and Danmarks Nationalbank.

VP SETTLEMENT		2005	2006	2007	2008
Kr. billion					
<i>Securities transactions settled</i>					
Bonds		23,459	21,482	20,570	21,329
Equities		1,908	2,291	2,897	2,707
Total		25,367	23,773	23,467	24,036
<i>Liquidity reserved by participants for settlement</i>					
Transferred to settlement accounts from current accounts		5,157	6,931	5,211	5,739
Transferred to settlement accounts from automatic collateralisation accounts		1,883	2,527	2,915	3,065
Settlement through direct withdrawal from current accounts		1,574	1,327	1,221	1,362
Total liquidity reserved		8,614	10,785	9,347	10,166
<i>Settlement of payments after netting</i>					
Payments relating to the VP10 trading block		1,457	1,256	1,127	1,218
Payments relating to other trading blocks		417	367	320	259
Payments relating to spot trading (gross only)		15	3	3	3
Payments relating to blocks for periodic payments		437	349	248	231
Settlement of payments at Danmarks Nationalbank, total		2,327	1,975	1,699	1,711
Payments settled, per cent of all securities transactions		9.2	8.3	7.2	7.1

Source: VP Securities.

CLS SETTLEMENT IN DANISH KRONER		Table 10			
Kr. billion		2005	2006	2007	2008
Foreign-exchange transactions, etc. with settlement in Danish kroner					
(value of the krone leg)		31,333	47,596	50,446	54,357
<i>Liquidity reserved by participants for settlement</i>					
Transferred to settlement accounts from current accounts		1,092	1,492	1,440	1,195
Transferred to settlement accounts from automatic collateralisation accounts		2,530	2,523	2,490	2,500
Settlement through direct withdrawal from current accounts		82	136	121	180
Total liquidity reserved for CLS settlement		3,704	4,151	4,051	3,875
Pay-ins in kroner to CLS via Danmarks Nationalbank (after netting)		1,596	2,126	2,020	1,847
Pay-ins, per cent of transactions settled		5.1	4.5	4.0	3.4

Source: CLS Bank and Danmarks Nationalbank.