

**Abstract from the Nykredit publication: Danish Covered Bonds, April 2008**

**LEGAL FRAMEWORK**

Danish mortgage legislation dates back to 1851, and together with Germany, Denmark has the oldest mortgage legislation in the world.

In Denmark covered bond issuance is regulated by the Danish Mortgage-Credit Loans and Mortgage-Credit Bonds etc. Act (mortgage banks) and the Danish Financial Business Act (commercial banks) and a number of Executive Orders on eg ALM and property valuations. Danish legislation was last amended in the summer of 2007, in part to ensure the continued eligibility of Danish mortgage bonds as covered bonds under the stricter CRD definition. In this connection, the Danish balance principle (ALM requirements) was adapted to European standards, and commercial banks gained access to issuing covered bonds. The FSA supervises compliance with current legislation and regularly conducts on-site inspections.

**Security**

The security behind Danish covered bonds rests on the following:

- Bonds are primarily issued against mortgages on real property within specified LTV limits, cf Table .
- The Danish FSA supervises bond issuers' compliance with the regulatory framework.
- Continuous compliance with LTV limits. If property prices fall, issuers must provide additional collateral to the cover pool.
- Specific requirements for regular independent valuations of the properties included in the cover pool.
- In case of the insolvency of an issuer, legislation provides for protection of the bond holders of a capital centre or cover register. In principle, investors are therefore unaffected by the insolvency of an issuer provided that the cover pool contains sufficient assets.
- Mandatory overcollateralisation (only applicable to mortgage banks).
- Strict ALM requirements (the balance principle). The balance principle ensures that issuers can assume only limited market risk in the form of interest rate risk, foreign exchange risk, option risk and liquidity risk.

Danish covered bonds are issued as either ROs, SDOs or SDROs. RO denotes mortgage bonds issued under the former Danish mortgage bond legislation, while SDROs and SDOs are issued under the Danish covered bond legislation which took effect on 1 July 2007. The main difference between SDOs/SDROs and ROs is that ROs are not CRD compliant if

issued after 1 January 2008. Table 2 overleaf outlines the main differences between the three types of covered bonds.

**Creditor interest of covered bond investors**

Investors in Danish covered bonds have a preferential claim against all cover assets in case of the insolvency of the issuer. Bondholders rank pari passu with derivatives counterparties provided the derivatives contracts are concluded for the purpose of hedging market risk. Cash flows to derivatives counterparties and bondholders must remain unaffected by the insolvency of the issuer. Accordingly, derivatives counterparties are not entitled to demand termination of the contracts in case of insolvency, just as payments cannot be accelerated.

**LTV limits and continuous LTV compliance**

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.

**Table 1: LTV limits**

	LTV subject to repayment restrictions*	LTVs without repayment restrictions
Owner-occupied dwellings	80%	70% (75% from July 2009)
Trade and industry		60% (70% against extra collateral)
Agriculture		60% (70% against extra collateral)

\* A maximum maturity of 30 years and a maximum interest-only period of 10 years.

*Source: Nykredit Realkredit*

Issuers of covered bonds in Denmark must continuously ensure that the cover assets behind the issued bonds remain intact. This means that if house prices fall, covered bond issuers must contribute additional collateral to the capital centre or cover register, for instance in the form of government bonds.

In determining the value of the cover pool, mortgage banks must apply the market values of the properties provided as security in each capital centre or cover register. Furthermore, the current LTV limits must be observed at individual loan level.

**Table 2: Danish covered bonds**

	SDOs	SDROs	ROs
Issuers	Mortgage banks and commercial banks	Mortgage banks	Mortgage banks
CRD compliant	Yes	Yes	No
Risk weighting under the standardised approach	10%	10%	10% for issues dated before Jan 2008 20% for issues dated after Jan 2008 (not covered bonds)
Cover pool assets	- Mortgage on real property - Ship's mortgages (only commercial bank issuers and in separate cover register) - Loans to public authorities - Claims on credit institutions (max 15% of total outstanding nominal amount of bonds) - The FSA may allow other CRD-compliant assets	- Mortgage on real property - Loans to public authorities	- Mortgage on real property - Loans to public authorities
Derivatives pari passu with bonds	Yes	Yes	Yes
Continuous LTV compliance	Yes	Yes	No
Unrestricted IO period and loan term	Yes – up to 70% LTV (75% LTV from 1 July 2009)	Yes – up to 70% LTV (75% LTV from 1 July 2009)	No
Issuance of junior covered bonds	Yes	Yes	No
Balance principle (ALM requirements)	"Specific" or "general" at individual capital centre/cover register level	"Specific" or "general" at individual capital centre/cover register level	"Specific" or "general" at individual capital centre/cover register level
Market value principle	This principle only	This principle only	Other principles also allowed

Main differences between the three types of Danish covered bonds.

Source: Nykredit Realkredit

## Valuation principles

The FSA has issued an executive order containing rules on the valuation of properties provided as security for covered bonds. The key principles are:

- The value of a mortgage must not exceed the open market value of a property which may reasonably be achieved within a selling period of six months (market value), regardless of whether the property has just been traded at a higher price.
- Inspection and valuation may only be carried out by professional valuers who possess the experience relevant to the valuation of the property type and market in question, and who are independent of the credit granting process of mortgage banks.
- Owner-occupied dwellings must be valued at least every three years to ensure LTV compliance.
- Commercial properties must be valued annually.
- Approved statistical models may be used for this purpose.

Issuers must also apply market value principles in determining obligations to bondholders. The value of the cover assets must at any time exceed the value of the obligations to bondholders.

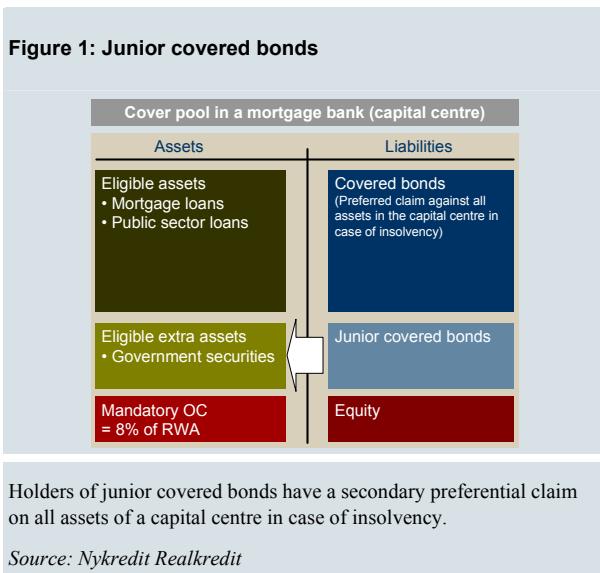
## Overcollateralisation

For mortgage banks, mandatory overcollateralisation (OC) must correspond to 8% of risk-weighted assets (RWA). For commercial banks, there is no such requirement. Both mortgage banks and commercial banks may supply voluntary OC to achieve a higher rating.

In mortgage banks, mandatory OC depends on the risk weighting of mortgage loans. Under Basel I, the risk weighting of residential mortgage loans was 50% and 100% for commercial mortgage loans, which meant that a mortgage bank like Nykredit de facto had to uphold mandatory OC of 5%, corresponding to an average risk weighting of 60%. Under the new Basel II rules, the risk weights will be lower, which will reduce the significance of mandatory OC, and particularly so for mortgage banks using the advanced computation methods under Basel II such as IRB. Mortgage banks using the standardised approach will not experience any major relaxation of the mandatory OC requirement.

## Junior covered bonds

In addition to continuous LTV compliance, the new Danish covered bond legislation also introduced a new funding instrument, ie junior covered bonds.



Junior covered bonds may be issued to fund assets eligible as security for covered bonds in case LTV limits are exceeded. Holders of junior covered bond have a secondary preferential claim on all assets of a capital centre in case of insolvency. Junior covered bonds are equally collateralised by the whole cover pool (only subordinate to regular covered bond holders and derivatives counterparties). Junior covered bonds cannot be compared with eg subprime mortgages, as the credit quality of the loans behind junior covered bonds is the same as for regular covered bonds, and junior covered bond holders have a secondary preferential claim on all assets of a capital centre. Consequently, issuers may not use junior covered bonds to grant loans exceeding the LTV limits ex ante. Under law, proceeds from the issuance of junior covered bonds may furthermore only be placed in the same secure assets as those behind covered bonds. Junior covered bonds are issued to protect the holders of regular covered bonds in case property prices decrease.

Mortgage bank covered bonds and commercial bank covered bonds are regulated by slightly different rules, and covered bonds issued by mortgage banks generally benefit from a higher level of security.

**Table 3: Security – mortgage banks vs commercial banks**

Mortgage bank	Commercial bank
SDO/SDRO investors' claims:	SDO investors' claim:
1. Assets in the capital centre, incl mandatory OC	1. Assets in the register including voluntary OC
2. Voluntary OC	2. The insolvent estate of the commercial bank ranks pari passu with other creditors
3. The insolvent estate of the mortgage bank BEFORE ordinary creditors	
Mandatory capital requirement for SDO cover pool in case the value of the OC drops	Voluntary capital requirement for SDO cover pool in case the value of the OC drops
Differences between covered bonds issued by mortgage banks and commercial banks.	
<i>Source: Nykredit Realkredit</i>	

As illustrated, investors in mortgage bank covered bonds enjoy a better protection due to the mandatory OC and a better ranking of their claims in case of the insolvency of the issuer if the cover pool is inadequate.

#### In case of an issuer's insolvency...

Situations may occur where substantial capital injections are required to maintain the security behind the issued covered bonds, eg if property prices plunge. In such situations, the mortgage bank set-up will be safer for investors than the commercial bank set-up. This is because Danish mortgage banks are legally obliged to inject capital into a capital centre that is unable to fulfil the OC requirement as long as there are excess reserves available in the mortgage bank. By contrast, commercial bank issuers may decide against injecting extra capital into a cover register. A commercial bank will then have to choose between protecting the covered bond investors or the other creditors and shareholders of the bank. If it fails to inject the necessary capital into the cover register, the bank will forfeit its right to issue covered bonds. Furthermore, existing issues in the cover register concerned will lose their covered bond status. Naturally, such a scenario will only occur if the issuing bank is in severe financial difficulties.

In case of actual insolvency, covered bond investors in a commercial bank will rank pari passu with other creditors of the bank when all assets in the cover register have been distributed. In a mortgage bank, covered bond investors in a capital centre unable to provide additional collateral have a preferential claim against the assets of other capital centres before other ordinary creditors.

## Risk management – balance principle

The balance principle specifies to which extent mortgage banks and commercial banks may assume interest rate, foreign exchange, option and liquidity risk in relation to mortgage lending. Covered bond issuers must for each capital centre/cover register choose between two different systems (balance principles) for determining financial risk. The choice of balance principle must appear from the bond prospectus. This prevents issuers from changing balance principles at their own discretion. The two balance principles are:

- The general balance principle (European-style ALM requirements)
- The specific balance principle (pass-through principle)

Nykredit applies the general balance principle to both existing and new issues but is still expected to match-fund by far the greater part of lending.

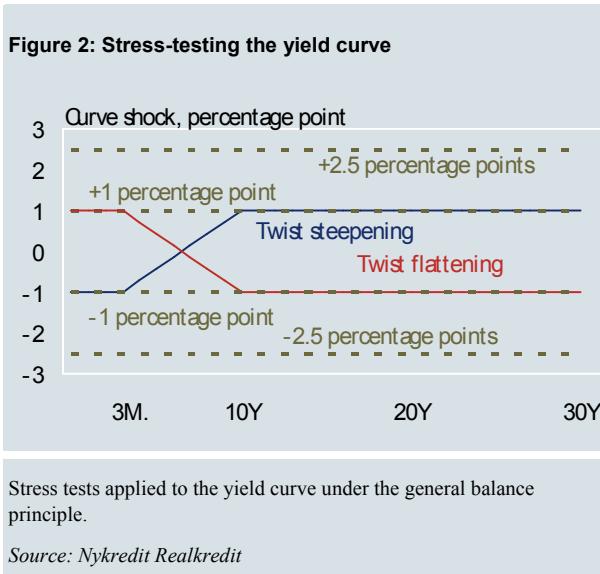
### The general balance principle

The risk limits allowed in Danish kroner are calculated differently for mortgage banks and commercial banks. For instance, commercial banks' interest rate risk must not exceed 10% of the overcollateralisation. As the cover register assumes market risk, the balance principle will require that capital be contributed to cover such risk. For mortgage banks, the risk limits will be determined relative to the capital adequacy requirement for each capital centre. Mortgage bank risk limits are generally tighter than those applying to commercial banks.

### Interest rate risk

Stress tests are used to measure interest rate risk based on six different yield curve shifts, cf Figure . First, the interest rate risk on parallel shifts of the curve of +/- 1 percentage point is determined. The interest rate risk must not exceed:

- 1% of the capital adequacy requirement plus 2% of any mortgage bank OC
- 10% of the OC of commercial banks.



Interest rate risk is subsequently calculated at more extreme yield curve shifts of +/- 2.5 percentage points and yield curve twists, cf Figure , in four different scenarios. Here, the interest rate risk must not exceed

- 5% of the capital adequacy requirement (mandatory OC) plus 10% of the additional OC of mortgage banks
- 100% of the OC of commercial banks.

In both cases, the interest rate risk is determined as the largest loss of net present value at the curve shifts tested. The determination is made for each currency, and the total interest rate risk is determined as the sum of the interest rate risk for each currency. Netting of interest rate risk between different currencies is basically not allowed. Exceptions are, however, positions in DKK and EUR where netting of interest rate risk is allowed by 50%.

It should be noted that the balance principle imposes significantly stricter demands on mortgage banks compared with commercial banks as far as the capital requirement is concerned if interest rate risk is assumed. Assuming that an interest rate exposure of DKK 500,000 is the result of a loan of DKK 100m (Table ), mortgage banks must allocate total overcollateralisation of DKK 27m, while banks are only required to allocate DKK 5m. In practice, this means that there will be only very few opportunities for mortgage banks to assume interest rate risk within the capital centres under the general balance principle. It can also be concluded that mortgage banks will have difficulties hedging DKK interest rate risk with EUR interest rate risk without triggering very strict capital requirements.

**Table 4: Interest rate risk and additional overcollateralisation**

	Mortgage bank	Commercial bank
Loan size	100,000,000	100,000,000
Interest rate risk	500,000	500,000
Mandatory OC*	4,000,000	0
Additional OC	23,000,000	5,000,000

\*Based on a risk weighting of 50% (8% of 50% of 100m).

For mortgage banks, interest rate risk may constitute 1% of the mandatory overcollateralisation plus 2% of additional overcollateralisation and for commercial banks 10% of overcollateralisation.

Source: Nykredit Realkredit

### Foreign exchange risk

As in the case of interest rate risk, a stress test is used. Foreign exchange risk is the larger loss of net present value given either:

1. A 10% increase in exchange rates of currencies belonging to the EU, the EEA or Switzerland. A 50% rise in other currencies, or
2. A 10% drop in exchange rates of currencies belonging to the EU, the EEA or Switzerland. A 50% drop in other currencies.

For mortgage banks, foreign exchange risk in EUR must not exceed 10% of the capital adequacy requirement plus 10% of the extra overcollateralisation. For other currencies, the limits are 1% of the capital adequacy requirement plus 1% of the extra overcollateralisation. For commercial banks, foreign exchange risk must not exceed 10% of the overcollateralisation.

### Volatility risk

Volatility risk is calculated as the largest loss at a shock of all volatilities by +/-1 percentage point. For mortgage banks, volatility risk must not exceed 0.5% of the capital adequacy requirement plus 1% of additional overcollateralisation. For commercial banks, volatility risk must not exceed 5% of the overcollateralisation.

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 are positions in DKK and EUR where netting is allowed by 50%.

### Liquidity risk

Intact liquidity at all times is secured by the following requirements:

- Interest receivable in the capital centre or cover register must exceed interest payable 12 months ahead

- The net present value of all future ingoing payments must at any time exceed the net present value of outgoing payments.

#### **The specific balance principle**

The specific balance principle differs only to a limited extent from the original balance principle. The following still applies:

- Callable loans must be funded by callable bonds
- The life of options used to hedge risk must not exceed four years.

In reality, the specific balance principle remains a pass-through structure, involving a close link between lending and funding. The most important change lies in the amendment of the former 2% rule.

#### **2% rule of section 5(2) relaxed to 15%**

The former 2% rule of section 5(2) imposed restrictions on closed series: Prepayment of loans by way of delivery of bonds (buybacks) other than the underlying bonds could not exceed 2% of the nominal value of a mortgage bank's total volume of issued bonds.

Under the specific balance principle, the 2% limit has been changed to 15%, providing much wider scope for mortgage banks' prepayment of mortgage loans. Mortgage banks have the following options under the specific balance principle:

1. Prepayment of mortgage loans by delivering mortgage bonds from other series than the series funding the loan.
2. Reuse of existing issues for funding new loans. If the existing issue is RO funded, the new loans need not comply with the LTV limits on a continuous basis, as the bonds are grandfathered.
3. Prepayment of mortgage loans by delivering mortgage bonds from other mortgage banks. In the CRD and the Danish Act on covered bonds, the amount of claims against other mortgage banks is limited to 15% of the mortgage bank's total claims outstanding in nominal terms. However, this implies a capital need according to the CRD of 10%.