FINANSTILSYNET

Credit institutions

Market development article

FINANSTILSYNET

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Summary

Credit institutions had a lower result in 2022 than in 2021. The total profit before tax was DKK 25.7 billion compared to DKK 45.3 billion the year before. Lower value adjustments and Danske Bank's money laundering fine of DKK 13.8 billion were the main reasons. Credit institutions' value adjustments were negatively impacted by the large interest rate increases in 2022. Core earnings on the other hand increased in 2022, mainly due to higher net interest income. The higher interest rate level has led to an increased interest margin on the deposit side.

The total capital ratio of credit institutions decreased in 2022. The decrease in the excess cover for capital requirements was further reinforced by the ongoing phasing-in of the countercyclical capital buffer.

Total bank lending grew by 6.8% from the fourth quarter of 2021 to the fourth quarter of 2022. In particular, bank lending to commerce, industry and commodity extraction has grown significantly.

The share of variable-rate mortgage loans both with principal payments and interest-only payments increased significantly. The widespread use of interest-only loans, including grace periods of up to 30 years, and variable-rate loans entails a higher risk for the borrower, the institution and the economy at large. The Danish FSA is following developments closely and has, among other things, investigated the banks' housing loans and expanded the Growth guideline.

Loan impairments were less prominent in 2022 than before the COVID-19 crisis. In particular, small and medium-sized banks have seen a sharp decline in accumulated loan impairments on corporate loans. The great uncertainty about the economic development in 2022 has meant that management estimates have accounted for a significant share of credit institutions' loan impairments. Management estimates accounted for 30-40% of operating loan impairments for both banks and mortgage banks.

The liquidity in long-term convertible mortgage bonds decreased significantly due to uncertainty and rising inflation. Long-term convertible mortgage bonds create value for borrowers, institutions and investors alike as they protect home equity in the event of both falling interest rates and rising interest rates while mitigating the debt service risk. The long-term convertible mortgage bonds also reduce the mortgage banks' overall refinancing risk and their need for supplementary collateral in the event of interest rate fluctuations. It is important that high liquidity in the series is maintained and that key market players support the convertible market.

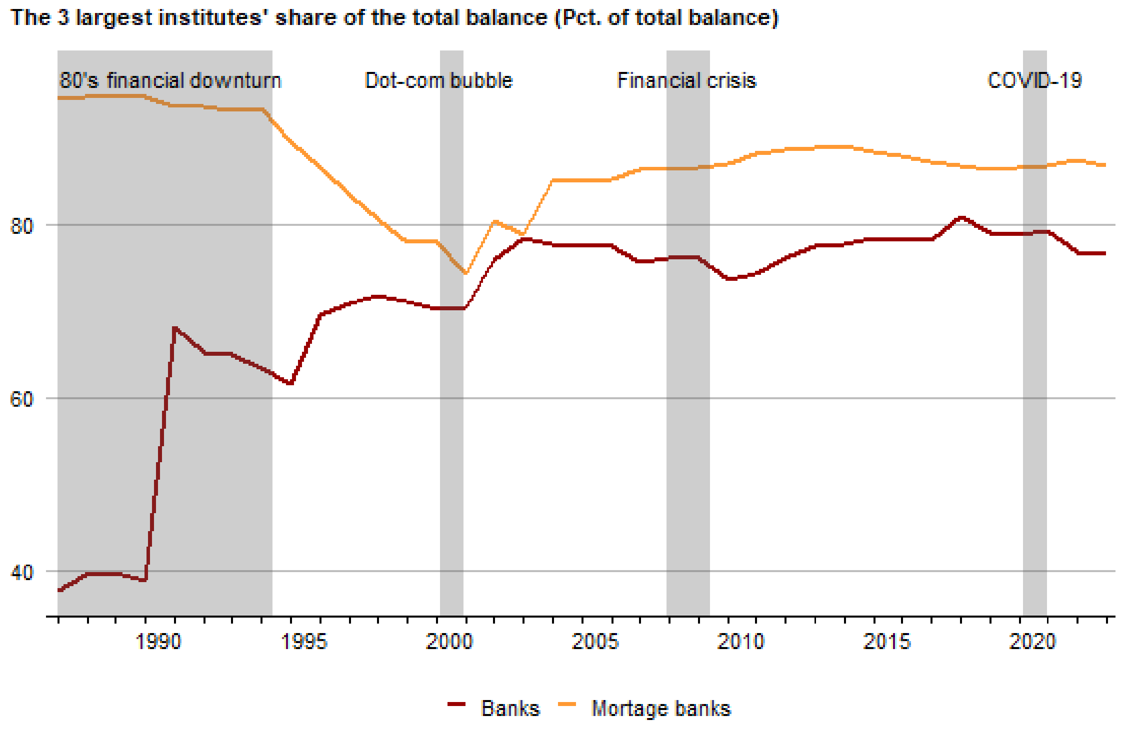
1. Structure of the credit sector

The concentration of banks, measured by the three largest institutions in relation to the total balance sheet, has increased significantly over the past 35 years, see figure 1.

In 1986, the three largest banks accounted for 38% of the banks' total balance sheet. By 2022, it had grown to 77%. The increase is primarily driven by several rounds of mergers among the larger banks. In 1990, the first major consolidation took place when the three institutions Privatbanken (third-largest institution), Sparekassen SDS (fourth largest) and Andelsbanken (seventh largest) became Unibank (later Nordea in a Nordic bank merger), and Danske Bank (the largest institution) merged with Kjøbenhavns Handelsbank (second largest) and Provinsbanken (fifth largest). In 1995, Sparekassen Bikuben merged with GiroBank to form BG Bank, which was acquired by Danske Bank in 2001.

The mergers and acquisitions in the years after the 1980s were part of the sector's efforts to achieve rationalisation and economies of scale[1].

Figure 1: The concentration of banking institutions and mortgage banks



Note: The figure illustrates the balance sheet of the three largest banks and mortgage banks as a percentage of the total balance sheet of the banks and mortgage banks, respectively. The figure is only an inventory of Danish institutions.
Source: Reports to the Danish supervisory authority for banks and savings banks, the Danish Ministry of Housing and the Danish Financial Supervisory Authority.

In the period up to 1989, the mortgage credit market was largely dominated by Kreditforeningen Danmark (later Realkredit Danmark), Nykredit Realkredit and BRFkredit (later Jyske Realkredit). But with an amendment to the Danish Mortgage Credit Act in 1989, new

[1] Read more here: Dansk Pengehistorie 1990-2005 volume 6, Abildgren, Kim; Andersen, Bodil Nyboe; Thomsen Jens (link).

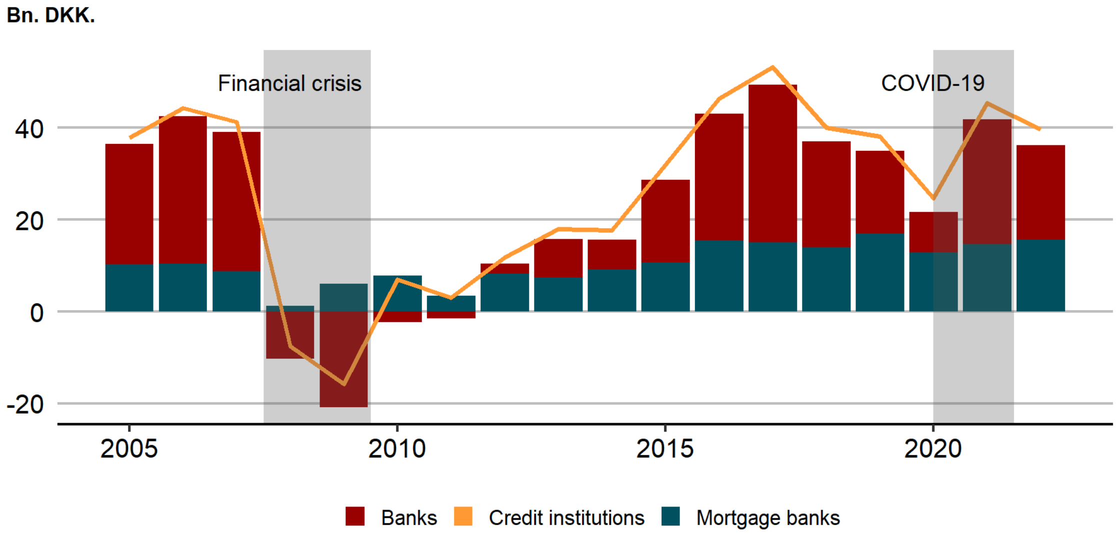
mortgage banks were allowed to be established. This meant that Danske Kredit (later part of Realkredit Danmark), Unikredit (later Nordea Kredit) and Totalkredit (which was a reactivation of the former Provinsbankernes Reallånefond) were established. The new mortgage banks gradually began to grow larger than the biggest institutions. The market share of the three largest mortgage banks was thus reduced. In the early 2000s, the Danske Bank group merged with Realkredit Danmark while Nykredit Realkredit acquired Totalkredit. Overall, this meant that the concentration increased again.

2. Credit institutions' core earnings have improved

In 2022, the credit institutions achieved a total profit before tax of DKK 25.7 billion compared to DKK 45.3 billion the year before[2]. This corresponds to a 43% decrease relative to the 2021 result. The sector's result was strongly affected by the fact that Danske Bank was fined DKK 13.8 billion as a consequence of the money laundering case in Estonia. If we look at the credit institutions' total result adjusted for the fine, the result was DKK 39.5 billion, see figure 2. In the following, adjustments are made for Danske Bank's money laundering fine unless otherwise stated.

The banks had a profit before tax (excluding earnings from intra-group banks and mortgage credit institutions) of DKK 20.4 billion in 2022, which is somewhat less than the DKK 27.7 billion the year before. The mortgage banks' profit before tax was DKK 15.7 billion compared to DKK 14.7 billion the year before.

Figure 2: Credit institutions' profit before tax



Note: The figure shows the results of banks and mortgage banks, respectively, adjusted for earnings from intra-group banks and mortgage banks. As several banks and mortgage banks are part of the same group, this correction ensures that the banks' results on the individual level are not included twice when summing up at the sector level. The sum of the result from banks and mortgage banks will differ from the total result of credit institutions, as more activities are included in the consolidated figures, for example, from subsidiaries abroad.
Source: Reports to the Danish FSA.

Credit institutions improved their earnings from their core business as core earnings grew by 13% to DKK 36.4 billion, see figure 3. Core earnings were thus at the highest level since 2017, when they were DKK 37.7 billion. Credit institutions' earnings on value adjustments (net capital gains) were DKK 5.6 billion in 2022, which is DKK 4.3 billion lower than in 2021. Value adjustments cover adjustments to the value of financial assets and liabilities measured at fair value. This includes value adjustments on shares, bonds and currency.

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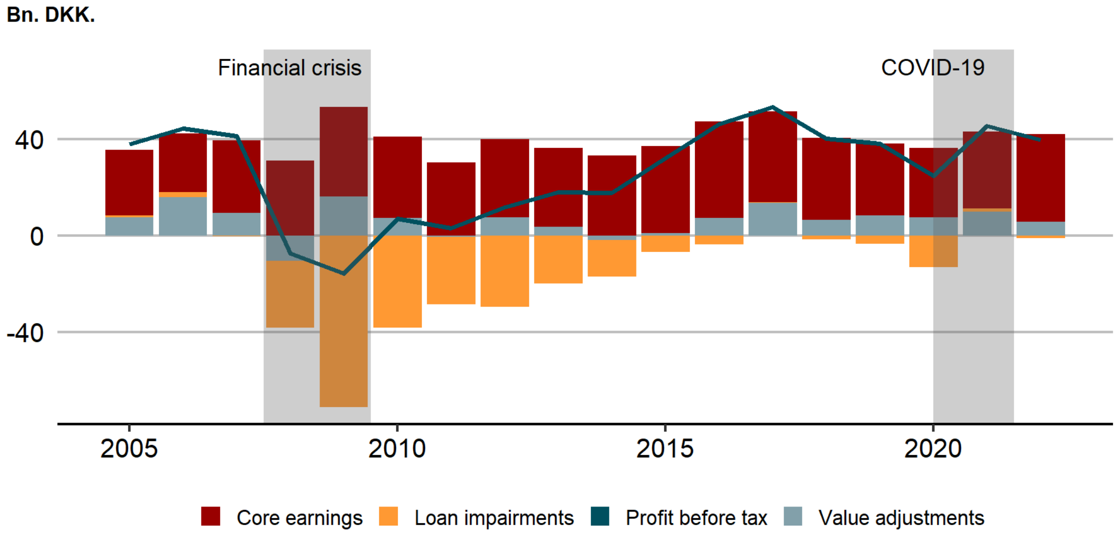
[2] This article is limited to credit institutions, banks and mortgage banks headquartered in Denmark. This means that the North Atlantic institutions and branches of foreign institutions are excluded.

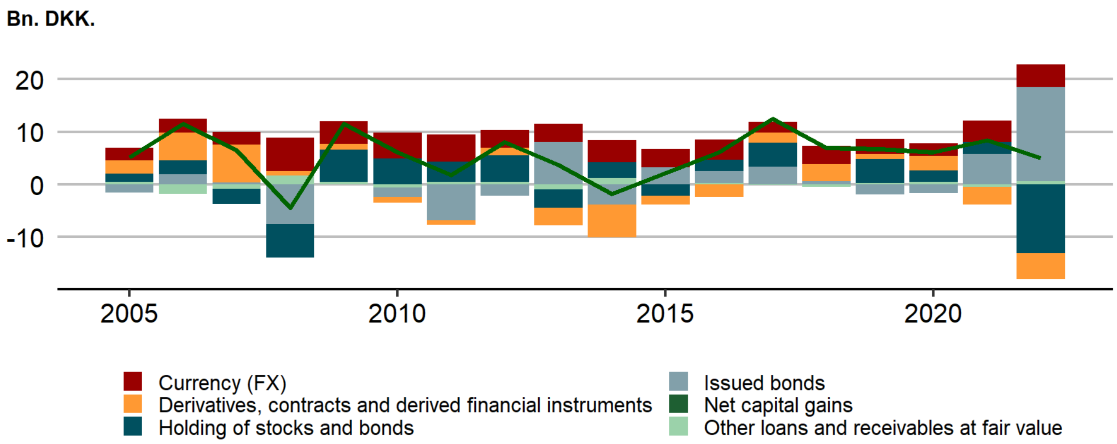
Figure 3: Components of the results of credit institutions



Note: Profit/loss on shares in associated enterprises is not shown in the figure.
Source: Reports to the Danish FSA.

In 2022, the gross movements in banks' value adjustments were significantly higher than in the previous year, see figure 4[3]. This is particularly due to the large increases in interest rates in 2022. The price of bonds falls when interest rates rise. This results in capital losses on bond holdings (assets) and capital gains on bond issues (liabilities).

Figure 4: Gross movements in the value adjustments of banking institutions



Note: The figure shows movements in the items that make up the banking institution's value adjustments. Some smaller items have been omitted.
Source: Reports to the Danish FSA.

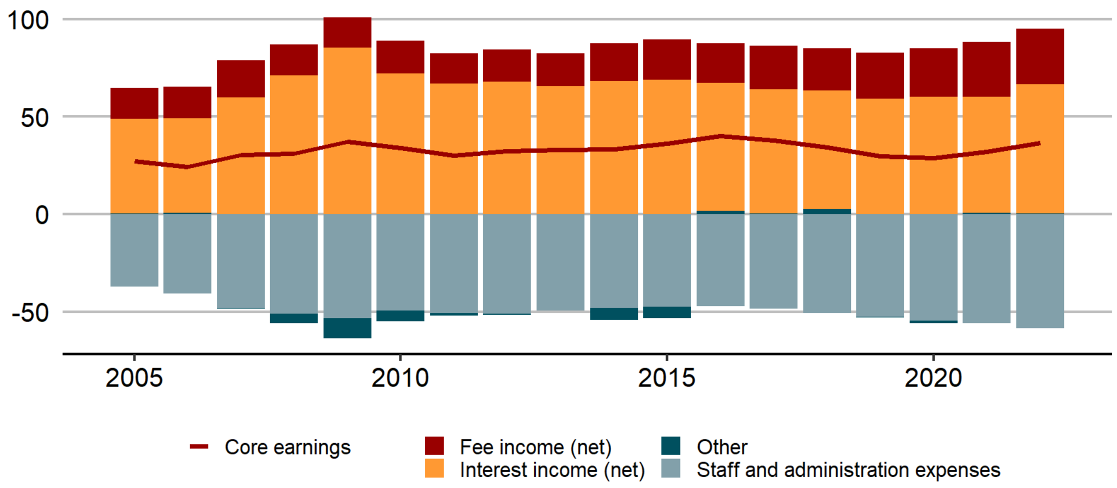
[3] The accounting rules mean that the value adjustments of mortgage banks' mortgage lending correspond to the value adjustments of the issued mortgage bonds. This means that the value adjustments of mortgage banks are mainly affected by the value adjustment of their own funds. Mortgage bank's gross movements in their value adjustments are excluded from the figure.

In addition to declining earnings on value adjustments, loan impairments amounted to an expense of DKK 1.2 billion in 2022 compared to a reversal of DKK 1.2 billion the year before. Thus, the credit institutions' result was lower than in 2021, despite a significant strengthening of core earnings.

The increase in core earnings particularly reflects the fact that interest income (net) grew by DKK 7 billion to DKK 66.3 billion, see figure 5. Fee income (net) amounted to DKK 28.3 billion for the sector, which is largely unchanged from 2021. Staff and administration expenses in 2022 were DKK 58.6 billion.

Figure 5: Components of the core earnings of credit institutions

Bn. DKK.



Note: Core earnings consist of net interest and net fee income, personnel and administrative expenses, depreciation, amortisation and impairment of tangible and intangible assets and other operating incomes and expenses.
Source: Reports to the Danish FSA.

Interest rate developments and credit institution earnings

The correlation between interest rates and bank earnings is generally positive[4]. However, these are two opposing forces: There is a rising top line on the one hand and losses on securities and loans on the other. The relationship between these is highly dependent on other macroeconomic developments.

In this way, banks' interest income and interest expenses are strongly influenced by the level of interest rates and the slope of the yield curve[5] through two channels[6]:

- Financing margin: Institutions fund themselves cheaply through deposits, among other things, and in many cases they can access cheaper funding than the risk-free rate (reflecting the fact that institutions offer transaction services and that deposits are liquid).

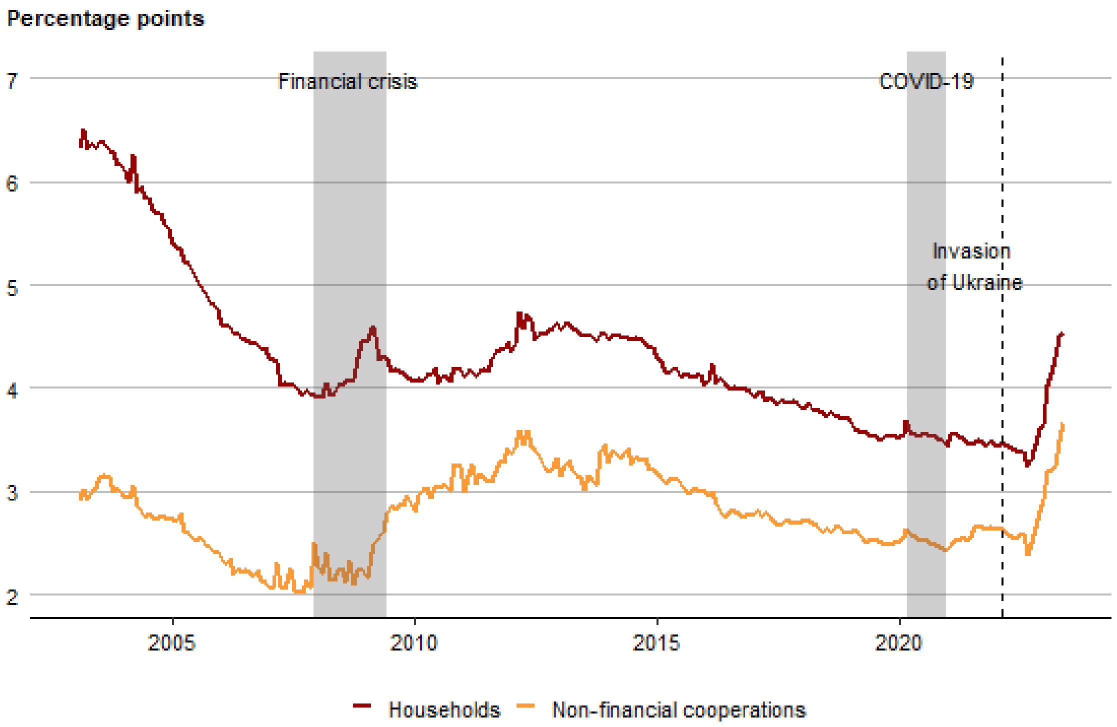
[4] For example, see Claudio Borio, Leonardo Gambacorta and Boris Hofmann (2015): *The influence of monetary policy on bank profitability*, BIS Working Papers.
[5] The yield curve illustrates the relationship between interest rates and maturities. Under normal circumstances, the yield curve is upward sloping, meaning that longer maturities result in higher interest rates.
[6] Read more here: Danmarks Nationalbank, Finansiel Stabilitet, 1st half 2015, Box 4.1(link)

- Maturity transformation: Institutions fund themselves with significantly shorter maturities (for example, deposits) than they allocate the funds for (for example, loans). The return of this channel depends on the slope of the yield curve.

Higher interest rates also mean higher loan impairments. This is partly because debt servicing costs increase for companies and households with variable interest rates, which increases the likelihood of defaults. Added to this are capital losses on fixed-rate bonds and other securities.

The interest margin for households increased from 3.4 to 4.0 percentage points in the period August 2022 to February 2023, while for non-financial corporations it increased from 2.9 to 3.7 percentage points in the same period, see figure 6.

Figure 6: Interest margin of financial institutions

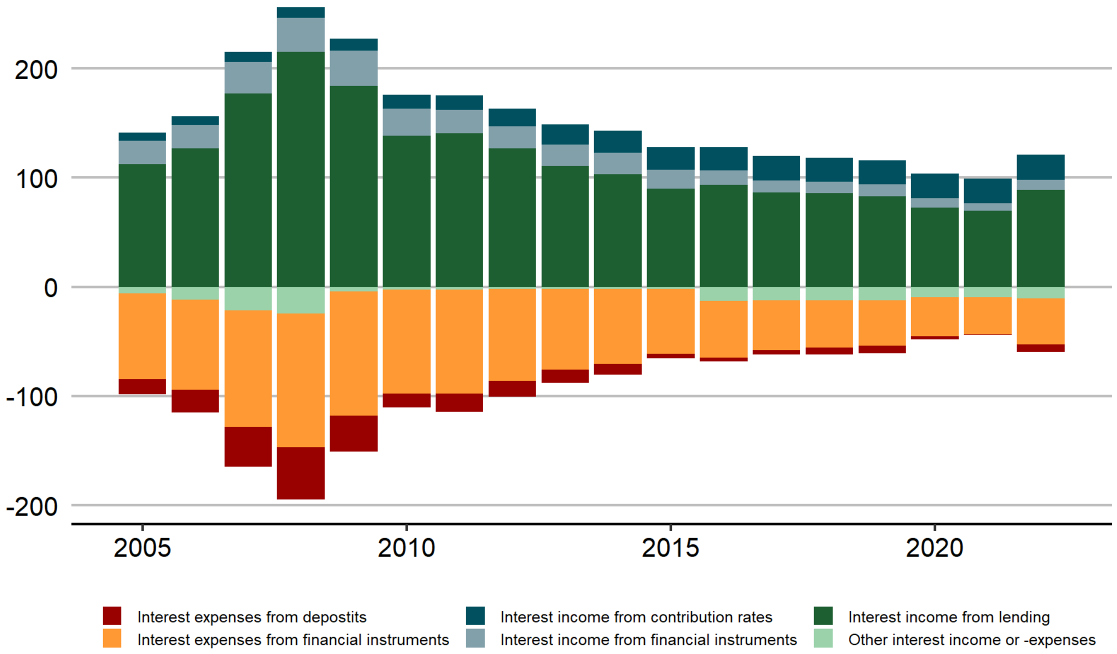


Note: The interest margin is calculated on the banks' domestic outstanding business. The interest margin is the difference between the lending and deposit rates.
Source: Danmarks Nationalbank (DNRURPI).

The higher interest rate level in 2022 meant that banks and mortgage banks generated an increase of DKK 19 billion in interest income on loans, see figure 7. However, some of these were offset by increased interest expenses on financial instruments, including issuances, from DKK 33.7 billion in 2021 to DKK 42.2 billion in 2022. The banks' interest income on loans grew by DKK 10 billion to DKK 44 billion. Their interest expenses on deposits amounted to DKK 6.9 billion, an increase of DKK 6.1 billion from 2021. Income from the mortgage bank's contribution rates was DKK 23 billion in 2022, which is on par with the previous years. Mortgage banks set the contribution rates as a supplement to the interest rate on the loan, and the rates typically depend on the individual institution's risk associated with the loan, including the loan type and loan-to-value ratio. Therefore, the current interest rate level does not affect the contribution income.

Figure 7: Interest income and expenses of banks and mortgage banks

Bn. DKK.

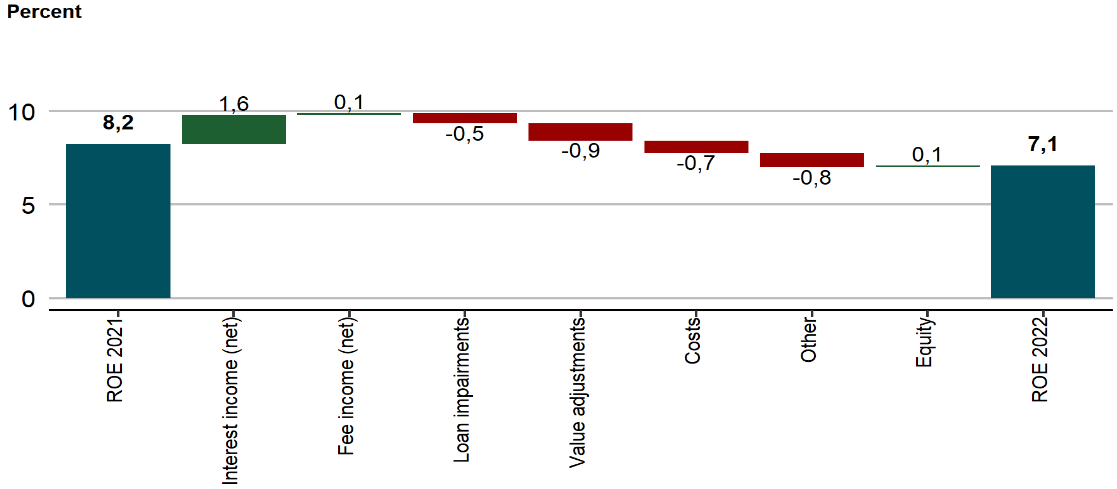


Note: Interest income from financial instruments includes bond interest income and interest income from derivative financial instruments. Interest expenses from financial instruments include expenses for issued bonds and subordinated capital contributions. Credit institutions have other interest income and expenses, for example, from the placement of funds with/from other credit institutions and central banks. These fall under “other interest income and expenses”.
Source: Reports to the Danish FSA.

Credit institutions’ return on equity

In 2022, credit institutions had a return on equity of 7.1% after tax compared to 8.2% in 2021, see figure 8. Improved net interest and net fee income contributed positively, while value adjustments, higher loan impairments and increased costs pulled in the opposite direction, see figure 8.

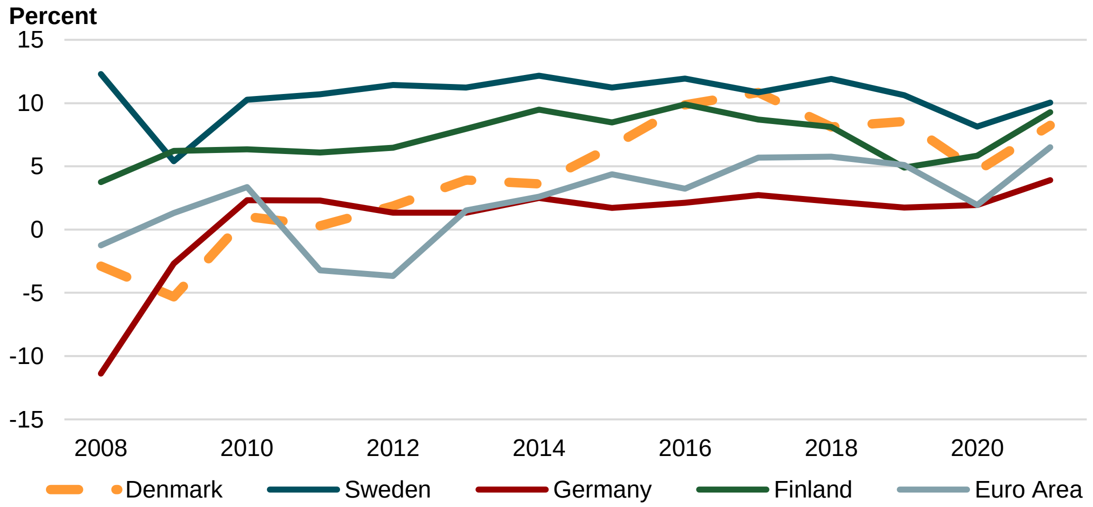
Figure 8: Drivers of credit institutions' return on equity



Note: The figure shows the factors that influenced return on equity (ROE) after tax from 2021 to 2022. Green bars illustrate positive contributions while red bars illustrate factors that contributed to a worsening of the return on equity ratio. The category *Costs* includes costs for labour and administration, depreciation and amortisation of intangible and tangible assets and other operating costs. The *Other* category contains tax, other income from shares, profit or loss on shares in associates and affiliates, profit or loss on assets in liquidation and dividends on shares.
Source: Reports to the Danish FSA.

Over a long period of time, the profitability of Danish credit institutions has been on a similar level with the profitability of credit institutions in comparable countries, see figure 9. In 2021, Danish credit institutions' return on equity was higher than for credit institutions in Germany and the euro area as a whole, but lower than in Sweden and Finland[7]. The trend towards stronger core earnings among credit institutions in 2022 also appears to apply to credit institutions in other EU countries[8].

Figure 9: Credit institutions' return on equity in selected countries



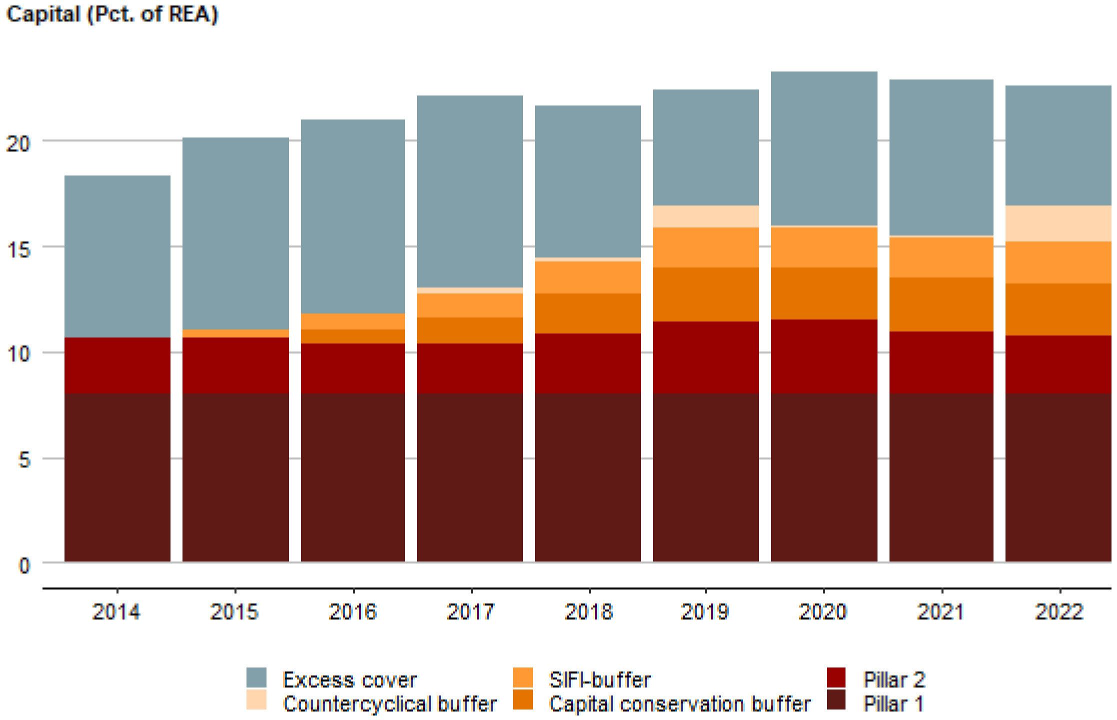
Note: Return on equity is calculated after tax. Return on equity is calculated at the highest consolidation level. Latest observation is from 2021.
Source: European Central Bank, reports to the Danish FSA.

[7] However, it should be noted that credit institutions in different countries are subject to different capital requirements and have a different mix of customers and business activities, which affects their earnings.
[8] European Central Bank (2022): *Financial Stability Review November 2022.*

3. Credit institutions' capital

The total capital ratio of credit institutions decreased from 22.8% in 2021 to 22.5% in 2022; see Figure 10. The decrease in the capital ratio is due to an increase of DKK 22 billion in risk-weighted exposures (RWE) and a reduction in the capital stock of DKK 26 billion. The capital ratio of credit institutions has decreased since 2020, when it was 23.2% overall. This is remarkable in light of the increasing global risks[9]. Regardless of the development of the overall capital situation in the sector, it is always important that individual credit institutions pay attention to whether their capital ratio and capital situation is - and can remain - sufficiently robust. Given the continued significant uncertainty about economic developments and external risks, it is crucial that credit institutions can absorb large (and larger than expected) losses without running into problems with capital and buffer requirements.

Figure 10: Capital requirements for credit institutions



Note: The excess cover includes the institutions' excess cover of core capital (Common Equity Tier 1/CET1), plus additional and hybrid core capital (AT1 and T2). All figures are as a percentage of risk-weighted exposures (RWE).
Source: Reports to the Danish FSA.

Capital adequacy for credit institutions based on regulatory requirements (capital and buffer requirements) fell significantly in 2022 from 7.3% of RWE the year before to 5.9% of RWE, see figure 11. However, the excess cover is still higher compared to before the COVID-19 crisis, when it was 5.4%. The decrease in excess cover can largely be explained by the fact that credit institutions have again had to build up the countercyclical capital buffer, which was released by the Minister for Industry, Business and Financial Affairs on 13 March 2020 in response to the COVID-19 crisis. The countercyclical capital buffer was reactivated to 1% in Q3 of 2021 effective as of 30 September 2022[10]. It was then further increased to 2% effective

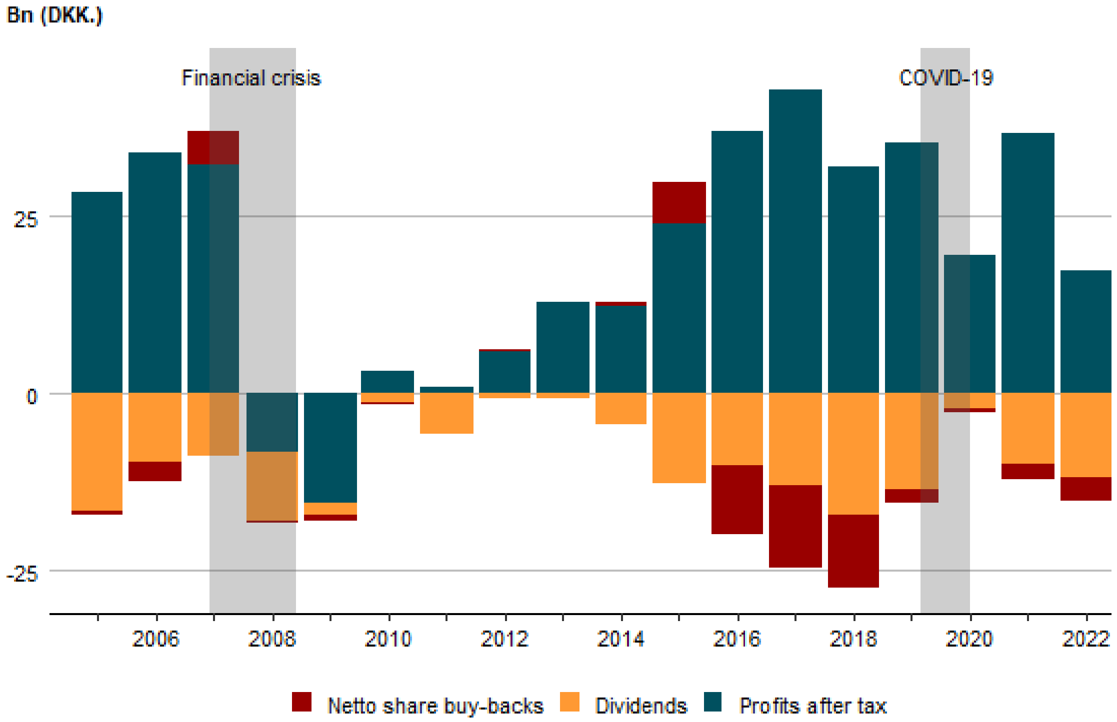
[9] See the Danish Financial Supervisory Authority's Risk Profile(link)
[10] See the website of the Ministry of Industry, Business and Financial Affairs, *Genopbygning af den kontracykliske kapitalbuffer (Reconstruction of the Countercyclical Capital Buffer)*, 23 June 2021 (link)

as of December 31, 2022[11] and to 2.5% effective as of March 31, 2023[12]. Both the reactivation and the increases come as a follow-up to recommendations from the Danish Systemic Risk Council.

The capital is largely built up from paid-in share capital and retained earnings. Thus, the capital position of credit institutions is largely determined by the accumulated profit after tax and minus dividend payments.

In 2022, the credit institutions distributed DKK 15.1 billion in the form of dividends and share buy-backs based on the result in 2021; see figure 11.

Figure 11: Credit institutions' dividend payments and share buy-backs



Note: The allocation of dividend payments is typically based on the previous year's result. Therefore, dividends and net share buybacks in the year in the figure occurred based on the annual result from the previous year. Dividends and net share repurchases are adjusted for intra-group matters.
Source: Reports to the Danish FSA.

Before the financial crisis, credit institutions paid out large dividends and bought back their own shares, just as they do now, see figure 12. During the crisis, several of these institutions had to raise new capital at a time when stock prices were at rock bottom and there was turmoil in the financial markets.

In general, capital should be built up in good times so that institutions can withstand financial shocks. One obvious way for institutions to build capital is to retain profits.

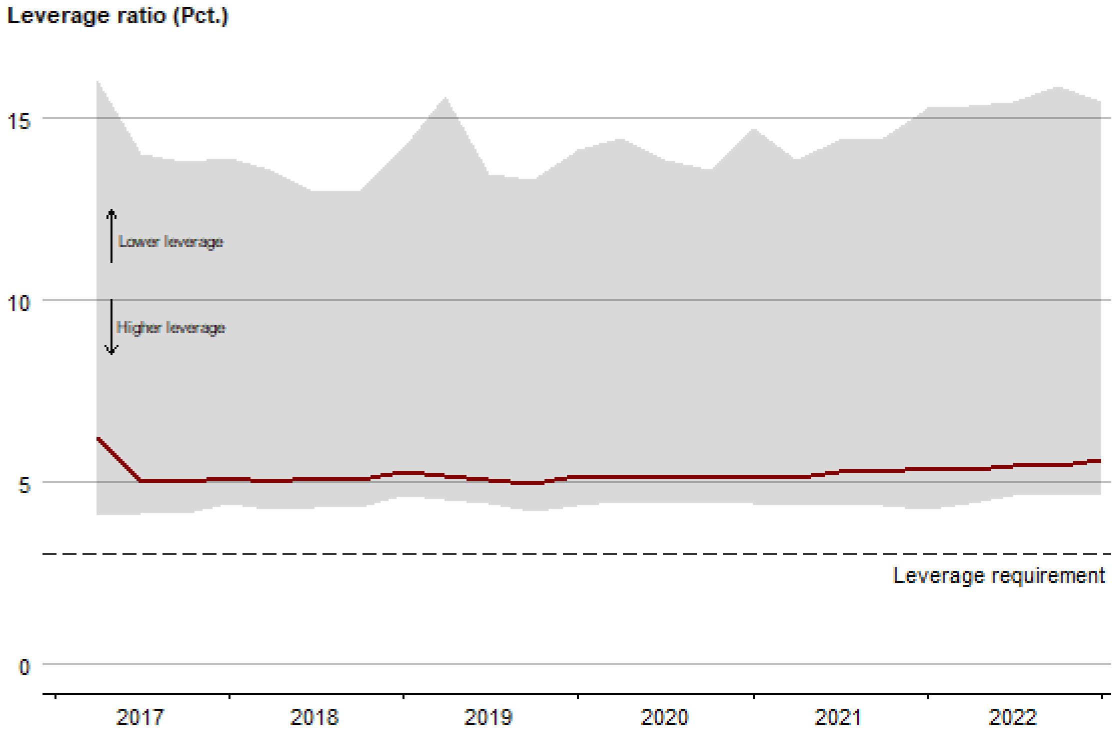
[11] See the website of the Ministry of Industry, Business and Financial Affairs, *Forøgelse af den kontracykliske kapitalbuffer i Danmark* (Increase of the Countercyclical Capital Buffer in Denmark), 15 December 2021 (link)
[12] See the website of the Ministry of Industry, Business and Financial Affairs, *Forøgelse af den kontracykliske kapitalbuffer i Danmark* (Increase of the Countercyclical Capital Buffer in Denmark), 30 March 2022 (link)

The leverage requirement

On 28 June 2021, a so-called 'leverage requirement' was introduced for Danish credit institutions. The requirement implies that the leverage ratio, which measures an institution's core capital[13] in relation to the non-risk-weighted exposures, must be at least 3%.

At the end of 2022, the total leverage ratio for credit institutions was 5.6%, see figure 12. This is a slight increase of 0.2 percentage points from the previous year. The leverage ratio has been relatively constant over the past 6 years, ranging between 5.0% and 6.0%. The spread illustrates that no individual credit institutions were in breach of the leverage requirement as of June 2022, and that some institutions have relatively low leverage.

Figure 12: Credit institution leverage and dispersion



Note: The figure shows the credit institutions' total leverage ratio (red line) and the spread measured in the 0 and 95th percentiles (gray area). Niche institutions and institutions younger than 3 years are excluded from the calculation. The dotted line illustrates the implemented leverage requirement of 3%.
Source: Reports to the Danish FSA.

Banks' minimum requirement for own funds and eligible liabilities (MREL)

As a result of the financial crisis and in order to meet the serious consequences that future financial and economic crises may entail for the Danish and European economies and financial stability, Denmark and the EU have implemented a directive on the recovery and resolution of credit institutions and investment firms (BRRD). The directive requires the Danish FSA

[13] The core capital is also known as Tier-1 capital, which consists of Common Equity Tier 1 (CET1) and additional and hybrid core capital (AT1). CET1 is the highest quality of capital and can absorb losses instantly. This type of capital includes share-, guarantor- and share capital, retained profits, accumulated other total income, and other reserves. AT1 consists of hybrid capital instruments, which are subordinated loans and as a general rule without maturity which can be used to cover losses and, for example, be written down or converted into CET 1 capital.

to set an MREL requirement for Danish banks and investment companies. For Danish mortgage banks, the Danish FSA sets a debt buffer requirement.

The MREL is intended to facilitate the resolution strategy and help shareholders and creditors bear the costs associated with crisis management of a credit institution.

The MREL requirement is set differently depending on whether a bank is identified as a SIFI or non-SIFI[14]. For SIFIs, the MREL requirement is two times the solvency need plus the SIFI and capital conservation buffer, while for non-SIFIs, an individual MREL requirement is set by the Danish FSA[15]. Overall, this means that the MREL requirement for SIFIs is significantly higher than for non-SIFIs. This is because the preferred resolution strategy for SIFIs is recapitalisation and the continuation of the entire institution - without the use of public funds.

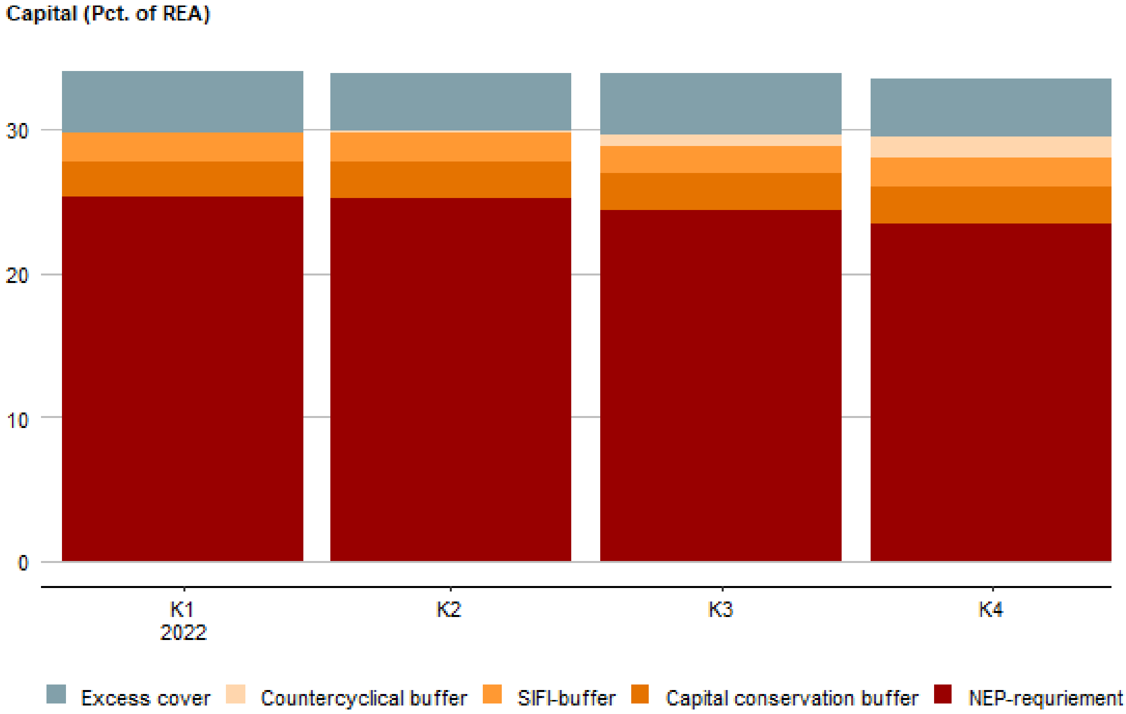
For non-SIFIs, the preferred resolution strategy will most often involve restructuring the institution in order to continue the viable parts in the market as soon as possible through a divestment process, while any remaining non-sellable activities are settled under the auspices of Finansiel Stabilitet (FS) in the institution or in a so-called bridge institution - also without the use of public money.

The banks' total MREL as a percentage of RWE fell from 34.1% to 33.4% during 2022, see figure 13. The decrease can be attributed to a decrease in capital of DKK 9.0 billion. During the same period, the MREL requirement decreased by 1.8 percentage points and the countercyclical buffer increased by 1.5 percentage points, while the remaining buffers remained unchanged. Overall, this has meant that the excess cover for MREL and buffer requirements fell from 4.3% to 3.9% during the period.

[14] SIFI stands for 'Systemic Important Financial Institution'. SIFI institutions are designated by the Danish Financial Supervisory Authority. How the Danish Financial Supervisory Authority designates SIFI institutions and the latest designation is described here: Link.

[15] Consists of two main components; loss absorption amount and recapitalisation amount (the MREL surcharge). The loss-absorbing amount is the institution's individual solvency needs (pillar 1 and 2). The recapitalisation amount consists of three additional sub-components: recapitalisation floor, recapitalisation surcharge and a potential size surcharge. The recapitalisation surcharge consists of the part of the institution's activities that cannot be resold immediately and must therefore be continued by Finansiel Stabilitet. The recapitalisation floor covers those exposures to which there is considerable uncertainty about whether the activities can be resold. If the institution has a balance sheet greater than EUR 3 billion, there will also be a size surcharge. This covers, on the one hand, the costs associated with the fact that the divestment of assets will be more difficult the larger the institution is, and, on the other hand, that for these institutions there is no prior approval from the European Commission that the liquidation assets can be used. Read more here: Link.

Figure 13: Banking institutions' MREL requirements



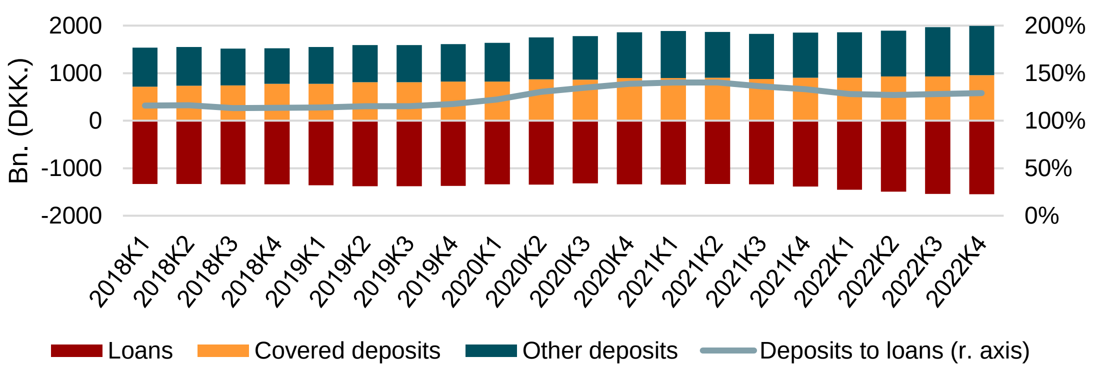
Note: Both capital and RWE are calculated at liquidation group level. The consolidation only includes companies that are subject to an MREL requirement. For example, mortgage banks are not subject to an MREL requirement, but a debt buffer requirement. The excess cover includes the institutions' excess cover of core capital (Common Equity Tier 1/CET1), additional and hybrid core capital (AT1 and T2) and MREL instruments. All figures are as a percentage of risk-weighted exposures (RWE).
Source: Reports to the Danish FSA and the FSA's MREL decisions.

The liquidity and funding of banking institutions

The deposits in banks from Danish households and businesses grew considerably during COVID-19 and amounted to approximately DKK 2,000 billion at the end of 2022, see figure 14.

Total deposits were significantly higher than loans. The deposit surplus peaked in mid-2021, with a deposit-to-loan ratio of 140%. Since then, the deposit surplus decreased by 11 percentage points to 129% at the end of 2022. This remains higher than pre-COVID-19 crisis levels and has flattened out through 2022.

Figure 14: Loans and deposits at banking institutions



Note: Here, deposits are calculated excluding deposits in pooled schemes. Covered deposits are deposits that are covered by the deposit guarantee.
Source: Reports to the Danish FSA.

Deposits are usually considered a safe and stable source of funding, especially the part covered by deposit guarantees[16]. A high deposit surplus means there is less need for market funding, such as bond issues, which in situations of market stress can be difficult and in the worst case impossible to refinance.

However, deposits can also be subject to sudden and large withdrawals - i.e., a "bank run" - if confidence in the bank disappears. The most recent examples are the US banks Silicon Valley Bank and First Republic Bank as well as the major Swiss bank Credit Suisse.

The most important safeguards against a bank run are a strong capital base, robust liquidity preparedness and, not least, good and robust risk management. After the financial crisis, the requirements for, among other things, banks' capital and liquidity have been significantly tightened.

For banking and mortgage bank institutions, requirements for both short-term liquidity (LCR requirements) and structural funding (NSFR requirements) have been introduced. However, the experience of the banks mentioned above shows that these rules alone are not sufficient. Good risk management is needed.

The LCR requirement is intended to ensure that institutions have sufficient liquid assets to withstand a period of extraordinarily high liquidity withdrawals.

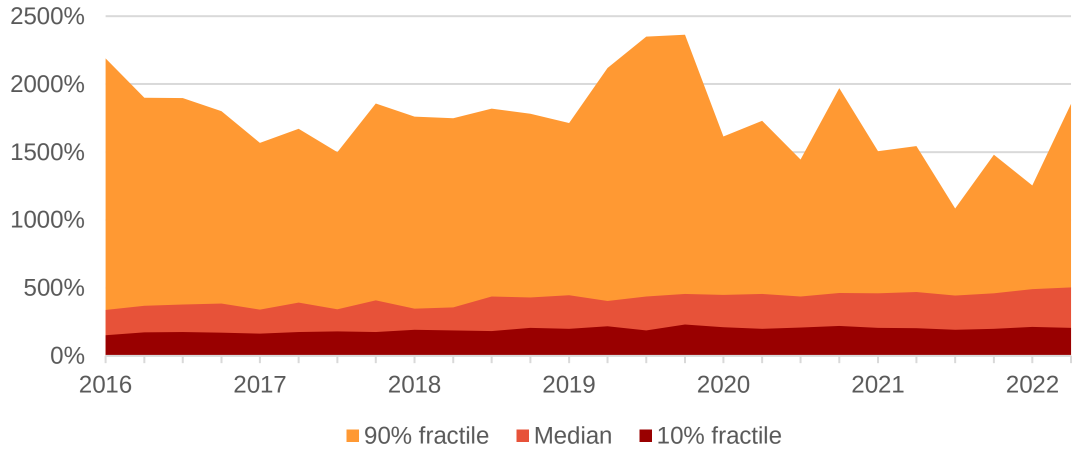
The excess cover in relation to the LCR requirement of 100% is still quite significant in 2022, see figure 15. The median institution has an excess cover of 500%, which means that it has six times as much liquid assets as required.

It is especially the smaller, deposit-financed institutions that have high levels of excess cover. Deposits are largely covered by the deposit guarantee and are therefore less volatile in a liquidity crisis.

The larger institutions rely more on wholesale funding which can be difficult to refinance in a n uncertain situation. Additionally, these institutions often have several large corporate deposits that are not covered by the deposit guarantee. Institutions with a high share of wholesale funding and a correspondingly lower share of deposits operate with structurally lower LCR levels and therefore manage liquidity closely.

[16] Deposits of up to DKK 750,000 per depositor in a bank are covered by the Danish Guarantee Fund.

Figure 15: Development in banks' excess cover for LCR requirements



Source: Reports to the Danish FSA.

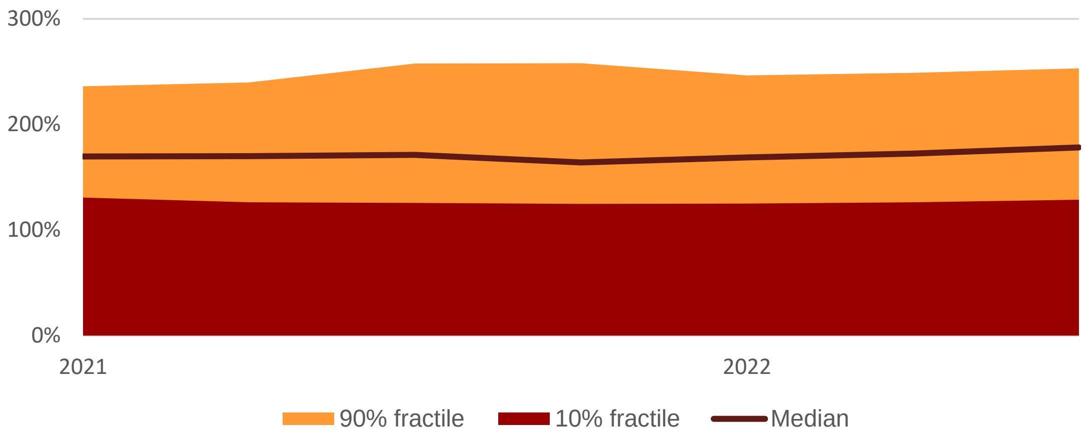
The NSFR requirement is intended to ensure that institutions have adequate stable funding of their assets. In this context, liabilities with a residual maturity of more than one year and deposits covered by a deposit guarantee are considered stable funding that helps cover the requirement.

The vast majority of institutions have a good margin relative to the regulatory requirement for an NSFR of 100%, see figure 16[17]. As with the LCR, deposit-financed institutions generally have the largest margin. All else being equal, a drawdown of deposits and credit in a recession will reduce the NSFR of institutions.

The continuing high inflation and falling real wages may result in a need to draw on liquidity and cause shifts in the composition of deposits within and between banks. The Danish FSA is seeing the first signs that banks are trying to attract or retain deposits by using fixed-term deposits at higher interest rates.

[17] The same applies to mortgage banks, which at the end of 2022 had an NSFR of between 133% and 725%.

Figure 16: Development in banks' NSFR

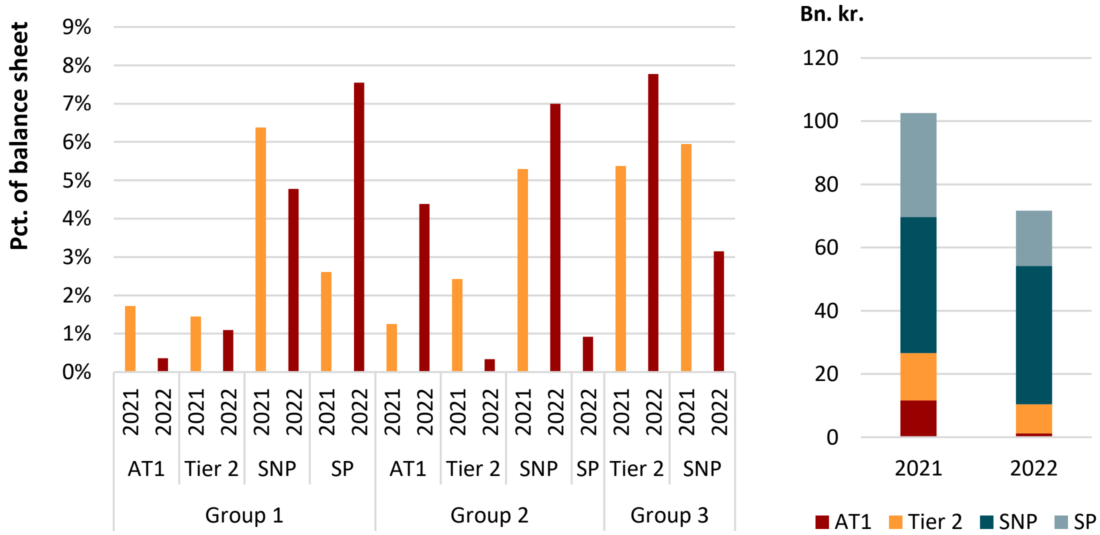


Source: Reports to the Danish FSA.

Market issues for Danish financial institutions
In the second half of 2022, the capital and debt markets were affected by the general uncertainty in the financial markets. Especially in the third quarter of 2022, equity and debt instruments were characterised by high volatility and widening spreads. Towards the end of the year, volatility decreased and credit spreads narrowed but markets remained nervous about the future.

The primary market for equity and debt instruments was open for the largest credit institutions, but the market for equity or debt instruments was at times difficult to access for smaller market participants. At the European level, a few smaller banks with a refinancing need in Additional Tier 1 capital were affected by higher interest rates and therefore chose - contrary to the previous market norms - not to exercise the option redeem hybrid core capital early. However, there no longer seems to be quite the same stigma associated with not redeeming.

Figure 17: Capital and debt issuance by credit institutions



Note: In addition to Common Equity Tier 1 (CET1), the capital structure of credit institutions consists of other core capital (AT1) and additional capital (Tier 2). Beyond this, institutions may issue senior preferred bonds (SP) and senior non-

preferred bonds (SNP), respectively, which is loss-absorbing in the event that the institution is to be shut down. The figure to the right shows the issuance level for all groups.
Source: Reports to the Danish FSA and own calculations.

The institutions' total capital and debt issuance reached approximately DKK 72 billion in 2022, see figure 17. This is a significant drop from the level of the institutions' total capital and debt issuance in 2021 of approximately DKK 103 billion. The drop primarily covers significantly lower issuance levels of senior debt, which in turn was due to the high uncertainty in the financial markets during the year, especially in the third quarter. Credit institutions issued capital instruments for around DKK 10 billion.

There will always be a refinancing risk associated with the issuance of debt and equity instruments. Markets can close for shorter or longer periods of time, which we saw during the financial crisis. Most recently, the write-down of hybrid core capital (AT1) at Credit Suisse has caused turmoil in the subordinated capital markets, particularly because they have specifically written down hybrid core capital without first fully writing down the shareholders.

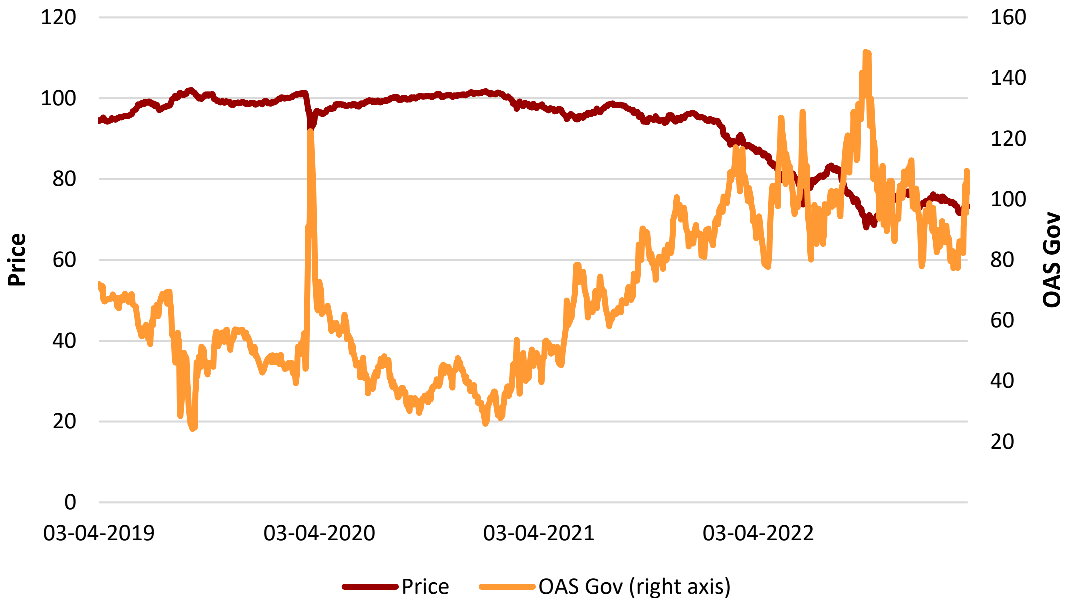
Smaller institutions will be even more vulnerable to a lack of market access during periods of investor fear and uncertainty than large institutions with ratings.

It is generally important for institutions to ensure that they are not dependent on refinancing at certain times. Institutions can ensure this by, among other things, a sensible spread of maturity dates or refinancing well in advance of the maturity dates.

Liquidity in the mortgage bond market

Financial markets were hit by sharp price declines due to uncertainty and rising inflation throughout 2022. The Danish mortgage bond market experienced large price declines, widening spreads and lower liquidity in 2022, especially in the long convertible bond series, see figure 18. The lower liquidity was due to several reasons, see box 1. Liquidity in the mortgage bond market is important for both investors and borrowers - and thus also for those in between, namely banks and mortgage banks.

Figure 18: Price and OAS development in convertible bonds



Note: Leading convertible mortgage bond; 1% and maturing in 2050. OAS stands for Option Adjusted Spread and can be interpreted as an additional yield compared to government bonds after adjusting for the probability of the bond being called due to borrower conversions.
Source: Nordea Analytics.

Loans financed by long-term convertible bonds involve fewer risks for both borrowers and institutions than loans financed by short-term non-convertible bonds. The convertible loans give the borrower more certainty about debt service until maturity, protection against technical insolvency and the option to restructure the loan at a lower interest rate or outstanding debt. The regular repayments also protect the borrower, limit the mortgage bank's credit risk and reduce systemic risks.

The traditionally high liquidity of Danish mortgage bonds also results in lower funding costs for borrowers and reduces investors' liquidity risks. It is therefore important that market participants support liquidity in the mortgage market.

Box 1: Dilution of liquidity in long-term convertible bonds

In the ongoing dialog with the Danish FSA, market participants have reported declining investor interest in long-term convertible mortgage bonds during periods since the COVID-19 crisis. There are no reports that investors' views on credit risk have changed. In contrast, market participants highlight poor liquidity and high volatility as reasons why more investors are holding back. The convertible market has previously been characterised by good liquidity, and this has ensured that investors could sell large amounts at a time without significantly affecting the price. According to market participants, these amounts have been decreasing over a number of years.

Market participants state that many investors have been negatively surprised by the high volatility, which also implies large fluctuations in the bonds in line with the value of the conversion option.

The falling prices and rising long-term interest rates have led to significant remortgaging activity. Danish mortgage banks have opened a number of new bond series in a very short time. Due to the speed at which interest rates have risen, the sizes of the series have not been sufficiently built up until new bonds with a higher coupon have opened. The lower outstanding amount in the individual series has a negative impact on liquidity and entails a risk of lock-in effects, where it may be difficult to obtain the bonds in the secondary market without having to pay a premium.

A number of major banks act as market makers and intermediaries between buyers and sellers. The market is dependent on market makers buying the mortgage bonds at the mortgage banks' auctions and keeping the bonds on the balance sheet until they can be sold on to investors.

Tighter capital and liquidity requirements and, not least, market volatility have, in isolation, increased market makers' costs of holding large portfolios of, in particular, convertible mortgage bonds on their balance sheets. However, this must be seen in relation to the total earnings of banks and mortgage banks on the mortgage business and in relation to the positive effects that convertible loans have on credit risks in both banks and mortgage banks - and on financial stability.

Mortgage banks' pillar II liquidity surcharge

The previous LCR minimum requirement for mortgage banks was phased out in mid-2022 and replaced by a new pillar II liquidity surcharge for mortgage banks, see box 2.

Box 2: Pillar II liquidity surcharge for mortgage banks

Like all other credit institutions, mortgage banks are subject to the general LCR requirement which focuses on short-term liquidity management and which must ensure sufficient liquid assets to cover the liquidity outflow that may occur in a scenario of stress in the financial markets for a period of 30 days.

However, due to the business model, the LCR only plays a minor role for mortgage banks in practice and the Danish FSA has assessed that there are special liquidity risks that the LCR requirement does not adequately take into account. This applies to unknown arrears, unknown open conversions and refinancing risks.

The Danish FSA has therefore introduced a new pillar II liquidity requirement for mortgage banks from mid-2022, which is based more on the actual liquidity risks of the individual mortgage bank than on the previous simple LCR minimum requirement of 2.5% of lending, which has been discontinued.

With the pillar II liquidity requirement, mortgage banks will thus need to have liquidity that ensures that they can pay interest and principal to bondholders despite non-payments on the institution's loans in the form of unknown arrears in a stressed situation.

With the pillar II requirement, mortgage banks will also need to have liquidity to ensure that they can redeem terminated bonds in a situation where loans have been terminated at a fixed date for the purpose of restructuring but where repayment from the borrower is not secured in advance.

In addition, with the pillar II requirement, mortgage banks will need to have liquidity to ensure that they can refinance loans at refinancing auctions in a situation where there

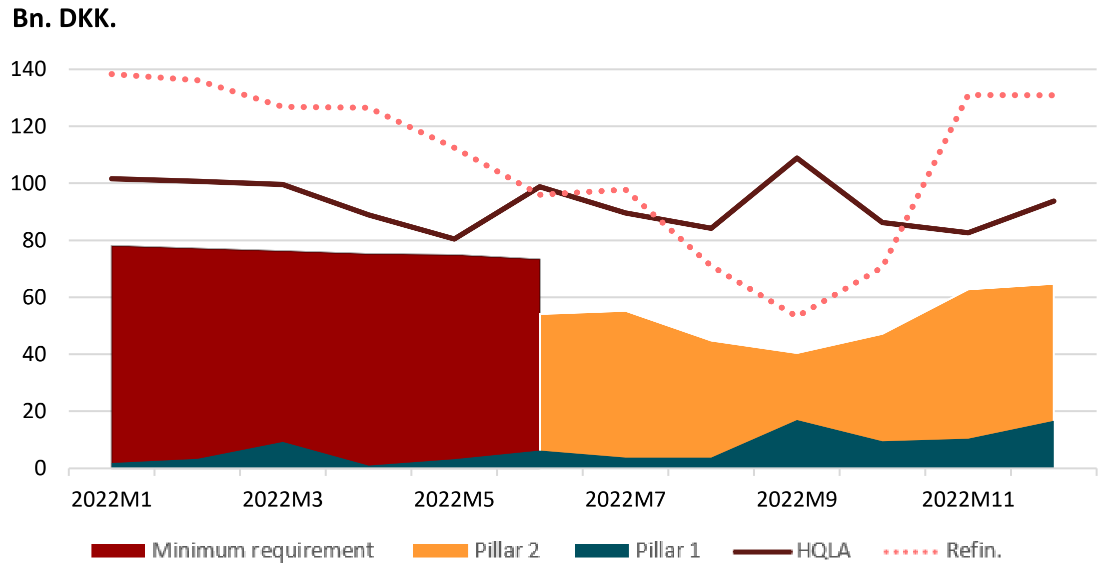
Institutions' risk coverage under the new pillar II is generally lower than under the previous pillar II requirement (the minimum requirement). The new pillar II depends on the institution's risks related to arrears, open conversions and refinancing[18]. The institutions' total refinancing need has been decreasing towards the third quarter of 2022 and contributes to reducing the new pillar II, see figure 19.

The new pillar II liquidity surcharge reacts as intended to underlying risks that the minimum requirement does not capture. In particular, the refinancing needs of institutions, which steadily decreased until the third quarter of 2022 and then increased, contribute significantly to the development in institutions' pillar II liquidity premium.

[18] Under the new pillar II system, institutions must be able to buy back 30% of their own bonds at the next due date to avoid the auction failing.

The institutions have excess cover when comparing the sector's liquidity buffer (HQLA) with both the pillar I and pillar II requirement.

Figure 19: Developments in the mortgage banks' pillar II liquidity surcharge, etc.



Note: The pillar II liquidity surcharge is expressed as 30% of refinancing needs, open conversions and arrears.

Source: Reports to the Danish FSA.

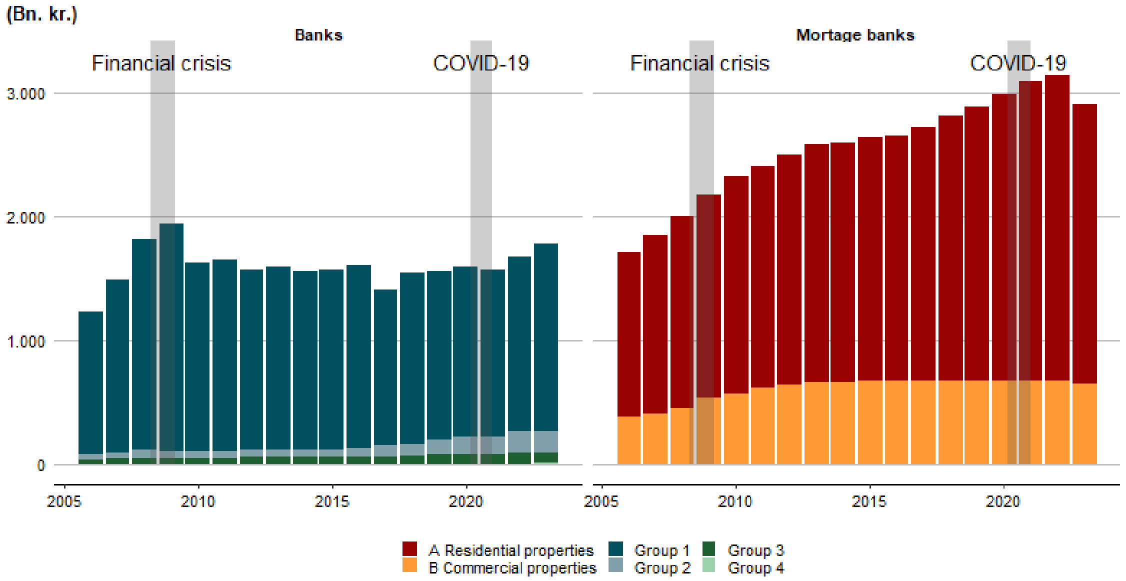
As more mortgage customers in the latter half of 2022 turned to variable-rate loans with refinancing, the pillar II surcharge also increases. In this way, the requirement fulfils its purpose as a risk-sensitive safeguard against the build-up of risks, including an increased refinancing risk in the institutions.

4. Lending by banks and mortgage banks

The banks' total loans and guarantees amounted to DKK 1,782 billion at the end of 2022. This is DKK 114 billion higher than at the end of 2021, when total loans and guarantees were DKK 1,668 billion, see figure 20 on the left. Bank lending at the end of 2022 is the highest since the financial crisis.

The large interest rate increases during the year caused the price values of existing mortgage bonds to fall. This caused the market value of mortgage bank lending to fall to DKK 2,900 billion at the end of the year compared to DKK 3,140 billion at the end of 2021, see figure 21 on the right. The change in market value comes largely from loans secured on residential properties, where long-term fixed-rate mortgage loans with high price sensitivity (duration) are more widespread.

Figure 20: Loans and guarantees for banks (left) and mortgage banks (right)



Note: Loans and guarantees excluding repos, registration and conversion guarantees. The figure is adjusted for locked groups, i.e. the group to which the institutions belong at the end of 2022 is used as the institution's group in the past. Mortgage banks do not provide guarantees. The figure to the right is therefore only loans calculated at the market value of the underlying bonds. Commercial properties are defined as other properties and undeveloped land, properties for social, cultural and educational purposes, industrial and craftsman properties, office and retail properties, agricultural properties, etc.
Source: Reports to the Danish FSA.

Group 1 banks had negative lending growth around the COVID-19 crisis, while the other banks had either small or moderate lending growth. Group 1 banks now have relatively high lending growth compared to other banks, see table 1. The large decline in lending growth for mortgage banks is due to value adjustment of the underlying bonds for the mortgage loans. Adjusting for these value adjustments, the growth in lending from the end of 2021 to the end of 2022 was instead 7.2%, corresponding to a growth from DKK 3,140 billion to DKK 3,365 billion.

Table 1: Loan growth, year to year (%)

	2018	2019	2020	2021	2022
Mortgage banks	2.3%	3.7%	3.5%	1.4%	-7.5%
Banking institutions	-0.1%	2.0%	-1.6%	4.0%	6.8%
Group 1	4.0%	5.4%	-7.7%	3.1%	6.5%
Group 2	8.3%	6.2%	3.4%	9.0%	0.0%
Group 3	14.0%	8.1%	1.3%	6.2%	-0.4%
Group 4	10.3%	8.0%	6.5%	7.8%	2.8%

Note: Increase in loans and guarantees excluding repos, registration and conversion guarantees (year on year in %). The table is corrected for locked groups, i.e. the group to which the institutions belong for the most recent observation is used as the institution's group in the past as well. A few niche institutions have been disregarded. Groups 1-4 in this table only include banks.
Source: Reports to the Danish FSA.

A large part of the banks' lending growth in 2022 can be attributed to their corporate customers, see table 2. Overall, lending to businesses increased by DKK 110 billion from the end of 2021 to the end of 2022 to a total exposure of DKK 960 billion. Of this, one third of the increase can be attributed to industry and commodity extraction. Banks also significantly increased lending to the retail sector. Total loans and guarantees to the industry amounted to DKK 127 billion at the end of the year, which is an increase of 28% compared to the same period last year, see table 2. Real estate remains the industry to which banks are most exposed, but the growth from 2021 to 2022 in loans and guarantees was only DKK 12 billion.

Table 2: Bank lending and guarantees to the corporate sector, DKK billion

	2021	2022	Growth, DKK billion	Growth, %
Building and construction	38	43	5	14%
Energy supply	89	73	-16	-18%
Real estate	246	258	12	5%
Commerce	99	127	28	28%
Industry and commodity extraction	150	186	36	24%
Information and communication	25	31	5	21%
Agriculture, hunting, forestry and fishing	72	77	5	7%
Transportation, hotels and restaurants	53	57	4	8%
Other industries	78	109	31	39%
Total, commercial	850	960	110	13%

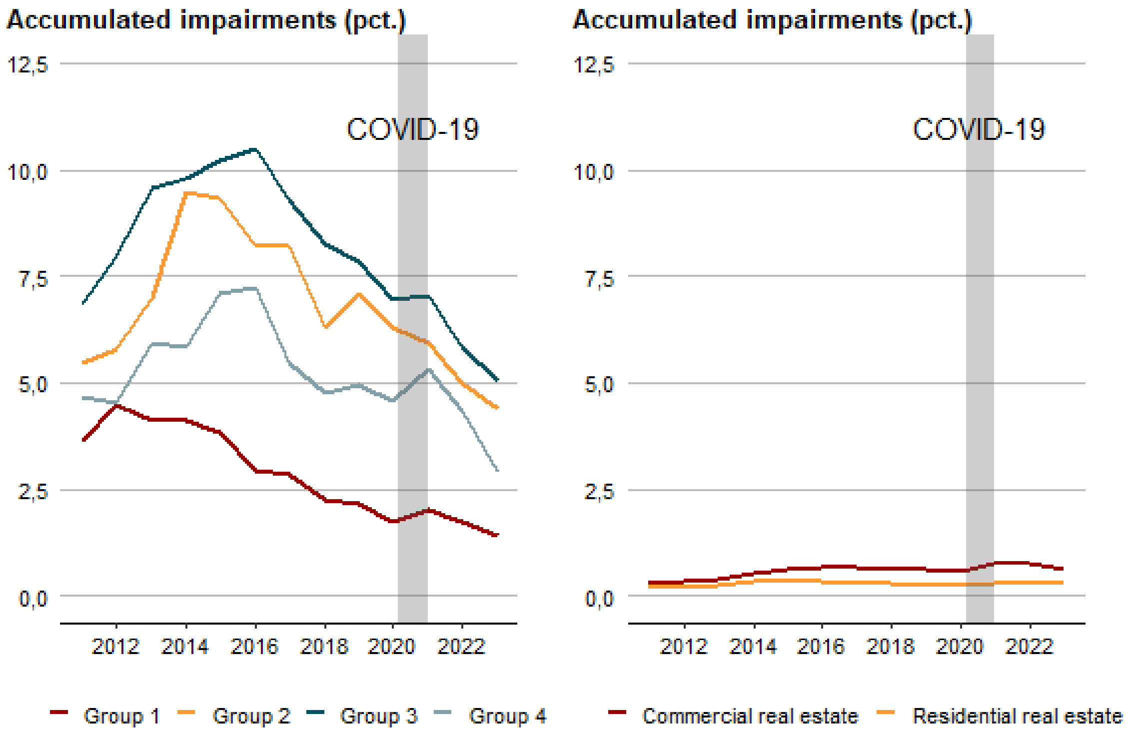
Note: Loans and guarantees to the corporate sector (excluding financing and insurance companies).
Source: Reports to the Danish FSA.

Loan impairments

Since 2013, banks have generally seen declining accumulated loan impairments on their corporate exposures, see figure 21 on the left. During the COVID-19 crisis, group 2 banks saw a decline in their accumulated loan impairments while the shares for groups 3 and 4 were relatively unchanged. Group 1 banks saw a slight increase, albeit from a low level compared to the other groups. After the COVID-19 crisis, the ratio of loan impairments to loans has steadily decreased.

Mortgage banks have had a very stable and low level of loan impairments relative to lending, see figure 21 on the right. There was a very small increase in accumulated loan impairments on commercial real estate during the COVID-19 crisis, but the level remains at around 0.6% of total lending.

Figure 21: Accumulated impairments on loans to businesses in banks and loans to residential and commercial properties among mortgage banks

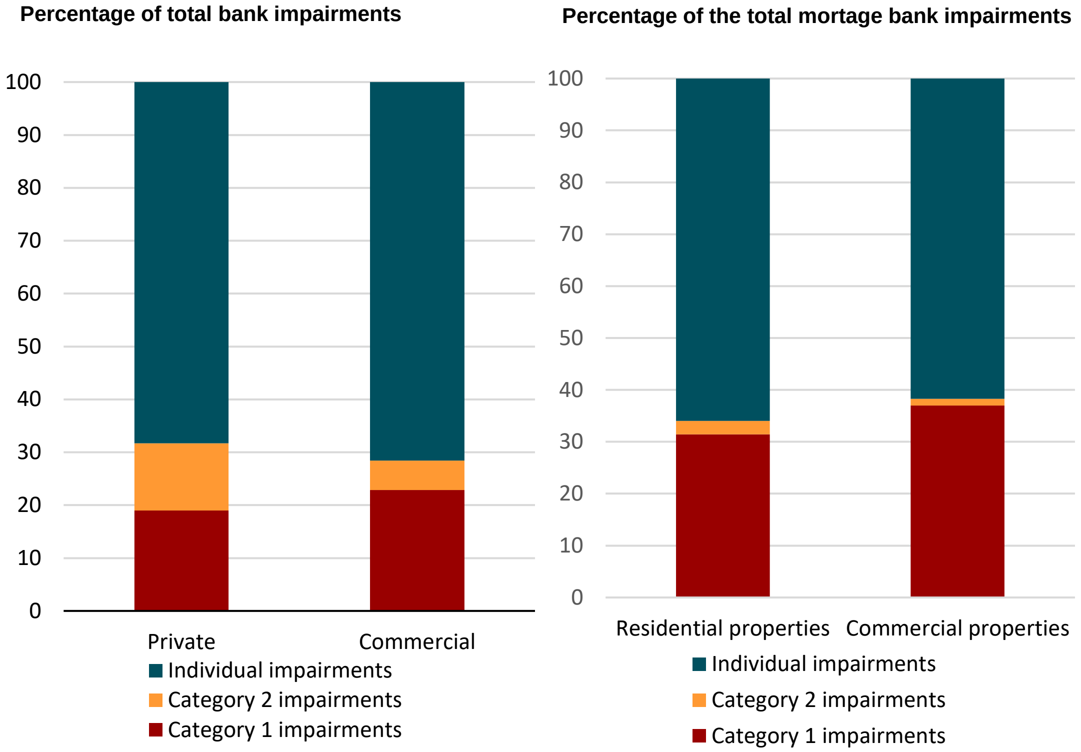


Note: Loan impairments relative to the banks' total lending to the corporate sector (left) and relative to the mortgage banks' total lending to property types (right).
Source: Reports to the Danish FSA.

Management estimates (categories 1 and 2)[19] accounted for about one third of the loan impairments recognised during the year for both banks and mortgage banks, see figure 22. The great uncertainty about the direction of the economy due to high inflation, rising interest rates and the war in Ukraine was reflected in a large proportion of management estimates, while credit institutions, especially mortgage banks, estimated that errors and omissions in the calculation of their expected losses for exposures accounted for a smaller share.

[19] Category 1: Expected losses that are difficult to quantify due to a changing world. Category 2: Errors and omissions in the calculation of expected losses.

Figure 22: Share of management estimates for loan impairments recognised in 2022

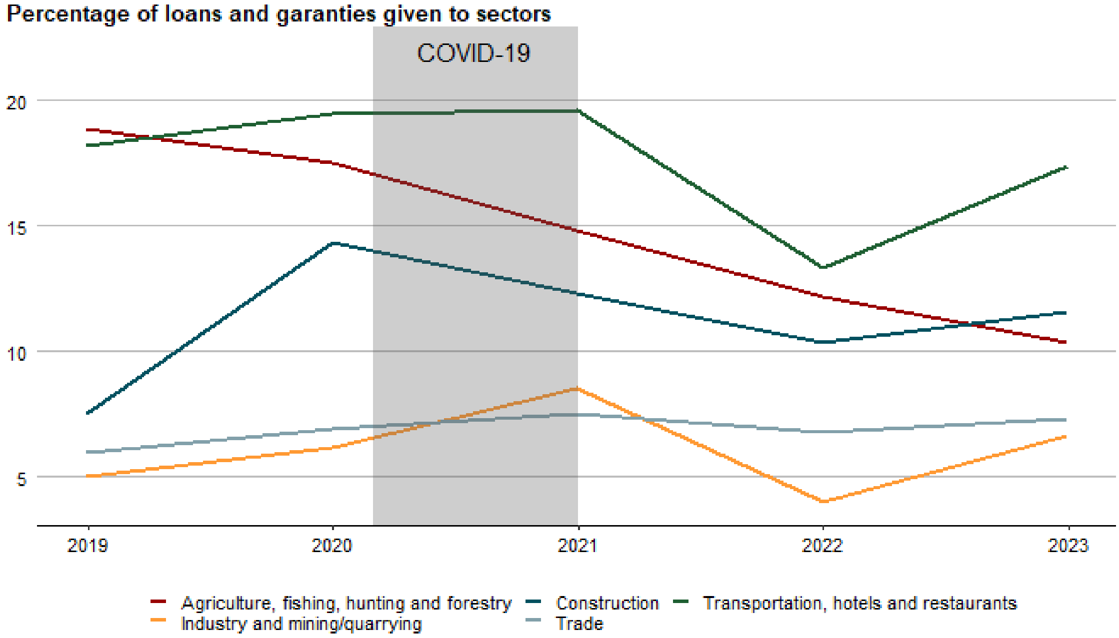


Note: Category 1: Expected losses that are difficult to quantify due to a changing world. Categoyi 2: Errors and omissions in the calculation of expected losses. Among banks, only selected group 1 and 2 banks have been required to report management estimates in their write-downs.
Source: Reports to the Danish FSA.

The five industries with the highest share of loans and guarantees from banks in stage 2 (weak) or stage 3 at the end of 2022 are shown in figure 24 (for a definition of the stage distributions of loans, see box 3). In 2022, the share increased for 4 out of 5 industries, most strongly for transportation, hotels and restaurants, and industry and commodity extraction, the latter from a relatively low level, see Figure 23. The agricultural sector was the only sector to see a decrease in 2022. The share of stage 2 (weak) and stage 3 loans in agriculture has almost halved since 2019.

Figure 23: Banks' corporate loans and guarantees in stage 2 (weak) and stage 3

Percentage of loans and garanties given to sectors



Note: The figure shows the five industries with the largest share of loans and guarantees in stage 2 (weak) or stage 3 at the end of 2022.
Source: Reports to the Danish FSA.

Box 3: Loans placed in stages

The current rules for banks' impairments on loans, etc. based on the international accounting standard IFRS 9 were introduced on January 1, 2018. The rules are laid out in the Executive Order on Accounts for Banking Institutions and others, including Appendix 10-11 and the associated guidelines on the assessment of significant increases in credit risk and credit impairment.

Stage 1: Includes loans, etc. where the credit risk has not increased significantly since initial recognition, i.e. since the customer received the loan.

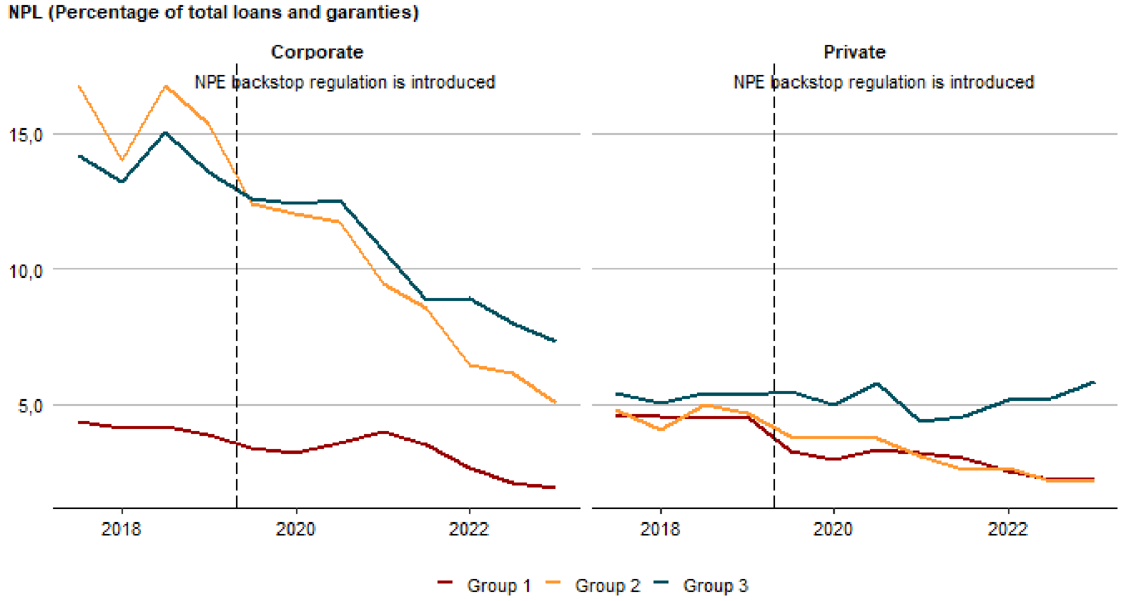
Stage 2: Includes loans, etc. where the credit risk has increased significantly since initial recognition, but where the loan is not credit impaired. Stage 2 consists of stage 2 (normal) and stage 2 (weak). Stage 2 (weak) includes loans with indications of credit impairment by the customer having been granted lenient terms by the institution or other lenders due to financial difficulties or that the customer has significant financial difficulties. For the loan to be in stage 2 (weak) and not move to stage 3, it is required that it is more likely that the institution will not incur a loss on the loan than that it will incur a loss.

Stage 3: Consists of all loans, etc. with an indication of credit impairment by the customer having committed material breaches of contract, including non-compliance with payment obligations for installments and interest or that it is likely that the customer will go bankrupt or be subject to other financial reconstruction. These loans must be in stage 3 regardless of whether the institution is more likely to incur a loss on the loan or not incur a loss. In addition, stage 3 includes loans with indications of credit deterioration by the customer having been granted more lenient terms by the institution or other lenders due to its financial difficulties or that the customer has significant financial difficulties and where the institution is more likely to incur losses on the loan than not to incur losses.

The share of credit institutions' loans where the borrower has not paid interest or principal for more than 90 days is classified as non-performing loans (NPL). NPLs have generally decreased since 2018, see figure 24. With the introduction of the NPE backstop[20] in 2019, banks now have a greater incentive to write off their non-performing loans. This has contributed to the NPL share of corporate lending falling to 5% of loans and guarantees for group 2 banks and 7% for group 3 banks by the end of 2022. Group 1 banks saw a slight increase from the end of 2019 to the end of 2020, but the share fell again in 2021 and 2022, see figure 24 l(eft). For private customers, the share of NPLs has been lower for group 2 and 3 banks than for their corporate customers and on par with the share in group 1 banks. From the end of 2020 to the end of 2022, the share of NPLs among private customers has increased in group 3 banks, see figure 24 (right). However, they represent a modest share of the total number of private customers in banks.

[20] The NPE backstop is a requirement for institutions' minimum loss cover for non-performing exposures. This should provide an incentive for institutions to write down non-performing exposures in a timely and sufficient manner. It should in turn also create an incentive to resolve non-performing exposures at an early stage. The aim is to strengthen institutions' resilience to negative shocks and reduce the need for public intervention. Read more about the NPE backstop at https://www.finanstilsynet.dk/lovgivning/ny_eu_lovsamling/npe-bagstopper.

Figure 24: Share of banks' non-performing loans (NPL)



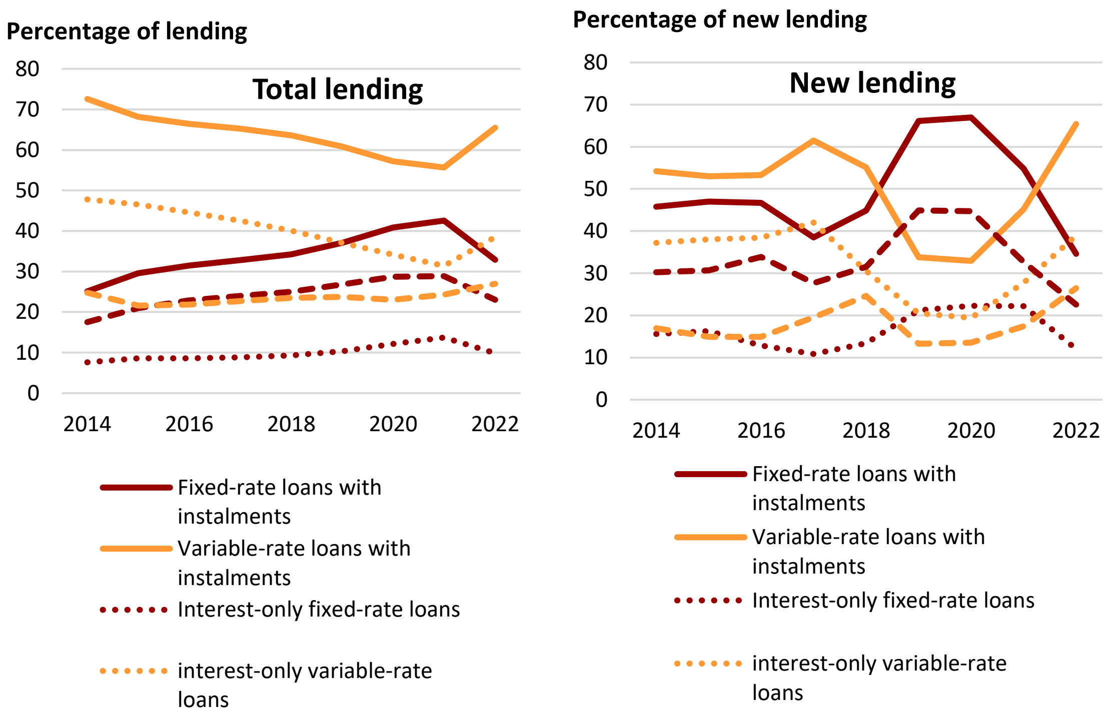
Source: Reports to the Danish FSA.

5. Interest-only home loans with variable interest rates

The share of mortgage loans (calculated at market value) with variable interest rates increased from 56% in 2021 to 65%. The share of fixed-rate loans decreased from 43% at the end of 2021 to 33% at the end of 2022[21]. The decrease is primarily attributable to larger price declines on the mortgage bonds behind the fixed-rate loans due to higher duration and loan conversions from fixed to variable rate.

For new mortgage lending, the share of variable rate loans increased from 45% in 2021 to 65%, while the share of fixed rate loans decreased from 55% to 35%, see figure 25. As new lending is measured at fair value at the time of disbursement, it is adjusted for price changes due to interest rate fluctuations. The trend thus reflected customers being generally more interested in variable-rate loans.

Figure 25: Development in interest-only mortgage loans for owner-occupied homes



with variable interest rates

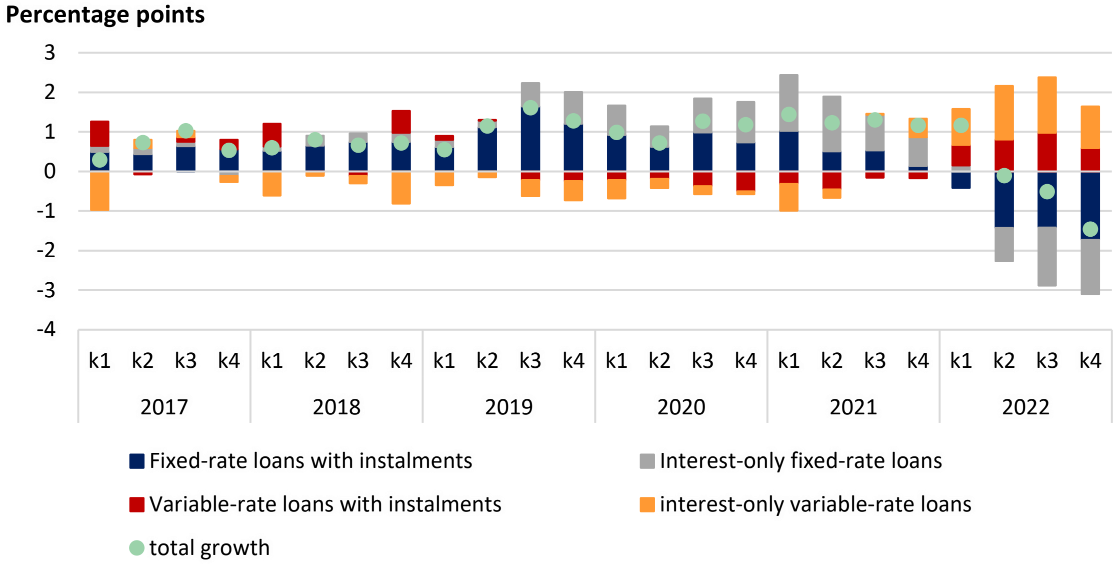
Note: Mortgage loans secured by mortgages on owner-occupied homes. Total loans are calculated before impairments and at fair value. ‘New lending’ is to be understood as new loans and extensions of existing loans (which are not due to conversion costs etc.) disbursed by the institution during the period. The value is calculated at fair value at the time of payment. ‘Interest only’ is to be understood as the customer’s contractual right (in the terms of the mortgage deed), which applies at the time of the settlement to refrain from paying off the principal for a certain period of time.
Source: Reports to the Danish FSA.

Figure 26 shows the loan types’ quarterly growth contribution to the development in total mortgage lending. It reveals that only the variable-rate loans, with and without principal payments, contributed positively to lending growth. This development is primarily due to the fact that many homeowners took advantage of rising interest rates to restructure their mortgage

[21] The reason why the proportion of fixed-rate loans and variable-rate loans does not add up to 100 percent is that the balance amounts to index loans. As index loans are not a current active loan type, similar shares for new loans amount to 100 percent.

loans. The development in interest rates has resulted in the price of fixed-rate mortgage bonds falling. Homeowners with fixed-rate mortgages were able to repay their mortgages at a lower market price than when the bonds were issued. The borrower could then take out a new loan at a higher fixed rate or switch to another type of loan - but now at a significantly reduced nominal outstanding debt.

Figure 26: Quarterly growth contribution in residential mortgage lending by loan type



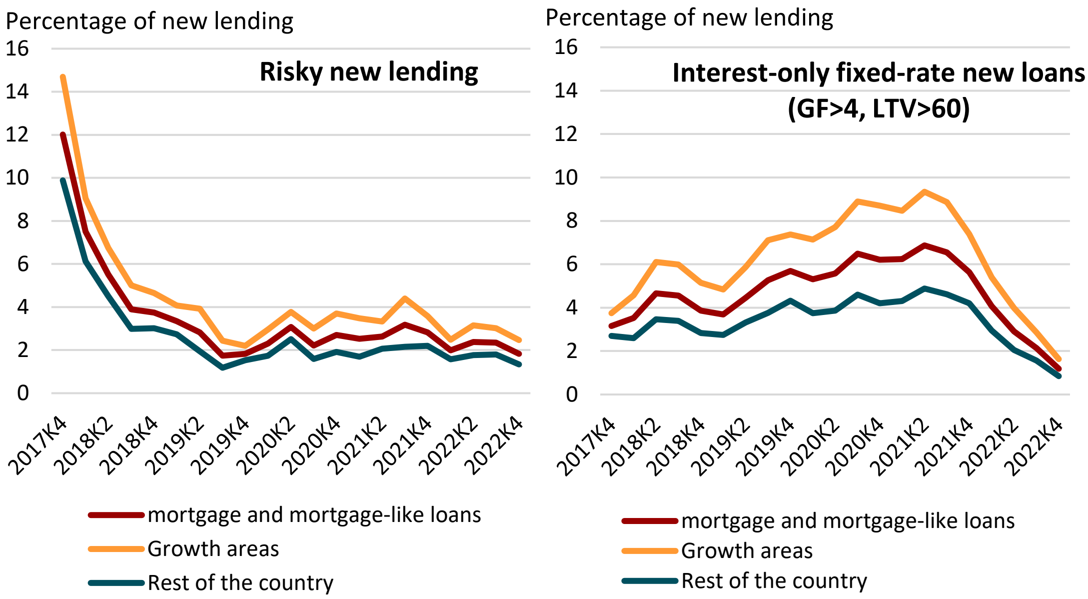
Note: Mortgage loans secured by mortgages on owner-occupied homes.
Source: Danmarks Nationalbank (DNRUDDKS).

Fixed-rate homeowners have experienced a capital gain that has helped increase their net worth. Among other things, these gains can be used as a cushion for the rising energy and consumer prices that have put pressure on the finances of Danish households. Credit institutions should pay particular attention to the fact that the risk profile changes significantly for homeowners who have converted from fixed to variable interest rate loans. A short-term capital gain can quickly disappear if interest rates continue to rise. This is particularly risky if debt increases as a result of the conversion.

Although the share of variable-rate loans is increasing, the share of risky mortgage and mortgage-like new lending[22] decreased from 2.8% in 2021 to 2.1% in 2022, see figure 27. The share of interest-only loans with fixed interest rates combined with high debt-to-income and loan-to-value ratios fell from 6.3% to 2.6%.

[22] The following loans are considered risky: 1) Variable-rate loans with less than 5 years with or without principal payments. 2) Interest-only variable-rate loans with a fixed interest for 5 years or more.

Figure 27: Development in share of risky new loans



Note: Data includes mortgage banks and banks' intermediation of mortgage and mortgage-like loans. New lending (gross new lending) is calculated according to the guidelines for housing lending for customers with a high debt factor: https://www.finanstilsynet.dk/Ansoeg-og-Indberet/Indberetning-for-finansielle-virksomheder/System/KGFS. Mortgage-like loans are defined in accordance with the Executive Order on Good Practice for Housing Credit and cover, among other things, loans granted by banks on mortgage-like terms.
Source: Reports to the Danish FSA.

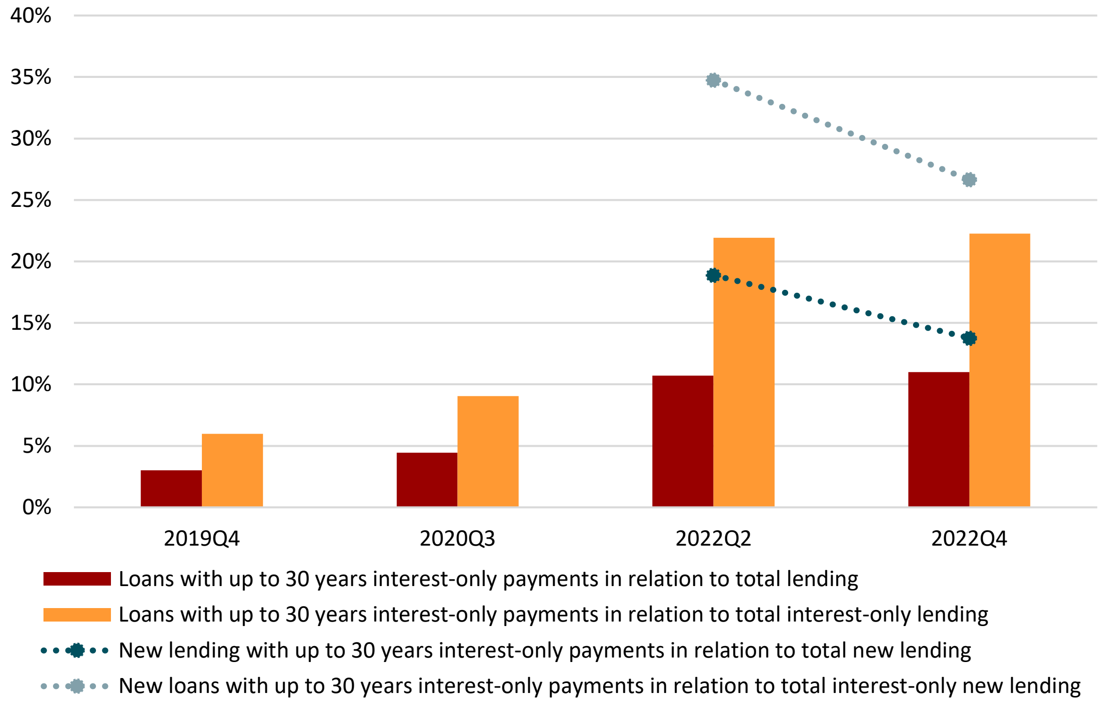
The Danish FSA closely monitors developments and is in ongoing dialog with the institutions on how they comply with the rules, take risks and protect consumers. In 2022, the Danish FSA completed an investigation into how banks' granted loans for home purchases. Since the banks facilitate the mortgage banks' lending, the study also included granted mortgage loans. The survey showed that rules and guidelines have helped to limit risk for customers and institutions. However, several institutions had granted mortgages with increased risk[23].

Mortgage loans with up to 30 years of interest-only payments

Lending for owner-occupied homes with the option of up to 30 years of interest-only payments has been growing rapidly for a long time, see figure 28. At the end of 2022, these loans accounted for 11.8% of total mortgage lending to owner-occupied housing and 22.3% of mortgage lending to owner-occupied dwellings with interest-only payments. However, new lending decreased from the first to the second half of the year. Loans with the option of interest-only payments up to 30 years are generally variable-rate loans (75.4% of total loans and 72.5% of new loans) and have a full interest-only payment period of between 25 and 30 years (92% of total loans and new loans).

[23] https://www.finanstilsynet.dk/Nyheder-og-Presse/Sektornyt/2022/Observationervedinspektioner_051222

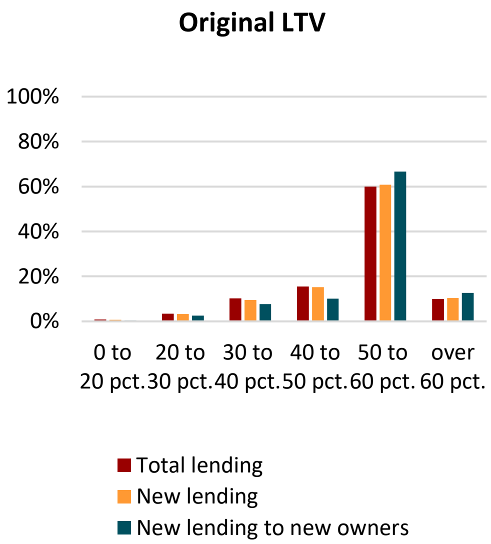
Figure 28: Share of mortgage loans with up to 30 years interest-only payments (owner-occupied housing)

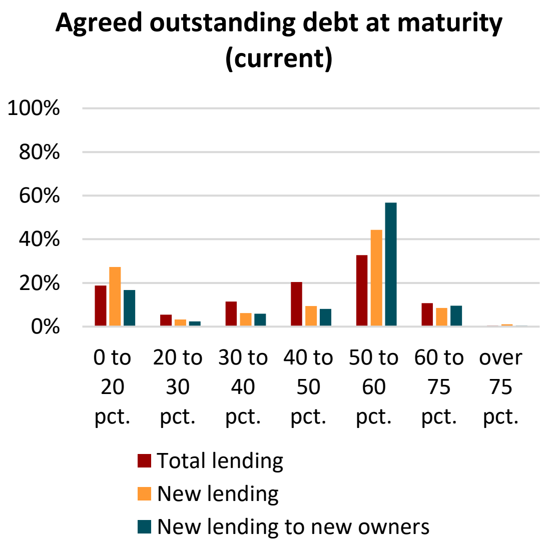


Note: Data for the fourth quarter of 2019 and the third quarter of 2020 is based on a special report, which may result in minor data breaks. New loans are calculated year to date.
Source: Reports to the Danish FSA.

At the end of the year, 70% of the total mortgage loans with up to 30 years of interest-only payments were originally granted with an LTV above 50%, and 43.8% of the loans had an agreed outstanding debt at maturity exceeding 50% of the current value of the property, see figure 29. Especially new loans for change of ownership were in the high ranges in 2022.

Figure 29: Share of mortgage loans with up to 30 years interest-only payments (owner-occupied housing)





Note: The distribution is calculated so that the columns' categorisations across the intervals (i.e. by colour) sum to 100%. For total lending, data is calculated as of the end of 2022, while new lending covers the period from 1 January 2022 to 31 December 2022.
Source: Reports to the Danish FSA.

Mortgage loans with interest-only payments for up to 30 years have special requirements for assessing the customer's ability to repay the loan. In a 30-year interest-only payment period, the customer may go through several life stages that will change the household's disposable income - for example, the customer may retire in that period. A mortgage loan with an interest-only option can generally only be offered to borrowers who in the mortgage bank's assessment can afford to be approved for a 30-year fixed-rate loan without an interest-only payment option. However, an institution may derogate from this rule in the case of loans granted for the purpose of using this is a kind of reverse mortgage. The Danish FSA's recommendations are presented in box 4.

Box 4: The Danish FSA's recommendations for loans with long periods of interest-only payments

As a general rule, a mortgage lender can only grant a loan for reverse mortgage purposes if it is a reverse mortgage of an existing home. Therefore, an interest-only loan with an LTV of 60% granted to buy real estate cannot automatically be considered a reverse mortgage loan.

According to the Danish FSA's guidelines, when assessing the size of the loan limit for reverse mortgage loans, the mortgage lender should use a maximum LTV limit of 60% of the market value of the home as a starting point. This guide was written at a time when mortgage lenders did not offer home loans with more than 10 years of interest-only payments. It is important to emphasise that which loan-to-value limit will ensure that the sales proceeds are sufficient to repay the loan in full is always based on a specific assessment. In addition to the loan period, this assessment also takes into account the nature and marketability of the specific property, as well as the borrower's financial situation and age. For loans with a 30-year interest-only payments, it is especially important to consider whether loans for reverse mortgage purposes should be granted up to 60% of the home's market value or should be offered with a lower LTV.

In the case of interest-only loans for reverse mortgage purposes, the borrower must be able to service the interest payments during the interest-only period. If the loan also has a variable interest rate, the borrower's finances must be able to cope with

Loans with up to 30 years of interest-only payments were initially intended for particularly robust customers with mortgages on owner-occupied homes. However, the loan type has become more widespread, for example, it is now also being used for residential rental properties and housing cooperatives. Greater uptake of interest-only mortgages can increase household indebtedness and vulnerability to adverse economic shocks. The Danish FSA is therefore particularly attentive to the spread, the detailed characteristics and the customer segment which is offered loans with up to 30 years of interest-only payments. This has led to the publication of a number of recommendations for handling loans with long interest-only periods and an expansion of the growth guidance, see box 5.

Box 5: Changes to the growth guidance and new guidance on financing rental properties and real estate projects

On April 20, 2023, the Danish FSA issued a new version of the guidelines on prudence in the credit assessment for taking out mortgages on housing in growth areas, etc (the Growth guideline). The main change is the addition of a new section on the financial information that banks and mortgage banks should obtain about some of their customers in order to assess the need for write-downs and capital. The Danish FSA has found that there is a need to clarify what the rules on the ongoing monitoring of exposures and other credit risks in Appendix 1 to the Executive Order on the Management and Governance of Banks, etc. ('Ledelsesbekendtgørelsen' in Danish). The proliferation of long-term interest-only loans in recent years has increased the need for institutions to have an updated overview of the development in their assumed credit risks. This applies to the entire country. In addition, recommendations from the Committee on Financing Rules for Cooperative Housing have been included in the updated guide.

Also on April 20, 2023, the Danish FSA issued guidelines on financing rental properties and real estate projects. The purpose of the guidelines is to increase clarity on what banks and mortgage banks should take into account in light of the rules in Appendix 1 to the Executive Order on the Management and Governance of Banks, etc. The guidelines summarise what has proven to be good practice in this area - an area which has historically caused large and in some cases devastating losses for credit institutions.

Both the amendment of the Growth guideline and the issuance of guidelines on fi-

Interest-only home loans with variable interest rates require a lot of caution
While variable-interest rate loans and interest-only loans can be beneficial for some borrowers, they also carry a number of risks for both borrowers and institutions.

Interest-only loans increase borrowers' repayment risk, indebtedness and vulnerability to negative financial shocks. In addition to the interest payment risk, variable rate loans also have a significantly lower degree of equity protection than fixed rate loans.

The bonds behind adjustable-rate loans have a shorter maturity than the bonds behind fixed-rate loans, which makes the prices less sensitive to interest rate changes. The bonds behind loans with money market-based interest rates follow the associated market rate, which also makes the prices less sensitive to interest rate changes. Therefore, in a market with rising interest rates, the value of the debt will not decrease like fixed-rate loans. The lower the duration of the bonds behind the loan, the less your home equity is protected in the event of interest rate rises combined with a fall in house prices.

In addition, the bonds behind variable-rate loans are often non-convertible. This means that the loans must be repaid at market value outside of refinancing times and do not have a built-in price cap of par value, like most fixed-rate mortgages. In a market with falling interest rates and rising prices, it can therefore become costly to repay a variable-rate loan outside of refinancing times, for example, in connection with property sales. This risk is greatest for adjustable rate mortgages, as loans with money market-based interest rates tend to have prices closes to par.

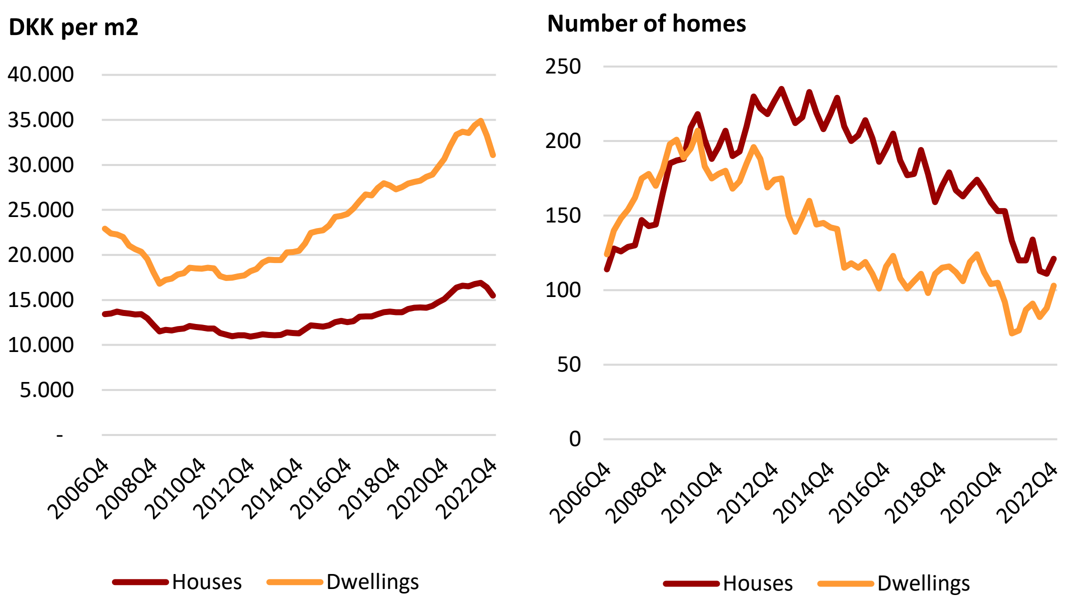
For mortgage banks, a higher proportion of variable-rate loans financed with short-term bonds that must be refinanced on an ongoing basis leads to both higher credit risk and refinancing risk. In addition, the duration of the bonds and the conversion right also influence the sensitivity of the supplementary collateral requirement, see section 7. Additionally, all else being equal, more bond series dilute liquidity in the mortgage bond market, see section 3.

6. **Credit institutions' sensitivity to the housing market**

Housing market activity dropped significantly in 2022. The drop is largely due to rising interest rates, which made it more expensive to borrow money. In addition, rising consumer and energy prices have put pressure on the Danish economy. This has resulted in both lower disposable income for potential homebuyers and higher disposable income requirements.

The realized sales price of detached and terraced houses fell by 6.3% in the fourth quarter, while the price of owner-occupied flats fell by 7.2% compared to the fourth quarter of the previous year, see figure 30. This contrasts with the housing market activity during the COVID-19 crisis, especially in 2021 when housing market activity was high.

Figure 30: Development in realised sales price and homes for sale



Source: Finance Denmark.

The price declines in 2022 are underpinned by subdued demand for housing, which is reflected in an increasing number of homes for sale. The number of owner-occupied apartments for sale increased 41% in the fourth quarter compared to the fourth quarter of 2021, while the number of detached and terraced houses increased by approximately 31% in the same period, see figure 31.

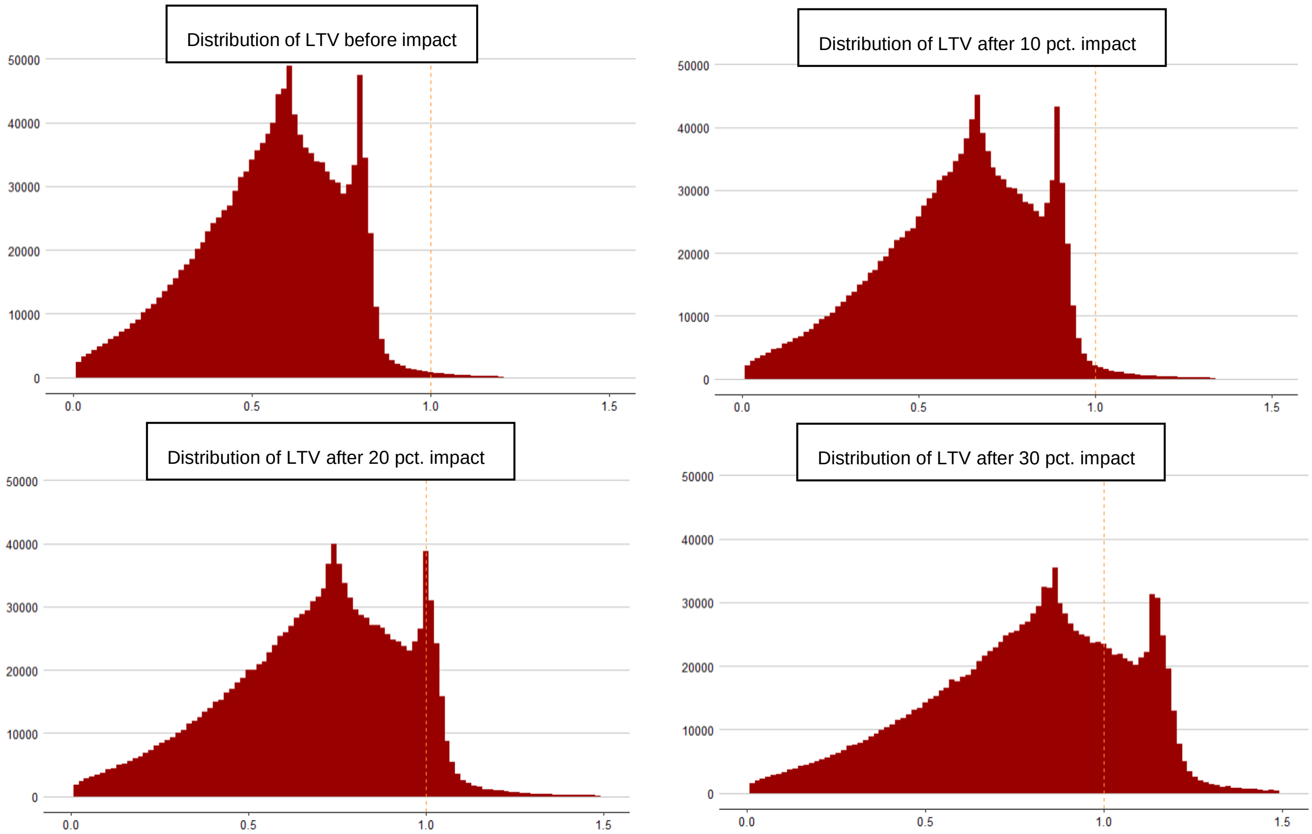
The current level of inflation and rising interest rates generally require vigilance on credit institutions' exposures to the housing market as, all else being equal, it has a direct negative impact on home buyers' day-to-day finances, disposable income and the value of the mortgage.

Credit institutions' sensitivity to property price declines

As owner-occupied housing loans are financed with real estate as collateral, the credit institutions' risk is largely linked to the value of the mortgage. As a general rule, 80% of an owner-occupied home can be mortgaged with a mortgage loan and 15% with a bank loan[24]. If the loan-to-value ratio (LTV) is above 100% (defined here as technically insolvent), the loan is no longer secured by the value of the property. In this case, both the institution and the borrower face a significant loss if the property has to be sold.

Figure 31 shows the borrowers' LTV distribution as of the end of 2022 and with a general property price decline of respectively 0%, 10%, 20% and 30%. The figure shows that there is a large cliff effect if property prices fall significantly. For example, if real estate prices fall by 30%, 24.9% of borrowers will go from having an LTV below 100 to becoming technically insolvent in their home, all other things being equal[25]. Price drops of this magnitude are rare, but not unrealistic. In comparison, between the third quarter of 2006 and the first quarter of 2009, house prices fell by up to 31% and owner-occupied apartment prices by up to 38% by region.

Figure 31: LTV distribution for different house price shocks



Note: Data is calculated as of the end of 2022. The data covers private loans secured on owner-occupied homes. If multiple people have loans on the same property, the observations are counted multiple times. Data only includes properties that are mortgaged via a mortgage bank, including any subordinated bank debt. Loan-to-value ratios above 120 are excluded. The outstanding debt in the LTV calculation is calculated at nominal value.
Source: Finance Denmark and the Danish FSA's own calculations.

[24] The borrower must have a suitable down payment, in practice often 5%. The co-financing of costs can, however, result in a total loan-to-value ratio of over 95% of the property's value.
[25] Note that LTV in the figure is calculated at nominal outstanding debt and not at fair value. For long-maturity loans, LTVs are therefore expected to be significantly lower at fair value.

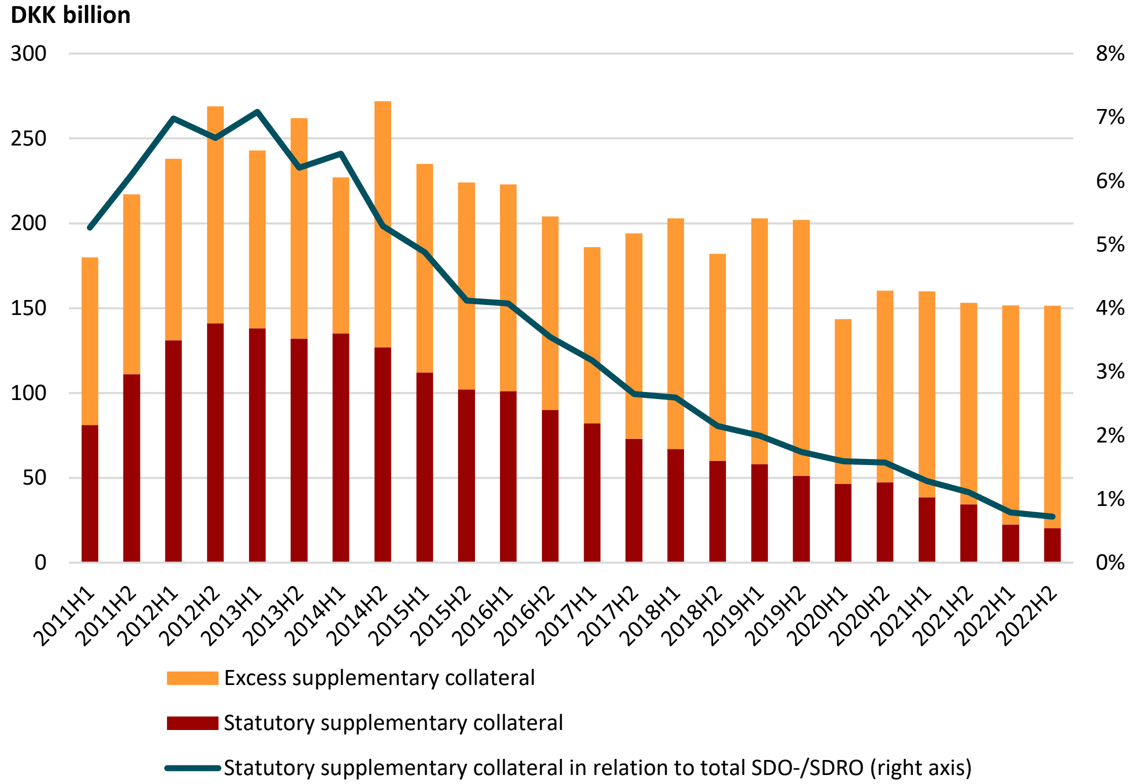
In the current risk environment with economic uncertainty and large interest rate fluctuations, it is therefore particularly important that credit institutions focus on good creditworthiness assessment and risk management to ensure the robustness of both customers and institutions.

7. Mortgage banks' supplementary collateral

The statutory requirement for supplementary collateral obliges mortgage banks issuing special covered bonds and special covered mortgage bonds to provide compensatory collateral (supplementary collateral) to bondholders if property prices fall so much that the loan limits are exceeded.[26] The requirement for supplementary collateral is to ensure that there are sufficient eligible assets, e.g. loans within the borrowing limit, in a capital centre from which special covered bonds and special covered mortgage bonds are issued.

Figure 32 shows that the legal requirement (measured in DKK) for supplementary collateral has decreased since the end of 2012. This is partly due to rising real estate prices. Mortgage banks typically have an excess cover in relation to the legal requirement for supplementary collateral. The further supplementary collateral for Q4 of 2022 amounted to DKK 131 billion compared to DKK 119 billion in the same period the year before.

Figure 32: Supplementary collateral



Note: The decrease in supplementary collateral between 2019 and 2020 can be attributed to an adjusted and more accurate calculation method for one of the mortgage banks.
Source: Reports to the Danish FSA.

Study of mortgage banks' handling of financing risk

If an institution fails to provide the legally required supplementary collateral, the issued bonds will lose their special covered bonds and special covered mortgage bonds status. It is essential for mortgage banks that their bonds maintain this status.

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[26]Conversely, rising property prices may result in a lower need for supplementary collateral for mortgage banks in the event of unchanged mortgages.

The institutions' excess cover for the statutory requirement for supplementary collateral consists of unencumbered eligible assets. However, they may need to issue debt in order to have sufficient unencumbered eligible assets to cover the regulatory requirement. This creates a funding risk for the institutions.

At the time of writing, the Danish FSA is investigating mortgage banks' handling of the financing risk associated with supplementary collateral. The institutions have submitted material for this purpose. An overall preliminary review of their actions and the Danish FSA's expectations are presented in box 6. The material so far shows that institutions are working on the topic and are monitoring and reporting widely. However, they should continuously

Box 6: Examining the financing risk of supplementary collateral
Institutions have different measures in place if the need for supplementary collateral increases. The measures can be divided into two groups:

- Measures designed to increase the amount of unencumbered assets for collateral. The increase in the amount of unencumbered assets will typically be financed through the issuance of debt securities or the contribution of assets from group companies.
- Measures designed to reduce the requirement for supplementary collateral. Reducing the requirement for supplementary collateral will typically be a stop to new loan offers or similar.

The first category of measures requires market access, while the second category has a longer time horizon before the effect on the supplementary collateral requirement is noticeable. This emphasises the financing risk associated with supplementary collateral.

The overall funding risk is increased by the funding risk of the institutions' current use of assets as collateral. This too requires market access.

The Danish FSA's expectations for institutions' policies and risk management
The fact that institutions may face significant funding risk places special requirements on their policies and risk management. The policies must therefore include a target for the level of the institution's preparedness to provide supplementary collateral. Targeting must be risk-based.

The Danish FSA assesses that the target should be of a size so that the institution can handle a scenario that may be considered rare, but is realistic - historically speaking.

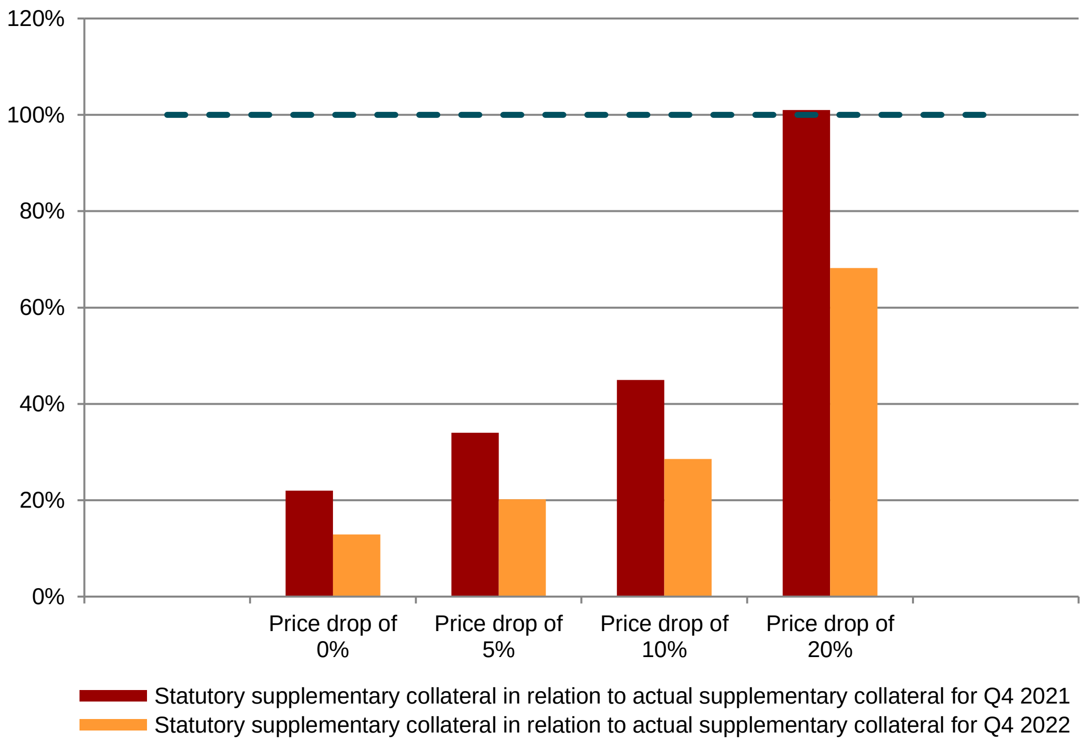
Furthermore, it seems not unlikely that a significant price drop in the real estate market coincides with challenges in the debt securities markets or that the price drop even restricts market access for credit institutions. Institutions must therefore also be able to measure funding risk, for example, by monitoring the existing funding structure and continuously assessing the possibility of new issuances.

consider whether their preparedness to provide supplementary collateral is adequate and whether their monitoring of preparedness captures the funding risk associated with supplementary collateral.

Sensitivity of the supplementary collateral requirement to property price declines
Mortgage banks stress test and assess the impact of a property price decrease on their statutory supplementary collateral every year. Figure 33 shows the impact of a fall in property prices of 5%, 10% and 20%, respectively, on the mortgage banks' statutory requirement for supplementary collateral in relation to the total actually provided supplementary collateral when all other factors are equal. If the value is above 100 percent, the institutions need to obtain further supplementary collateral in order to withstand a given fall in house prices.

The figure shows that the resilience of mortgage credit institutions' supplementary collateral to falling house prices has increased in 2022 compared to 2021. Mortgage lenders now expect to be able to counter an overall property price decline of more than 20 percent at sector level with their most recently reported supplementary collateral when all other factors are equal.

Figure 33: Stress test for supplementary collateral



Note: The figure shows the statutory amount in relation to the actual supplementary collateral provided in the event of property price declines of 5%, 10% and 20%, respectively, which are estimated by selected mortgage banks.
Source: Reports to the Danish FSA.

The increased resilience to property price declines should be seen in light of the fact that the debt in the LTV calculation behind the supplementary collateral requirement is calculated at fair value. For loans financed by long convertible bonds, and thus high maturity, a rise in interest rates will greatly reduce the fair value of the loan and thus, all other things being equal, reduce the requirement for supplementary collateral because the loan to collateral ratio is improved.

As well as protecting the borrower's equity against rising interest rates and falling property prices, long-term fixed-rate convertible bonds also reduce the institutions' requirements for supplementary collateral. Conversely, if interest rates fall and the prices behind the loans rise, the conversion right protects the borrower and the institutions by capping the fair value of the loans (at par).

8. Appendix 1: Credit institutions' income statements 2018-2022

	2018	2019	2020	2021	2022	Change, 1 year	Change, 5 years
Income statement	*DKK million*					*%*	
Interest income	115,063	112,714	101,371	96,923	121,733	25.60	5.80
Interest costs	54,098	53,532	41,176	37,623	55,439	47.35	2.48
Net interest income	**60,965**	**59,181**	**60,195**	**59,300**	**66,293**	**11.79**	**8.74**
Dividends from shares, etc.	778	1,277	657	936	1,223	30.61	57.28
Fees and commission income	34,840	37,500	38,500	42,724	43,272	1.28	24.20
Paid fees and commissions	13,259	13,872	13,713	14,699	14,906	1.41	12.42
Net interest and fee income	**83,323**	**84,087**	**85,640**	**88,261**	**95,883**	**8.63**	**15.07**
Staff and administrative costs	50,844	52,866	54,681	55,974	58,556	4.61	15.17
Other operating income	7,886	8,566	7,197	8,671	8,214	-5.27	4.16
Other operating costs	272	420	517	539	14,392	2568.15	5191,40
Depreciation and amortisation of intangible and tangible assets	5,992	9,569	8,732	8,315	8,557	2.91	42.81
Basic earnings	**34,102**	**29,797**	**28,908**	**32,104**	**22,591**	***-29.63***	**-33.75**
Value adjustments	6,317	8,435	7,404	9,831	5,576	-43.28	-11.73
Impairments on loans and receivables, etc.	1,596	3,405	13,242	-1,197	- 1,211		-24.11
Profit(/loss on shares in associated enterprises	1,316	3,456	1,626	2,213	-1,237		
Pre-tax profit/loss	40,139	38,283	24,699	45,344	25,719	-43.28	-35.93
Tax	8,003	2,744	5,141	8,719	8,456	-3.02	5.65
Profit/loss for the period	32,136	35,538	19,557	36,625	17,263	-52.87	-46.28

9. Appendix 2: Financial institutions' income statements 2018-2022

	2018	2019	2020	2021	2022	Change, 1 year	Change, 5 years
Income statement	*DKK million*					*%*	
Interest income	49,528	49,133	44,615	41,306	57,040	38.09	15.17
Interest costs	16,576	18,330	12,560	9,793	19,935	103.56	20.26
Net interest income	**32,952**	**30,803**	**32,055**	**31,513**	**37,105**	**17.74**	**12.60**
Dividends from shares, etc.	525	1,060	598	794	1,037	30.68	97.56
Fees and commission income	28,354	30,420	30,630	34,445	35,110	1.93	23.83
Paid fees and commissions	5,515	5,321	5,762	6,267	6,401	2.13	16.07
Net interest and fee income	**56,316**	**56,962**	**57,521**	**60,484**	**66,851**	***10.53***	***18.71***
Staff and administrative costs	43,104	44,657	45,647	46,320	48,594	4.91	12.74
Other operating income	3,994	2,570	2,315	4,136	2,460	-40.53	-38.41
Other operating costs	178	182	269	241	14,094	5751.68	7797.03
Depreciation and amortisation of intangible and tangible assets	3,231	5,842	4,846	4,381	4,911	12.09	52.00
Basic earnings	***13,797***	***8,851***	***9,073***	***13,679***	***1,712***	**-87.48**	***-87.59***
Value adjustments	6,935	6,781	6,170	8,358	4,903	-41.34	-29.31
Impairments on loans and receivables, etc.	609	2,376	9,486	-1,350	1,271		108.84
Result from investments in group and associated companies	9,830	11,775	9,258	10,714	8,275	-22.76	-15.82
Pre-tax profit/loss	29,954	25,031	15,016	34,101	13,619	-60.06	-54.53
Tax	4,181	-1,483	1,575	4,626	4,539	-1.88	8.57
Profit/loss for the period	25,773	26,514	13,441	29,475	9,080	-69.19	-64.77

10. Appendix 3: Mortgage banks' income statements 2018-2022

	2018	2019	2020	2021	2022	Change, 1 year	Change, 5 years
Income statement	*DKK million*					*%*	
Interest income	69,524	67,766	60,750	59,519	69,491	16.75	-0.05
Interest costs	46,251	43,790	37,113	35,822	45,233	26.27	-2.20
Net interest income	**23,274**	**23,975**	**23,637**	**23,697**	**24,258**	***2.37***	***4.23***
Dividends from shares, etc.	252	217	58	150	185	23.12	-26,83
Fees and commission income	2,833	4,409	3,605	4,365	5,306	21.56	87.29
Paid fees and commissions	6,380	8.946	8,100	9,104	9,904	8.78	55.24
Net interest and fee income	**19,980**	**19,656**	**19,200**	**19,107**	**19,844**	**3.86**	**-0.68**
Staff and administrative costs	5,373	5,077	5,775	7,034	7,337	4.31	36.55
Other operating income	1,995	3,074	2,133	2,573	2,942	14.33	47.45
Other operating costs	162	204	177	252	252	-0.10	55.53
Depreciation and amortisation of intangible and tangible assets	99	284	256	410	258	-37,20	159.70
Basic earnings	**16,340**	**17,165**	**15,125**	**13,984**	**14,939**	**6.83**	***-8.57***
Value adjustments	- 916	1,562	1,218	1,632	1,117	-31.51	
Impairments on loans and receivables, etc.	905	996	3,077	140	- 523		
Profit(/loss on shares in associated enterprises	3,933	3,987	3,953	5,403	5,502	1.83	39.91
Pre-tax profit/loss	18,453	21,717	17,219	20,879	22,083	5.76	19.67
Tax	2,980	3,317	2,641	2,948	3,193	8.33	7.15
Profit/loss for the period	15,473	18,400	14,578	17,931	18,889	5.34	22.08

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11. Appendix 4: Balance sheet, credit institutions 2018-2022

Balance sheet items *(DKK million)*	**2018**	**2019**	**2020**	**2021**	**2022**	**Change, 1 year**	**Change, 5 years**
						%	
Cash in hand and on-demand receivables with central banks	70,134	152,404	413,216	478,764	398,126	-16.84	467.67
Receivables from credit institutions and central banks	355,505	313,622	264,627	166,308	155,591	-6.44	-56.23
Lending	4,700,149	4,981,761	4,954,927	5,035,982	4,937,251	-1.96	5.04
Lending, excluding repos	*4,393,576*	*4,587,674*	*4,663,930*	*4,743,661*	*4,647,332*	*-2.03*	*5.78*
Bonds	766,201	842,593	975,777	874,346	886,018	1.34	15.64
Shares, etc.	32,621	38,515	42,079	40,222	37,542	-6.66	15.09
Shares in associated companies	1,908	3,461	3,505	2,721	3,103	14.06	62.66
Shares in affiliated companies	18,544	20,491	22,013	23,700	19,492	-17.76	5.11
Assets associated with pooled schemes	114,947	135,007	144,019	163,036	147,721	-9.39	28.51
Intangible assets	12,117	13,689	13,896	15,234	17,885	17.40	47.60
Land and buildings	10,627	16,576	16,023	14,932	14,225	-4.74	33.86
Other tangible assets	11,939	13,886	12,997	12,952	11,148	-13.93	-6.62
Tax assets	4,525	4,812	7,041	6,458	7,795	20.70	72.26
Assets in temporary possession	2,120	3,768	1,740	7,220	213	-97.05	-89.94
Other assets	336,540	399,918	492,274	365,725	533,522	45.88	58.53
Period accrual items	3,727	3,805	4,178	3,469	3,772	8,73	1.22
Total assets	6,441,603	6,944,306	7,368,312	7,211,070	7,173,403	-0.52	11.36
Amounts owed to credit institutions and central banks	316,985	231,340	289,331	242,910	229,440	-5.54	-27.62
Deposits	1,867,968	2,021,848	2,250,375	2,251,920	2,341,123	3.96	25.33
Deposits, excluding repos	*1,686,788*	*1,826,733*	*2,096,302*	*2,123,861*	*2,239,206*	*5.43*	*32.75*
Bonds issued	3,270,293	3,590,718	3,649,206	3,638,521	3,333,210	-8.39	1.92
Other commitments	6,912	5,572	10,558	13,615	11,797	-13.36	70.67
Period accrual items	1,727	1,718	1,649	1,718	2,082	21.18	20.53
Total debt	***5,986,563***	***6,460,372***	***6,873,758***	***6,692,786***	***6,662,507***	***-0.45***	***11.29***
Provisions	13,507	8,805	8,938	8,285	7,929	-4.30	-41.30
Subordinated capital injections	45,779	57,844	60,221	65,117	64,368	-1.15	40.61
Equity	395,753	417,285	425,396	444,881	438,599	-1.41	10.83

Total liabilities	6,441,603	6,944,306	7,368,312	7,211,070	7,173,403	-0.52	11.36

12. Appendix 5: Balance sheet, banking institutions 2018-2022

	2018	**2019**	**2020**	**2021**	**2022**	**Change, 1 year**	**Change, 5 years**
Balance sheet items	*DKK million*					*%*	
Cash in hand and on-demand receivables with central banks	47,775	106,630	346,894	384,399	312,095	-18.81	553.26
Receivables from credit institutions and central banks	309,305	205,725	212,206	157,666	146,504	-7.08	-52.63
Lending	1,664,321	1,792,228	1,647,927	1,711,097	1,851,435	8.20	11.24
Lending, excluding repos	*1,320,320*	*1,349,393*	*1,319,658*	*1,367,876*	*1,523,546*	*11.38*	*15.39*
Bonds	661,093	706,531	840,405	744,412	752,143	1.04	13.77
Shares, etc.	25,468	31,011	34,827	32,749	29,482	-9.97	15.76
Shares in associated companies	1,952	3,518	3,573	2,808	3,221	14.70	65.03
Shares in affiliated companies	118,856	123,861	127,122	134,175	131,495	-2.00	10.63
Assets associated with pooled schemes	118,582	135,007	144,019	163,036	147,721	-9.39	24.57
Intangible assets	11,561	12,110	12,853	14,267	17,194	20,52	48.73
Land and buildings	6,745	12,573	12,238	11,356	10,628	-6.41	57.58
Other tangible assets	4,732	5,661	5,406	5,968	5,807	-2.70	22.71
Tax assets	4,194	5,315	7,570	7,229	8.969	24.07	113.86
Assets in temporary possession	333	1.883	582	2,582	143	-94.47	-57.15
Other assets	326,030	386,404	483,435	358,720	529,753	47.68	62.49
Period accrual items	2,687	2,731	3,235	2,564	2,991	16.65	11.32
Total assets	3,303,633	3,531,188	3,882,291	3,733,029	3,949,581	5.80	19.55
Debts owed to banking institutions and central banks	362,970	342,168	361,852	299,822	253,793	-15.35	-30.08
Deposits	1,784,500	1,899,053	2,123,100	2,123,502	2,220,296	4.56	24.42
Deposits, excluding repos	*1,613,820*	*1,715,888*	*1,976,227*	*1,988,064*	*2,118,380*	*6.55*	*31.26*
Bonds issued	306,996	332,109	360,873	371,943	343,858	-7,55	12.01
Other commitments	8,938	8,222	11,826	16,402	15,704	-4.26	75.69
Period accrual items	1,007	936	848	952	1,439	51.09	42.91
Total debt	***2,959,077***	***3,161,450***	***3,506,882***	***3,324,019***	***3,549,373***	***6.78***	***19.95***
Provisions	11,823	6,561	7,699	7,177	7,303	1.76	-38.23
Subordinated capital injections	33,918	45,340	46,278	53,530	51,609	-3.59	52.16
Equity	298,816	317,837	321,432	348,303	341,296	-2.01	14.22

Total liabilities	3,303,633	3,531,188	3,882,291	3,733,029	3,949,581	5.80	19.55

13. Appendix 6: Balance sheet,, mortgage banks 2018-2022

	2018	2019	2020	2021	2022	Change, 1 year	Change, 5 years
Balance sheet items	*DKK million*					*%*	
Cash in hand and on-demand receivables with central banks	809	295	347	22,225	37,420	68,37	4523,17
Receivables from credit institutions and central banks	844,379	1,099,373	1,045,844	1,024,854	893,254	-12.84	5.79
Lending	2,883,600	2,991,737	3,097,717	3,142,182	2,906,974	-7.49	0.81
Lending, excluding repos	*2,883,600*	*2,991,737*	*3,097,717*	*3,142,182*	*2,906,974*	*-7.49*	*0.81*
Bonds	167,003	211,208	193,270	177,514	169,024	-4.78	1.21
Shares, etc.	6,961	6,716	6,565	6,766	7,425	9.75	6.68
Shares in associated companies	54	49	45	53	52	-0.61	-2.80
Shares in affiliated companies	49,851	59,260	62,844	70,477	71,580	1.56	43.59
Assets associated with pooled schemes	-	-	-	-	-		
Intangible assets	257	307	354	269	353	31.36	37.36
Land and buildings	141	795	684	526	382	-27.41	170.29
Other tangible assets	113	159	190	206	211	2.02	86.01
Tax assets	387	273	90	116	120	3.40	-69,09
Assets in temporary possession	667	208	145	76	57	-25.18	-91.52
Other assets	10,174	12,379	10,230	8,705	13,408	54.02	31.79
Period accrual items	424	464	476	343	320	-6.69	-24.50
Total assets	3,964,820	4,383,223	4,418,800	4,454,312	4,100,579	-7.94	3.42
Amounts owed to credit institutions and central banks	727,340	857,165	887,332	923,171	834,041	-9,65	14.67
Deposits	10,500	11,950	7,200	-	-		
Deposits, excluding repos	-	-	-	-	-		
Bonds issued	2,970,099	3,248,851	3,249,950	3,252,282	2,973,215	-8.58	0.10
Other commitments	3	3	1,137	458	272	-40.59	9725.19
Period accrual items	26	36	36	29	38	32.47	46.92
Total debt	***3,734,095***	***4,142,826***	***4,168,794***	***4,198,514***	***3,841,354***	***-8.51***	***2.87***
Provisions	513	745	382	332	569	71.69	10.90
Subordinated capital injections	15,861	16,516	17,946	15,587	14,984	-3.87	-5.53
Equity	214,350	223,136	231,678	239,879	243,671	1.58	13.68

Total liabilities	3,964,820	4,383,223	4,418,800	4,454,312	4,100,579	-7.94	3.42

14. Appendix 7: Credit institutions, key figures 2018–2022

%	2018	2019	2020	2021	2022
Capital ratio	21.68	22.46	23.32	22.88	22.56
Core capital ratio	19.78	19.96	20.63	20.33	20.05
Real core capital ratio	17.86	18.04	19.11	18.76	18.72
Return on equity before tax	10.14	9.17	5.81	10.19	5.86
Return on equity after tax	8.12	8.52	4.60	8.23	3.94
Earnings per cost kroner (DKK)	1.67	1.55	1.33	1.69	1.34
Cumulative impairment rate	1.15	1.07	1.14	0.97	0.89
Impairment rate for the period	0.04	0.08	0.24	-0.01	0.04
Loans in relation to equity (ratio)	11.10	10.99	10.96	10.66	10.60
Total risk exposures (DKK billion)	**1850**	**1916**	**1934**	**2043**	**2062**
Of which are for credit risk	*1536*	*1599*	*1605*	*1727*	*1690*
market risk	115	120	129	107	131
operational risk	176	173	174	173	180

15. Appendix 8: Banking institutions, key figures 2018-2022–2022

%	2018	2019	2020	2021	2022
Capital ratio	23.31	24.64	25.28	25.51	24.48
Core capital ratio	21.50	22.02	22.54	22.90	21.97
Real core capital ratio	19.02	19.53	20.62	20.92	20.36
Return on equity before tax	10.02	7.88	4.67	9.79	3.99
Return on equity after tax	8.63	8.34	4.18	8.46	2.66
Earnings per cost kroner (DKK)	1.63	1.45	1.25	1.68	1.19
Cumulative impairment rate	2.32	1.91	2.16	1.89	1.64
Impairment rate for the period	0.05	0.10	0.44	-0.06	0.07
Loans in relation to equity (ratio)	4.42	4.25	4.11	3.93	4.46
Total risk exposures (DKK billion)	**1,286**	**1.328**	**1,342**	**1,434**	**1,483**
Of which are for credit risk	*1,049*	*1,089*	*1,105*	*1,200*	*1,208*
market risk	91	99	100	90	101
operational risk	133	128	127	126	132

16. Appendix 9: Mortgage banks, key figures 2018-2022–2021

	2018	2019	2020	2021	2022
%					
Capital ratio	23.66	22.87	23.02	21.88	23.19
Core capital ratio	21.92	21.09	21.04	20.18	21.45
Real core capital ratio	21.09	20.31	20.31	19.49	20.75
Return on equity before tax	8.61	9.73	7.43	8.70	9.06
Return on equity after tax	7.22	8.25	6.29	7.48	7.75
Earnings per cost kroner (DKK)	4.16	4.19	2.87	3.65	3.82
Cumulative impairment rate	0.36	0.34	0.40	0.39	0.37
Impairment rate for the period	0.04	0.04	0.10	0.00	-0.02
Loans in relation to equity (ratio)	13.45	13.41	13.37	13.10	11.93
Total risk exposures (DKK billion)	**929**	**1003**	**1057**	**1114**	**1085**
Of which are for credit risk	*861*	*941*	*985*	*1051*	*995*
market risk	27	23	32	19	34
operational risk	40	40	40	40	41

17. Appendix 10: Grouping of credit institutions

Group 1 - SIFI institutions and subsidiaries of SIFI institutions			
3000	Danske Bank A/S	20001	Nykredit Realkredit A/S
5301	Aktieselskabet Arbejdernes Landsbank	20002	Realkredit Danmark A/S
7730	Vestjysk Bank A/S	20003	Jyske Realkredit A/S
7858	Jyske Bank A/S	20004	TOTALKREDIT A/S
8079	Sydbank A/S	20007	DLR Kredit A/S
8117	Nykredit Bank A/S	20009	Nordea Kredit Realkreditaktieselskab
9380	Spar Nord Bank A/S		
Group 2 - Working capital over DKK 12 billion			
400	Lån & Spar Bank A/S	7670	Ringkjøbing Landbobank A/S
522	Sparekassen Sjælland-Fyn A/S	9070	Sparekassen Danmark af 1871
755	Middelfart Sparekasse	9335	Sparekassen Kronjylland
1149	Saxo Bank A/S		
Group 3 - Working capital over DKK 750 million			
537	Dragsholm Sparekasse	7930	Kreditbanken A/S
844	Fynske Bank A/S	9090	Sparekassen Thy
847	Rise Flemløse Sparekasse	9133	Frøslev-Mollerup Sparekasse
5999	Danske Andelskassers Bank A/S	9137	Ekspres Bank A/S
6140	Møns Bank A/S	9312	Sparekassen Balling
6520	Lollands Bank A/S	9354	Rønde Sparekasse
6620	Coop Bank A/S	9388	Sparekassen Djursland
6771	Lægernes Bank A/S	9682	Sparekassen for Nørre Nebel og omegn
6860	Aktieselskabet Nordfyns Bank	9740	Frøs Sparekasse
6880	Totalbanken A/S	9797	Broager Sparekasse
7320	Djurslands Bank A/S	9827	Sparekassen Bredebro
7500	Hvidbjerg Bank Aktieselskab	13080	13460 Merkur Andelskasse
7570	Pensam Bank A/S	13460	Merkur Andelskasse
7780	Skjern Bank A/S	28003	Facit Bank A/S
Group 4 - Working capital under DKK 750 million			
5125	Leasing Fyn Bank A/S	9634	Borbjerg Sparekasse
9124	Sønderhå-Hørsted Sparekasse	13070	Faster Andelskasse
9135	Klim Sparekasse	13290	Andelskassen Fælleskassen
9629	Stadil Sparekasse		