

# DANISH MORTGAGE BONDS



REALKREDITRÅDET

# INTRODUCTION

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Danish mortgage bonds have been an attractive investment for Danish investors for generations. Their combination of high yield and high security appeals to both small private investors and major institutions. In particular, the status of Danish mortgage bonds as gilt-edged securities provides the Danish pension funds and insurance companies with an attractive long-term investment opportunity.

Foreign investors are showing increasing interest in the Danish bond market. They are doing so for a number of reasons:

- the health of the Danish economy, which has in recent years been characterised by stability, growth and a low rate of inflation
- the efficiency of the Copenhagen Stock Exchange's bond market
- a high rate of return combined with low risk
- substantial daily turnover volume

Of special interest to foreign investors is two of Europe's largest bond series: 6% 2026 and 7% 2029. The circulation volume of each of these series is in excess of DKK 100 bn,

which ensures very effectively priced benchmark papers.

The aim of this publication which is published by the Association of Danish Mortgage Banks, is to provide a practical introduction to Danish mortgage bonds and the Danish bond market.

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*Realkreditrådet*  
*November, 1998*

# THE DANISH BOND MARKET

The size of the market is reflected in the very high number of bond series in circulation. At mid-1998, a total of just under 2,500 Danish bond series were listed on the Copenhagen Stock Exchange. Of these, mortgage bonds accounted for about 2,000 or 80% and the 10 largest mortgage bond series accounted for more than one fourth of the total volume of mortgage bonds in circulation.

## The bond market

The Danish bond market is among the largest in the world. The nominal volume in circulation amounts to more than DKK 1,926 bn - almost twice Den-

mark's GDP. Mortgage bonds account for DKK 1,098 bn, or approx. 57% of the volume in circulation.

### *Volume of bonds in circulation, end June 1998*

DKK million	Nominal value		Market value	
	DKK	Calc. in ECU	DKK	Calc. in ECU
Government etc.	624,539	82,720	689,404	91,312
Treasury bills (gov.)	54,233	7,183	53,649	7,106
<b>Government bonds, total</b>	<b>678,772</b>	<b>89,904</b>	<b>743,053</b>	<b>98,418</b>
Mortgage bonds	928,119	122,930	938,702	124,331
Index-linked (mortgage)	169,973	22,513	171,841	22,760
<b>Mortgage bonds, total</b>	<b>1,098,092</b>	<b>145,443</b>	<b>1,110,543</b>	<b>147,092</b>
Specialised institutions	147,892	19,588	152,523	20,202
Convertible	1,547	205	1,858	14,028
<b>Danish bonds, total</b>	<b>1,926,382</b>	<b>255,150</b>	<b>2,007,976</b>	<b>265,957</b>
Foreign	61,935	8,203	69,794	9,244
<b>Total</b>	<b>1,988,317</b>	<b>263,353</b>	<b>2,077,770</b>	<b>275,201</b>

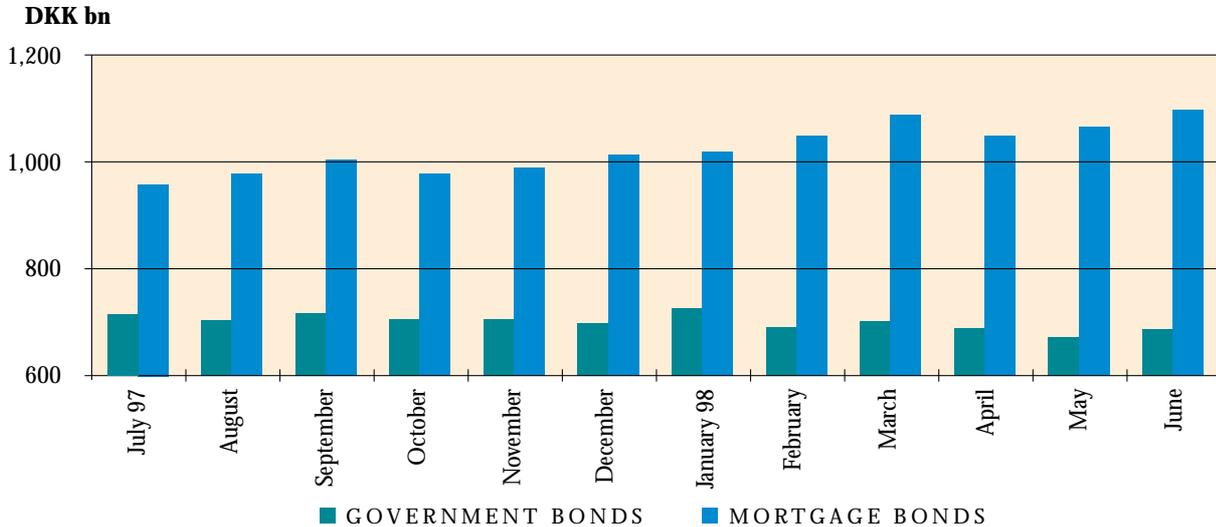
Note: 100 ECU = 755 DKK

Source: The Copenhagen Stock Exchange

The terms and conditions applying to the various bond categories/series can be obtained from the mortgage banks (see address list on the back cover). The areas covered include: amortisation and drawing for redemption, borrowers' liability, payment dates, etc.

The Danish mortgage banks do not issue detailed prospectus material in connection with the opening of new bond series.

### Bonds in circulation, 1997/98 (nominal value)



Source: The Copenhagen Stock Exchange

### Issuers

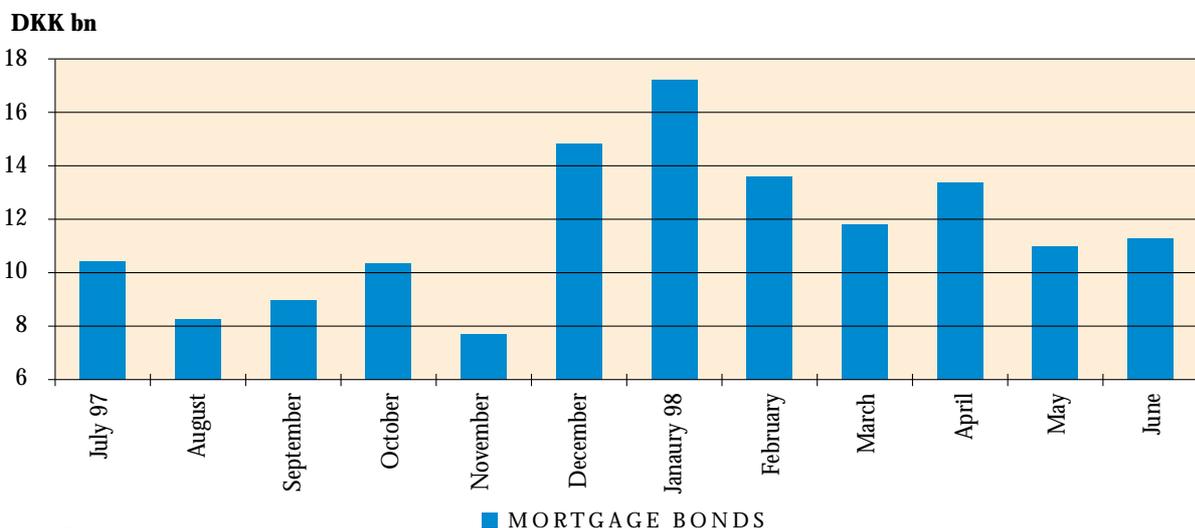
The policy of the Danish central bank (Danmarks Nationalbank) is to neutralise the liquidity effects on the government deficit by issuing DKK bonds on the domestic market on an annual basis. (In 1998 and 1999 a deficit of respectively 11 and 28 bn DKK is expected). Thus, government bonds are sold on

the domestic market corresponding to the gross cash balance less repayments on foreign debt. Previously, adjustment of the repayment profile was an important element in the Danish government's debt policy; in recent years, however, greater importance has been attached to the establishment of major, liquid bond series that can be traded inter-

nationally on an equal footing with the most liquid bond series of other EMS countries.

The mortgage banks offer bonds to finance real property and real fixed assets. The extremely strict rules relating to lifetimes and repayment profiles have resulted in the mortgage banks' opening a large number of bond series over the years.

### Daily turnover in mortgage bonds, 1997/98 (nominal value)



Source: The Copenhagen Stock Exchange

When long-term mortgage interest rates dropped from their level of more than 10.5% in 1992 to around 7.0% at the beginning of 1994, many pro-

perty owners used the call option to refinance their loans. 1997 and the first six months of 1998 have been characterised by a very low interest rate level

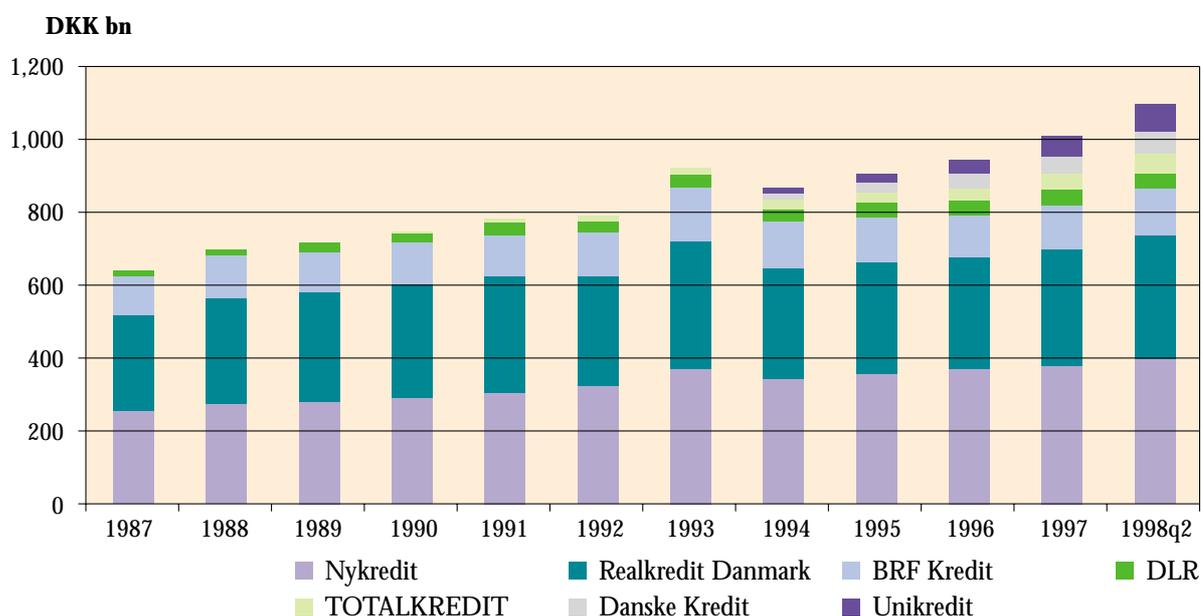
with a considerable refinancing activity as a consequence. This resulted in the very large bond series which today dominate the mortgage bond market.

*Volume in circulation of selected mortgage and government bonds, end June 1998*

DKK million	Mortgage bonds		Government bonds	
	Name and end year	Volume in circulation	Name and end year	Volume in circulation
<i>Realkredit Danmark</i>	6%RD2026	50,383	7%Gov.Bul.2004	74,450
	6%RD2029	32,654	8%Gov.Bul.2006	70,000
<i>Nykredit</i>	6%NYK2026	47,730	8%Gov.Bul.2003	69,000
	7%NYK2029	38,660	9%Gov.Bul.1998	61,400
<i>BRFkredit</i>	6%BRF2026	17,807	9%Gov.Bul.2000	59,150
	7%BRF2029	11,820	7%Gov.Bul.2007	52,605
<i>Unikredit</i>	7%UK2029	21,507	6%Gov.Bul.1999	49,300
	6%UK2029	19,949	8%Gov.Bul.2001	44,135
<i>Danske Kredit</i>	6%DK2029	13,653	9%Gov.Bul.1998	39,165
	7%DK2029	12,753	6%Gov.Bul.2002	34,552
<i>TOTALKREDIT</i>	7%TK2029	13,592	7%Gov.Bul.2024	24,875
	6%TK2029	12,808	5%Gov.Bul.2005	20,205
<i>Dansk Landbrugs Realkreditfond</i>	7%DLR2029	3,452	6%Gov.Bul.2009	19,255
	6%DLR2019	3,360	4%Gov.Treas.I2001	15,260
<i>Landsbankernes Reallånefond</i>	6%LRF2016	0,193	4%Gov.Treas.I2000	14,965
<i>FIH Realkredit</i>	6%FIH2019	1,192	5%Gov.Treas.I1999	12,975
		301,513		661,292

Source: The Copenhagen Stock Exchange

*Volume of mortgage bonds in circulation, end year (nominal value)*



Source: Realkreditrådet

Thus, a huge volume of 6% and 7% mortgage bonds has been issued. The outstanding amount on these bonds was more than DKK 290 bn at June 1998.

A market-maker arrangement has been established for the 6%, 7% and 8% mortgage bonds including for 6% 2026 and 7% 2029, which are benchmarks. Stockbrokers participating in the market-making agreement are obliged on request to quote two-way-prices with a maximum spread of DKK 0.10 per 100 (10 ticks) in lots varying

between DKK 10 and 50 million (at mid 1998, 15 traders were participating in this arrangement). The 6% 2026 and the 7% 2029 bonds of the various mortgage banks are traded as a single instrument under the market-maker agreement.

## Mortgage Banks

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New loans are offered by 10 Danish mortgage banks: BG Kredit A/S (BG), BRFkredit a/s (BRF), Dansk Landbrugs Real-

kreditfond (DLR), Danske Kredit Realkreditaktieselskab (DK), FIH Realkredit a/s (FIH), Landsbankernes Reallånefond (LRF), Nykredit A/S, Realkredit Danmark A/S (RD), TOTALKREDIT Realkreditfond (TK), Unikredit Realkreditaktieselskab (UK). The mortgage banks provide mortgages on residential, agricultural, commercial and industrial properties.

### Mortgage banks: Key figures

DKK bn	BRF-kredit	DLR	Danske Kredit	FIH 1)	LRF 2)	Nykredit	Realkredit Danmark	TOTAL-KREDIT	UNI-kredit	Total
<i>Gross vol. of new loans</i>										
1997	22.7	7.1	18.1	1.1	0.2	81.9	65.4	17.1	26.3	239.8
1996	22.4	5.6	14.2	0.7	0.2	84.4	56.7	11.8	18.6	214.5
<i>Volume of bonds in circulation</i>										
1997	120.4	40.7	51.0	1.9	0.9	376.9	321.5	44.5	55.2	1,013.2
1996	120.3	39.9	38.4	0.9	0.9	365.2	306.9	34.4	38.6	945.4
<i>Own funds, end year 3)</i>										
1997	5.9	4.4	2.8	0.3	2.8	25.6	16.3	1.3	3.3	62.7
1996	5.4	4.0	2.0	0.3	2.7	22.9	14.6	1.2	3.1	56.3
<i>Solvency ratio (%) 4)</i>										
		5)								6)
1997	12.4	12.4	10.8	24.9	311.1	13.4	13.2	11.0	12.2	13.5
1996	11.9	11.8	9.6	49.7	314.4	12.5	12.9	12.1	14.7	13.1

1) FIH Realkredit started its lending activities in June, 1995

2) During the period January 1, 1992 to March 8, 1994 Landsbankernes Reallånefond granted no loans

3) Own funds including guarantee capital

4) Solvency ration is calculated as the liable capital in relation to the risk-weighted assets

5) Reserves share of total amounts of bonds in circulation and other commitments

6) Exclusive of Dansk Landbrugs Realkreditfond

Source: Realkreditrådet

## Investors

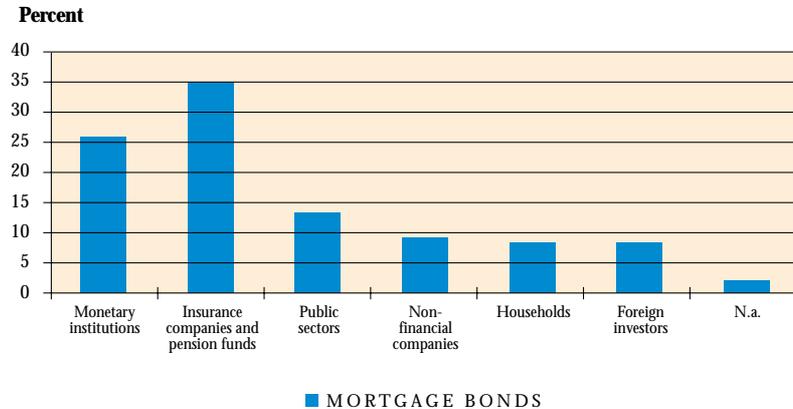
The Danish financial sector is the largest investor in Danish mortgage bonds. The largest investor groups are life and non-life insurers and pension funds, accounting for more than 35% of the total outstanding volume of mortgage bonds at mid 1998. The public sector holds 13% of the total volume. In this sector, social funds are the largest investors.

The past years, international sales of Danish mortgage bonds have experienced a minor breakthrough. Since the beginning of 1995 foreign ownership of Danish mortgage bonds has tripled and at mid 1998 the nominal value of mortgage bonds abroad corresponds to approx. 90 DKK bn.

## How the Copenhagen Financial Market is organised

The Danish securities market is organised as an integrated system, consisting of the Copenhagen Stock Exchange, The Danish Securities Centre and the FUTOP Clearing Centre. These three institutions are interconnected electronically and are under the supervision of the Danish Financial Supervisory Authority (Finanstilsynet).

*Investors in mortgage bonds, mid 1998*



Source: Danmarks Statistik

The Copenhagen Stock Exchange (Københavns Fondsbørs) is the only stock exchange in Denmark and thus the sole Danish institution where listed securities are traded and to which deals are reported.

The FUTOP Clearing Centre (FUTOP) registers, settles and guarantees trading in futures and options. It is the Copenhagen Stock Exchange, which safeguards the operation of the FUTOP.

The Danish Securities Centre (Værdipapircentralen, VP), is the organisation responsible for the registration of listed securities and through which deals are settled. The Danish market was the first in the world to dematerialise securities and legal ownership is now solely established through registration at the Danish Securities Centre. In order, to support the efficiency and liquidity of settlements,

the Danish Securities Centre is electronically linked with the Euroclear Operations Centre.

## Copenhagen Stock Exchange

The Copenhagen Stock Exchange (CSE) is the centre for official trading in Danish bonds, shares and derivatives.

In December 1995 the Danish Parliament approved a stock market reform. The reform brought Danish securities legislation into line with the EU's investment services directive, which came into effect on January 1, 1996. As a consequence of the reform the Copenhagen Stock Exchange became a joint stock company on May 1, 1996. Today the Copenhagen Stock Exchange is owned by brokers, the issuers of bonds and shares. The reform is also designed to

guarantee market transparency, to safeguard abuses and to ensure proper market conditions. Under the terms of the revised legislation, foreign brokers may become members without having to maintain a physical presence in Denmark, thereby intensifying market competition.

The introduction of the electronic trading system, used by individual stockbrokers to trade with each other directly, has enabled the establishment of an orderly and transparent market. All brokers and dealers have a general duty to report, thus contributing to the high level of information available. Brokers can at any time obtain an overview of all deals struck during the day.

CSE monitors all direct and reported trades. It also distributes all information which may affect pricing. The only other distributors of this type of information are Danmarks Statistik and Danmarks Nationalbank.

## The Nordic stock exchange co-operation - NOREX

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The Copenhagen and Stockholm Stock Exchanges signed on January 21, 1998 a co-operation agreement about the setting up of a joint Nordic security market - Nordic Exchanges (NOREX) based on a policy sta-

tement signed in June, 1997. A joint company - Nordic Exchanges A/S - has been established to market the stock exchanges' services and on a long view to take over other common functions. The parent stock exchanges will, however, continue to carry on trade.

In the long run the intention is to set up a joint security market for the Nordic countries including all types of securities, where also the stock exchanges in Helsinki, Oslo and Reykjavik participate in the co-operation. This will result in a big coherent market with many liquid papers traded on a joint trade system.

To obtain admittance to the whole NOREX-market membership of both stock exchanges is necessary. Admittance to the markets and the trade will be easier, cheaper and thus more attractive. The big market should stimulate to increased activity and attract new investors, who today do not think that the individual markets are sufficiently big.

A joint market place for bonds will be of considerable size in European coherence and altogether form the third biggest market. A joint bond market can thus be the initiative which attract foreign interest and create liquidity in the market, which at the end may secure the sur-

vival of the market places. The Danish and Swedish bond markets have, however, very different traditions, legislation, rules and practise, which cause that it can be very difficult to unify the two markets to a useful joint market. It is assessed that an actual integration of the Swedish and Danish bond market at the earliest can be expected after the turn of the century.

# MORTGAGE CREDIT IN DENMARK

## The basic principles of the Danish mort- gage credit system

Mortgage credit activities are governed by the Danish Mortgage Credit Act of 1989. The Act regulates the activities of the mortgage banks, their accessory activities and the mortgage banks as legal entities.

The term "mortgage credit" is defined as: The granting of loans against a registered mortgage on real property, on the basis of the issuing of bonds.

The following three main principles are characteristic of Danish mortgage credit:

- all lending is financed through the issuing of bonds listed on the Copenhagen Stock Exchange
- the mortgage banks must observe the "balance principle", which ensures a balance between payments received from borrowers and payments made to bondholders
- the mortgage banks have no influence on the lending rate, which is entirely determined by the market.

The underlying principles of Danish mortgage credit are thus rather simple. This has helped to ensure that, for 200 years, mortgage credit has been the mainstay of the financing of real property in Denmark.

Mortgage banks act as intermediaries between borrowers looking for financing and investors looking for a prospect in which to place their savings. There is no connection between the individual borrowers and investors and the mortgage banks gathering together the mortgages in series. Thus the bondholder has security in all mortgages belonging to the relevant series, as well as in series that have mutual obligations towards his particular series.

## The balance principle

In principle, the mortgage banks issue bonds with precisely the same nominal value and interest rate as the principal and the interest on the loans which the bonds finance.

The lending activities of the mortgage banks and the corresponding issue of bonds are

divided into series, age classes, and interest sections. Each bond has a specific ID-code. Repayments made by borrowers on loans within the same ID-code are used to draw bonds for early redemption. When the last loan in the ID-code has been repaid, all bonds have been drawn for redemption.

Thus the lending and the corresponding issuing of bonds take place under the observation of an exact balance between payments from the underlying mortgage and bonds. In principle, the risk of the mortgage banks is thereby limited to the actual credit risk, i.e. the risk that the borrower fails to meet his obligations. This strict balance principle was laid down by law until 1989. In that year, the law was amended to favour a general balance principle containing not only the well-known strict balance principle but also the new possibilities for establishing loans with a limited degree of imbalance.

However, Danish taxation legislation (the Capital Gains Act) only gives the possibility of symmetrical fiscal handling of mortgage loans that follow the strict balance principle. For this reason, no mortgage bank has to date made use of the general limited balance principle in connection with the funding of DKK loans, as provided in the Mortgage Credit Act.

Because in practice, the mortgage banks have observed the strict balance principle, there is a match between repayments on the mortgage loans provided by the mortgage banks and the bonds they issue.

Below is a brief summary of the most generally employed types of mortgage bonds.

## The product

The typical mortgage credit loan is a fixed-interest loan amortised in accordance with the annuity or serial principle. The loans and the underlying bonds have the same maturity and repayment profile.

The loans are usually redeemable at par prior to maturity and the bonds are therefore callable. Other things being equal, the yield on callable bonds is higher than the yield on non-callable bonds. This reflects a risk premium to the investor, because of the uncertainty of the future yield on his investment.

In recent years there have been introduced non-callable bullet bonds, with a short maturity from 1 to 11 years.

One benchmark mortgage bond is 6% 2026. This is an annuity bond with a 6% coupon, expiring in 2026. Listed futures contracts are traded on the basis of

the 6% 2026. Transactions in futures are guaranteed by the Danish Guarantee Fund for Options and Futures, which also arranges trades in futures and options contracts.

For certain property categories, the mortgage banks grant index-linked loans. These loans are granted as cash loans. The remaining cash debt, the remaining bond debt, and the gross repayment amount are adjusted twice a year, in accordance with the indexation principles applying to the particular type of loan.

## Bond series

The principle of balance and other statutory rules, including those relating to tax, have resulted in a large number of different mortgage bonds, divided into series in accordance with their coupon, maturity, type of amortisation etc.

Danish statutory regulation of the tax treatment of gains and losses on claims and debt is of decisive importance for Danish investors and issuers. One result of the regulation is that most mortgage bonds are issued below par. Another is that a number of bond series that are in theory open for issues, cannot be used for loan offers. This applies in particular to bond series quoted above par, but also to series with a coupon

considerably lower than the market rate.

There is no coupon tax in Denmark.

## Opening period

Identical bonds in a series may be issued continuously. Danish mortgage bonds are usually issued as "tap issue" during the opening period, in pace with the granting of loans by the mortgage bank.

The opening period for bonds within a series is usually two to three years. The length of the opening period is stated in the terms and conditions of the individual series, which also indicate the latest date on which bonds may be redeemed. The instalments accruing to bondholders represent the sum of the repayment profiles for the individual loans. Thus, 30-year annuity loans granted through the issue of bonds in a series that is open for three years, have a repayment profile with a total length of 33 years. Accordingly, if disbursements have been distributed equally, the bond will have an average lifetime of 31.5 years.

## Drawing

On each payment date, bonds are drawn in an amount to

match ordinary mortgage repayments. In addition, bonds are drawn to match loans redeemed extraordinarily. There is therefore always a balance between the volume of bonds in circulation and the outstanding bond debt of the borrowers.

Investors are informed of future drawings on a special publication date, which falls at least one month before the repayment date for loans with four annual repayment dates and at least three months before the repayment date for bonds with two annual repayment dates. Accordingly, the last day on which an investor may buy bonds redeemable in the coming drawing, is the stock-exchange day for which the settlement date is the day before the publication date.

All bonds in a series have the same chance of being drawn in any given drawing. A Danish Notary Public is responsible for the generation of random numbers for use in the drawing. The drawing itself takes place at Datacentralen A/S. The result of the drawing is sent to the Danish Securities Centre, the institution responsible for the electronic registration of all Danish listed securities.

### Bond Yield

Traditionally, the yield on Danish mortgage bonds has always been high. As reflected in the figure below the mortgage bond index has risen from 100 to 184 since January 1993. In the same period the JP Mor-

gan Danish government bond index has risen to 177.

### Rating

Several Danish mortgage banks have achieved satisfactory ratings of the mortgage bonds issued. With ratings AA2 and AA3 Moodys has classified Danish mortgage bonds as very secure investments.

*Bond yield on mortgage bonds and government bonds*



*Note: The mortgage-bond index is the Nykredit Danish Mortgage Bond Index which consists of the 10 largest groups of fixed-interest mortgage bonds, measured by the volume in circulation. The Government bond index is JP Morgan's Danish Government bond index.  
Source: Nykredit*

# THE UNDERLYING SECURITY

The Danish mortgage credit system is considered extremely safe as regards its ability to meet obligations towards bondholders. In the 200-year history of mortgage credit in Denmark, a bondholder has never failed to receive the payment attached to his mortgage bond due to inability to pay on the part of the mortgage bank.

This high degree of security is characterised by the following factors:

- the bonds are based on loans against registered mortgages on real property
- as explained earlier, the mortgage banks are subject to a general balance principle that eliminates the interest and the currency risk in connection with the lending and the funding. There will only be an interest risk on the mortgage bank's securities, which form part of the mortgage bank's own funds
- the mortgage banks are obliged to fulfil a solvency ratio requirement corresponding to 8% of their risk-weighted assets
- there are legally defined lending limits for the size of engagements that may be entered into in each property category
- the mortgage banks are subjected to public supervision to ensure that they fulfil the provisions of the Act
- the bonds have a preferential claim if the mortgage bank enters into bankruptcy (there has never been such a bankruptcy in Denmark).

Because the balance principle eliminates any credit and funding risk in connection with the mortgage banks' lending activities, the risk in connection with mortgage bonds lies solely in borrowers' ability to make repayments and in the reserves of the mortgage banks.

The reserves of the mortgage banks are dependent on their ability to avoid losses, their ability to generate earnings from borrowers in the form of administration fees and contributions, the return on their securities portfolios, etc.

## Capital structure

Danish mortgage banks are subject to legislation based on the EU directives applying to all mortgage banks. This legislation lays down requirements for the size and composition of the capital base.

The capital base of a mortgage bank must be at least 8% of its risk-weighted assets. Lending constitutes the largest balance-sheet item. Loans on residential property generally carry a risk weighting of 50%, as do office premises. All other loans are weighted at 100%. By the end of 1996, the average solvency ratio of the mortgage banks was 13.1 %, corresponding to a surplus coverage of almost DKK 24 bn.

The capital base consists of both core capital and supplementary capital. Supplementary capital is broken down into two main groups: subordinated loan capital and the joint and several liability of certain borrowers.

Formerly, Danish mortgage banks granted loans for which borrowers were jointly and several liable for the payment of the total debt. The minimum capital requirements laid down by Danish legislation were particularly small for associations that granted loans under these terms.

The own funds directive has now been amended to allow mortgages with joint and several liability to be included in supplementary capital during a transition period which expires in 2001. The inclusion of joint and several liability will be scaled down during this period.

If a mortgage bank grants loans with joint and several liability, such loans must be issued in series and a reserve fund must be established for each series. The mortgage bank thereby creates liability groups which are, in principle, based on separate

security. The splitting of the security base is only of practical importance in the event of bankruptcy. The principal aim is to protect borrowers from having to pay under the joint and several liability, since this is not invoked until the capital base attached to a given series is lost and bondholders have still not been satisfied.

both secured claims on the funds of the series and a right to preferential payment from the assets of the bankrupt estate. That is, the unsatisfied claims of bondholders will be met before the claims of simple creditors and holders of subordinate loan capital are satisfied.

Thus, the capital structure of the mortgage banks provides an extremely high degree of security for investors in bonds.

## Investment requirements

There are statutory limitations on the investments of a mortgage bank. Its investment portfolio must, at a minimum, consist of listed bonds with a market value of 60% of the liable capital of the mortgage bank, less the amount with which the joint and several liability is included in the said capital and with addition of funds invested in series with repayment obligations which are not included in the liable capital.

There are no rules pertaining to the investment of the remaining 40%. In practice, however, this has traditionally been invested in bonds, real property and financial assets.

### *Liable capital*

Core capital consists of:	Supplementary capital consists of:
The mortgage bank's series reserve funds in series;	Subordinated bank capital in the form of securities and other capital investment;
Paid-up equity capital;	Joint and several liability 1);
Premium in connection with issues and reserves.	Revaluation reserves
From the core capital are deducted the mortgage bank's holdings of own shares, intangible assets and the current deficit of the year.	The part of the series reserve funds in series where the liable capital for the individual series have been fulfilled.

1) Access to the joint and several liability will be scaled down from 40% in 1995 to 35% in 1997, 30% in 1998, 20% in 1999, and 10% in 2000. Thereafter, the value of the joint and several liability cannot be included in the supplementary capital. It will, however, still represent a potential source of capital, since debtors are still jointly and severally liable

The mortgage banks submit information on a quarterly basis to the Danish Financial Supervisory Authority, which checks that the requirements relating to the liable capital are fulfilled. In addition, the management or auditors of the mortgage bank

must immediately notify the Danish Financial Supervisory Authority if they judge that the liable capital requirements are no longer fulfilled.

In the case of bankruptcy, the holders of mortgage bonds have

# MARKET INFORMATION

## The information structure

The Danish mortgage banks publish a wide range of information concerning their bonds and the borrowers who raise the underlying loans. This information focuses on the following main points:

- Breakdown of debtors
- Prepayments
- Notice of drawings
- Repayment sequence

In addition, the following information is always available from

the Copenhagen Stock Exchange:

- Basic data
- Official price list

## Debtor distribution

To illustrate the calling propensity, the mortgage banks publish information about all callable bond series apart from variable-interest and index-linked bonds.

The information is calculated on the basis of the volume of exist-

ing loans at the time of calculation. This means that loans for which notice of termination has been given figure in the statistics, whereas immediately prepaid loans (loans prepaid by the borrower in cash before the expiry of the notice period) do not. Only notices given to a specific repayment date are included.

The information is supplied to the Copenhagen Stock Exchange on the fourth Thursday of each month and is calculated four trading days before it is submitted.

Name of series	Debtor distribution		Notice
DKK 1,000 < 200 3)	Private 1) Rem.bond debt (bond loan) Rem.bond debt (cash loan) Cash loan interest 4) No., of cash loans Amortisation account 5)	Other 2) Rem.bond debt (bond loan) Rem.bond debt (cash loan) Cash loan interest 4) No. of cash loans Amortisation account 5)	Per repayment date Total No. of loans  Total remaining debt
200- 499	-same-	-same-	-same-
500- 999	-same-	-same-	-same-
1,000-2,999	-same-	-same-	-same-
3,000	-same-	-same-	-same-

1) Private covers loans for owner-occupied homes (detached houses, terraced houses, and flats) and weekend cottages

2) Other covers loans to subsidised residential developments, private residential properties for rent, buildings for social, cultural and educational purposes; farms etc.; manufacturing and manual industries etc.; office and shop premises; undeveloped sites

3) Remaining bond debt

4) The cash loan interest is calculated on an annual basis. It is calculated by weighting the annual cash loan rate of the individual loan with the remaining bond debt of the loan. For IDs that contain both bond and cash loans, only the cash loan is included in the calculation

5) The amortisation account (or capital loss account) is stated in terms of the total number of loans and the total balance

## Prepayments

The mortgage banks publish information about registered notifications and prepayments per ID/repayment date. This information can be used to assess the volume of extraordinary drawings in callable bond series on future repayment dates.

The term "prepayments" covers all terminations at par on future repayment dates - both immediate prepayments and notified prepayments - less any annulled bonds from the holdings of the mortgage banks (as opposed to notifications in the debtor distribution, which only contain notified prepayments). The information is updated and published until the publication date for drawings at a given repayment date.

The prepayment information is calculated every Friday and is published two trading days later via the electronic information system of the Copenhagen Stock Exchange.

## Notice of drawings

Drawings are published electronically via the Copenhagen Stock Exchange's information system.

## Repayment sequences

The mortgage banks supply information about repayment sequences to the Copenhagen Stock Exchange for most bond series. The exceptions are variable-interest loans, bonds, interest-adjustment loans, bullet loans and land improvement loans.

The repayment sequences contain information about bond repayments and interest (exclusive of fees) per repayment date on the basis of debtors' amortisation of the loans. The repayment sequences of series no longer open for tap issues are used by the Copenhagen Stock Exchange to calculate the redemption yield which is published daily in the official Price List. As the sequences are based on the debtors' repayment profiles, they provide an exact basis for the calculation of the redemption yield as opposed to calculations based on repayment sequences calculated by means of formulae.

For series open for tap issue, the Copenhagen Stock Exchange itself generates the repayment sequences based on the basic information about the bond, the nominal amount of the series in circulation and a estimated addition to future open series. The mortgage banks supplies cash flow on

open bond series based on the actual amount of loans in the series. This provides the investor with a opportunity to make his own calculations based on the actual cash flow (so far) of the open bond series.

Information on the repayment sequences is supplied to the Copenhagen Stock four times a year - in January, April, July and October.

Most mortgage banks calculate the repayment sequences on the basis of the underlying loan portfolio at the time of calculation, i.e. including loans notified to terminate on a specific repayment date, but excluding immediately prepaid loans.

The information supplied by the mortgage banks is summarised below:

<b>Infotype</b>	<b>Bond series covered</b>	<b>Contents/ limitations</b>	<b>Time of calculation</b>	<b>Publication</b>
Debtor distribution	All callable, excl. variable-interest, index-linked. section III	Debtor distribution: existing loans at the time of calculation i.e. incl. loans notified to terminate on a specific date, but excl. immediate and bond pre-payment. Prepayments: all loans for which notice has been given of future repaym. dates	Four trading days before fourth publication Thursday	Monthly
Prepayments	All callable series	All registered terminations at par (immediate and on future repaym. dates) excl. annulled bonds. Only until publication date	Every Friday	Weekly two trading days after calculation
Notice of drawing	All callable series	All ordinary and extraordinary drawing of bonds	Volume in circ.: 2 weeks before drawing. Amount to be drawn: 2 days before drawing. Drawings in Feb., May, Aug., and Nov.	Quarterly/half-yearly. Published on the trading day following drawing not later than 8.30 a.m.
Repayment sequence	All open and closed annuity, serial and index-linked	Debtor distribution at time of calculation	31 March, 30 June, 30Sept., 31 Dec.	Quarterly. Not later than the 12th trading day after calculation

## Basic data

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The basic data are the facts in relation to the bond which the mortgage bank submits to the Copenhagen Stock Exchange when the bond is first issued. These data are always available from the Copenhagen Stock Exchange. In the following one of the benchmark mortgage bonds - 6% 2026 - is used as an illustrative example.

### *Basic data:*

1. Security code	xxxxxxx
2. Name on the official list	23 C
3. Trading system name	23 C D 26
4. Coupon	6.000
5. Currency	DKK
6. Fixed/variable rate of interest (F/V)	F
7. Callable/Non-callable (C/N)	C
8. Amount in circulation at listing (million)	1
9. Index-linked loan (Yes/No)	N
If Yes: Index type (I/IE/IS/IJ/AI/SI)	
10. Loan type nominal loans (Bullet, Series, Annuity)	A
Loan type on Debtor or Creditor side	D
11. Partial payments (Yes/No)	Y
12. Size of units	1.000
13. Opening date (dd/mm/yy)	01/07/1993
14. Closing date	31/08/1996
15. First interest payment date	01/10/1993
16. Last creditor repayment date (final year)	01/10/2026
17. Maturity for debtor	30
18. First publication date	23/08/1993
19. First drawing date	01/10/1993
20. Number of repayment dates/year (max. four)	4
21. Taxation (Black: below minimum rate/ Blue: at or above minimum rate)	B (lue)
22. Joint and several liability (Yes/No)	Y
23. Registered at the Securities Centre (Yes/No)	Y
24. Instalment rate (index-linked loan)	

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## The Official Price List

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The Copenhagen Stock Exchange Official Price List, published daily, provides information on, i.a., daily price movements and the volume of bonds in circula-

tion. The list states:  
the security code of the bond;  
the nominal amount in circulation in DKK million; the true yield gross net at a tax rate of 50%; duration; coupon; series description and maturity year of the bond; turnover prices;

closing bid and asking prices; turnover in DKK '000 - broker to broker, all trade, 3.30 PM average and total turnover; number of repayment dates per year; last repayment date and publishing date or other comments.

ID CODE	Circ. DKKm.	TRUE YIELD				Dura- tion	Nom. Interest	Name and end Year (*=-open)	Best bid	Best offer	Broker-to-broker trade			
		bef. tax	Adj. factor	Tax 50%	Adj. factor						Close price	Price	Change	Turn
xxxx	48623	6.49	0.12	3.31	0.09	9.41	6	23C s* 26			96.85	96.85	+0.15	11000

ALL TRADE Traded at				3:30 PM AVERAGE				Total turnover nom.	No. of paym./ year	Maturity year	Drawn/date or note
Price	High	Low	Turnover	Broker-to-broker		All Trade					
				Price	Turnover	Price	Turnover				
96.85	97.05	96.65	51631	96.85	11000	96.85	49981	65990	4	01/10-26	20/11-98

Source: The Copenhagen Stock Exchange

## Distribution of information

With the exception of drawing rates, all information is available via the Copenhagen Stock

Exchange. Information on drawing rates is supplied directly by the mortgage bank or the Danish Securities Centre.

There are private information systems - e.g. Reuters, Bloom-

berg and TeleRate - which provide information on current trading in Danish mortgage bonds. These systems also provide models for the calculation of various key figures.

## APPENDIX

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### Trade and calculation conventions

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*Issuing:*

Bearer bonds.

*Trading:*

Trading takes place on clean prices.

*Bids/offers:*

The spread between bids and offers is typically 0.10 point for the most liquid bonds and higher for less liquid bonds.

*Interest days:*

The number of interest days is calculated according to the 30E/360 formula - i.e. one month is equal to 30 days (the 31st is always treated as the 30th) and one year is equal to 360 days.

*Redemption yield:*

The redemption yield is determined by rediscounting the value of the repayment profile to equal the actual amount invested - i.e. price including accrued interest and excluding refunded interest, respectively, depending on whether the bond is traded cum coupon or ex coupon.

*Repayment profiles:*

The Copenhagen Stock Exchange generates its own repayment profiles for open mortgage bond series. The Copenhagen Stock Exchange presupposes an even influx of loans on the open payment dates - i.e. in each of the open payment periods, an equal amount of bonds is added to the series. When the bond series in question is closed, the Copenhagen Stock Exchange uses the actual repayment profiles supplied by the mortgage banks. On the transition to externally supplied repayment profiles in the second repayment period after the series has been closed, there may be "leaps" in the redemption yield, as there may be a difference between the externally supplied and the internal, Stock Exchange-generated repayment profiles.

*Ex-coupon:*

Bonds are traded ex-coupon if there are 30 interest days or less between settlement date and repayment date.

*Ex-repayment:*

Bonds are traded ex-repayment in the period between the publication date (published in the Official Stock Exchange List) and the repayment date.

*Drawings:*

When bonds are drawn for redemption, the investor and/or any possessor of right will receive notification immediately after the drawing, and on the due date the amount will be paid to the recipient in the manner agreed.

*Accrued interest:*

Accrued interest is calculated from the previous payment date (excluded) to the settlement date (included). In the ex-coupon period, the accrued interest is calculated from the settlement date (included) up to the next payment date (excluded).

*Settlement:*

The normal settlement period is three days if settlement takes place via the Danish Securities Centre (Værdipapircentralen - VP). If other settlement centres are used, e.g. Cedel or Euroclear, the normal settlement period is five days. There may, however, be deviations.

*Taxation:*

Foreign investors pay no tax in Denmark on their investment in Danish bonds. Resident investors, as a general principle, pay tax on interest yields and capital gains from Danish bonds. Exceptions are private investors who do not pay tax on capital gains if, at the time of issued, the claim meets the requirements of a fixed minimum rate. Pension savings in Denmark are subject to real interest tax.

Pension savings schemes with financial institutions, pension funds, and insurance companies, etc. are thus liable to real interest tax. The real interest tax is so designed that the real interest on pension funds cannot exceed 3.5% p.a. The tax, which is calculated every year, has fluctuated since 1984 - at rates of between about 40 and 56%.

*Trade:*

The Copenhagen Stock Exchange is the central market for the trade in Danish bonds; it is open daily between 9.00 a.m. and 5.00 p.m. There is, however, also a large unofficial market. All authorised traders on the Copenhagen Stock Exchange are under an obligation to report all trades in listed bonds, even if the trade did not take place via the Copenhagen Stock Exchange. The authorised traders comprise stockbroking houses, the Danish central bank, banks, savings banks, and mortgage banks. The Copenhagen Stock Exchange is supervised by the Danish Financial Supervisory Authority (Finanstilsynet).

# GLOSSARY

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## *Annulled bonds*

Annulment bonds is a procedure by which bonds are withdrawn from circulation. Annulments are used in the case of early redemption of a loan by the surrendering of bonds. It can also be used by the mortgage banks when a purchase is made instead of drawing of bonds underlying loans which are either repaid with a certain notice or cash prepaid immediately. This can be done until the date of publication.

## *Cash prepayment*

**For the debtor:** The mortgage banks offer to buy bonds for prepayment on behalf of the debtor against cash payment of a market value for the bonds.

**For the creditor:** The mortgage banks can decide either to draw the bonds or buy and annul them.

## *Composition of debtors*

The loans (underlying) a bond series.

## *Drawing*

On each payment date bonds are drawn at par to match ordinary repayments and the proportion of cash prepaid and notified prepayments the mortgage banks decide to draw.

## *Immediate prepayment (at par)*

**For the debtor:** The loan is prepaid immediately at par (100) plus together with interest payable up to the next creditor repayment date, less interest compensation.

**For the creditor:** The mortgage banks can decide either to draw the bonds or buy and annul them.

## *Notified prepayment*

**For the debtor:** A loan for which notice of repayment at a future repayment date has been given, at which point the debtor has the right and obligation to repay the remaining debt of the underlying bonds at par (100).

**For the creditor:** The mortgage banks can decide either to draw the bonds or buy and annul them.

## *Opening period*

The period where identical bonds in series are issued according to the tap issue principle, to finance the loans granted by the mortgage banks.

## *Ordinary repayments*

**For the debtor:** Ordinary repayments on the loan.

**For the creditor:** Drawing of bonds according to the ordinary repayment of the debtor.

## *Prepayment*

Extraordinary redemption of convertible loans, by notice of repayment on a future installment date, by immediate repayment or by drawing in connection with cash repayment.

## *Prepayment date*

**For the debtor:** The date for paying interest and repayments on the loans.

**For the creditor:** The date for receiving interest and repayment.

## *Redemption through surrendering of bonds*

**For the debtor:** Loans prepaid by surrendering bonds of the same securities ID code as the bonds used to finance the loan in question.

**For the creditor:** Cancellation of the bonds by the mortgage bank.

## *Repayment sequence*

Future interest payments and ordinary repayments in a bond series up till maturity. The sequence is created on the basis of the amortisation of the loans.