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Markets

Danish Covered Bonds

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Introduction

Nykredit Markets has a continued focus on the Nordic region as our core market, and we are pleased to introduce our covered bonds handbook for Denmark. With covered bonds outstanding equivalent of around EUR 390bn (DKK 2,905bn), the Danish market has become the largest in Europe after significant reduction in outstanding amounts of covered bonds in Germany and Spain. Even though Denmark is not a Eurozone country, 3% of outstanding covered bonds are EUR-denominated and 96% are DKK-denominated.

The Danish covered bond market is a very transparent market with a 220-year impeccable track record. All major issuers have AAA rated covered bonds, which makes Danish covered bonds more attractive in a shrinking AAA universe.

The handbook includes an overview of macro-economic fundamentals and housing market trends in Denmark, as well as a description of Denmark's covered bond market and relevant legislation. The handbook also includes a description of the individual profiles of all major Danish covered bond issuers. The issuer profiles address the key factors necessary to evaluate an issuer's covered bonds, namely the issuer (or parent) itself, the underlying cover pool(s), ALM and rating.

If you have questions regarding the handbook, or covered bonds in general, please do not hesitate to contact us. The handbook is also available for registered users online at nykredit.dk/markets.

Nykredit Markets

Copenhagen, June 2020

Danish economy

- Robust and well-diversified, AAA rated economy
- Healthy public finances and strong fiscal discipline
- Despite high debt levels, households have substantial net wealth

Stable AAA outlook

Denmark is one of only ten countries rated AAA by all of the three largest credit rating agencies. All of them have confirmed stable outlook after the corona outbreak accelerated.

Danish public finances are healthy, and the country has a long-standing track record of long-term fiscal planning spanning multiple governments across several political parties. On top of this, Denmark receives its top rating based on its diversified production structure, a stable and consensus-based political environment, high labour market participation rates, a generally high educational attainment level and a flexible labour market combined with a generous social welfare system.

Danish households are financially robust

Danish households have considerable financial wealth. Financial assets total almost DKK 7,270bn, equivalent to 640% of disposable income or DKK 2.6m per household. Including housing wealth, total net wealth stands at DKK 3.8m per household. The high net wealth reflects a well-developed pension system as well as tax credit on savings. Both asset and debt levels are high relative to other advanced countries. Gross debt represents some 270% of disposable income, which almost entirely covers mortgages secured on real estate. Among financial assets, pension savings and shares constitute the main part. The country as a whole has net foreign assets amounting to almost 80% of GDP.

Strong public finances and robust economy

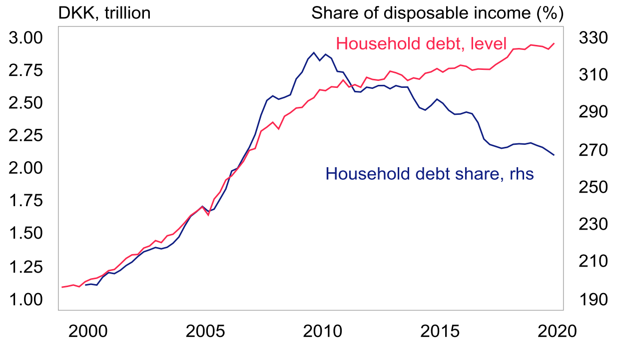
Thanks to Denmark's healthy public finances, a generous social welfare system can cushion households from loss of income over the business cycle. Combined with a flexible labour market this also ensures smoother necessary transitions over the business cycle and as a part of the technological progress and ongoing changing nature of the economy. Danish wage earners are less opposed to changing economic environments than many of their foreign counterparts.

Before the outbreak of the coronavirus, the Danish economy was in a moderate boom with no major imbalances, except for a considerable current account surplus. Households and firms were prudent during the upswing and reduced their debts. The Danish economy entered the outbreak on a strong foundation.

Budgetary discipline is a cornerstone in the conduct of fiscal policy, and the regulatory set-up for fiscal policy ensures continued tight control of public expenditures. This has kept public debt low in Denmark. Few countries face the virus outbreak with as solid buffers as Denmark's and with such good opportunities of mitigating the economic consequences. Considering Denmark's economic balances, a downgrade of its top rating should be far away.

Denmark is one of only ten countries rated AAA by all of the three largest credit rating agencies. All of them have confirmed stable outlook after the corona outbreak accelerated.

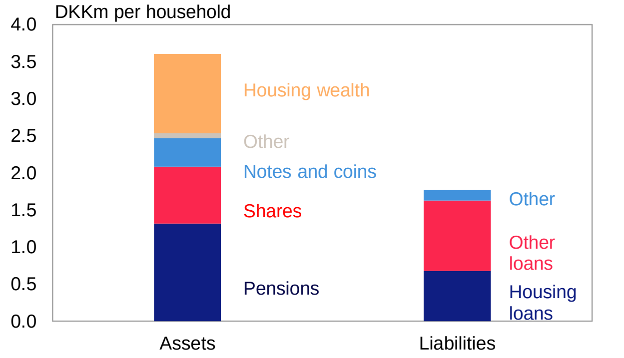
Danish households have reduced the debt share



Household debt has decreased over the past few years, but still accounts for 270% of household disposable income.

Source: Macrobond

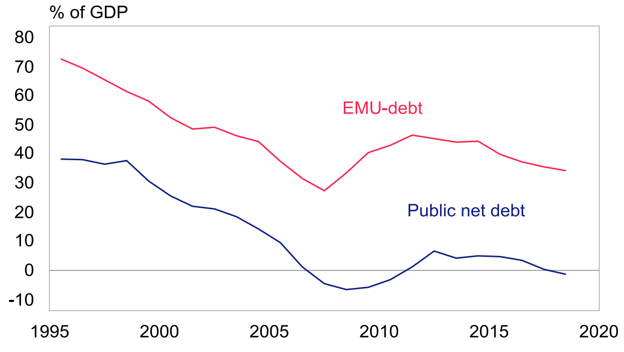
Household debt is matched by high wealth



Despite the high debt levels by international comparison, Danish households have substantial net wealth.

Source: Danmarks Nationalbank, Statistics Denmark, Nykredit Markets

Sound public finances with low public debt

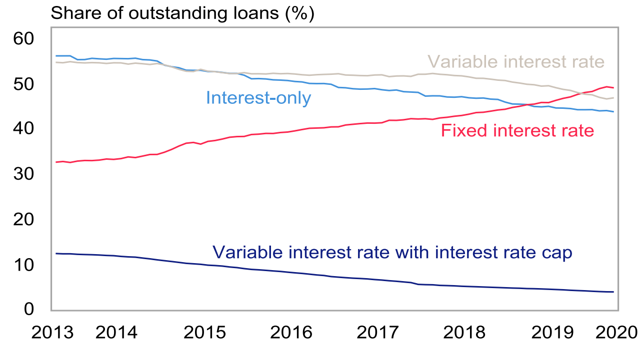


Source: Macrobond

Danish housing market

- Rising housing prices have increased homeowners' equity to the highest level since 2008
- More homeowners are amortising loans and locking in their loan rate, reducing interest rate sensibility
- Homeowners are well prepared for the future

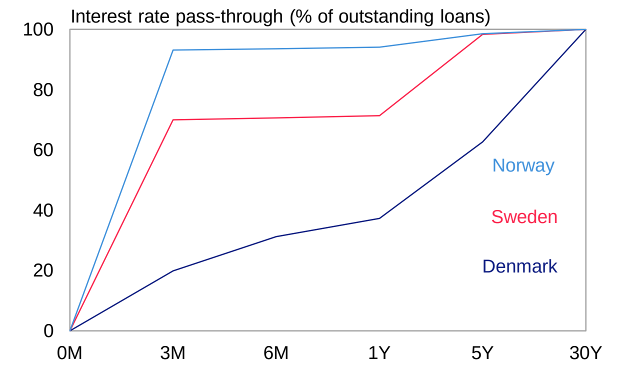
Outstanding loans



Variable interest rate with interest rate cap only includes data for loans where the rate cap has not been reached. The share of loans where the rate cap has been reached is minimal and not included in the chart.

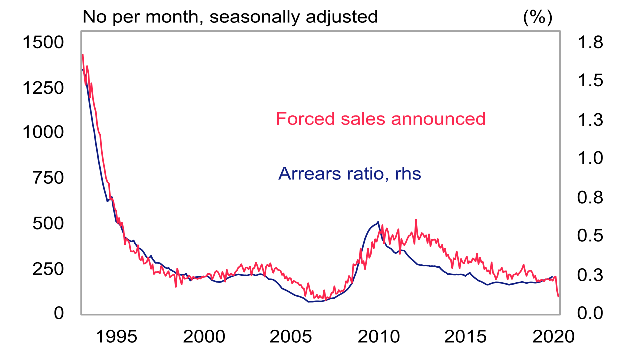
Source: Macrobond, Danmarks Nationalbank

Interest rate sensitivity is limited in a Nordic context



Source: Danmarks Statistik, statistiska centralbyrån, statistisk sentralbyrå

Forced sales and arrears



The arrears ratio shows the proportion of total mortgage payments at least 105 days past due.

Source: Macrobond, Statistics Denmark, Association of Danish Mortgage Banks

Increasing prices in major parts of the housing market

Recent years' housing market growth continues. Danish housing prices increased in 2019, when employment and income rose in large parts of Denmark. Compared with 2014-2017, we saw moderate price increases in 2019, especially for owner-occupied flats and the Copenhagen area.

In 2020, the corona crisis is likely to leave a mark on housing prices. We expect a price fall in 2020 followed by a run-up in prices in 2021. In 2020, we expect housing and flat prices to go down about 4.1% and 5.3%, respectively. By contrast, we foresee pre-crisis levels in 2022.

Homeowners are in a robust situation with equity at an all-time high since 2008. This is mainly due to housing wealth having increased to a new record-high level, driven by increasing housing prices. At the same time, growth in housing debt has been very moderate for the past few years, which is partly because a large part of loans is amortisation loans.

More loans with fixed rates and amortisation

One of the greatest risks in the Danish housing market are interest rate increases, which are expected to dampen price developments and ultimately lead to price decreases in parts of the housing market. The risk of price decreases is greatest within areas, which have seen strong growth over the past year. Against this backdrop, it is worth emphasising that the proportion of outstanding fixed-rate housing loans has increased in recent years, while more people are choosing to amortise their loans. This helps enhance resilience in the Danish housing market, as interest rate sensitivity is reduced, and as housing debt is reduced through higher amortisation rates.

This trend should be seen in light of the option to lock in the loan rate at the currently low level. Also, administration margins on loans with short-term interest periods and without amortisation have increased. This is partly due to the Danish FSA's Supervisory Diamond and a number of more recent efforts, which have tightened the requirements for lending for housing purposes. Furthermore, for a substantial part of the borrowers having loans with an initial 10-year interest-only period, the interest-only periods are now expiring.

It is worth emphasising that the interest sensitivity among Danish homeowners is very limited compared with our Nordic neighbouring countries, where a large share of debt has a variable interest rate compared to Danish standards. This means that an interest rate hike will affect 90% of homeowners' debt in Norway within three months compared with less than 20% in Denmark.

Fewer borrowers default and avoid losing their homes

Employment and income growth in combination with lower financing costs have made it easier for homeowners to meet their payment obligations. Accordingly, the arrears ratio has been on a sustained low level for the last several years. Naturally, this rubs off on the number of houses subject to forced sale, which is at the lowest level since 2008. This also reflects the improvements in the housing market in large parts of Denmark, thus making it easier to sell a house in the open market and avoid a forced sale.

Danish covered bond market, structure and legislation

- Most Danish covered bonds are CRD- and UCITS-compliant
- Pass-through on a loan-by-loan basis
- Market risk in connection with refinancing is passed through directly to borrowers

Danish covered bonds can be issued either by specialised Danish banks under the so-called balance principle, or by Danish universal banks. Issuance under the balance principle is by far the most prevalent, and volumes far exceed issuance from the one Danish universal bank that to date has issued covered bonds.

Long history and strong legislation

The first Danish mortgage bonds date back to 1797 and emerged in the wake of the Copenhagen Fire of 1795, which left a huge finance need for reconstruction. Danish mortgage legislation originates from 1851, and together with Germany, Denmark has the oldest mortgage legislation in the world.

The last major amendment to Danish legislation was in the summer of 2007, partly to ensure continued eligibility of Danish mortgage bonds as covered bonds under the stricter definition of the Capital Requirements Directive (CRD). In this connection, the Danish balance principle (ALM requirements) was adapted to European standards, and universal banks gained access to issuing covered bonds.

Mortgage banks and universal banks are licensed to carry on mortgage banking. Mortgage banks are specialised banks whose business area is limited to the granting of mortgage loans funded by covered bonds. Mortgage banks may not accept deposits, and funding is solely based on issuance of covered bonds. The Danish Financial Supervisory Authority (FSA) supervises compliance with current legislation and regularly conducts on-site inspections.

Danish covered bonds are issued as either SDOs, SDROs or ROs – see fact box for more details. The CRD lays down a number of requirements for mortgage bonds (SDO/SDRO) to qualify as covered bonds and obtain a low risk weighting. One of the most significant elements of the CRD from a Danish perspective is the requirement of continuous loan-to-value (LTV) compliance. SDROs and SDOs are issued under the latest Danish covered bond legislation, which took effect on 1 July 2007 and complies with the CRD, implying a risk weighting of 10% according to the standardised approach.

Covered bonds from specialised Danish banks

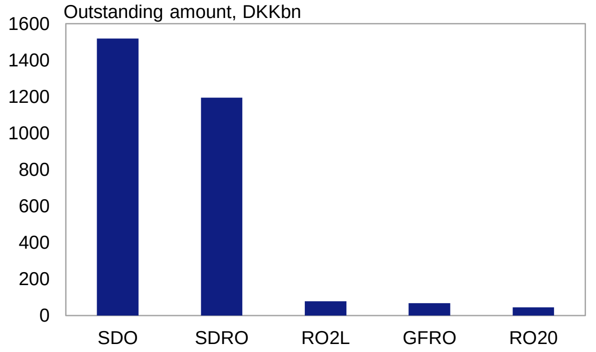
Under the balance principle, Danish mortgage banks match fund all types of lending – even lending that is refinanced during the term of the loan. When loans are refinanced, loan rates are reset to match the interest rates at which new funding is issued. Thus Danish mortgage banks transfer market risk in connection with refinancing directly to the borrowers.

SDOs, SDROs or ROs

All bonds comply with Article 52(4) (previously 22(4)) of UCITS. ROs are issued under the former Danish mortgage bond legislation. ROs are not CRD-compliant and hence carry a 20% risk weighting under the standardised approach. However, the amended Danish Covered Bonds Act ensured that ROs ("realkreditobligationer") issued under the former legislation could continue to qualify as covered bonds under the CRD. ROs issued before 1 January 2008 are grandfathered under the CRD and thereby secured covered bond status and hence a 10% risk weighting.

SDO: "Særligt dækket obligation" (CRD/UCITS-compliant)
SDRO: Covered mortgage bond (CRD/UCITS-compliant)
GFRO: Grandfathered mortgage bond (CRD/UCITS-compliant)
RO20: Mortgage bond issued after 2007 (only UCITS-compliant)
RO2L: ROs funding top loans (only UCITS-compliant)

Danish covered bonds by type



96% of the funding is in DKK, 3% in EUR and 1% in SEK.

Source: Nykredit Markets

SIFI requirements

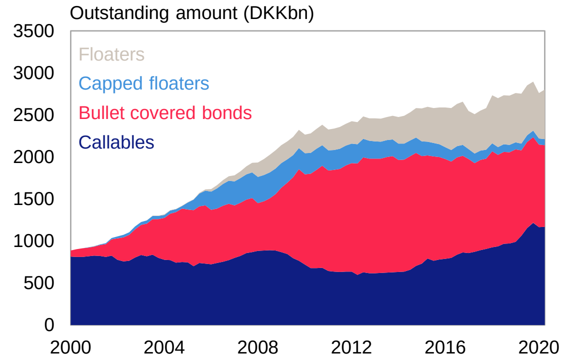
Systemically important financial institutions (SIFIs) are identified once a year. An institution is identified as a SIFI if at least one of the following criteria is met for two consecutive years:

- Balance sheet total as a percentage of GDP > 6.5%
- Lending as a percentage of total sector lending > 5%
- Deposits as a percentage of total sector deposits > 5%

SIFIs are subject to stricter requirements than non-SIFIs, including a minimum capital buffer requirement of 1-3% of their risk-weighted assets depending on their systemic importance.

The Danish SIFIs are Danske Bank A/S, Nykredit Realkredit A/S, Nordea Kredit Realkreditaktieselskab, Jyske Bank A/S, Sydbank A/S, DLR Kredit A/S and Spar Nord Bank A/S.

Segments in the Danish covered bond market



Development in major covered bond segments.

Source: Nykredit Markets

Eligible assets

Assets eligible as security for Danish covered bonds are restricted to loans granted against mortgages on property, unsecured loans to public authorities, loans guaranteed by public authorities or other non-subordinate claims against and guarantees issued by credit institutions based on the issue of covered bonds. Claims on credit institutions may not exceed 15% of the total outstanding nominal amount of bonds.

The Danish FSA may allow other CRD-compliant assets. Eligible assets vary depending on the type of issuer and covered bond. SDRO- and RO-eligible assets are restricted to loans secured by mortgages on property and exposure to public authorities.

LTV limits

Danish covered bond issuers are subject to LTV limits, which are very similar to the CRD limits. Note that the LTV limits must be complied with at individual loan levels. Issuers must adopt a "haircut" approach and may only include the part of each loan which is at any time below the LTV limit when determining the value of the cover assets behind the bonds.

Property type	LTV limit
Residential	80%*
Commercial	60% (70% against extra collateral)
Agricultural	60% (70% against extra collateral)

* Max maturity of 30 years and a max interest-only period of 10 years.

Issuers of SDOs or SDROs must continuously ensure that the cover assets behind the issued bonds remain intact. If property prices fall, the issuer must contribute additional collateral to the cover pool, for instance in the form of government bonds. In determining the value of the cover pool, issuers must apply the market values of the properties provided as security in each cover pool. When issuing ROs, issuers are only subject to LTV limits at the time when loans are issued. Besides, the valuation principle of certain commercial properties need not be the market value principle.

The Danish covered bond market falls into three major segments: callable bonds, fixed-rate bullets and floaters (with and without caps). Callable bonds and fixed-rate bullets constitute the greater part of the market. EUR-denominated bonds make up about 3% of the Danish covered bond market, with the highest volume in the fixed-rate bullet segment. A detailed description of the products designed for the Danish balance principle is given in the chapters ahead.

Danish covered bonds are generally issued either on tap or at refinancing auction. Tap issues satisfy day-to-day funding needs, and issuers thus avoid having to sell large amounts in the market in one single day. As nearly all lending is based on pass-through, higher funding costs do not affect issuers but are passed directly onto borrowers. Due to match funding, the range of loan products is determined by developments in the funding market.

Long-term callable bonds and long-term capped floaters typically have an opening period of three years with tap issuance on a day-to-day basis. The relatively long opening period enables issuers to build sizeable bond series.

ARMs funded by short-term fixed-rate bullets are refinanced through auctions held about one month before the existing funding matures (1 January, 1 April, 1 July, 1 October). The auctions give rise to major issuance of mainly 1Y, 3Y and 5Y fixed-rate bullets. However, the funding needed at the auctions is always lower than the amount maturing, and interest rate risk and spread risk are passed directly onto the borrowers. In the past few years mortgage banks have worked to make borrowers choose long-term funding.

Cover pools

Investors in Danish covered bonds are protected by dual recourse to both the capital of the issuing mortgage bank and to the assets of a cover pool. Assets serving as security for covered bonds must be segregated into independent cover pools, referred to as capital centres in mortgage banks and cover registers in universal banks.

Covered bond holders have a primary preferential claim on all cover assets in case of bankruptcy of the issuer. Covered bond holders rank pari passu with derivatives counterparties provided the derivatives contracts are concluded for the purpose of hedging imbalances between lending and funding. Cash flows to covered bond holders and derivatives counterparties must remain unaffected by the bankruptcy of the issuer. Payments cannot be accelerated, just as derivatives counterparties are not entitled to demand termination of the contracts in case of bankruptcy of the issuer.

Borrowers are liable for loans granted against mortgages on property – personally and to the extent of the mortgaged property. Covered bond issuers may waive the personal liability requirement.

Overcollateralisation

For mortgage banks, mandatory overcollateralisation (OC) must correspond to the capital adequacy requirement of 8% of risk-weighted assets (RWA). This requirement applies to each capital centre. Universal banks are not subject to any requirement of mandatory OC. Both mortgage banks and universal banks may supply voluntary OC to achieve higher ratings.

Strict ALM rules support match funding

Compared with other European mortgage systems, the Danish system stands out in a number of areas. The biggest difference that catch the eye is the Danish match funding.

Danish issuers are subject to very strict ALM rules. Mortgage banks continue offering only true pass-through products, thus completely eliminating market risk.

Due to the pass-through principle, Danish mortgage borrowers may terminate their loans by buying back the mortgage bonds funding their loans in the bond market and delivering them to their mortgage bank. The option is referred to as the delivery option or the buyback option and applies to all mortgage bonds whether callable or non-callable.

ALM – the balance principle

The balance principle specifies the extent to which mortgage banks and universal banks may assume interest rate, foreign exchange, option and liquidity risk in relation to mortgage lending.

For each cover pool, issuers must choose either the older specific or the newer general balance principle for managing financial risk. To prevent issuers from changing balance principle at their own discretion, the choice of balance principle must appear from the bond prospectus.

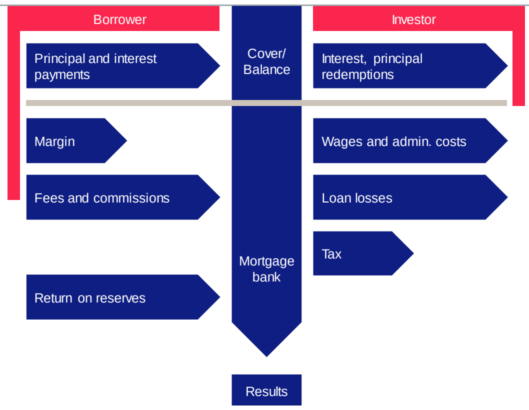
Stress tests: interest rate, volatility, liquidity and FX risk

Stress tests are used to measure interest rate risk based on six different yield curve shifts. The interest rate risk is determined as the largest loss of net present value of the curve shifts tested.

Volatility risk is calculated as the largest loss at a shock to all volatilities of +/-1 percentage point. As for interest rate risk, volatility risk is determined for each currency, and generally, volatility risk with opposite signs must not be set off between different currencies. Exceptions include positions in DKK and EUR where netting is allowed by 50%.

Strict requirements for management of liquidity and foreign exchange risk also apply under the balance principle.

The Danish pass-through balance principle



Match funding means that issuers pass through all interest and principal payments from borrowers directly to bondholders. The payments are guaranteed by the mortgage bank and the capital centre.

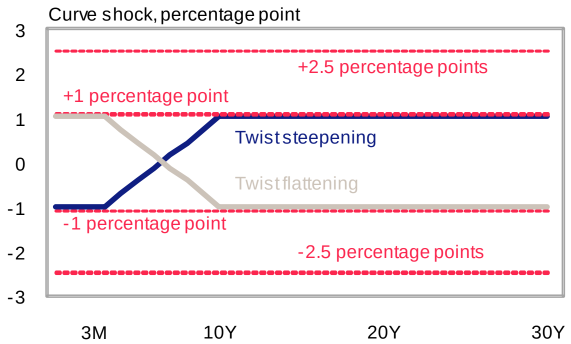
Source: Nykredit Markets

Specific vs general balance principle

The general balance principle is based on stress tests in line with European-style ALM requirements. Besides stress tests, the specific balance principle also includes a number of structural limits, which in practice means that issuers must comply with a structural pass-through set-up.

Under the general balance principle, mortgage banks and universal banks have different risk limits. Mortgage banks' risk limits are generally tighter than those applying to universal banks.

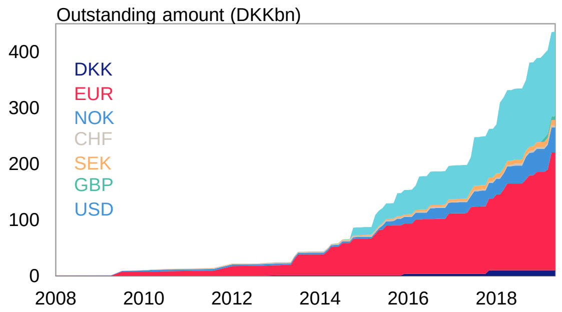
Stress testing the yield curve



Stress tests applied to the yield curve – the general balance principle.

Source: Nykredit Markets

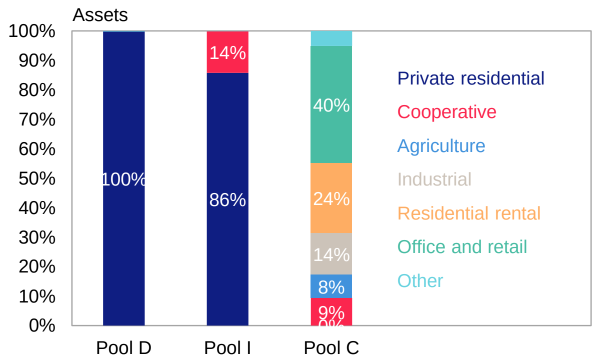
Outstanding amounts – Danske Bank



Danske Bank's issuance, based on listed issues.

Source: Bloomberg, Nykredit Markets

Cover assets in Danske Bank



Cover assets in Pool D and Pool I are primarily private residential property, while cover assets in Pool C contain many commercial properties.

Source: Danske Bank A/S, Nykredit Markets

Stress tests under the general balance principle

Interest rate risk is stress tested by way of:

- A parallel shift of the yield curve (+/- 100bp), not to exceed 10% of OC
- A parallel shift of the yield curve (+/- 250bp), not to exceed 100% of OC
- Curve twist (0-3 months +/-100bp and 10 years or more +/- 100bp), not to exceed 100% of OC.

Foreign exchange risk is stress tested by a 10% rise/fall for currencies in the EU, EEA or Switzerland and 50% for all other currencies. Foreign exchange risk is not to exceed 10% of OC. Option risk is stress tested by a 100bp rise/fall in the volatility structure. Option risk is not to exceed 10% of OC.

Covered bonds from Danish universal banks

The implementation of CRD in Danish legislation in the summer of 2007 allowed Danish banks to issue covered bonds in compliance with UCITS and CRD. Previously, a specialised banking licence (as mortgage bank) was required for issuers of covered bonds. To date, Danske Bank is the only Danish universal bank to have made use of this option.

The general balance principle

Universal banks' issuance of covered bonds is subject to the general balance principle. The issuance method is directly comparable with the European model allowing banks to exploit specific market conditions to raise funding. The bank may thus obtain funding on other terms than warranted by the cover assets, eg as regards maturities, interest rates and currencies. This may involve a number of market-related risks, which makes certain demands on ALM.

Danish covered bond legislation that fulfils European standards, is based on the Danish balance principle (the pass-through model). Consequently, Danish covered bond legislation is very stringent and among Europe's most restrictive. Legislation sets certain risk limits and contains detailed rules for market risk management, including specific rules (stress tests) for interest rate, foreign exchange and option risks.

Stress tests of market risks

All risk factors must be assessed based on differences between future cash inflows and outflows, including derivatives, specifically defined in legislation. Internal models may be applied. Risks must be determined for each currency. However, set-off between DKK and EUR is allowed by up to 50%. In addition to stress tests, nominal and NPV requirements apply to cash flows. In nominal terms, ingoing interest payments must exceed outgoing interest payments in a register. Add to this that the NPV of future ingoing payments must exceed the NPV of future outgoing payments.

OC requirements: general and specific balance principles

Under the specific balance principle, issuers are not exposed to market risk. However, mortgage banks may issue bonds under the general balance principle used by universal banks, but this will result in tighter stress test and OC requirements for mortgage banks.

As regards interest rate risk, the requirement for mortgage banks on a 100bp parallel shift of the yield curve is 1% of the capital adequacy requirement plus 2% of the additional OC. The requirement for mortgage banks on a 250bp parallel shift of the yield curve is 5% of the capital adequacy requirement plus 10% of the additional OC. The requirements for foreign exchange and option risks are correspondingly stricter.

Danish bullet covered bonds

- Short-term covered bonds worth EUR 126bn
- Highly liquid short-term market
- The DKK market is by far the largest followed by the EUR

To take advantage of the steep yield curve and still comply with the balance principle, a new loan type was introduced in the Danish covered bond market in 1996. Adjustable-rate mortgages (ARMs) under the Danish model are funded by issuance of short-term bullet covered bonds. At maturity of the short-term funding, the remaining debt is refinanced in the market, usually at auction, and the borrower's payments are adjusted to the new market rate achieved at the auction. For example, a 30Y mortgage loan funded by 1Y covered bonds is subject to refinancing 29 times. Annuity repayments are recalculated after each refinancing auction assuming an unchanged interest rate for the remaining loan term.

ARMs funded by short-term bullet covered bonds are the most commonly used adjustable-rate loans offered to households by mortgage banks. Commercial borrowers choose between ARMs funded by floaters or bullet covered bonds. The loans may have times-to-maturity of up to 30 years and interest-only periods of up to 10 years. All Danish short-term covered bonds funding ARMs mature on 1 January, 1 April, 1 July, or 1 October. Mortgage banks typically issue bonds with the same combination of coupon and maturity to support a unified domestic market.

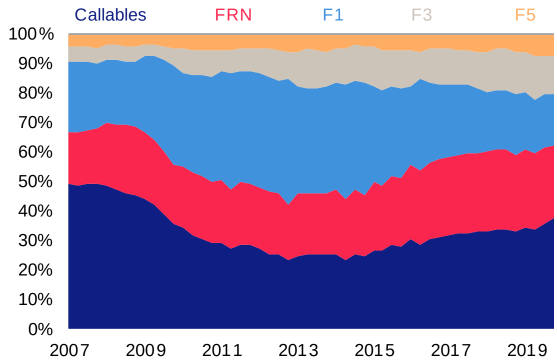
Following the introduction of ARMs in 1996 and up until a few years ago, this loan type was the most popular choice among Danish household borrowers. In 2013, ARMs had a market share of almost 55% against 38% today. Since then mortgage banks have been spreading their refinancing activity over the year instead of once a year. At the same time, the mortgage banks are encouraging borrowers to opt for loans with longer fixed-rate periods (more than one year) to reduce the frequency of refinancing. This has resulted in higher margin fees for ARMs than for 30Y fixed-rate loans as well as a higher price spread at the refinancing auctions.

In 2018 a new type of bullet covered bond – government-guaranteed bonds – was introduced. The new bonds are used to fund public housing loans subsidised by the government and are issued through separate capital centres. Until the introduction subsidised public housing loans have been funded by ordinary covered bonds. Gradually the existing subsidised mortgage loans are transferred to the new capital centres. Danmarks Nationalbank has a right to buy the new bonds and fund these by issuing government bonds, and the bonds are priced flat to the government curve. In January 2020, the outstanding amount of government-guaranteed bonds had risen to DKK 35bn.

New legislation addressing refinancing risk

In spring 2014, a legislative amendment was adopted to contain refinancing risk in the Danish mortgage banking sector. With the amendment, new bonds were introduced to fund loans subject to refinancing. These bonds have a soft bullet structure with extendable maturity if the loans cannot be refinanced (refinancing failure trigger), or – for some bonds – where yields have risen by over 500bp relative to the preceding year.

Segment breakdown, Danish covered bond market



Significant reduction in 1Y bullets since 2013.

Source: Nykredit Markets

DKK-denominated bullet covered bonds at auction

Term	Offer, EURbn	1Y	2Y	3Y	5Y
1 Apr 2018	16	55%	3%	25%	14%
1 Jul 2018	2	49%	0%	27%	23%
1 Oct 2018	8	53%	2%	22%	6%
1 Jan 2019	9	61%	3%	21%	11%
1 Apr 2019	13	53%	3%	26%	17%
1 Jul 2019	2	30%	1%	15%	52%
1 Oct 2019	6	68%	1%	13%	17%
1 Jan 2020	5	69%	3%	11%	14%
1 Apr 2020	12	49%	4%	21%	24%

By far the majority of the amounts auctioned are in 1Y bonds.

Source: Nykredit Markets

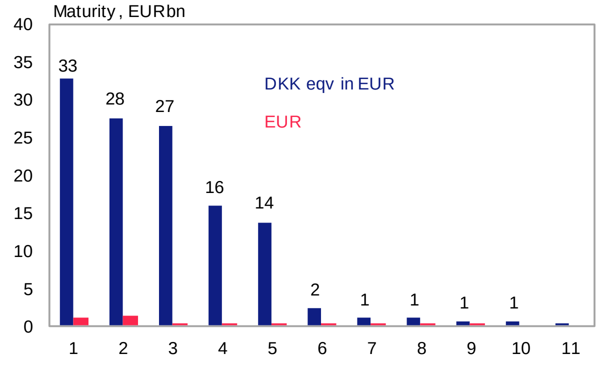
Soft bullet structures in Danish covered bonds

Funding period	Interest rate trigger (+500bp)	Refinancing trigger	Effective from
Fixed rate ≤ 1Y	1Y yield	Yes	1 April 2014
1Y < Fixed rate ≤ 2Y	2Y yield	Yes	1 January 2015
Fixed rate > 2Y	None	Yes	1 January 2015
Floater ≤ 2Y	Cap	Yes	1 January 2015
Floater > 2Y	None	Yes	1 January 2015

Two types of triggers were introduced with the legislative amendment: The refinancing failure trigger and the interest rate trigger.

Source: Association of Danish Mortgage Banks

Bullet covered bonds typically have short maturities



The majority of borrowers still have 1Y reset periods, which is reflected in the huge amount of 1Y bonds outstanding.

Source: Nykredit Markets

Auction procedures

Type of auction

The auctions are held via Nasdaq OMX Copenhagen A/S. The participants are stockbrokers and investors with access to Nasdaq OMX Copenhagen A/S's submarket for mortgage bond issuers. The participants can see their own bids in the Genium INET system, but not the bids of the other participants.

Allotment

As regards bullet covered bonds, bids above the fixing price will be settled in full at the fixing price. Bids at the fixing price may be accepted on a pro rata basis. All executed trades will be published through Nasdaq OMX Copenhagen A/S.

Value date

All bonds will be subject to long settlement. The value date of all trades executed at the auctions will be at the term date. If the term date is not a banking day the value day will be the first banking day after the term date.

Reverse facility

As the bonds traded will be subject to long settlement, the issuer offers a reverse facility for bullet covered bonds to auction participants whose bids have been accepted and who require the bonds after only three days. By means of the reverse facility, the issuer will offer to sell the allotted bonds subject to the conventional three settlement days and subsequently repurchase the said bonds at the value date. The size of the reverse facility will be determined on an individual basis by the issuer but should not exceed the amount allotted to each individual bidder. The issuer may make the reverse facility conditional on the investor providing a corresponding amount of bonds maturing on the term date. Reverse facilities will be arranged on an individual basis.

Other terms

The issuer reserves the right not to sell the full offering announced at the auctions.

Source: Nykredit Realkredit A/S, Nykredit Markets

All loans subject to refinancing with 1Y bullet covered bonds were included as of April 2014, all other loans subject to refinancing were included as of 2015. When extending the maturity of 1Y and 2Y bullet covered bonds, the coupon is fixed at the rate of an equivalent bond at the refinancing one year earlier plus 500bp, while the coupon of long-term bonds is fixed at the 1Y rate the previous year plus 500bp.

Tap issuance followed by refinancing auctions

New lending is funded on a daily basis through tap issuance of covered bonds. At the maturity of the short-term funding, the bonds will be refinanced at auctions held by Danish mortgage banks or through tap sales. In the past year, EUR 36bn-worth of 1Y-5Y bonds have been refinanced on auctions held by mortgage banks.

Refinancing auctions of short-term covered bonds come to an end at least 30 days before the maturity of the outstanding bonds (1 January, 1 April, 1 July and 1 October). Prior to the refinancing auctions, the mortgage banks publish the expected amount to be refinanced in each bond over the auction period. The amount may be adjusted due to changes in interest rate reset profiles, refinancing to other loan types or sale of the property behind the loan. The final amount will be published at the auction date.

DKK and EUR funding

The currency of the outstanding bonds reflects the currency of the loans in the cover pool. Therefore, the DKK market is by far the largest (97%) followed by the EUR market (3%).

Investment in bullet covered bonds

Large volumes of the outstanding bonds and natural liquidity in the market from ongoing tap issuance and buyback from borrowers make the segment very attractive for liquidity purposes. For the Danish banking sector, short-term DKK covered bonds are the most important asset in liquidity management, and the need for short-term covered bonds is underpinned by the fact that the DKK government bond market is too small to fulfil the need for liquid assets in the banking sector. Most covered bonds from Danish issuers are AAA rated and are typically priced quite aggressively against the swap curve in line with euro covered bonds from for example Sweden and Germany. The 1Y segment trades at a tight spread to (currently below) the Danish OIS curve (Cita).

Foreign investors familiar with investments in the euro covered bond market could just as well buy DKK covered bonds. The only risk factors in relation to DKK-denominated bonds compared with the euro covered bond market are the foreign exchange exposure to DKK and the yield risk (country spread risk). Alternatively, investors can add a basis swap from DKK to EUR – currently at a pick-up compared with the swap spread in DKK.

The foreign exchange risk is, however, very limited as the DKK is pegged to the EUR around a central parity of 7.46, whereas the interest rate risk remains due to the fixed exchange rate policy, which could lead Danmarks Nationalbank to change the policy rate unilaterally – both upwards as well as downwards.

Danish floaters and capped floaters

- Floaters and capped floaters worth EUR 92.3bn
- High market growth and refinancing activity
- Most floaters and capped floaters are amortising

Danish mortgage banks have a total outstanding amount of floaters and capped floaters of EUR 92.3bn, of which EUR 85.2bn is DKK-denominated and EUR 6.1bn is EUR-denominated.

In 2000 borrowers were for the first time offered the opportunity to raise 30Y floating-rate mortgage loans with interest rate caps. The funding behind these loans were capped floaters with maturities of up to five years. At maturity of the 5Y bonds, the loans were refinanced into new 5Y capped floaters, and the interest rate cap was thus only effective for five years at a time. In 2004 it became possible to raise loans funded by capped floaters with maturities of up to 30 years, enabling borrowers to obtain a fixed interest rate cap covering the entire loan term. Since then, the development and introduction of new floating-rate loan and bond types have continued. As a result, a large number of floating-rate bonds with different features are now being offered. Floating-rate bonds with embedded caps are denoted capped floaters (CF).

A basic standard for the issuance of floaters and capped floaters has emerged in the Danish mortgage market. Common to the bonds is that they are based on 3M or 6M Cibor/Euribor/Cita rates. The bonds pay coupon in accordance with the Danish bond standards (actual/actual).

11% of floaters have an embedded cap. Most capped floaters are capped at around 5%. Both floaters and capped floaters have been issued with maturities of up to 30 years.

Floaters without caps, which are mainly used to fund pass-through commercial lending, were originally issued with 5Y maturities. However, following the transition to the new legislation in 2007, a fairly large amount of floaters with longer maturities (10 years and 30 years) has been issued. Today, issuance is again mainly in shorter maturities, typically of up to 3-5 years. The main activity in the market today is the refinancing of the existing bonds outstanding.

There are currently 37 floating-rate bonds (capped or uncapped), each worth over EUR 1bn, and 49 floaters worth over EUR 500m. Within the segment, the largest bond has an outstanding amount of EUR 3.5bn.

New legislation addressing refinancing risk

As from 2015, the floater segment became subject to the legislative amendment to contain refinancing risk in the Danish covered bond market. As a result, new floaters are required to fund loans subject to refinancing. The new floaters have a soft bullet structure with extendable maturity if the loans cannot be refinanced (refinancing failure trigger). Short-term floaters with maturities of up to 2 years at refinancing also come with a cap to keep interest rates from rising more than 500bp from the most recently fixed interest rate.

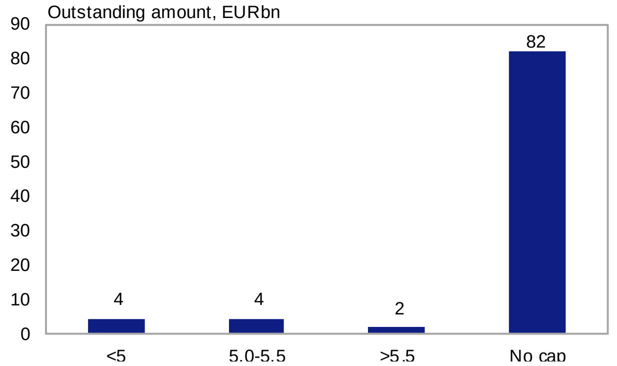
Standard features of Danish floaters

Payment dates pa	4
Coupon fixings pa	2 or 4
Reference rate	3M or 6M Cibor/Euribor/Cita
Fixing period	From 3 to 8 banking days before a payment
Coupon formula	(Fixing rate + coupon spread) * factor
Factor	365/360 or 1
Maturity	Up to 30 years
Amortisation	Like the underlying loans

The coupons of many bonds are fixed on the basis of a (multiplication) factor of 365/360 to adjust for different day count conventions.

Kilde: Source: Nykredit Markets

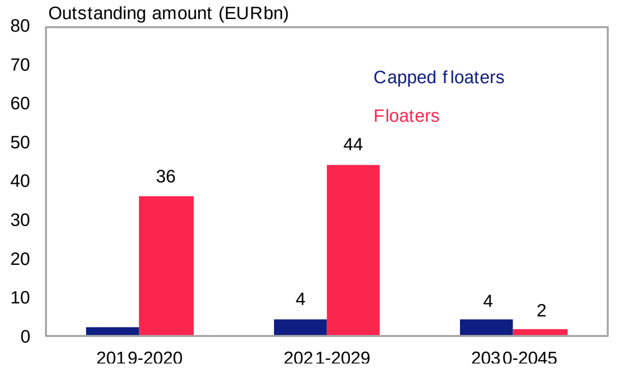
Floating-rate bonds by coupon cap



The coupon cap is the maximum coupon including coupon spread and multiplication factor (365/360).

Source: Nykredit Markets

Floating-rate bonds by maturity



The outstanding amount of floating-rate bonds is concentrated at the short end (end-2019).

Source: Nykredit Markets

The ten largest bonds of the floater series

ISIN	Name	Outstand. EURbn
DK0002041532	-0.31% NDA 2 2022	3.5
DK0004603388	0% RD T 2020	3.2
DK0002041458	-0.23% NDA 2 2023	3.0
DK0004605672	0.01% RD T 2021	2.6
DK0009524787	-0.268% NYK H 2024 IO	2.5
DK0009514127	-0.1285% NYK H 2020 IO	2.5
DK0009519787	-0.1285% NYK H 2022 IO	2.4
DK0002038587	-0.36% NDA 2 2021	2.4

The Top 10 by outstanding amount is dominated by uncapped floaters at the beginning of April 2020.

Source: Nykredit Markets

Negative fixing on floating-rate bonds

Issuer	Approach to negative interest rates
Nykredit Realkredit	Interest rate floor on existing bonds. Loans with negative interest rates as an increased principal payment on new bonds from May 2015.
Realkredit Danmark (RD)	Interest rate floor on existing and new bonds. RD has opened Cibor6-linked bonds without interest rate floor but maintains interest rate floor of FlexKort and Euribor. No information on settlement of negative interest (if any).
Nordea Kredit	All existing bonds have interest rate floors, however, borrowers will receive the negative interest from Nordea Kredit. New bonds with bond terms stipulating a right to charge negative interest.
Jyske Realkredit	Interest rate floor on existing bonds. Awaits sector-wide solution with regard to new bonds. However, in connection with its latest bond opening, Jyske Realkredit has announced that any negative interest may be offset against repayment on bullet loans.
DLR Kredit	No interest floor on new bonds.

Source: Nykredit Realkredit, Realkredit Danmark, Nordea Kredit, Jyske Realkredit, DLR Kredit

Negative short-term rates

The heavy decline in short-term Cita and Cibor rates at the beginning of 2015 led to the introduction of a coupon floor of 0% for some floating-rate bonds. Since most of the existing floaters were launched at a time when negative interest rates were not a realistic option, bond terms and base prospectuses lacked any provisions on whether a floater may have a negative coupon and, if so, how to proceed. In the table, we have clarified how the Danish mortgage bond issuers are handling the negative rates for their floating-rate bonds.

Besides the reference rate level, the value of a coupon floor depends on the maturity and the reference rate spread of the floating rate bond. The longer the maturity and the lower (more negative) the spread, the greater the value of the floor.

Investment in capped floaters

Despite the floating-rate nature of long-term Danish capped floaters, they cannot be compared with ordinary floaters as their embedded caps involve both interest rate and volatility risk. 30Y capped floaters with 5% caps have a higher sensitivity to changes in 30Y yields than 30Y 5% callable bonds. The Danish long-term capped floaters typically have an annuity cash flow (and some have interest-only (IO) periods). On each coupon fixing date, the annuity profile to maturity is recalculated, and this means that the bond's repayment profile becomes dependent on 6M Cibor, thereby gaining a stochastic element.

As a result of the special characteristics of capped floaters, ordinary covered/government bond strategies according to which investors buy a capped floater and sell a government bond are problematic. In terms of duration (BPV) alone, it would offhand be most natural to hedge the capped floater by selling a government bond with approximately the same duration, typically between 2 and 5 years. The problem with this strategy is that the capped floater has little or maybe even negative interest rate sensitivity at the 2Y and 5Y points, thereby making investors very vulnerable to curve steepening. A more risk-neutral strategy would be to buy a short-term government bond along with the capped floater, while selling a 20Y government bond (or entering into a 30Y payer swap). Capped floaters are a natural asset class for asset swap investors who can buy the bonds along with an amortising cap.

Investment in Danish covered bond floaters

Uncapped floaters resemble plain vanilla floaters. However, due to a number of features their pricing differs from that of a plain vanilla product. Firstly, the bonds are not bullet structures but will amortise at the same pace as the sum of the underlying loans (annuities with or without IO options). However, cash flows are delivered from the mortgage banks, whereby the expected redemptions are displayed.

The approximation in the coupon fixing by multiplying with 365/360 to compensate for the difference between the money market and the bond day count convention is generally fairly effective, but will in some quarters produce deviations from the actual holding period return in the money market. Finally, complexity is further increased by some of the floating-rate bonds being callable at par.

Although Danish covered bond floaters are nearly plain vanilla, investors should nonetheless take into consideration the special circumstances in relation to coupon fixing, coupon payments, repayment profile and callability.

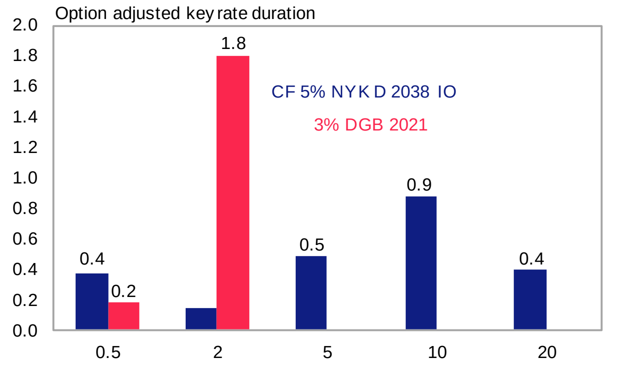
Green bonds

What characterises a green bond? A green bond is a bond where the sales proceeds are used to fund projects that contribute to environmental sustainability. In this context, a transparent process is paramount for project selection, management and ongoing monitoring and reporting.

The green element is relevant to borrowers and investors alike, who all wish to be associated with sustainability. The increased focus on sustainability has not diminished over the past few years when climate change has been on everyone's lips. The response to climate change also plays a key role in the 17 UN Sustainable Development Goals. Accordingly, Danish pension managers have announced through Insurance & Pension Denmark, their trade association, that their investments in green transition will grow from about DKK 126bn in 2019 to DKK 476bn in 2029 – a DKK 350bn rise over a 10-year period.

In May 2019, Nykredit issued the first green covered bonds. The bonds were issued in Sweden in an amount equivalent to EUR 500m. Since then, Nykredit has issued additional green bonds in Sweden and also in Denmark. In mid-April 2020 Nykredit's total green bond issues amount to about SEK 9bn and DKK 2.6bn. All bonds in issue carry a floating interest rate and mature in 2022 or 2023. Issuance of green bonds is expected to grow substantially in the years to come – initially, issuance will only be in short-dated bonds with maturities up to 5 years. In addition to floating-rate bonds, we also see a green market for fixed-rate bonds, such as bullet covered bonds.

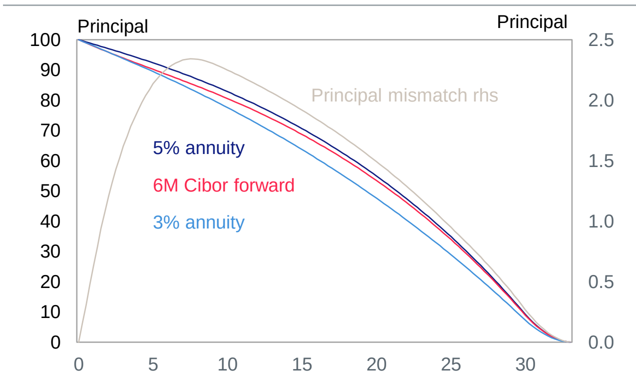
Key rates, capped floaters vs government bonds



CF 5% NYK 2038 IO has positive duration at each point.

Source: Nykredit Markets

Cash flow of 30Y capped floaters



The repayment profile is dependent on the development in 6M Cibor.

Source: Nykredit Markets

Danish callables

- Long-term fixed-rate bonds – callable by each borrower
- Second largest covered bond market in Denmark
- Dynamic market with issuance, prepayments and buybacks

The callable bond market is the second-largest covered bond segment in Denmark comprising mainly 20Y and 30Y fixed-rate bonds with coupons from -0.5% to 5%. Due to the pass-through system, the bond cash flow mirrors repayments from the underlying loans.

Callable bonds are callable at par by borrowers at each of the quarterly payment dates. In case of falling yields, borrowers may exercise their prepayment option by giving the mortgage bank notice of prepayment at least two months before the next payment date. Mortgage banks calculate prepayments, which are paid to investors on a proportionate basis on the subsequent payment date.

Borrowers largely exercise their right of prepayment, and over the past decade, callable bonds worth DKK 3,181bn have been prepaid at par. This prepayment activity makes for a dynamic market with relatively high issuance and turnover in bonds outstanding even though the bonds are initially issued with 30 years to maturity. This can be illustrated by changes in the composition of coupons in the outstanding bonds.

2019 was a record year for Danish covered bonds in several ways. Yields hit record lows and initiated a refinancing surge which was historical in many ways: callable bonds of more than DKK 515bn were prepaid, while issuance of callables exceeded DKK 675bn.

Borrowers' prepayment behaviour

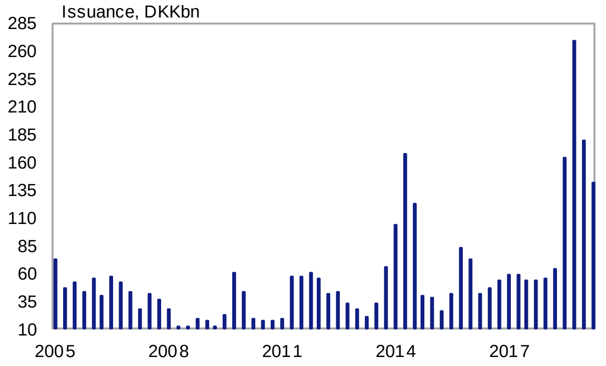
There may be several reasons for prepaying a mortgage loan. In order for investors to assess the risk inherent in callable bonds, an understanding of the underlying motivation is useful. In Denmark, the predominant motive is to obtain a positive prepayment gain and consequently a reduction in after-tax payments. This can be done by prepaying high-coupon loans and switching to loans carrying lower rates.

Prepayments have a direct effect on bondholders' positions, while all other refinancing methods only have an indirect effect. Below we will only use the term "prepayment" for early repayment at par when a bond is trading above par. Prepayments will be registered as redemptions, whereas refinancing through the purchase of bonds at market prices (the delivery option) will only increase demand for the bonds. Such market demand may have a positive effect on the prices of the bonds concerned.

Investment in callable bonds

The prepayment option means that investors obtain only a limited upside potential when interest rates fall, but on the other hand they receive a significantly higher yield relative to non-callable bonds.

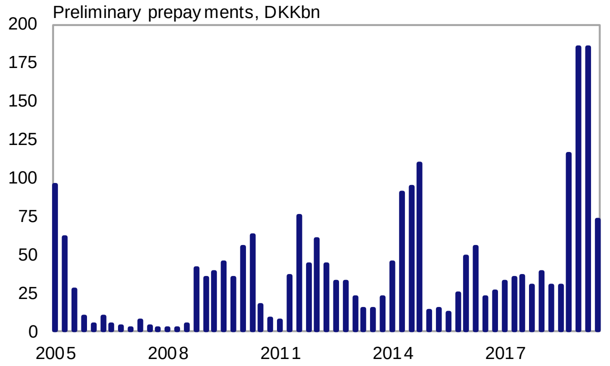
Gross issuance of Danish callables



High gross issuance of callable bonds in periods with high prepayments.

Source: Nykredit Markets

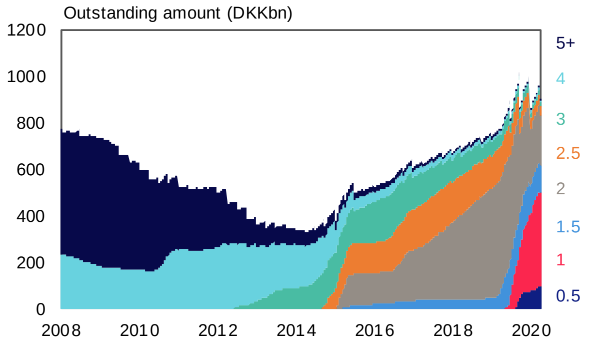
Historical prepayments



Prepayments by payment date.

Source: Nykredit Markets

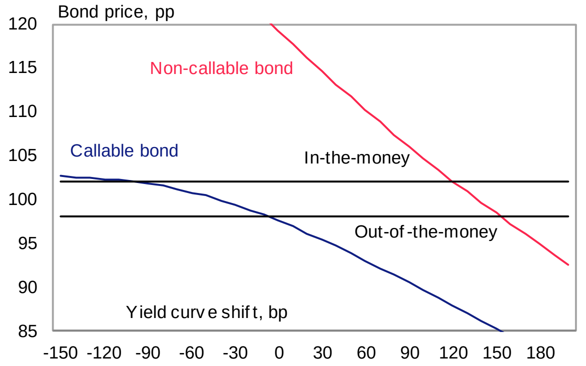
Coupon dynamics over time



The market is now dominated by coupons from 0.5% to 2.5%.

Source: Nykredit Markets

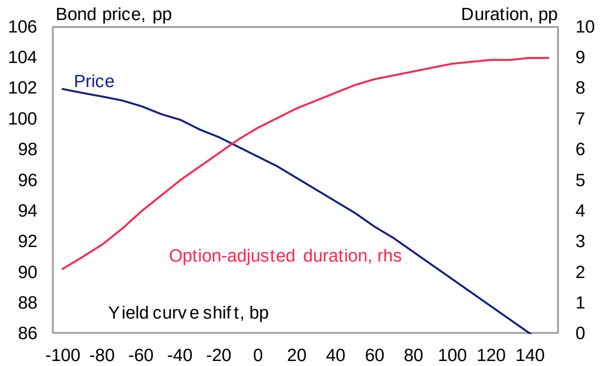
Price-yield structure, Danish callables



The upside potential in the price in connection with yield falls is highly reduced when the price is above the exercise price of 100.

Source: Nykredit Markets

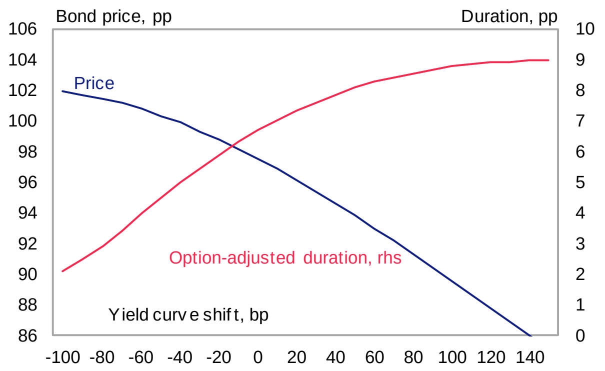
Reduced duration as yield falls



The option-adjusted duration tends to go toward zero as prices go well above 100.

Source: Nykredit Markets

Negative convexity



Convexity expresses the change in duration when yield levels change. Negative convexity indicates that the duration will increase as yields rise.

Source: Nykredit Markets

Successful investment in callable bonds requires an understanding of how prepayment risk affects pricing. The prepayment option sets these bonds apart from non-callable bonds.

Changes in market prices, given changes in yields, vary depending on whether prices are far below, or close to, 100. This variation in characteristics affects other risk figures as well. Certain bond key figures commonly used, such as the yield-to-maturity (YTM) and yield curve spread (YCS), are of limited use. Instead, investors and risk managers can apply a theoretical (stochastic) pricing model to assess risk and investment potential through option-adjusted key figures.

Callables – out-of-the money

Low-coupon callable bonds trading far below par have characteristics that resemble those of non-callable bonds due to the limited value of their prepayment option. The risk management of these bonds is therefore relatively simple. These bonds are often the first choice of new or non-Danish investors. A very common trading strategy for these investor groups is to buy callable bonds and sell government bonds with the same risk profile. The calculation of hedge ratios will typically be based on the option-adjusted duration (OAD). Such strategy provides investors with positive carry but also exposure to rising volatility and neutral or negative convexity.

Foreign covered bond investors may establish corresponding investment strategies, eg by selling fixed-rate euro covered bonds and buying Danish callable bonds.

Callables – at-the-money

Callable bonds trading close to par will have an at-the-money prepayment option. The risk management of these bonds is complex because of their high negative convexity. The bonds are characterised by limited upside potential and significant downside risk. The downside is attributable to rising yields increasing duration significantly (extension risk). The high complexity means that investors typically demand a higher risk premium for buying these bonds. It requires interest rate derivatives to hedge both extension risk and volatility risk associated with investment in callable bonds. Alternatively, a delta hedging strategy would require continuous adjustment of the hedge ratios.

Callables – in-the-money

High-coupon callable bonds trading far above par have typically been subject to high prepayment rates on a number of past payment dates. As a result, the current outstanding amount only constitutes a small fraction of the original outstanding amount (pool factor below 10%). At present, bonds issued with a coupon of 3% or higher fall into this category. On account of the low pool factor, prepayments have become less dependent on interest rate levels as most rational borrowers have already prepaid their loans. Furthermore, it will take significant yield rises before extension risk becomes a problem. The duration of this type of bond is close to zero, and the bond is traded as an alternative to the money market.

Because of the small outstanding amount, liquidity is low. Investors who prefer investments in high-coupon covered bonds to money market investments must be willing to assume interest rate risk as well as prepayment risk.

Prepayment determinants

It should be emphasised that the prepayment event is not driven by the price of the bond in question, but by the gain achievable by refinancing into a new loan with a lower interest rate. Several factors influence the refinancing gains of individual borrowers.

Due to the fixed costs related to loan prepayment, the size of the debt outstanding and the remaining term of the loan are decisive to borrowers' potential refinancing gains. In bond series with a relatively high number of large loans, prepayments will, other things being equal, exceed those of equivalent series with small loans.

It also plays a role whether the loan is a bond or a cash loan. As a consequence of different tax treatment, cash loans generally tend to be prepaid at a slower pace than the bond loans.

Early repayment by way of buybacks

After a period of rising interest rate levels, many borrowers opt to refinance from low-coupon bonds to higher coupons. The implication is buybacks by borrowers, which underpins the price of low-coupon bonds. This provides borrowers with an opportunity to prepay if yields decrease again.

Although it is possible for homebuyers in Denmark to assume existing mortgage debt, the sale of a property will usually result in loan refinancing (by either prepayment or buyback depending on whether bond prices are above or below par).

Market dynamics adds to natural liquidity

Rational borrowers with fixed-rate callable loans will refinance into other coupons when yield levels change significantly. This refinancing activity combined with turnover in connection with new lending gives rise to a natural liquidity in the market – especially in the bonds that are open for issuance or recently closed. The standard opening period for a Danish callable bond is up to three years, but due to changing yield levels the actual opening period is often shorter.

Basic understanding more crucial than complex modelling

The stochastic modelling of prepayment behaviour is a complex task and is outside the scope for most international investors. However, Danish banks are capable of doing the calculations, and relevant key figures can normally be delivered from the Danish counterparties. Therefore, the understanding of the market, its structure and borrower behaviour is the most important step to consider before entering the market.

Option-adjusted spread (OAS)

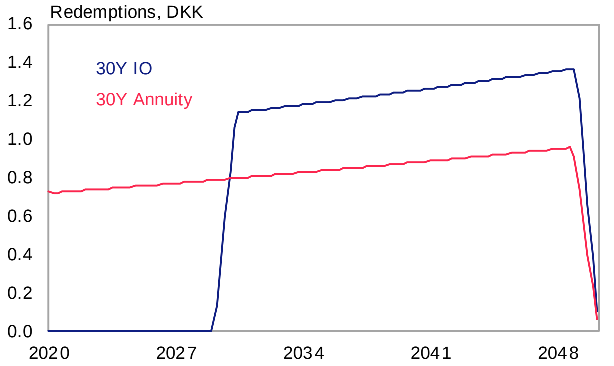
The OAS key figure provides investors with a basis for comparing the value of callable bonds with other investment alternatives. OAS is typically estimated relative to the Danish swap curve and implied swaption volatilities, but may also be estimated relative to the government bond yield curve. Current OAS levels play an important role, and trading strategies are often established as a result of OAS changes.

Bond versus cash loans

Bond loan:
The principal of a bond loan equals the nominal value of the bonds issued to fund the loan, and the interest payments will correspond to the coupon payments on the bond.

Cash loan:
The principal of a cash loan equals the market value of the bonds issued, and interest payments will correspond to the yield-to-maturity of the bonds adjusted for compound interest.

Cash flow of annuities with interest-only option (IO)



Loans with an initial 10Y interest-only period will repay the principal as an annuity over the last 20 years.

Source: Nykredit Markets

Issuer profile: Nykredit Realkredit A/S

- Nykredit Realkredit A/S is the largest mortgage lender in Denmark, dating back to 1851
- Mortgage lending totals DKK 1,263bn
- Forenet Kredit, an association of customers, owns 80% of Nykredit, whereas pension funds take a 17% stake in Nykredit

Nykredit is one of Denmark's leading financial services providers with mortgage lending and banking as its core business. Nykredit has a customer base of about 20% of the Danish population and provides 32.3% of all domestic lending. Nykredit Realkredit A/S (Nykredit) is a Danish SIFI.

Nykredit Realkredit A/S is Denmark's leading mortgage lender, dating back to 1851. It is a specialised bank, whose business is limited to the granting of mortgage loans funded by covered bonds. Mortgage lending totalled DKK 1,263bn at end-2019. The Nykredit Realkredit Group's staff totalled 3,515 at end-2019.

Cover pools

The three most important Nykredit cover pools are the open Capital Centres E and H and the closed Capital Centre D. All cover pools comprise mortgages on (predominantly Danish) property with additional assets comprising claims against credit institutions and government bonds. Capital Centre E, which was opened in 2007, represented 39% of outstanding covered bonds in 2019. Capital Centre H, which was created for loans requiring refinancing, came into use when some of the existing mortgage loans in Capital Centre E were refinanced at refinancing auctions for adjustable-rate mortgages (ARMs) in September 2011. The transfer of ARMs to Capital Centre H will continue as they are refinanced, and in 2019, Capital Centre H was the largest capital centre with 50% of outstanding bonds.

ALM and covered bond funding

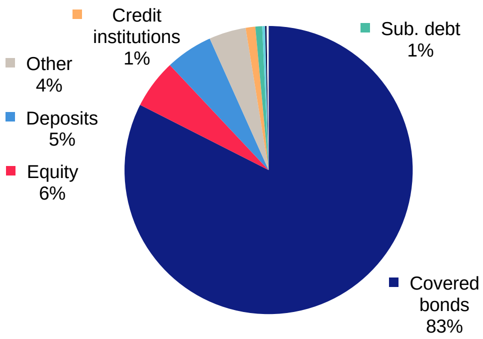
Despite the easing of the balance principle in 2007, Danish covered bond issuers are subject to very strict ALM rules. Almost all Danish mortgage banks continue to offer only true pass-through products, thereby eliminating market risk and the need for hedging.

Virtually all mortgage loans in Capital Centre E are match funded to maturity. For Capital Centre H, given the asset/liability maturity mismatches (the majority of mortgage loans have much longer maturities than the issued covered bonds), customers bear the refinancing risk. In the spring of 2014, a legislative amendment was made to contain refinancing risk in the Danish mortgage banking sector. The amendment introduced new bonds to fund loans subject to refinancing. The new bonds have a soft bullet structure with extendable maturity if the loans cannot be refinanced (refinancing failure trigger), or – for some bonds – where interest rates have risen by over 500bp relative to the preceding year (see chapter on Danish bullet covered bonds).

Rating

S&P has assigned its highest rating to covered bonds issued by Nykredit. Nykredit can be downgraded four notches without the covered bonds in Capital Centres D, E, G, H and I losing their AAA rating at actual OC levels.

Capital structure of the Nykredit Realkredit Group



83% of the group liabilities come from the issuance of covered bonds, and 0.3% from the issuance of SSBs at end-2019.

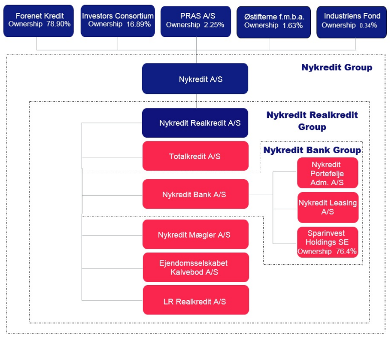
Source: Nykredit Realkredit A/S, Nykredit Markets

Cover pool statistics and ratings, 2019

Capital Centre	D	E	G	H	I
Owner-occupied/WA LTV (%)	54/45	79/68	2/53	59/63	11/51
Private rental/WA LTV (%)	6/41	5/54	19/49	12/50	12/39
Agriculture/WA LTV (%)	3/20	2/38	31/37	7/36	7/34
Cover pool (DKKbn)	23.4	508.5	90.9	626.7	10.1
WAL cover pool (years)	28.1	27.2	25.8	27.1	22.9
Fixed-rate loans (%)	18.3	98.6	0	0.4	100
Current OC (%)	19.6	3.7	29.7	3.6	45.8
Committed OC (% RWA)	8	8	8	8	8
Covered bonds (DKKbn)	19.6	490.4	70.1	604.8	7.0
WAL covered bonds (years)	26.5	27	3.7	4.2	22.9
Risk weighting CRD (%)	10/20	10	20	10	20
UCITS compliant			Yes		
Ratings (M/S&P/F)	D	E	G	H	I
Covered bonds	-/AAA/-	-/AAA/-	-/AAA/-	-/AAA/-	-/AAA/-
S&P unused notches uplift	4	4	4	4	4
S&P required OC level for current rating (%)	13.93	2.62	28.25	2.89	38.05
Issuer: Nykredit Realkredit A/S			Baa1(u)/A+/A		
Parent: Nykredit Bank A/S			Baa3(u)/A+/A		
Bloomberg ticker/website			NYKRE/nykredit.com		

Source: Nykredit Realkredit A/S, rating agencies
Note: Moody's has assigned unsolicited ratings to Nykredit.

Nykredit Group



Compared with other covered bond issuers, the specialised bank is the parent company and the universal bank is its subsidiary. Nykredit A/S was previously named Nykredit Holding A/S.

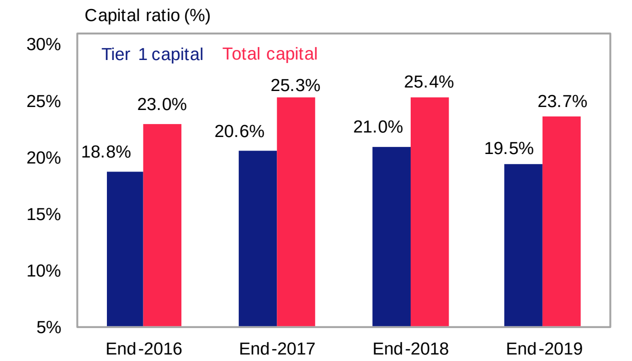
Source: Nykredit Realkredit A/S, Nykredit Markets

Key figures for the Nykredit Realkredit Group

DKKbn	2019	2018	2017
Total assets	1,610	1,448	1,427
Mortgage loans (fair value)	1,287	1,194	1,164
Bank loans	65	61	56
Deposits	85	77	76
Income	14.7	12.0	14.0
Profit (loss) after tax	7.4	5.8	8.1
CET 1 capital ratio	19.5%	21.0%	20.6%
Total capital ratio	23.7%	25.4%	25.3%

Source: Nykredit Realkredit A/S, Nykredit Markets

Capital ratios for Nykredit Realkredit A/S



Source: Nykredit Realkredit A/S, Nykredit Markets

Nykredit Realkredit Group

Through Nykredit A/S, Nykredit has five owners – Forenet Kredit (79%), an investor consortium consisting of PFA Pension, PensionDanmark, PKA, AP Pension and MP Pension (17%), PRAS A/S (2%), Foreningen Østifterne (2%) and Industriens Fond (0.34%). Nykredit runs a number of customer benefit programmes, which are sponsored by the association of customers Forenet Kredit. In 2019, Nykredit customers received more than DKK 1.5bn under the KundeKroner and ErhvervsKroner benefits programmes.

The Nykredit Realkredit Group recorded a profit before tax of DKK 7.1bn in 2019 – a decrease from a profit before tax of DKK 10.2bn in 2017. Income totalled DKK 12.0bn in 2018. Impairment charges for loans and advances rose to DKK 994m in 2019 against DKK 380m in 2018. The cost:income ratio decreased from 40.7% in 2018 to 36.5% in 2019.

Nykredit Realkredit A/S

Nykredit Realkredit is a specialised bank licensed to undertake mortgage Banking. Nykredit Realkredit may therefore not accept deposits but is required to fund its mortgage lending solely through issuance of covered bonds. Nykredit has a strategic alliance with 50+ Danish local and regional banks, through which Totalkredit A/S, a subsidiary mortgage provider of Nykredit, offers Totalkredit-branded mortgage loans. Nykredit has a nationwide sales and advisory centre, Nykredit Direkte®, that originates mortgages to personal and SME customers under the Nykredit brand.

In 2019, Nykredit Realkredit A/S's profit after tax increased to DKK 7,443m against DKK 5,810m the year before. Overall, this is one of the best performances in Nykredit's history, albeit lower than the historically strong performance in 2017, which was positively impacted by several one-off factors. The loan portfolio grew to DKK 1,263bn against DKK 1,171bn at end-2018. The Nykredit Realkredit Group's market share of mortgage lending was 42%.

Nykredit Bank A/S

Nykredit Bank, a wholly owned subsidiary of Nykredit, was established in 1994 as the Group's banking arm and has 900 full-time employees. It is a relatively small part of the Nykredit Group, representing 14% of total group assets. However, it is the Group's main organic growth driver, and in many ways, it reflects the mortgage business. At end-2019, it contributed DKK 4.4bn of the Group's total core income. At end-2019, Nykredit Bank reported a profit before tax of DKK 1.7bn, which represented a reduction from a profit before tax of DKK 2.1bn in 2018. Impairment charges for loans and advances were a loss of DKK 210m.

Covered bond issuer
Danish covered bonds are issued as SDOs, SDROs or ROs from capital centres (cover pools). SDOs and SDROs are issued under the latest Danish covered bond legislation, which took effect on 1 July 2007, and comply with the CRD and UCITS 52(4).

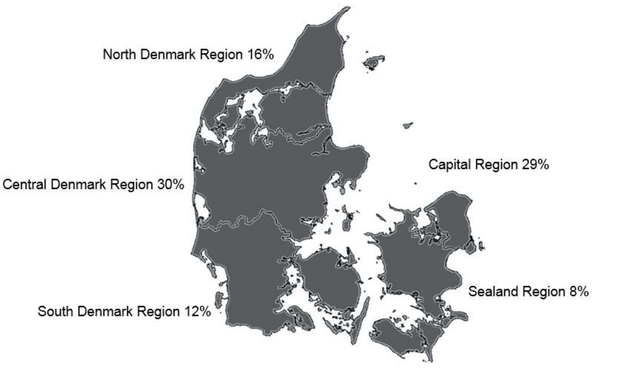
Covered bond investors benefit from dual recourse
In accordance with Danish covered bond legislation, investors in Danish covered bonds benefit from dual recourse: Recourse in general to the issuer's assets and recourse to the segregated capital centres comprising mortgages and substitute assets and supplementary collateral. Consequently, in the event that the issuer becomes insolvent, investors have a preferential right to the cover assets along with derivative counterparties, if any. By virtue of the preferential right, the claims of covered bond investors and derivative counterparties rank above the claims of all other creditors with respect to all assets in the cover pools. Capital centres are not part of the bankruptcy estate of the issuer.

Overcollateralisation
Legislation dictates that all Danish mortgage banks must hold capital corresponding to 8% of RWA at the capital centre level. Further, issuers of SDOs and SDROs (ie SDOs issued out of Capital Centres E and H in Nykredit's case) must ensure that cover assets continuously fulfil LTV requirements. Lending that subsequently exceeds statutory LTV limits at the individual loan level (80% for residential and 60% for business lending), based on current market values, requires supplementary collateral, which can be provided through the issuance of Senior Secured Bonds (SSBs) or other non-covered bond instruments.

Cover pool (capital centre) composition
The issuer manages the capital centres, which may only contain certain eligible assets, eg loans secured on various types of property, derivative contracts plus substitute assets (cf CRD, "credit quality step 1" claims against credit institutions – maximum 15% of capital centre assets or more subject to Danish FSA approval). Mortgages can finance residential, commercial, agricultural and multi-family properties. Domestic lending accounts for 95%, while international lending amounts to 5%. Geographically, the cover pools are well diversified, and average LTVs at end-2019 for Capital Centres D, E, G and H were 44.0%, 62.8%, 43.7% and 55.8%, respectively. The stock of properties acquired by foreclosure has decreased since 2013 to 20 at end-2019 from 35 at end-2018 and 322 at end-2013.

Loan origination
Customers are credit-scored based on budgets and credit checks. Irrespective of the loan type requested by a borrower, granting of a loan is subject to confirmation that the borrower can afford to service a callable fixed-rate 30Y amortising loan. Customers are personally liable for their mortgage loans. Property valuation is regulated by the Danish FSA.

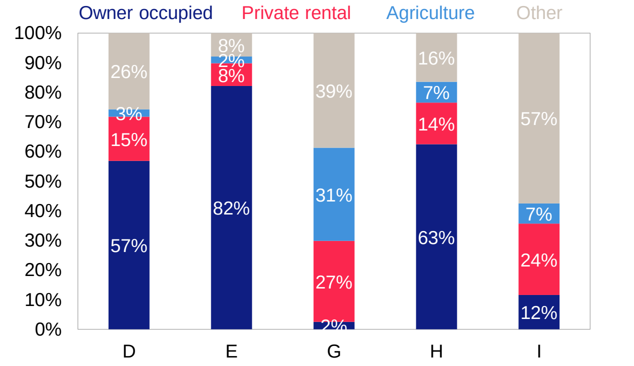
Geographic location



Underweight in North Denmark and Sealand Regions, slight overweight in Central and South Denmark Regions. 5% of mortgages fund properties located outside of Denmark (end-2019).

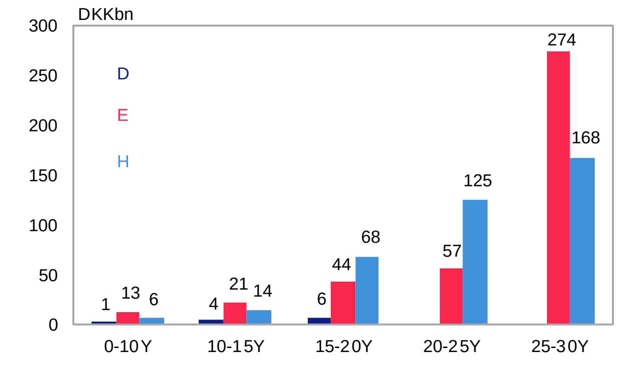
Source: Nykredit Realkredit A/S

Assets in Capital Centres D, E, G, H and I (end-2019)



Source: Nykredit Realkredit A/S, Nykredit Markets

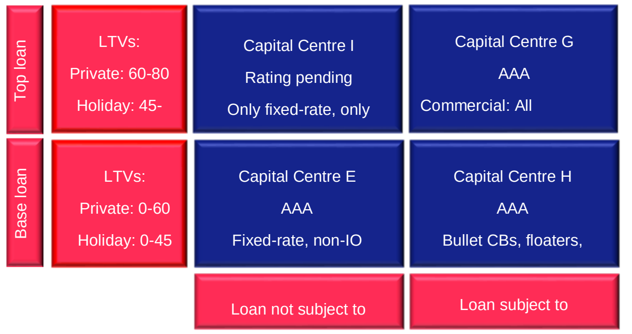
Residential mortgages by remaining term in years



Residential loans have long remaining loan terms (end-2019).

Source: Nykredit Realkredit A/S, Nykredit Markets

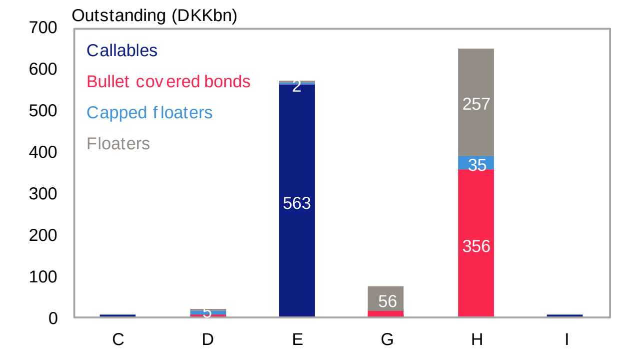
Historical two-tier funding model



The product range of top loans is narrower than that of base loans. To homeowners, top loans were only offered as repayment loans.

Source: Nykredit Markets

Covered bond types in Capital Centres C, D, E, G H, I



By virtue of the balance principle, the underlying loans have the same features as the funding covered bonds. Loans based on bullet covered bonds, floaters and capped floaters imply refinancing risk (December 2019).

Source: Nasdaq OMX, Nykredit Markets

Funding – covered bond programmes

In 2019, Nykredit's mortgage lending totalled DKK 1,263bn. Covered bonds are Nykredit's core funding source with 95% issued in DKK and the remainder in EUR (4%) and in SEK (1%). Danish covered bonds are generally issued either on tap to satisfy day-to-day funding needs or at refinancing auctions. Long-term callable bonds and long-term capped floaters typically have an opening period of three years, which enables issuers to build sizeable bond series. ARMs, funded by either fixed-rate or floating-rate bonds, are refinanced at auctions in February, May, August and November. The auctions give rise to issuance of mainly 1Y, 3Y and 5Y fixed-rate bonds. However, the funding needed at auctions is always lower than the amount maturing, due to amortisation on the underlying loan portfolio.

Today Nykredit issues covered bonds mainly through Capital Centres E and H. Until 2008, issuance was mainly from Capital Centre D, but in connection with the implementation of the CRD and the transition to the new covered bond legislation, new lending was transferred to the new SDO Capital Centre E. At end-2019, DKK 496.3bn-worth of covered bonds were outstanding in Capital Centre E, DKK 69.7bn in Capital Centre G and DKK 617.7bn in Capital Centre H.

ALM

Danish covered bond legislation imposes several obligations on the issuer, such as the balance principle designed to mitigate risk, which in practice means that issuers adhere to a pass-through funding model. Issuers are therefore not exposed to interest rate or foreign exchange risk, and funding costs are passed directly on to customers. Given the pass-through structure, there is a direct connection between customers' choice of loan type and the bonds issued to fund the loans. However, ARMs are typically longer than the maturities of the funding bonds, with interest rate and spread risk being passed directly on to customers. Loan payments are reset reflecting the yields achieved at auction.

Covered bonds are rated AAA

Nykredit's covered bonds constitute senior direct, secured and unconditional obligations of the issuer and are rated AAA by S&P. On 5 November 2019, S&P raised long-term issuer credit ratings of Nykredit Realkredit A/S and Nykredit Bank A/S from A to A+.

S&P

S&P has assigned AAA ratings to covered bonds issued from seven Nykredit capital centres (including Capital Centre C of Totalkredit A/S).

In 2016, S&P revised the outlooks of Nykredit and Nykredit Bank's A ratings to stable from negative. The AAA covered bond ratings have stable outlooks.

According to S&P's rating methodology, covered bond ratings are linked to the rating of the issuer.

S&P revised its covered bond ratings criteria in December 2014. According to the updated criteria, covered bond programmes can be assigned uplifts for resolution regime, jurisdictional and collateral support, enabling a potential maximum rating uplift of 9 notches for Danish covered bonds relative to the adjusted issuer credit rating. Given Nykredit's A rating, Nykredit can be downgraded 4 notches without the covered bonds losing their AAA ratings at actual OC levels.

Fitch

Fitch rates Nykredit and Nykredit Bank A/negative/F1. The ratings reflect Fitch's view of Nykredit's strong domestic position and importance, good capitalisation and funding mix.

Moody's

On 13 April 2012, Nykredit requested that Moody's cease rating the Nykredit Group, and subsequently Moody's withdrew all covered bond and SSB ratings. However, Moody's still assigns unsolicited and non-participating issuer ratings to Nykredit and Nykredit Bank.

In December 2018, Moody's Investor Service affirmed the ratings and assessments assigned to Nykredit Realkredit A/S and Nykredit Bank A/S and upgraded their long-term Counterparty Risk Ratings to A3 from Baa1. The ratings agency also changed the outlook on Nykredit's Baa1 long-term issuer rating and Nykredit Bank's Baa1 senior unsecured and Baa1 deposit ratings to positive from stable. The ratings affirmation was driven by Nykredit's standalone credit strength, underpinned by its low risk mortgage lending, solid regulatory capitalisation and modest but stable profitability.

S&P ratings, Q1/2020

Capital Centre	C	D	E	G	H	I
Covered bonds	AAA	AAA	AAA	AAA	AAA	AAA
Actual CE (%)	10.62	17.28	3.84	30.13	3.34	42.93
Target CE (%)	9.77	13.93	3.43	29.40	2.89	38.05
Potential collateral-based uplift	4	4	4	4	4	4
OC commitment	Yes	Yes	Yes	Yes	Yes	Yes
Achievable collateral-based uplift	3	3	3	3	3	3
Unused notches of uplift	4	4	4	4	4	4
Required OC level for current rating (%)	7.65	13.93	2.62	28.25	2.89	38.05
Issuer: Nykredit Realkredit A/S				A+ (stable)/A-1		

Source: S&P, Nykredit Markets

Fitch ratings, Q3/2019

Issuer: Nykredit Realkredit A/S	A (negative)/F1
Issuer: Nykredit Bank A/S	A (negative)/F1

Fitch started rating Nykredit on 20 Aug 2012.

Source: Fitch, Nykredit Markets

Issuer profile: Realkredit Danmark A/S

- Subsidiary of Danske Bank and- second-largest mortgage bank in Denmark
- Realkredit Danmark's covered bonds are rated AAA by S&P and AAA/AA+ by Fitch
- Pass-through funding of nearly all lending

Realkredit Danmark is a subsidiary of the Danske Bank group – the largest financial institution in Denmark. The group focuses on personal banking, including banking, insurance and mortgage products for personal as well as business customers.

Realkredit Danmark A/S – covered bond issuer

Realkredit Danmark A/S (RD) is the second largest mortgage bank in Denmark with a market share of 26.2%. RD provides the majority of the Danske Bank Group's lending to personal and business customers in Denmark. RD's covered bonds represent around 22% of the Danske Bank Group's total funding.

Cover pools

The loan portfolio chiefly finances private residential properties (56.5%), residential rental properties (28.8%) and commercial properties (15.0%). The remaining 5.7% is lending to the agricultural sector. For private residential property, an LTV limit of 80% applies, and for commercial properties, the LTV limit is 60%.

The requirements for overcollateralisation in the capital centres remain covered by RD's equity and the issued senior debt.

ALM and covered bond funding

Despite the easing of the balance principle in 2007, Danish issuers remain subject to very strict ALM rules. As nearly all lending is based on pass-through, Danish covered bonds are generally issued on tap or at refinancing auctions. Tap issues satisfy day-to-day funding needs, and issuers avoid selling large amounts in the market in one single day. Almost all mortgage loans in Capital Centre S are match funded to maturity, while loans in Capital Centre T will be refinanced.

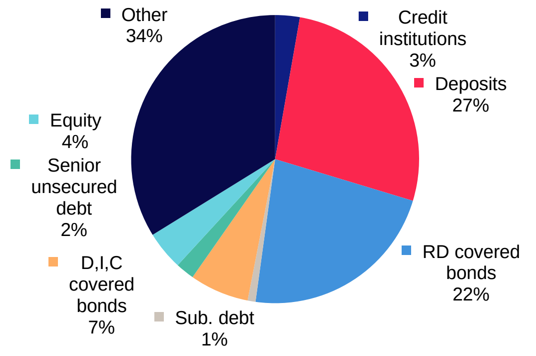
Refinancing risk is passed directly onto borrowers, so that the issuer is not exposed to market risk in connection with mortgage lending. In spring 2014, a legislative amendment was adopted to contain refinancing risk in the Danish mortgage banking sector. The amendment introduced new bonds to fund loans subject to refinancing. The new bonds have a soft bullet structure with extendable maturity if the loans cannot be refinanced (refinancing failure trigger), or – for some bonds – where interest rates have risen by more than 500bp relative to the preceding year (see chapter on Danish bullet covered bonds).

However, given the asset/liability maturity mismatch (many mortgages have much longer maturities than the covered bonds funding them), borrowers are exposed to refinancing risk.

Ratings

RD's covered bonds are rated by both S&P and Fitch. S&P has assigned its highest rating, while Fitch has assigned a covered bond rating of AAA to Capital Centre S and AA+ to Capital Centre T.

Capital structure of the Danske Bank group



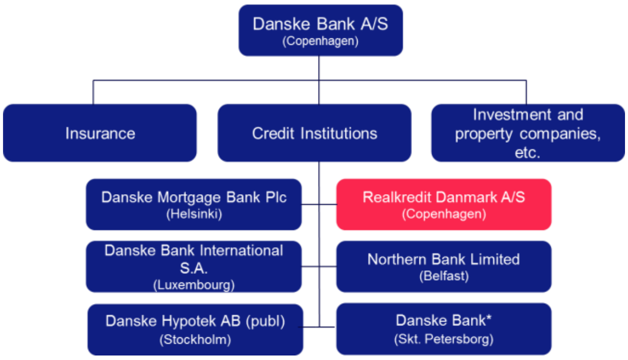
Source: Danske Bank A/S, Nykredit Markets

Cover pool statistics and ratings, 2019

Capital Centre	S	T
Residential (%)	80	70
Commercial (%)	20	30
Cover pool (DKKbn)	270	449
WA LTV (%)	59.8	58.0
Interest rate (fixed/floating) (%)	99/0	75/25
Current OC (%)	7.00	7.20
Committed OC (% RWA)	8	8
Covered bonds (DKKbn)	270	482
WAL, covered bonds (years)	26	2
CRD/UCITS-compliant	Yes/yes	Yes/yes
Risk weighting (%)	10	10
EUR covered bonds	Repo-eligible with the ECB	
Ratings (Moody's/S&P/Fitch)	**S**	**T**
Covered bonds	-/AAA/AAA	-/AAA/AA+
S&P unused uplift	3	3
S&P required OC level for current rating (%)	5.56	3.36
Fitch Payment Continuity Uplift	6	6
Fitch PD rating/ breakeven OC (%)	AA+/3.5	AA/6.5
Issuer: Realkredit Danmark A/S	-/-/A	
Parent: Danske Bank A/S	A3/A/A	
Bloomberg ticker/website	RDKRE/rd.dk	

Source: Moody's, S&P, Fitch, Realkredit Danmark A/S, Nykredit Markets

The Danske Bank Group



* Under liquidation.

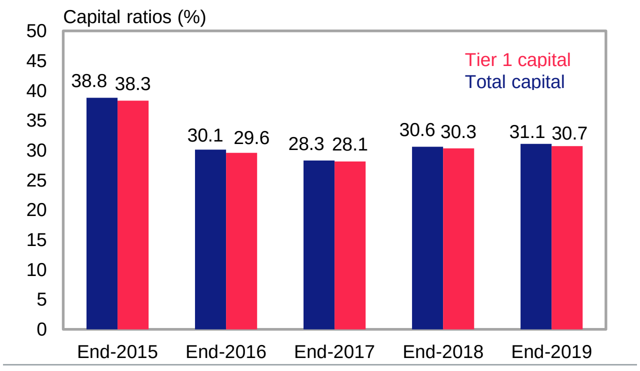
Source: Danske Bank A/S, Nykredit Markets

Key figures for the Danske Bank Group

DKKbn	2019	2018	2017
Total assets	3,761	3,578	3,540
Loans and advances	18,21	1,769	1,723
Deposits	963	894	912
Total income	45.0	44.4	48.1
Loan impairment	1,516	(650)	(873)
Profit after tax	15.1	15.2	20.9
Tier 1 capital ratio	20.4%	20.1%	20.1%
Total capital ratio	22.7%	21.3%	22.6%

Source: Danske Bank A/S, Nykredit Markets

Capital ratios for Realkredit Danmark A/S



Source: Realkredit Danmark A/S

The Danske Bank Group

The Danske Bank Group is one of the largest Nordic banking groups. The Group operates in 13 countries with a customer base of 2.9 million and 22,006 staff. Danske Bank A/S is a Danish SIFI.

The Danske Bank Group dates back to the founding of Den Danske Landmandsbank in 1871. Over the years, a number of mergers have shaped the Group into its current form. In 1990, three of Denmark's largest banks merged (Den Danske Bank, Handelsbanken and Provinsbanken). BG Bank and RD became part of the Group in 2001, and the Irish operations Northern Bank and National Irish Bank were acquired in 2004. The Finnish Danske Mortgage Bank became part of the Danske Bank Group in 2007.

In 2019, the Danske Bank Group recorded a profit before tax of DKK 13.8bn and a net profit of DKK 15.1bn**.** Total income came to DKK 45.0bn – an increase of DKK 9.6bn on 2018. Both net interest and fee income decreased from the level in 2018. The profit recognises the sale of Danica Pension Sweden and LR Realkredit A/S by a net gain of 2.1bn and a net positive tax adjustment of 4.1bn. In addition, goodwill impairments of 1.6bn and 10% higher expenses than in 2018 affected the results, despite recognition of a DKK 1.5bn donation to combat financial crime in the wake of the Estonia case.

In 2019, issuance of covered bonds, senior bonds and additional Tier 1 capital totalled DKK 100bn, against the funding plan of DKK 70-90bn. SEK-covered bond issues are planned out of the Swedish mortgage subsidiary Danske Hypotek AB.

Realkredit Danmark A/S

RD is the second largest mortgage bank in Denmark with a market share of 26.2% and total mortgage lending of nearly DKK 783bn at end-2019. RD provides the majority of the Group's lending to personal and commercial customers in Denmark.

RD distribution channels include mortgage product sale through the Group's bank branches, followed by RD's own branches, the Home estate agency chain, a call centre and online services. The nationwide network selling mortgage products comprises Danske Bank's branches, ten financial centres and six agricultural centres. Home, which is wholly owned by RD, is a franchise chain comprising over 180 estate agencies, which handle the Group's estate agency activities. Home's largest business area is residential estate agency services with RD as the main provider of home loans.

RD posted a profit after tax of DKK 4.4bn in 2019, which was a decrease of DKK 253m relative to 2018, largely driven by higher impairments due to an update and specification of the statistical loss models used to calculate expected credit losses.

RD launched the first green covered bond to the Danish market called RD Cibor6® Green in April 2019. The bond has features similar to a traditional RD Cibor6® but only fund properties that adhere to Danske Bank's new Green Bond Framework. The green mortgage is available for large business customers when funding eco-friendly properties. In 2019, RD Cibor6® Green mortgages worth DKK 810m were disbursed.

Covered bond issuer – Realkredit Danmark A/S

RD issues covered bonds in the form of SDROs or ROs out of its capital centres (cover pools). SDROs are issued under the latest Danish covered bond legislation, which took effect on 1 July 2007, and are CRD and UCITS 52(4) compliant.

Covered bond investors benefit from dual recourse

In accordance with Danish covered bond legislation, investors in Danish covered bonds ("realkreditobligationer") benefit from dual recourse: Recourse in general to the issuer's assets and recourse to the segregated capital centres comprising mortgage loans and substitute assets. Consequently, in the event of issuer bankruptcy, investors have a preferential right to the cover assets along with derivative counterparties, if any. Other creditors cannot present claims against the cover pool until the claims of covered bond investors and derivative counterparties have been met. This preferential right applies to all cover assets. Capital centres are not part of the bankruptcy estate of the issuer. Danish covered bonds distinguish themselves by the fact that all claims against the issuer also rank before other creditors.

Overcollateralisation

Legislation dictates that all Danish mortgage banks must hold capital corresponding to 8% of risk-weighted assets at the capital centre level. Further, issuers of SDROs (ie Capital Centres S and T) must ensure that cover assets always fulfil LTV requirements. Lending exceeding LTV thresholds at the individual loan level (80%/60% for residential/commercial lending) based on current market values requires supplementary collateral, eg through a capital contribution. The LTV-based supplementary collateral requirement was DKK 13.3bn at end-2019 against DKK 16.7bn at end-2018.

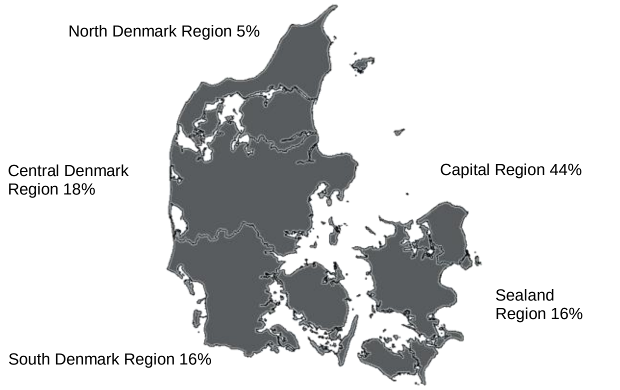
Cover pool (capital centre) composition

The issuer manages the capital centres, which may only contain eligible assets, eg loans secured by certain mortgages, derivatives and substitute assets (cf CRD, "credit quality step 1" claims against credit institutions – maximum 15% of capital centre assets or more subject to Danish FSA approval). Over 70% of lending is secured by mortgages on residential properties, including holiday homes, and the rest is secured by commercial, agricultural and multi-family properties. Geographically, approximately 49% of lending is in the Capital Region, 13% in the Region Sealand, 15% in the South Denmark Region and 17% in the Central Denmark Region. The remaining 5% covers the North Denmark Region and other areas. The average LTV was 60% at end-2019, when RD's portfolio of foreclosed properties stood at 31.1% compared with 30.6% in 2018.

Loan origination

A home loan is granted only if the borrower is provably able to pay principal and interest payments on a 30Y callable fixed-rate loan. Borrowers are personally liable for their mortgage loans. Property valuations are subject to the rules of the Danish FSA. New guidance with effect from 1 January 2018 will affect households with debt exceeding four times their income and an LTV above 60% and restricts their access to variable-rate and interest-only loans. The households affected will still be able to obtain other loan types.

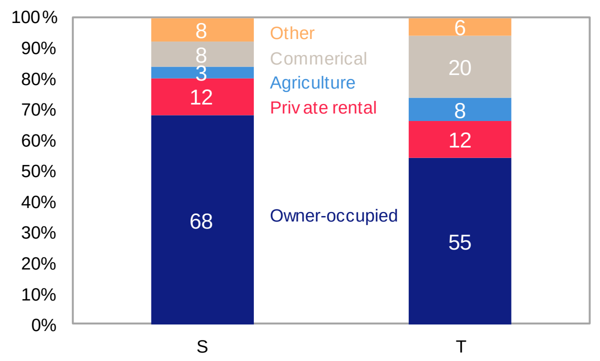
Geographic location – residential assets



Overweight in the Capital Region and the Central Denmark Region.

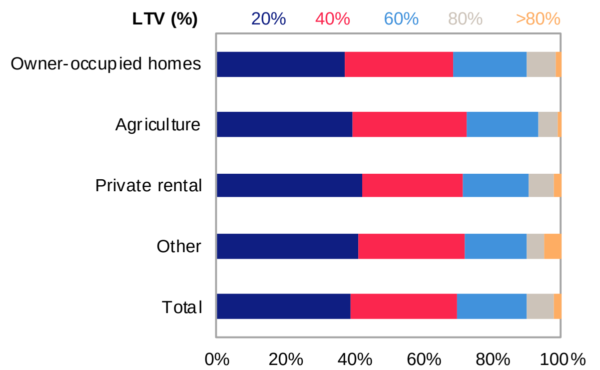
Source: Realkredit Danmark A/S, Macrobond, Nykredit Markets

Assets in Capital Centres S and T



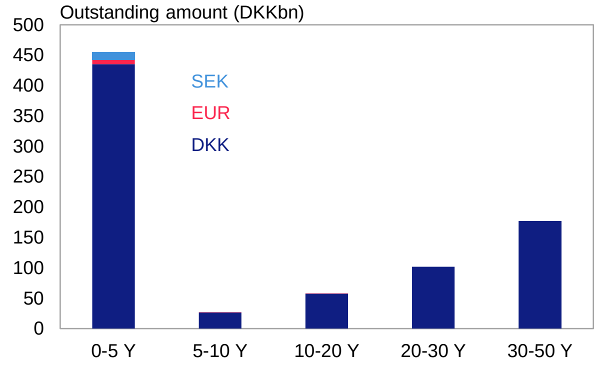
Source: Realkredit Danmark A/S, Nykredit Markets

Lending by property type and LTV



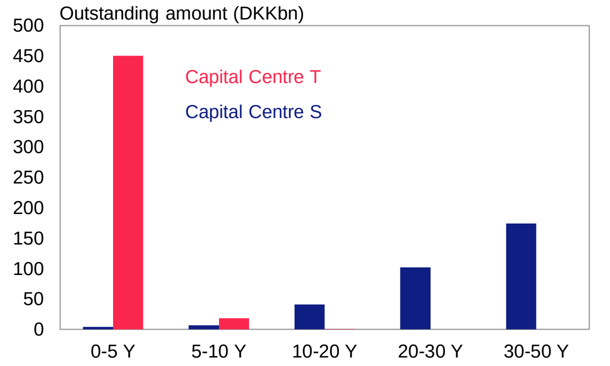
Source: Realkredit Danmark A/S, Nykredit Markets

RD's covered bonds by maturity and currency



Source: Nasdaq OMX, Nykredit Markets

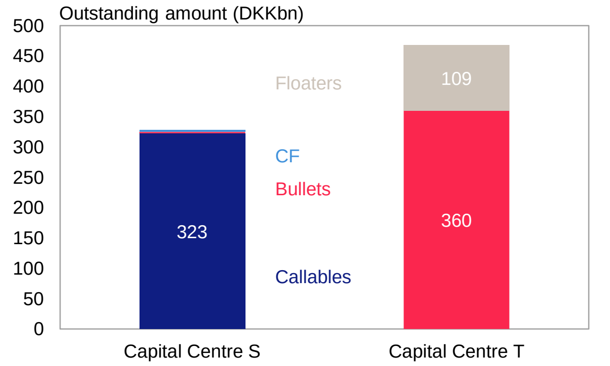
RD's covered bonds by maturity and capital centre



The product range of top loans is narrower than that of base loans. To personal customers, top loans were only offered as repayment loans.

Source: Nasdaq OMX, Nykredit Markets

Covered bond types in Capital Centres S and T



By virtue of the balance principle, the underlying loans have the same features as the funding covered bonds. Loans based on bullet covered bonds, floaters and capped floaters imply refinancing risk (December 2019).

Source: Nasdaq OMX, Nykredit Markets

Funding – covered bond programmes

Danish covered bonds are generally issued either on tap or at refinancing auctions. Tap issues satisfy day-to-day funding needs, and issuers avoid selling large amounts in the market in one single day.

RD raises funding through two capital centres, which contain all the assets underlying the issued bonds. The match funding model ensures a direct match between borrowers' choice of loan type and the distribution of bond types in each capital centre.

Until 2008, funding was mainly issued out of the General Capital Centre, but on transition to SDRO funding in 2008, new lending was placed in the new SDRO capital centre (S). In 2011, another SDRO capital centre (T) was opened, which is used for the funding of loans subject to refinancing during the loan term. Bonds issued from Capital Centre T are used for the financing of FlexLån® and other loans with a refinancing element. At end-2019, the outstanding amount of bonds in Capital Centres S and T was DKK 328bn and DKK 468bn, respectively.

ALM

As nearly all lending is based on pass-through, higher funding costs do not affect the issuer, but are rather passed directly on to borrowers. Due to the match funding principle, the loan range is determined by developments in the funding market.

Long-term callable bonds and long-term capped floaters typically have an opening period of three years and are issued on tap. The relatively long opening period enables issuers to build sizeable bond series.

Adjustable-rate mortgages (ARMs) funded with short-term fixed-rate bullets are refinanced at auctions held in February/March and November/December. At the auctions, substantial amounts of mainly 1Y, 3Y and 5Y fixed-rate bullets are issued. However, the auction offering is always smaller than the amount of bonds maturing.

43.4% of RD's total lending is ARMs funded with fixed-rate bullets, refinanced on an ongoing basis. The range of bonds in the fixed-rate bullet segment matches borrowers' interest reset profiles. Market risk in connection with refinancing is passed directly on to borrowers as their loans are refinanced on market terms.

Covered bonds are rated AAA by S&P

Both S&P and Fitch have assigned AAA ratings to covered bonds issued out of RD's Capital Centre S, while Capital Centre T is rated AAA by S&P and only AA+ by Fitch. S&P has also assigned an AAA rating to the General Capital Centre.

S&P

According to S&P's rating methodology, covered bond ratings are linked to the rating of the issuer.

S&P revised its covered bond ratings criteria in December 2014. According to the updated criteria, covered bond programmes can be assigned uplifts for resolution regime, jurisdictional and collateral support, enabling a potential maximum rating uplift of nine notches for Danish covered bonds relative to the adjusted issuer credit rating. Given Danske Bank's A rating, RD can be downgraded three notches without the covered bonds losing their AAA ratings.

S&P raised their overcollateralisation requirements for Capital Centre T slightly due to changed calculation methods. The overcollateralisation requirements for the capital centre remain covered by funds from Realkredit Danmark's equity and issued senior debt.

Fitch

In June 2012, RD was the first Danish mortgage bank to be rated by Fitch. RD was assigned a long-term issuer default rating of A and a short-term rating of F1. Under the existing rating methodology, the SDRO Capital Centre S has achieved AAA rating, while the SDRO Capital Centre T is AA+.

In December 2019, Moody's revised its outlook on Danske Bank A/S from stable to negative, mainly reflecting lower expected earnings due to the Estonian case, net interest margins under pressure and a significant fall in trading income.

In late 2016, Fitch revised its rating methodology and introduced the Payment Continuity Uplift (PCU), a measure to express the relationship between the bank and the covered bond default likelihood, to replace D-Caps. Fitch affirmed its covered bond ratings.

Fitch Ratings lowered their overcollateralisation requirement for both capital centres at end-2018. This is primarily due to higher credit quality of the portfolio of business loans.

S&P ratings, Q1/2020

Capital Centre	S	T
Covered bonds	AAA	AAA
Actual CE (%)	7.29	8.02
Target CE (%)	6.46	4.42
Potential collateral-based uplift	4	4
OC commitment	Yes	Yes
Achievable collateral-based uplift	3	3
Unused notches of uplift	3	3
Required CE level for current rating (%)	5.56	3.36
Issuer: Realkredit Danmark A/S	Not published	
Parent: Danske Bank A/S	A (stable outlook)	

Source: S&P, Nykredit Markets

Fitch ratings, Q4/2019

Capital Centre	Capital Centre S	Capital Centre T
Covered bonds	AAA	AA+
Actual OC (Jan 2020)	5.9%	7.2%
Breakeven OC (Jan 2020)	3.5%	6.5%
Payment Continuity Uplift (Jan 2020)	6	6
PD covered bond rating	AA+	AA
Uplift due to recoveries	2	2
Issuer: Realkredit Danmark A/S	A (stable)	
Parent: Danske Bank A/S	A (negative)	

Capital Centre T (loans subject to refinancing) was downgraded to AA+ from AAA in October 2012 when Fitch changed its rating methodology for covered bonds.

Source: Fitch, Nykredit Markets

Issuer profile: Nordea Kredit Realkreditaktieselskab

- Nordea Kredit Realkreditaktieselskab's covered bonds have the highest rating with Moody's and S&P
- Denmark's third largest mortgage bank
- 68% private residential properties in the loan portfolio

Nordea Kredit Realkreditaktieselskab (Nordea Kredit) is part of the Nordea group, which is the largest financial group in the Nordic region and the Baltics with a balance sheet total of EUR 555bn in 2019. Nordea has about 500 branches serving some 10 million customers of which 9.3 million personal customers and 532,650 corporate customers. Nordea Kredit is a Danish SIFI.

Nordea Kredit – covered bond issuer

Nordea Kredit is a Danish subsidiary of the Nordea group, granting mortgage loans to Nordea's customers in Denmark. Nordea Kredit's activities exclusively include mortgage lending funded by covered bonds, of which the outstanding amount was DKK 440.7bn at end-2019. Nordea Kredit is Denmark's third largest mortgage bank with a market share of 14%.

Cover pools

Nordea Kredit has two cover pools. Both cover pools comprise loans secured by mortgage over property in Denmark and other eligible assets such as claims on credit institutions and government bonds. 68% of lending is secured by mortgage over residential properties including holiday homes, and the rest is secured by commercial, agricultural and private rental properties. 40% of lending was granted in the Capital Region.

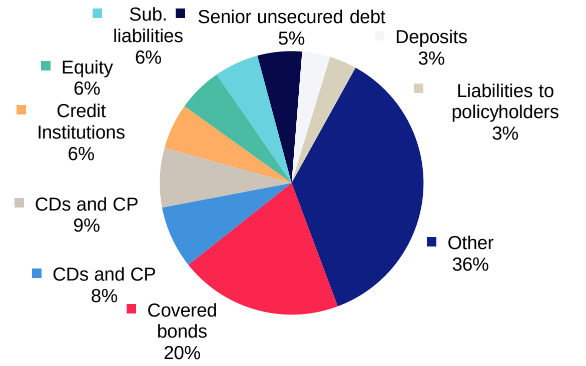
ALM and covered bond funding

Despite the easing of the balance principle in 2007, Danish covered bond issuers are still subject to very strict ALM rules. All Danish mortgage banks still offer fully match-funded products only, which eliminates market risk and hedging needs. Loans subject to refinancing have longer maturities than the underlying covered bonds, which entails refinancing risk for borrowers. Covered bonds are issued on tap and at refinancing auction. Tap issues satisfy day-to-day funding needs, and issuers avoid selling large amounts in the market in one single day.

Ratings

Covered bonds issued by Nordea Kredit are rated AAA by S&P. Nordea Bank Abp may be downgraded by four notches without losing its AAA rating with S&P of Nordea Kredit's covered bonds. As of 1 April 2020 Nordea Kredit will not receive ratings from Moody's. Nordea Kredit's programmes for issuance of ROs og SROs will now only be rated by S&P.

Capital structure of the Nordea group



20% of the Nordea group's funding is covered bonds (end-2019).

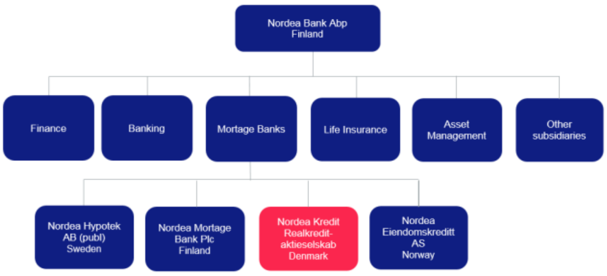
Source: Nordea Bank A/S, Nykredit Markets

Cover pool statistics and ratings, 2019

Capital Centre	1	2
Residential (%)	91	68
Private rental (%)	1	6
Commercial/substitute assets (%)	8	22
Cover pool (DKKbn)	4	391
WA indexed LTV (threshold) (%)	50.6	61.8
Interest rate (fixed/floating) (%)	67.3/32.7	71.9/28.1
Current OC (%)	39.8	8.2
Committed OC (% RWA)	8.0	8.2
Covered bonds (DKKbn)	2.8	437.9
WAL, covered bonds (years)	16.6	13.6
CRD/UCITS compliant	Yes/yes	Yes/yes
Risk weighting (%)	10	10
Residential (%)	91	68
EUR covered bonds	Repo-eligible with the ECB	
Ratings (Moody's/S&P/Fitch)		
Covered bonds	-/AAA/-	-/AAA/-
S&P unused notches uplift	5	5
S&P required OC level for current rating (%)	7.50	2.50
Issuer: Nordea Kredit Realkreditaktieselskab		-/-/-
Parent: Nordea Bank Abp		Aa3/AA-/AA-
Bloomberg ticker/website		NDASS/nordea.com

Source: Moody's, S&P, Fitch, Nykredit Markets, Nordea Bank A/S

The Nordea group



Nordea Kredit carries on mortgage lending on behalf of Nordea Bank Abp.

Source: Nordea Bank A/S, Nykredit Markets

Key figures for the Nordea group

EURbn	2019	2018	2017
Total assets	555	551	582
Loans to the public	323	308	310
Loans to credit institutions	9	11	9
Deposits from the public	169	165	172
Total operating income	8.6	9.0	9.5
Profit after tax	1.5	3.1	3.0
Tier 1 capital ratio	18.30%	17.3%	22.3%
Total capital ratio	20.80%	19.9%	25.2%

*Basel III

Source: Nordea Bank A/S, Nykredit Markets

Key figures for the Nordea group

Property type	Guarantee term*	Guarantee level**
Private residential property	Entire loan term	25%
Holiday homes	Entire loan term	25%
Subsidised property	Entire loan term	10%
Housing for youth/elderly	Entire loan term	10%
Agricultural property	Entire loan term	25%
Commercial property	Entire loan term	25%

* The guarantee period starts when a loan is issued or remortgaged.

** As % of the original principal – disregarding all amortisation.

Source: Nordea Kredit Realkreditaktieselskab

The Nordea group

Nordea Kredit is part of the Nordea group, which is the largest financial services group in the Nordic region. Total assets were EUR 555bn at end-2019. Nordea has about 500 branches serving some 10 million customers of which 9.3 million is personal customers and 532,650 corporate customers.

At end-2019, Nordea had 29,000 employees and its lending to the public totalled EUR 323bn. Nordea Kredit accounted for EUR 52.3bn of the group's total lending, equal to 15.8%.

On 1 October 2018 Nordea redomiciled to Finland and became part of the European Banking (ECB). Nordea Bank AB(publ) was dissolved and all assets and liabilities were transferred to Nordea Bank Abp. After the re-domiciliation, the bank has become subject to the ECB's capital requirement framework. The result is a sharp increase in risk-weighted assets and a drop in the CET1 capital ratio. The re-domiciliation also implies changes to the MDA requirement, which will be finally established at the next SREP review in autumn 2019. However, Nordea has announced that they will commit to an MDA requirement of 13.9%. The banking business in Denmark, Finland and Norway is now carried out in branches of Nordea Abp.

Nordea Bank Abp

Nordea Kredit is a wholly-owned subsidiary of Nordea Bank Abp. Nordea Bank Abp has been assigned a long-term rating of Aa3/AA-/AA- by Moody's, S&P and Fitch, respectively. Nordea Kredit is a Danish SIFI.

Nordea Kredit Realkreditaktieselskab

Nordea Kredit was set up in 1993 and had 119 employees at end-2019. Nordea Kredit is a specialised bank licensed to carry out mortgage lending activities, funding mortgage loans on behalf of Nordea Bank Abp. The mortgage bank is not authorised to accept deposits and funds its lending through issuance of covered bonds. Nordea Kredit is the third-largest mortgage bank in Denmark with a market share of 14.0%.

Nordea Kredit reported a pre-tax profit of DKK 2.373bn in 2019 compared with DKK 2.024bn in 2018. Net interest income decreased to DKK 3,156m from DKK 3,190m from 2018 to 2019. Fee and commission income increased to DKK 815m from DKK 542m, and fee and commission expenses grew by 11% to DKK 1,301m. Net loan losses decreased from DKK 35m to DKK 6m excluding the implementation of the new impairment rules amounting to DKK 180m in 2018.

Nordea Kredit has a guarantee from Nordea Danmark, branch of Nordea Bank Abp, which covers the first losses on Nordea Kredit's lending. The first 25% of losses incurred on personal customers is covered by a five-year guarantee in respect of the individual loans. Guaranteed amounts are not reduced in the course of the guarantee term until the guarantee exceeds the remaining balance of the loan. From then on, the guarantee is equal to the remaining balance on the loan. The guarantee is renewed on remortgaging.

Covered bond issuer – Nordea Kredit Realkreditaktieselskab

Nordea Kredit issues covered bonds in the form of SDROs out of its capital centre 2 (cover pool). SDROs are issued under the latest Danish covered bond legislation, which took effect on 1 July 2007 and comply with the CRD and UCITS 52(4), resulting in a bond risk weight of 10.5%.

Covered bond investors benefit from dual recourse

Under Danish covered bond legislation, investors in Danish covered bonds ("realkreditobligationer") benefit from dual recourse: Recourse in general to the issuer's assets and recourse to the segregated capital centres comprising mortgage loans and substitute assets. Consequently, in the event of the issuer's bankruptcy, investors have a preferential right to the cover assets along with derivative counterparties, if any. Other creditors cannot raise claims against the cover pool until the claims of covered bond investors and derivative counterparties have been met. This preferential right applies to all cover assets. Capital centres are not part of the bankruptcy estate. Danish covered bonds distinguish themselves by the fact that all claims against the issuer also rank before other creditors.

Overcollateralisation

At end-2019, OC in Capital Centres 1 and 2 was 39.8% and 8.2%, respectively. Danish mortgage banks must hold capital corresponding to 8% of risk-weighted assets at the capital centre level. Further, issuers of SDROs (ie Capital Centre 2) must ensure that cover assets always fulfil LTV requirements. Lending exceeding LTV thresholds at the individual loan level based on current market values requires supplementary collateral eg through a capital contribution.

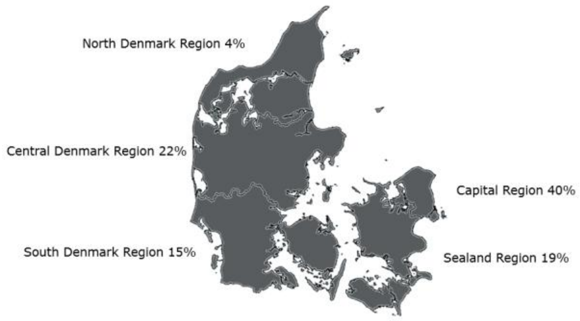
Cover pool (capital centre) composition

The issuer manages the capital centres, which may only contain eligible assets, eg loans secured by certain mortgages, derivatives and substitute assets (cf CRD, "credit quality step 1" claims against credit institutions – a maximum of 15% of capital centre assets or more subject to Danish FSA approval). 68% of loans are secured by mortgage over residential properties including holiday homes, and the rest by commercial, agricultural and multi-family properties. Geographically, 40% of lending is in the Capital Region, 18% in Region Sealand, 22% in the Central Denmark Region and the remaining 19% in the North Denmark Region and the South Denmark Region. In 2019 the LTV was 50.6% and 61.8% for Capital Centres 1 and 2, respectively.

Loan origination

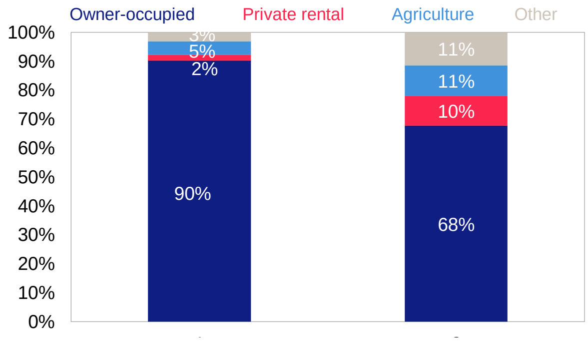
Nordea Bank's borrowers are subject to credit assessment. A home loan is granted only if the borrower is provably able to pay principal and interest payments on a 30Y callable fixed-rate loan. Borrowers are personally liable for their mortgage loans. Property valuations are subject to the rules of the Danish FSA. New guidance with effect from 1 January 2018 will affect households with debt exceeding four times their income and have an LTV above 60% and restricts their access to variable-rate and interest-only loans. The households affected will still be able to obtain other types of loan.

Geographic location – residential assets



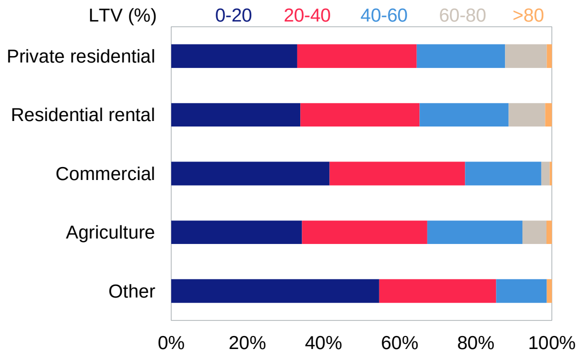
Source: Nordea Kredit Realkreditaktieselskab

Assets in Capital Centres 1 and 2



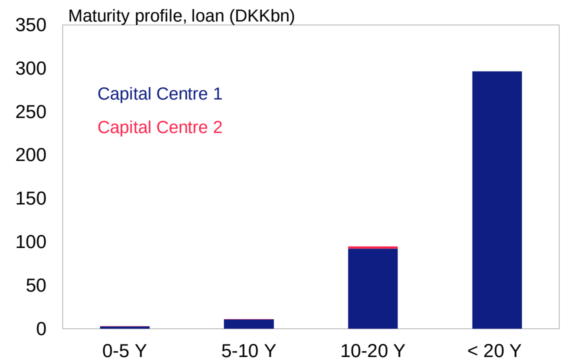
Source: Nordea Kredit Realkreditaktieselskab

Lending by property type and LTV in Capital Centre 2



Source: Nordea Kredit Realkreditaktieselskab

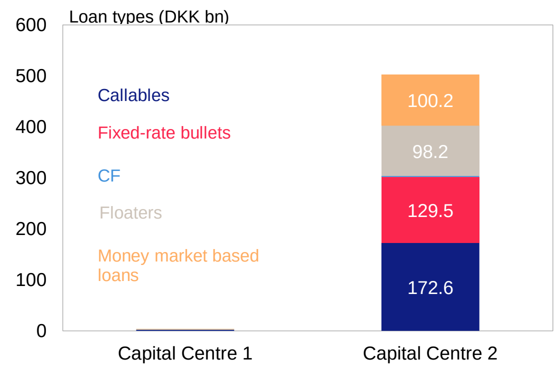
Loans by capital centre and loan term



However, loans subject to refinancing generally have maturities exceeding those of the underlying bonds (end-2019).

Source: Nordea Kredit Realkreditaktieselskab

Covered bond types in Capital Centres 1 and 2



Loans have the same characteristics as the underlying covered bonds, cf the balance principle. ARMs funded by fixed-rate bullets, floaters and capped floaters involve refinancing risk (end-2019).

Source: Nordea Kredit Realkreditaktieselskab

Funding – covered bond programmes

At end-2019, Nordea Kredit had DKK 405bn of mortgage loans at fair value. Nordea Kredit solely applies covered bonds as its source of funding. 97% of bonds are issued in Denmark and are DKK-denominated, the rest is EUR-denominated and issued via VP Denmark. Danish covered bonds are generally issued either on tap to satisfy day-to-day funding needs or at refinancing auctions. Long-term callable bonds and long-term capped floaters typically have an opening period of three years, which enables issuers to build sizeable bond series. ARMs funded by either short-term fixed-rate or floating-rate covered bonds are refinanced at auctions in February/March, May/June, August/September and November/December. At the refinancing auctions, substantial amounts of chiefly 1Y fixed-rate bullets are issued. However, the amount issued is always smaller than the total amount maturing.

All new covered bonds are currently issued out of Capital Centre 2. Up to 2008, ROs were issued out of Capital Centre 1, but since the implementation of new Danish covered bond legislation in 2008, bonds funding new loans have been exclusively issued out of the SDRO Capital Centre 2. At end-2019, covered bonds outstanding amounted to DKK 2.8bn in Capital Centre 1 and DKK 437.9bn in Capital Centre 2.

ALM

Danish covered bond legislation imposes several obligations on the issuer, such as the balance principle designed to mitigate risk, which in practice means that issuers use a pass-through funding model. Under this model, issuers are exposed to neither interest rate risk nor exchange rate risk, and funding costs are passed directly on to borrowers. Given the pass-through structure, there is a direct connection between borrowers' choice of loan type and the bonds issued to fund loans. However, loans subject to refinancing generally have longer maturities than the funding bonds, and interest rate and spread risk is borne by borrowers. Loan payments are reset reflecting the refinancing yields and spreads.

ARMs funded by short-term fixed-rate bullets account for almost 30.9% of Nordea Kredit's total lending, and money market-linked floaters fund another 25.8% of total lending. The greater part of loans subject to refinancing are refinanced annually, but for some loans interest rate reset/refinancing takes place only every three or five years. Bonds outstanding in the short-term fixed-rate segment mirror the refinancing profile of the borrowers. The refinancing risk is borne by borrowers as the loans are refinanced on market terms. This means that mortgage banks are not exposed to interest rate risk or spread risk in connection with refinancing. Mortgage banks are nevertheless exposed to event and credit risk in connection with refinancing. In the summer of 2011, Moody's changed their view on loans subject to refinancing, prompting a steep rise in the overcollateralisation (OC) required to maintain the Aaa ratings of the capital centres. However, following the adoption of new legislation by parliament regarding maturity extension, Moody's has significantly reduced OC.

Covered bonds are rated Aaa/AAA/-

Covered bonds issued by Nordea Kredit represent senior direct, secured and unconditional obligations of the issuer and are rated AAA by S&P. S&P has not assigned an official rating to the issuer, Nordea Kredit, but both Moody's, S&P and Fitch have assigned a long-term rating of Aa3/ AA-/AA- to the parent bank Nordea Bank Abp. In November 2019, S&P changed the outlook on Nordea Bank Abp's rating to negative from stable.

S&P

S&P assigned an AAA rating to Nordea Kredit's covered bonds in October 2004, and the rating has remained unchanged since then.

According to the rating methodology of S&P (along with Moody's and Fitch), covered bond ratings are constrained by the rating of the issuer. In other words, covered bond ratings are linked to the rating of the issuer.

S&P revised its covered bond ratings criteria in December 2014. According to the updated criteria, covered bond programmes will be assigned uplifts for resolution regime, jurisdictional and collateral support, enabling a potential maximum rating uplift of eight notches for Danish covered bonds relative to the rating of the issuer, primarily depending on the assigned uplift for collateral support, which is four notches for Nordea's programmes. Given Nordea's AA- rating, Nordea can be downgraded five notches without the covered bonds losing their AAA ratings, depending on the uplift for collateral support for the cover pool.

Moody's

Note that Nordea Kredit will discontinue to solicit ratings from Moody's of the Programme and bonds issued under it starting 1 April 2020.

S&P ratings, Q1/2020

Capital Centre	1	2
Covered bonds	AAA	AAA
Actual CE (%)	56.94	22.41
Target CE (%)	13.52	4.59
Potential collateral-based uplift	4	4
OC commitment	Yes	Yes
Achievable collateral-based uplift	3	3
Unused notches of uplift	5	5
Required OC level for current rating (%)	7.50	2.50
Issuer: Nordea Kredit Realkreditaktieselskab		Not published
Parent: Nordea Bank Abp		AA-(negative)/A-1+

Nordea Bank A/S's rating was placed on stable outlook in May 2015.

Source: S&P, Nykredit Markets

Issuer profile: Jyske Realkredit A/S

- Fourth largest issuer of covered bonds in Denmark
- Covered bonds are rated AAA (stable outlook) by S&P
- DKK 361.4bn of covered bonds outstanding

Jyske Realkredit A/S is the fourth largest issuer of covered bonds in Denmark with a market share of 11.5% of outstanding Danish covered bonds.

Jyske Realkredit A/S – covered bond and SSB issuer

Jyske Realkredit A/S offers mortgage loans for residential property (including subsidised and cooperative housing), multi-family housing and commercial properties (mainly office and retail properties). The total portfolio of loans to agricultural businesses etc measured at fair value amounted to DKK 63m in 2019 against DKK 83m in 2018.

Jyske Realkredit A/S is wholly owned by Jyske Bank through the holding company BRFholding A/S. Jyske Bank A/S is a Danish SIFI.

Cover pools

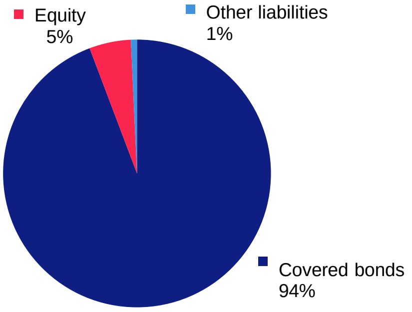
Jyske Realkredit A/S has four cover pools – ROs are issued out of Capital Centre B, while SDOs are issued out of Capital Centre E. In 2018, Jyske Realkredit opened Capital Centre S for funding of loans for subsidised housing. Moreover, the inactive General Capital Centre only comprises ROs. All cover pools comprise loans granted against mortgages on property, claims against credit institutions and government bonds. At end-2019 total lending from Capital Centre B was DKK 6.5bn. Total lending from Jyske Realkredit is DKK 308.7bn. Jyske Realkredit's total mortgage lending in 2019 comprised 51% for owner-occupied homes, 15% for subsidised housing, 15% for private rental properties, 11% for office and business properties and 7% for other properties.

ALM and covered bond funding

Despite the easing of the balance principle in 2007, Danish covered bond issuers are subject to very strict ALM rules. Almost all Danish mortgage banks still only offer fully match-funded products, which eliminates market risk and hedging needs. In 2016, Jyske Realkredit started issuing European market standard EUR covered bonds under the joint funding agreement with Jyske Bank.

However, given the asset/liability maturity mismatches (the majority of mortgages have much longer maturities than the funding of covered bonds), borrowers are exposed to refinancing risk. In spring 2014, a legislative amendment was adopted to restrict refinancing risk in the Danish mortgage banking sector. With the amendment, new bonds were introduced to fund loans subject to refinancing. These bonds have a soft bullet structure with extendable maturity, if the loans cannot be refinanced (refinancing failure trigger), or – for some bonds – where interest rates have risen by over 500bp relative to the preceding year (see chapter on Danish bullet covered bonds). In 2019, 14% of lending was adjustable-rate mortgages (ARMs) with 1Y funding. The loan portfolio comprised 48% ARMs funded by fixed-rate bullets, 36% fixed-rate loans and 16% capped and other floating-rate loans.

Capital structure of the Jyske Realkredit Group



At end-2019 covered bonds represented 94% of total liabilities.

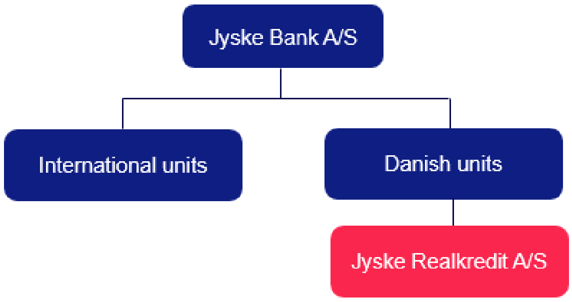
Source: Jyske Realkredit A/S, Nykredit Bank

Cover pool statistics and ratings, 2019

Capital Centre	B (RO)	E (SDO)	S
Residential (%)	86.6	85.5	99.9
Commercial (%)	13.4	14.5	0.1
Cover pool (DKKbn)	6.5	308.7	23.8
Average LTV (%)	52.4	52.7	0.0
WAL cover pool (years)	16.10	24.49	22.97
Coupon (fixed/floating) (%)	39.7/70.3	84/16	100/0
Current OC (%)	20.4	6.3	0.2
Committed OC (% RWA)	8	8	8
Covered bonds (DKKbn)	5.4	290.3	23.7
WAL covered bonds (years)	14.93	10.93	6.88
CRR/UCITS complaint	Yes/yes	Yes/yes	Yes/yes
Risk weighting (%)	86.6	85.5	99.9
DKK/EUR covered bonds	Repo eligible with Danmarks Nationalbank/ECB		
Ratings (M/S&P/F)	B (RO)	E (SDO)	S
Covered bonds	-/AAA/-	-/AAA/-	-/-/-
S&P unused notches of uplift	3	3	-
S&P required OC level for current rating (%)	11.21	3.62	-
Issuer: Jyske Realkredit A/S	-/A-(stable)/-		
Parent: Jyske Bank A/S	-/A-(stable)/-		
Bloomberg ticker/website	JYKRE/www.jyskerealkredit.dk		

Source: Jyske Realkredit A/S, S&P, Nykredit Bank

The Jyske Bank Group



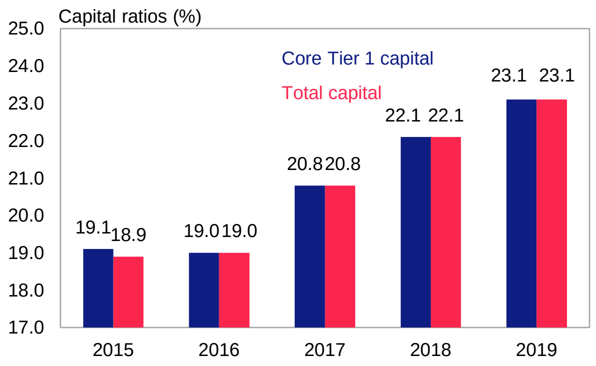
Source: Jyske Bank A/S, Nykredit Bank

Key figures for Jyske Realkredit

DKKbn	2019	2018	2017
Total assets	385	353	338
Mortgage loans at fair value	339	327	308
Bank loans	-	-	-
Deposits	-	-	-
Core income	1.8	2.4	2.1
Profit (loss) after tax	1.1	1.0	0.9
Core Tier 1 capital ratio	23.1%	22.1%	20.8%
Total capital ratio	23.1%	22.1%	20.8%

Source: Jyske Realkredit A/S, Nykredit Bank

Capital ratios for Jyske Realkredit A/S



Source: Jyske Realkredit A/S, Nykredit Bank

The Jyske Bank Group

Jyske Realkredit A/S is wholly owned by Jyske Bank A/S, which is a Danish SIFI. Jyske Realkredit's staff totalled 23 in 2019 compared with 28 in 2018.

Core income fell from DKK 2,361m in 2019 to DKK 1,778m in 2019, while impairment charges for loans and advances decreased from a gain of DKK 38m in 2018 to a loss of DKK 35m in 2019.

In 2019 Jyske Realkredit A/S achieved a pre-tax profit of DKK 1,434m, which is equal to a ROE of 6.1% pa. It is a higher profit than the previous year's DKK 1,262m. Direct comparison between these profits is,however difficult due to multiple circumstances: A new settlement model between Jyske Bank and Jyske Realkredit was introduced, and the 2018 result was extraordinarily affected by large non-recurring items (the implementation of IFRS 9 and sale of an owner-occupied property).

In 2019 Jyske Realkredit's portfolio grew by no less than DKK 11.3bn, which was mainly attributable to enhanced distribution power after the merger with Jyske Bank. Jyske Realkredit's portfolio has grown about DKK 130bn since the merger, and the share of Danish mortgage lending now amounts to 11.5%.

Jyske Realkredit A/S mainly offers mortgage loans to three segments: Private residential, commercial and subsidised housing. In 2019 Jyske Realkredit's total mortgage lending broke down into 51% for owner-occupied homes, 15% for subsidised housing, 15% for private rental properties, 11% for office and business properties and 7% for other properties.

In H1/2012, Jyske Realkredit entered into an agreement on joint funding of new lending with a number of banks. The agreement has now been terminated by all of the banks following Jyske Realkredit's acquisition by Jyske Bank. As of 21 June 2018 the company changed its name to Jyske Realkredit A/S from BRFkredit A/S, which remains the secondary name of the company.

Jyske Realkredit chose to issue all new bonds in 2017 as covered bonds (SDO) from Capital Centre E. This was done in order to establish as large series as possible. To the extent possible, Jyske Realkredit chose to move the funding of mortgage loans from Capital Centre B to Capital Centre E when refinancing the mortgages. At end-2019, 95% of Jyske Realkredit's total loans were funded with bonds issued as covered bonds (SDO) from Capital Centre E.

In 2018, Capital Centre S was opened for funding of loans for subsidised housing. It applies to bonds issued by Capital Centre S that the Danish government will indemnify mortgage credit institutions for all possible losses on loans and investors for losses on bonds. So far the central bank of Denmark has chosen to buy all bonds issued from Capital Centre S. The loans from Capital Centre S originate mainly from Jyske Realkredit’s other capital centres.

Covered bond and SSB issuer – Jyske Realkredit A/S

Jyske Realkredit's covered bonds are issued as SDOs or ROs out of capital centres (cover pools). SDOs are issued under the latest Danish covered bond legislation, which took effect on 1 July 2007 and are CRD and UCITS 52(4) compliant.

Covered bond investors benefit from dual recourse

In accordance with Danish covered bond legislation, investors in Danish covered bonds ("realkreditobligationer") benefit from dual recourse: Recourse in general to the issuer's assets and recourse to the segregated capital centres comprising mortgage loans, supplementary collateral and substitute assets. Consequently, in the event the issuer becomes insolvent, investors have a preferential right to the cover assets along with derivative counterparties, if any. By virtue of the preferential right, the claims of covered bond investors and derivative counterparties must be satisfied before the claims of all other creditors with respect to all assets in the cover pools. Capital centres are not part of the bankruptcy estate of the issuer.

Overcollateralisation

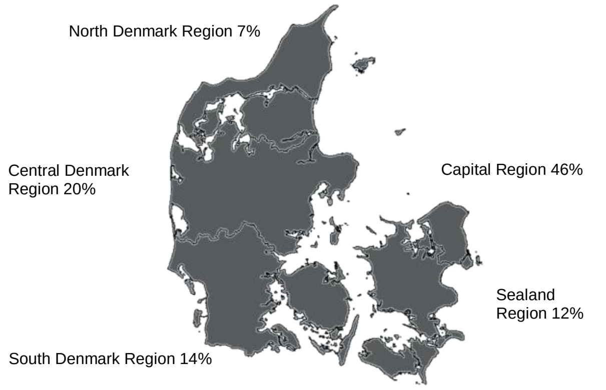
Legislation dictates that all Danish mortgage banks must hold capital corresponding to 8% of risk-weighted assets at the capital centre level. Further, issuers of SDOs (ie Capital Centre E) must ensure that cover assets continuously fulfil LTV requirements. Lending that exceeds LTV thresholds at the individual loan level (80%/60% for residential/commercial lending), based on current market values, requires supplementary collateral.

Cover pool (capital centre) composition

The issuer manages the capital centres, which may only contain certain eligible assets, eg loans secured by various types of mortgages, certain derivative contracts, supplementary collateral plus substitute assets (cf CRD, "credit quality step 1" claims against credit institutions – max 15% of capital centre assets or more, subject to Danish FSA approval). The mortgage loans may finance residential, commercial, agricultural and multi-family properties. Domestic lending accounts for 99% and, geographically, Jyske Realkredit's cover pools are concentrated in the Capital Region. In 2019 the average LTV for capital Centre B was 52.4% and 52.7% for Capital Centre E.

In 2019 the group's stock of properties acquired through foreclosure and subsidiary in possession with a view to sale totalled DKK 107m, was down from DKK 376m in 2018.

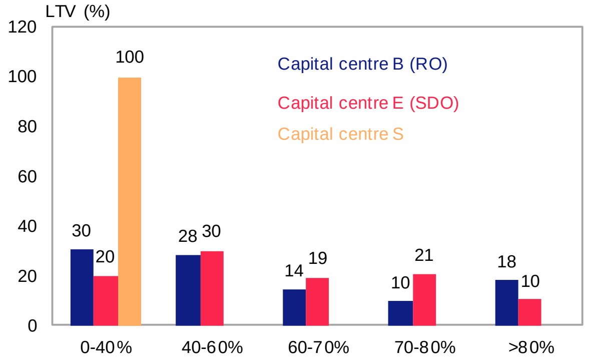
Geographic location



Overweight in the Capital Region at end-2019.

Source: Jyske Realkredit A/S

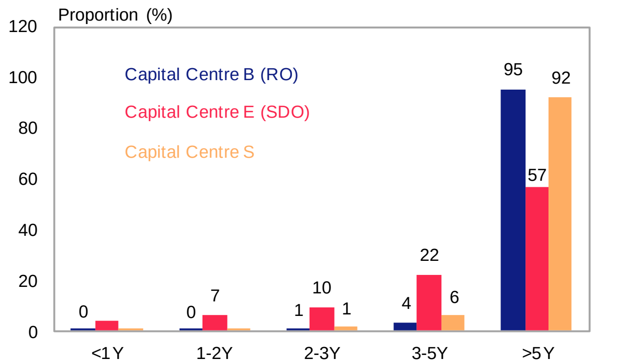
LTV distribution, current property value



Entire loan entered in the top LTV bracket. At end-2019 the average LTV for Capital Centres B and E was 54.7% and 57.7%, respectively.

Source: Jyske Realkredit A/S, Nykredit Bank

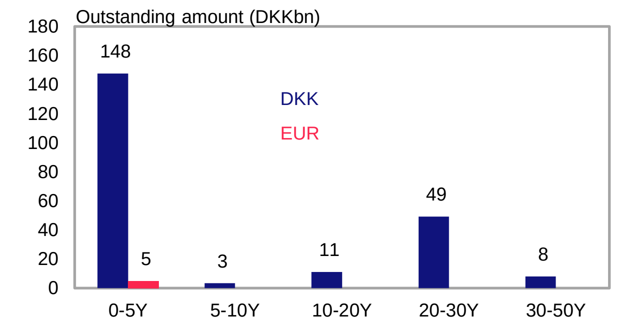
Mortgage seasoning



Almost all the mortgages in B are more than three years seasoned, while almost all the mortgages in E are more than five years seasoned at end-2018.

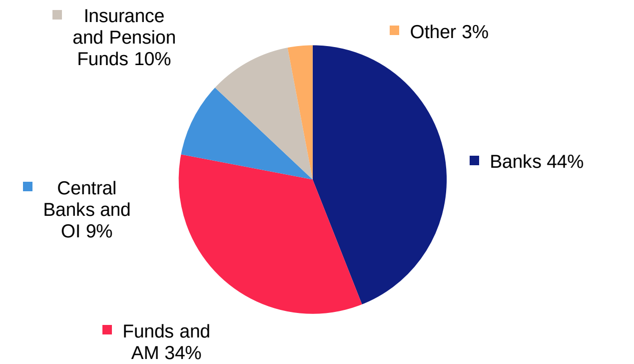
Source: Jyske Realkredit A/S, Nykredit Bank

Covered bond maturity profile



Source: Nykredit Bank

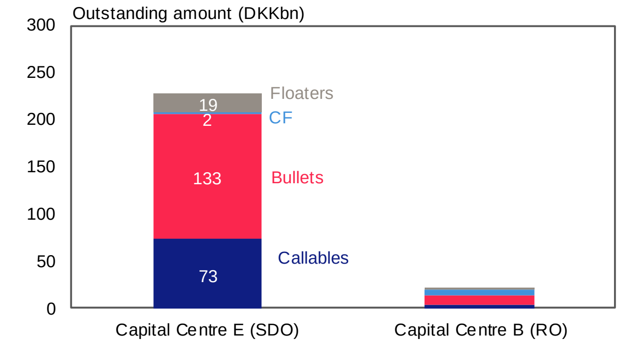
Investors in Jyske Realkredit A/S's EUR covered bonds



Jyske Realkredit's EUR covered bonds are primarily owned by banks, funds and AM by end-2019.

Source: Jyske Realkredit A/S, Nykredit Markets

Covered bond types in Capital Centres B and E



Source: Jyske Realkredit A/S, Nykredit Bank

Funding – covered bond programmes

In 2019 Jyske Realkredit had DKK 338.7bn-worth of covered bonds outstanding (fair value). Covered bonds are Jyske Realkredit's primary funding source with 99% issued domestically and the remainder issued internationally. Danish covered bonds are generally issued either on tap, to satisfy day-to-day funding needs, or at refinancing auctions. Long-term callable bonds and long-term capped floaters typically have an opening period of three years, which enables issuers to build sizeable bond series.

Today, Jyske Realkredit issues covered bonds mainly through Capital Centre E (SDOs), while ROs are issued out of Capital Centre B. The General Capital Centre, which is inactive, comprises mortgage bonds that were grandfathered under the former legislation. The same applies to ROs issued out of Capital Centre B before 1 Jan 2008. In 2017, Jyske Realkredit chose to issue all new bonds as covered bonds (SDO) from Capital Centre E. In 2019, covered bonds worth DKK 5.4bn were outstanding in Capital Centre B and DKK 290.3bn were outstanding in Capital Centre E.

ALM

Danish covered bond legislation imposes several obligations on the issuer, such as the balance principle designed to mitigate risk, which in practice means that issuers use a pass-through funding model. Issuers are therefore not exposed to interest or exchange rate risk, and funding costs are passed directly on to borrowers. Given the pass-through structure, there is a direct connection between borrowers' choice of loan type and the bonds issued to fund loans. However, ARMs are typically longer than the maturities of the funding bonds, with interest rate and spread risk being passed directly on to borrowers. Loan payments are reset reflecting the yields achieved at auction.

In 2016, Jyske Realkredit was the first Danish mortgage provider to issue EUR-denominated bonds to fund 1Y ARMs in DKK. These bonds have 5Y to 10Y maturities. The DKK and EUR interest rate risk is fully hedged by swaps. In these issuances, Jyske Realkredit takes advantage of the low European interest rates, minimises refinancing risk and expands their base of investors.
Three bond issuances were carried out in EUR in 2016 and a benchmark issuance of EUR 500m in 2017. These issuances helped raise the number of foreign investors.

At end-2019, 47.3% of Jyske Realkredit's mortgage loans were ARMs funded by fixed-rate bullets. ARMs are refinanced on an ongoing basis by either fixed-rate bullets or floaters. The majority of fixed-rate bullets are subject to annual interest rate adjustment/refinancing, while others are adjusted every three or five years. Refinancing risk is passed directly on to borrowers with loans being refinanced on market terms. ARMs are refinanced at auctions in February, May, August/September and November/December, and at the auctions, substantial amounts of chiefly 1Y fixed-rate bullets are issued. However, the amount issued is always lower than the total amount maturing.

Covered bonds are rated -/AAA/-

After Jyske Bank's merger with Jyske Realkredit, S&P considers Jyske Realkredit to be a core subsidiary of Jyske Bank. On October 23 2019, S&P raised its rating from A-/A-2 ratings on both banks to A/A-1, but lowered its outlook from positive to stable.

Covered bonds issued by Jyske Realkredit represent senior direct, secured and unconditional obligations of the issuer and are rated AAA by S&P with a stable outlook.

S&P

According to S&P's (along with Moody's and Fitch's) rating methodology, covered bond ratings are constrained by the rating of the issuer. In other words, covered bond ratings are linked to the rating of the issuer.

S&P revised its covered bond ratings criteria in December 2014. According to the updated criteria, covered bond programmes will be assigned uplifts for resolution regime, jurisdictional and collateral support, enabling a potential maximum rating uplift of nine notches for Danish covered bonds relative to the rating of the issuer, primarily depending on the assigned uplift for collateral support, which for Jyske Realkredit's programmes is three notches. Given Jyske Realkredit's A rating, Jyske Realkredit can be downgraded three notches at actual OC levels without the covered bonds in Capital Centres B and E losing their AAA ratings.

S&P ratings, Q1/2020

Capital Centre	B (RO)	E (SDO)
Covered bonds	AAA	AAA
Actual CE (%)	21.09	6.35
Target CE (%)	11.21	4.34
Potential collateral-based uplift	4	4
OC commitment	Yes	Yes
Achievable collateral-based uplift	3	3
Unused notches of uplift	3	3
Required OC level for current rating (%)	11.21	3.62
Issuer: Jyske Realkredit A/S	A-/A-1(stable outlook)	

Highest ratings assigned to covered bonds.

Source: S&P, Nykredit Bank

Issuer profile: DLR Kredit A/S

- Covered bonds issued by DLR Kredit A/S are rated AAA by S&P
- S&P raised DLR's issuer Credit Rating to A- from BBB+ on Additional Loss-Absorbing Capital
- Agricultural properties make up 51% of the loan portfolio in Capital Centre B

DLR Kredit A/S (DLR Kredit) primarily offers mortgage financing of agricultural and urban trade properties. Loans are distributed mainly by its shareholders, which are Danish local and nationwide banks. DLR Kredit A/S is a Danish SIFI.

In 2019 DLR's capital base was raised by DKK 953m, while the risk exposure increased by DKK 4.7bn. This was primarily due to net income after tax of DKK 846m and an increase in credit risk exposure of DKK 5.2bn, respectively.

DLR Kredit A/S – issuer of covered bonds

DLR Kredit's activities exclusively include mortgage lending funded by covered bonds, of which the outstanding amount was DKK 154.6bn at end-2019. DLR Kredit is Denmark's fifth largest mortgage bank with a market share of 5.4%.

Cover pools

DLR Kredit has two cover pools. Both cover pools comprise loans secured by mortgage over property in Denmark and other eligible assets, such as claims on credit institutions and government bonds. Almost all loans are in cover pool B.

About 57.6% of lending is secured by mortgage on agricultural properties, the rest by mortgage on commercial, residential rental and private residential properties. Because of the focus on agriculture, lending is concentrated in rural districts. Only 5% of lending was granted in the Capital Region.

ALM and covered bond funding

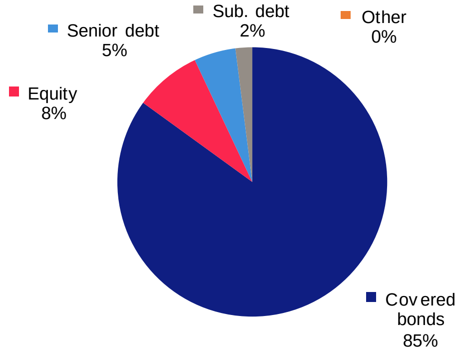
Despite the easing of the balance principle in 2007, Danish covered bond issuers are still subject to very strict ALM rules. Almost all Danish mortgage banks still offer fully match-funded products only, which eliminates market risk and hedging needs.

Loans subject to refinancing have longer maturities than the underlying covered bonds, which entails refinancing risk for borrowers. In spring 2014, a legislative amendment was adopted to contain refinancing risk in the Danish mortgage banking sector. With the amendment, new bonds were introduced to fund loans subject to refinancing. These bonds have a soft bullet structure with extendable maturity, if the loans cannot be refinanced (refinancing failure trigger), or – for some bonds – where interest rates have risen by over 500bp relative to the preceding year (see chapter on Danish bullet covered bonds). Covered bonds are issued on tap and at refinancing auction. Tap issues satisfy day-to-day funding needs, and issuers avoid selling large amounts in the market in one single day.

Ratings

DLR Kredit's covered bonds are rated AAA by S&P. S&P has further assigned DLR Kredit an official issuer rating of A-. The issuer rating can be downgraded two notches without DLR Kredit's covered bonds in the Capital Centre B losing their AAA rating.

Capital structure of DLR Kredit A/S



DLR Kredit raised funding exclusively through covered bonds in 2019.

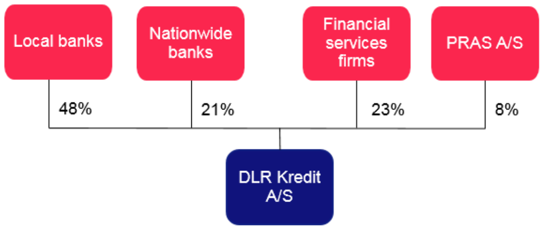
Source: DLR Kredit A/S, Nykredit Markets

Cover pool statistics and ratings, 2019

Capital Centre	General	B
Agriculture (%)	51	58
Commercial (%)	17	19
Private rental (%)	11	17
Residential (%)	18	4
Cooperative housing (%)	3	2
Cover pool (DKKbn)	1.7	176
Average LTV (%)	35.7	53.8
WAL cover pool (years)	-	21
Interest rate profile (fixed/floating) (%)	42/58	65/35
Current OC (%)	10.1	14.9
Committed OC (% RWA)	8	8
Covered bonds (DKKbn)	1.5	163
WAL covered bonds (years)	-	9
CRD/UCITS compliant	Yes/Yes	Yes/yes
Risk weighting (%)	10(Grandfathered)	10
Covered bonds in EUR (VP Lux)	Repo-eligible with the ECB	
Ratings (Moody's/S&P/Fitch)	General	B
Covered bonds	-/AAA/-	-/AAA/-
S&P unused notches of uplift	2	2
S&P required OC level for current rating (%)	3.62	11.21
Issuer: DLR Kredit A/S	-/A-/-	
Bloomberg ticker/website	LANDBR/dlr.dk	

Source: S&P, Nykredit Markets

DLR Kredit A/S



DLR Kredit A/S is primarily owned by local and nationwide banks in 2019.

Source: DLR Kredit A/S, Nykredit Markets

Key figures for DLR Kredit A/S

DKKm	2019	2018	2017
Total assets	173,444	160,738	163,375
Loans and advances	156,837	148,611	143,061
Issued bonds	157,639	145,901	148,972
Core earnings	1,159	979	1,121
Impairment charges	86	(24)	94
Value adjustments	(171)	(211)	(172)
Profit after tax	846	707	880
CET1 capital ratio	15.5%	16%	15.1%
Total capital ratio	17.1%	16.9%	15.9%

Source: DLR Kredit A/S

Loss-controlling agreements

DLR Kredit changed its guarantee concept from 1 January 2015 so that all loans offered after this date are subject to a uniform guarantee concept, regardless of the property category. The concept is structured so that the originating bank on the granting of a loan provides an individual loss guarantee covering 6% of the debt outstanding on the individual loan for the duration of the loan term and, in addition, comprises a loss-offsetting facility whereby losses in excess of the 6% guarantee are offset in commissions payable to the individual banks. At end-2018 approx 60% of DLR Kredit's total loan portfolio was covered by the universal guarantee concept. Due to these schemes, DLR Kredit's risk of loan losses is fairly limited. Medio January 2019 the 3½ month defaulted payments total DKK 16.3m.

DLR Kredit has mitigated its credit risk through loss-controlling agreements with its shareholders, ie the loan-arranging banks. For loans for urban trade properties offered before 2015, the loan-arranging bank provided an individual loss guarantee covering between 25% and 50% of the debt outstanding on the loan, depending on the property segments, while loans for agricultural properties offered before 2015 are covered by a collective guarantee scheme and the option to offset losses against commission payable to the individual banks concerning origination of agricultural loans.

DLR Kredit A/S

In 1960 Dansk Landbrugs Realkreditfond (DLR) was founded as a mutually owned institution, and until 1 July 2000, DLR had its own legal framework and thereby an exclusive right to provide mortgage loans for agricultural properties secured by mortgages in the range of 45-70% of the property value. This exclusivity was abolished on 1 January 1999, and DLR requested to become subject to the Danish Mortgage-Credit Loans and Mortgage-Credit Bonds, etc. Act. In July 2000 DLR's legal framework was abolished, and DLR became subject to said Act. On 1 January 2000 DLR became subject to the supervision of the Danish Financial Supervisory Authority.

In May 2001, DLR was converted to a limited liability company, and DLR Kredit A/S as we know it today first saw the light of day. Shares were allocated in proportion to the banks' loan volumes. Today, DLR Kredit is mainly owned by local and nationwide banks. In 2019 DLR's own funds after deductions came to DKK 13.9bn, meaning that DLR has excess capital coverage of DKK 3.5bn compared to the combined buffer requirement of DKK 10.5bn. At end-2019, own funds was comprised entirely of Tier 1 and Tier 2 capital of DKK 12.6bn and 1,300m, respectively.

DLR Kredit is a specialised credit institution licensed to carry on mortgage banking. It does not accept deposits and funds, lending is exclusively through issuance of covered bonds. DLR Kredit primarily offers mortgage financing to agricultural and urban trade properties. Home loans are only granted to residential farms and in the Faroe Islands and Greenland. DLR Kredit only provides loans through its shareholders, which are local and regional Danish banks. Therefore, DLR Kredit has no branches of its own. DLR Kredit is the fifth largest mortgage bank in Denmark with a market share of 5.4%. DLR Kredit's staff counted on average 193 FTE employees in 2019. In addition, DLR has 24 agricultural valuation experts attached to the company.

DLR Kredit reported a pre-tax profit of DKK 1,085m in 2019 compared with DKK 905m in 2018. Administration margin income was up by DKK 73m to DKK 1,632m from 2018 to 2019. Fee and commission income increased to DKK 269m from DKK 214m, while fee and commission expenses increased by DKK 101m to DKK 641m in comparison to 2018. Impairment charges for loans and receivables, etc turned from a negative DKK 24m to a positive DKK 86m relative to total lending of DKK 157bn.

In Q1/2016 DLR Kredit obtained approval to apply IRB models to determine the credit risk exposure on its full-time farm portfolio, which resulted in an improved total capital ratio and a reduction of the total risk exposure amount.

Covered bond issuer – DLR Kredit A/S

DLR Kredit issues covered bonds in the form of SDOs out of its capital centre B (cover pool B). SDOs are issued under the latest Danish covered bond legislation, which took effect on 1 July 2007 and are CRD and UCITS 52(4) compliant.

Covered bond investors benefit from dual recourse

In accordance with Danish covered bond legislation, investors in Danish covered bonds ("realkreditobligationer") benefit from dual recourse: Recourse in general to the issuer's assets and recourse to the segregated capital centres comprising mortgage loans and substitute assets. Consequently, in the event of issuer default, investors have a preferential right to the cover assets along with derivative counterparties, if any. Other creditors cannot raise claims against the cover pool until the claims of covered bond investors and derivative counterparties have been met. This preferential right applies to all cover assets. Capital centres are not part of the bankruptcy estate of the issuer. Danish covered bonds distinguish themselves by the fact that all claims against the issuer also rank before other creditors.

Overcollateralisation

According to S&P, OC was 10.1% in the General Capital Centre and 14.9% in Capital Centre B at end-2019. The capital of Danish mortgage banks must constitute at least 8% of risk-weighted assets at capital centre level. Further, issuers of SDOs (i.e. Capital Centre B) must ensure that cover assets always fulfil LTV requirements. Lending exceeding LTV thresholds at the individual loan level (60% for agricultural and commercial lending) based on current market values requires supplementary collateral, eg through a capital contribution. DLR has issued senior secured bonds of DKK 3.0bn, unsecured bonds of DKK 2.0bn and Senior Resolution Notes of DKK 2.0bn that can be used both for LTV compliance and as supplementary collateral.

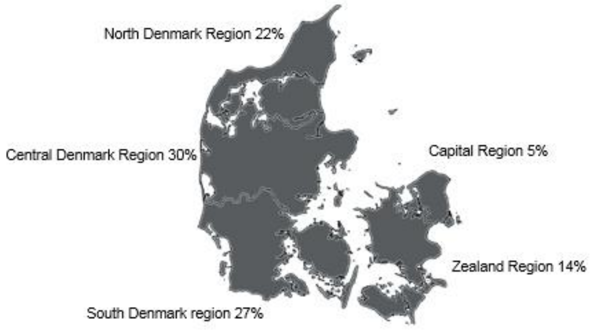
Cover pool (capital centre) composition

The issuer manages the capital centres, which may only contain eligible assets, eg loans secured by certain mortgages, derivatives and substitute assets (cf CRD, "credit quality step 1" claims against credit institutions – a maximum of 15% of capital centre assets or more subject to Danish FSA approval). About 60% of lending is secured by mortgage on agricultural properties, the rest over commercial, residential rental, private cooperative housing and private residential properties. Geographically, lending is concentrated in rural districts due to the focus on agriculture. Only 5% of lending was granted in the Capital Region. The average LTV is 53.8% in Capital Centre B (end-2019) and 35.7% (end-2019) in the General Capital Centre.

Loan origination

DLR Kredit assesses loan applications and conducts credit scoring of applicants at the lending department in Copenhagen. Property valuations are subject to the rules of the Danish FSA and are carried out by DLR Kredit's own valuation experts. Thus, property valuation and credit scoring are two separate functions.

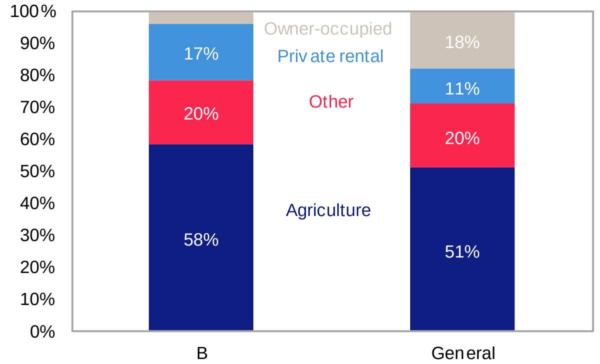
Geographic location



Overweight in rural districts. 2% of mortgages fund properties located on Greenland and the Faroe Islands (end-2019).

Source: DLR Kredit A/S, Nykredit Markets

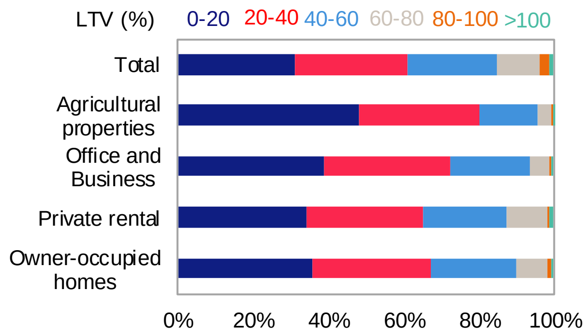
Assets in Capital Centre B and General Capital Centre



The category "Other" mainly covers office and retail (end-2019).

Source: DLR Kredit A/S

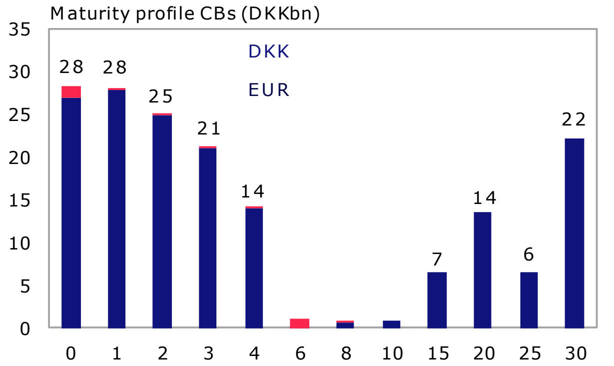
Lending by LTV range for Capital Centre B



3.9% of agricultural lending has an LTV ratio above 60% (end-2019).

Source: DLR Kredit A/S

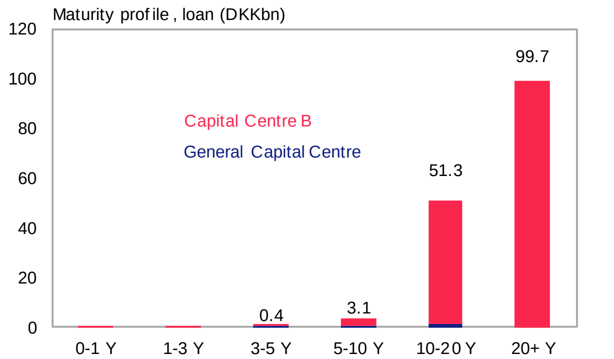
Covered bonds by maturity and currency



Concentration in the 1Y segment (end-2019).

Source: DLR Kredit A/S

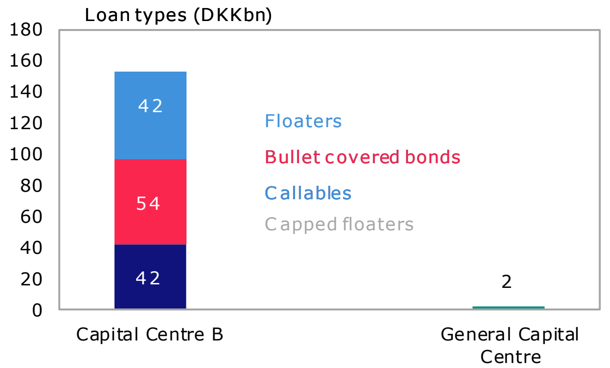
Loans by capital centre and loan term



However, loans subject to refinancing generally have maturities exceeding those of the underlying bonds (end-2019).

Source: DLR Kredit A/S

Bond types, Capital Centre B/General Capital Centre



By virtue of the balance principle, the underlying loans have the same features as the funding covered bonds. Loans based on bullet covered bonds, floaters and capped floaters imply refinancing risk (end-2019).

Source: DLR Kredit A/S

Funding – covered bond programmes

At end-2019, DLR Kredit had an outstanding amount of covered bonds of DKK 163bn excluding bonds maturing on 1 January 2020. DLR Kredit's covered bonds are UCITS and CRD compliant. Covered bonds are DLR Kredit's only source of funding. All bonds are issued in Denmark, and 98.6% are DKK-denominated; the remaining bonds are EUR-denominated.

The funding structure has changed markedly in recent years, as the proportion of DLR Kredit's lending provided as adjustable-rate mortgages (ARMs) with 1-year funding has been reduced considerably. This is a result of DLR Kredit's targeted refinancing campaigns since 2014 aimed at extending the refinancing frequency. In 2014-2016 focus was on 1Y and 2Y ARMs, while in 2017 the campaigns were extended to comprise also 3Y ARMs.

Loans funded by either fixed-rate or floating-rate covered bonds are refinanced at auctions in February, May, August and November/December. At the refinancing auctions, the issued amounts are primarily concentrated in the 3-5Y segment. However, the amount issued is always smaller than the total amount maturing.

All new covered bond issuance takes place out of Capital Centre B. Up to 2008, ROs were issued out of the General Capital Centre, but since the implementation of new Danish covered bond legislation in 2008, bonds funding new loans are exclusively issued out of the SDO Capital Centre B. At end-2019 covered bonds outstanding amounted to DKK 1.5bn in the General Capital Centre and DKK 164bn in Capital Centre B.

ALM

Danish covered bond legislation imposes several obligations on the issuer, such as the balance principle designed to mitigate risk, which in practice means that issuers use a pass-through funding model. Under this model, issuers are neither exposed to interest rate nor to exchange rate risk, and funding costs are passed directly on to borrowers.

Given the pass-through structure, there is a direct connection between borrowers' choice of loan type and the funding bonds. However, loans subject to refinancing generally have longer maturities than the funding bonds, and the interest rate and spread risk is borne by borrowers. Loan payments are reset reflecting the yields or spreads achieved at refinancing.

Loans funded by short-term fixed-rate bullets account for about 35% of DLR Kredit's total lending, and money market-linked floaters fund another 37% of total lending.

Bonds outstanding in the fixed-rate bullet segment mirror the refinancing profile of the borrowers. The refinancing risk is borne by borrowers as the loans are refinanced on market terms. This means that mortgage banks are not exposed to interest rate risk or spread risk in connection with refinancing. Mortgage banks are nevertheless exposed to event and credit risk in connection with refinancing.

Covered bonds are rated AAA

Covered bonds issued by DLR Kredit represent senior direct, secured and unconditional obligations of the issuer and are rated AAA by S&P. On 19 May 2017 S&P assigned an official rating of the issuer, DLR Kredit A/S, of A- with a positive outlook, which was revised in October 2019 and the outlook was lowered from positive to stable. This is an uplift by one notch compared with the SACP of BBB+.

Until 22 March 2013 DLR Kredit was also rated by Moody's. In December 2012, DLR Kredit requested Moody's to withdraw all ratings of DLR Kredit and bonds issued by DLR Kredit, which were affected by Moody's on 22 March 2013.

S&P

S&P assigned an AAA rating to DLR Kredit's covered bonds in autumn 2012, and the rating has remained unchanged since then.

According to S&P's rating methodology, covered bond ratings are linked to the rating of the issuer.

S&P revised its covered bond ratings criteria in December 2014. According to the updated criteria, covered bond programmes can be assigned uplifts for resolution regime, jurisdictional and collateral support, enabling a potential maximum rating uplift of nine notches for Danish covered bonds relative to the adjusted issuer credit rating. Given DLR's A- rating, the uplift happened following DLR's announcement of planned issuance of DKK 4bn in Senior Resolution Notes to meet the debt buffer requirements towards 2020. DLR has per 31 December 2019 issued DKK 2bn SRN and DKK 2bn Senior Non-Preferred Notes. In October 2019 DLR issued another DKK 1bn in Senior Secured Bonds in order to replace matured bonds and in April 2019 DLR issued DKK 1bn in Senior Non-Preferred Notes to meet the criteria for the additional loss-absorbing capacity (ALAC), which generates the uplift. DLR can be downgraded two notches without the covered bonds in Capital Centre B losing their AAA ratings. The issuer rating can be downgraded two notches without the covered bonds in the General Capital Centre losing their AAA rating.

S&P ratings, Q1/2020

Capital Centre	General	B
Covered bonds	AAA	AAA
Actual CE (%)	9.55	16.26
Target CE (%)	2.87	11.69
Potential collateral-based uplift	4	4
OC commitment	Yes	Yes
Achievable collateral-based uplift	3	3
Unused notches of uplift	2	2
Required OC level for current rating (%, Q1/2019)	2.87	10.70
Issuer: DLR Kredit A/S	A-/Stable/A-2	

Source: S&P, Nykredit Markets

DISCLOSURE

This research is non-independent research prepared by Fixed Income & Nordic Research in Nykredit Markets. Non-independent research is a marketing communication and does not constitute independent, objective investment research and is thus not subject to the legal requirements applicable to independent investment research. Therefore, it is not subject to any prohibition on dealing ahead of the dissemination of the marketing communication.

Recommendation and risk assessment structure for government bonds and bonds issued by financial institutions, including covered bonds

Bond recommendations

The research of Fixed Income & Nordic Research generally focuses on isolating relative value in bond and derivatives markets. Therefore, the interest rate and/or volatility risk of the strategy is generally hedged through other bonds or derivatives (swaps, swaptions, caps, floors, etc). In contrast to outright recommendations, our research often includes both a buy and a sell recommendation.

BUY: In our view, the bond is fairly inexpensive relative to comparable alternatives in either the bond or derivatives markets. We expect that the bond will offer a higher return than the alternatives on a horizon of usually three months.
SELL: In our view, the bond is fairly expensive relative to comparable alternatives in either bond or derivatives markets. We expect that the bond will offer a lower return than the alternatives on a horizon of usually three months.

Recommendations on portfolio allocation

The recommendations of Fixed Income & Nordic Research are based on a portfolio investor (long-only investor) in government bonds and bonds issued by financial institutions. Click on the following link to see a list of all recommendations on financial instruments or issuers disseminated by Fixed Income & Nordic Research in Nykredit Markets over the past 12 months.

OVERWEIGHT: In our view, the return on the bond segment will be higher than the return on the total Danish bond market (Danish government bonds and bonds issued by financial institutions) in the next three months.
NEUTRAL: In our view, the return on the bond segment will be in line with the return on the total Danish bond market (Danish government bonds and bonds issued by financial institutions) in the next three months.
UNDERWEIGHT: In our view, the return on the bond segment will be lower than the return on the total Danish bond market (Danish government bonds and bonds issued by financial institutions) in the next three months.

Distribution of recommendations

The distribution of the direct investment recommendations from Fixed Income & Nordic Research within the past quarter is shown in Table 1 and Table 2. Proportion I is the distribution of our recommendations and it therefore sums to 100%. Proportion II is the share of issuers within each category above for which Nykredit Bank A/S has carried out major investment bank transactions in the past 12 months.

Table 1: Recommendations – fixed income	Proportion I	Proportion II
Buy	50	0
Sell	50	0
Table 2: Recommendations – portfolio allocation	Proportion I	Proportion II
Overweight	0	0
Neutral	0	0
Underweight	0	0

Source: Nykredit Markets

Historical returns and price developments

To the extent that this material contains information on historical prices and/or returns, reference is made to historical returns and prices at nykredit.dk, which provides information on price developments and returns for the past five years (or the life of the instrument concerned, if less than five years) of the financial instruments for which Fixed Income & Nordic Research has made direct investment recommendations.

Information about Nykredit

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Nykredit Markets acts as market maker in Danish government bonds, Danish covered bonds and Danish mortgage bonds and may therefore have positions in these securities. Nykredit Markets also acts as primary dealer for Swedish sovereign debt and Swedish covered bonds.

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This investment research was finished and released for distribution for the first time on the date stated on the front page.

Financial models and methods applied

Calculations and presentations are based on ordinary econometric and financial tools and methods as well as publicly available sources. Assessments of Danish callable mortgage bonds are modelled using a proprietary model consisting of a stochastic yield structure model and a statistical refinancing model calibrated to borrowers' historical prepayment behaviour. The models have been approved by the Danish Financial Supervisory Authority.

Risk warning

Assessments and recommendations, if any, made in this publication may involve substantial risks. Such risk, including a sensitivity analysis based on relevant assumptions, is described in this research. All investors should consider the purpose of their investment and make their own decisions as regards any kind of investment in financial instruments mentioned in this research.

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