

## Benchmark Statement

### Nykredit Bank's index universe

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- Nykredit Bank is authorised as a registered administrator and remains administrator of its own indices
- This Benchmark Statement is published pursuant to Article 27(1) of Regulation (EU) 2016/1011 of the European Parliament and of the Council
- Nykredit Bank's index universe comprises 30 indices (incl currency hedged indices)

*Nykredit Bank administers a number of indices that track the Danish bond market. Pursuant to Article 27(1) of Regulation (EU) 2016/1011 of the European Parliament and of the Council ("the Regulation") we hereby publish our Benchmark Statement for the entire family of benchmarks. All indices are available at Nykredit's website and at Bloomberg.*

#### General information and definitions

Nykredit Bank ("Nykredit") has several indices that measure the development in the different segments in the Danish bond market. An index is defined as a proportional relative to a specific reference in order to measure the performance in different markets. Nykredit's index universe consists of a portfolio of bonds weighted by outstanding amounts. Individual indices are also weighted to obtain the desired duration, where duration measures the interest rate sensitivity of a bond.

The indices are used to measure the return in the different segments of the Danish bond market. The development in the index value is calculated based on the change in the portfolio's market value on a daily basis. Official prices published by Nasdaq Copenhagen are used to calculate market values. This is due to the desire for transparency in the calculation of index performance so that Nykredit's index performance can be reproduced. The calculation method can be found at the bottom of *Appendix: Calculation formulas*.

#### 30 indices – one family

Nykredit administers and publishes a total of 30 indices; all related to the bond market. 24 of these relate to the mortgage covered bond market and 6 relate to the government bond market. The family of benchmarks can roughly be divided into two groups:

1. Indices exclusively calculated based on publicly available market data
2. Indices calculated using input from Nykredit's prepayment model.

Indices under group 2 are the so-called Constant Maturity Indices (CMIs) and Constant Spread Risk indices (CSIs). These indices still measure the same markets as the other indices, however, which is why we join our indices in one family of benchmarks. As the indices are based on market data, they will always reflect market reality.

## Nykredit Bank's index universe

Index name	Bloomberg Ticker	FIGI
Nykredit Danish Mortgage Bond Index	NYKRINDX Index	BBG002SF7N58
Nykredit Danish Mortgage Bond Index USD	NYKRIUSD Index	BBG00NBM15W0
Nykredit Danish Mortgage Bond Index (M)	NYKRINDM Index	BBG01DC70J72
Nykredit Total Index	NYKRTOT Index	BBG002SPYW01
Nykredit Total Index Short	NYKRSH Index	BBG002SPYW65
Nykredit Total Index Long-	NYKRLO Index	BBG002SPYW56
Nykredit Total Index Long Par	NYKRPL Index	BBG002SPYW38
Nykredit Total Index Long+	NYKRNL Index	BBG002SPYW10
Nykredit Total Index JPY	NYKRTJPY Index	BBG00L2BNC7
Nykredit Total Index EUR	NYKRTEUR Index	BBG00ZHR2P88
Nykredit CM 3Y – Callables	NYKRCCM3 Index	BBG00N6T9WH1
Nykredit CM 3Y – Callables EUR	NYKRCC3EU Index	BBG01GVVGM13
Nykredit CM 5Y – Callables	NYKRCCM5 Index	BBG00N6T9WJ9
Nykredit CM 5Y – Callables EUR	NYKRCC5EU Index	BBG01GVVGM40
Nykredit CM 7Y – Callables	NYKRCCM7 Index	BBG00N6T9WK7
Nykredit CM 7Y – Callables EUR	NYKRCC7EU Index	BBG01GVVGM77
Nykredit CM 1Y – Govt	NYKRCCM1 Index	BBG00N6T9WL6
Nykredit CM 2Y – Govt	NYKRCCM2 Index	BBG01H9YZCM8
Nykredit CM 3Y – Govt	NYKRCCM3 Index	BBG00N6T9WM5
Nykredit CM 4Y – Govt	NYKRCCM4 Index	BBG01H9YZCN7
Nykredit CM 5Y – Govt	NYKRCCM5 Index	BBG00N6T9WN4
Nykredit CM 7Y – Govt	NYKRCCM7 Index	BBG00N6T9WP2
Nykredit CM 1Y – Bullet CB	NYKRCCB1 Index	BBG00N6T9WQ1
Nykredit CM 2Y – Bullet CB	NYKRCCB2 Index	BBG01H9YZCR3
Nykredit CM 3Y – Bullet CB	NYKRCCB3 Index	BBG00N6T9WR0
Nykredit CM 5Y – Bullet CB	NYKRCCB5 Index	BBG00N6T9WS9
Nykredit CS1 (non-green) - Floater	NYKRCS1 Index	BBG015BY0R73
Nykredit CS3 (non-green) – Floater	NYKRCS1 Index	BBG015BY0RB8
Nykredit CS1 (green) – Floater	NYKRCSI1 Index	BBG015BY0RH2
Nykredit CS3 (green) – Floater	NYKRCSI3 Index	BBG015BY0RK8

CM indices (Constant Maturity) differ from other indices as they use calculated duration from Nykredit's prepayment model whereas the other indices only use publicly available market data.

Kilde: Nykredit Markets

Pursuant to title III of the Regulation, Nykredit's indices are deemed to be "*non-significant*", as the indices are not used directly as a reference for financial instruments. Moreover, it is Nykredit's opinion that no indices are used for the performance measurement of investment funds with a total value in excess of EUR 50bn.

- Danish Mortgage Bond Index: The value of the total mortgage covered bond market reflected by the index exceeds EUR 260bn. However, we are of the opinion that the index

is used for performance measurement only to a limited extent, as it contains two investment segments: callables and bullet covered bonds

- Total Index and CMIs for callables: The index covers the callables market with a market value of about EUR 160bn. The Total Index consists of seven sub-indices, and there are six CMIs for callables (incl. hedged versions EUR/JPY), and it is unlikely that just one should be used to measure the performance of one-third of the market. Moreover, competitive banks have similar indices which reduces the probability even further.
- CMIs for Government bonds: The Danish government bond market totals about EUR 85bn. With six indices grouped according to duration level, it is highly unlikely that the performance of investment funds of a total value of more than EUR 50bn would be measured on the basis of one of them.
- CMIs for bullet covered bonds and CSIs for floaters: The CMIs for the bullet covered bonds covers a market with a value around EUR 130bn, while the CSIs for floaters covers a market with a value of around EUR 105bn. In light of the number of each of these types of indices, it is considered unlikely that more than EUR 50bn is measured by a single CMI or CSI.

Based on the above, Nykredit finds that all indices are to be considered non-significant.

### Reasoning for choice of methodology

The Nykredit DMB Index was designed to reflect the very liquid part of the Danish mortgage covered bond market and is the oldest index based on Danish mortgage covered bonds.

The Nykredit Total Index was designed to reflect the general callables market. To prevent bonds from becoming too illiquid, we have chosen to include bonds, which have been traded at least 15 times since the last rebalancing.

Duration is not particularly stable for the DMB and Total indices. We have therefore developed the CMIs where duration by construction is considerably more stable.

The methodology is reviewed quarterly to ensure that the indices still mirror the desired market.

## Input data

Nykredit DMB Index and Nykredit Total Index only use publicly available and regulated market data<sup>1</sup> where input is mainly the outstanding amounts and prices from [Nasdaq Copenhagen](#). These are input data from a trading venue, as defined in point (24) of Article 4(1) of Directive 2014/65/EU. It enables the market participants to replicate the indices and helps ensure the reliability of the indices. In addition to the outstanding amounts and prices we also use bond data from Nasdaq Copenhagen, eg coupon, maturity, bond type and issuer.

Descriptions of the methodology and data used in connection with Nykredit's indices are available here:

- [Nykredit Danish Mortgage Bond Index](#)
- [Nykredit Danish Mortgage Bond Index hedged in USD](#)
- [Nykredit Total Index](#)
- [Nykredit Total Index hedged in JPY](#)
- [Nykredit Total Index hedged in EUR](#)

Other than regulated data, CMIs and CSIs use Nykredit's prepayment model to determine the duration and spread risk of the bonds in the index. In addition, we use an algorithm to compose the index. This makes it difficult to replicate the indices. However, market participants with access to Nykredit's key figures may replicate the indices. Descriptions of data and methodology are available here:

- [Nykredit's Constant Maturity indices](#)
- [Nykredit's EUR Hedged Constant Maturity indices](#)
- [Nykredit's Constant Spread Risk indices](#)

Nykredit's indices only cover Danish covered and government bonds, and the market reality is limited to Denmark.

Nykredit reviews the methodology of all indices on a quarterly basis. Here Nykredit performs an assessment of whether an index is still tracking the targeted market, as well as whether regulatory changes or market changes calls for adjustment,

and whether such adjustment is performed appropriately. The oversight function assesses the methodology as well as changes.

## Construction of the Nykredit Danish Mortgage Bond Index

The *Appendix: Portfolio criteria* describes the requirements for building the index. Once the basic selection has been made, the bonds are divided into groups across individual mortgage banks. Callable bonds and bullet covered bonds are grouped according to amortisation profile, coupon and maximum time-to-maturity. IO bonds are divided into groups with up to 10-year and up to 30-year interest-only periods. Capped floating-rate bonds are grouped according to amortisation profile, relative strike level of the embedded cap and maximum time-to-maturity. Grouping according to the relative strike level means that the bonds are sorted by outstanding amount after which the largest bond is selected along with the bonds with the same strike level  $\pm 10$ bp. Of the remaining bonds, the largest one is selected once again along with the bonds with the same strike level  $\pm 10$ bp. And so forth until all CF bonds have been distributed. The bonds included in the ten largest bond groups constitute the index portfolio.

In periods with large new issues of mortgage covered bonds, relatively large amounts are traded in the new bond series. To ensure that the composition of the index portfolio reflects this phenomenon to some extent, one of the portfolio criteria is that at least two of the bond groups must include open bond series (but is not a criterion that the bonds must also have a price below par). If the ten largest bond groups do not include at least two open groups, the requirement of an outstanding amount of DKK 5bn is reduced to DKK 1bn for open series. The index is subsequently composed such that at least two of the ten groups include open series.

## Construction of Nykredit Total Index

The *Appendix: Portfolio criteria* describes the requirements for composing the index. The Nykredit Total Index applies a narrow definition of mortgage covered bonds to the effect that it only includes covered bonds issued by the six large Danish mortgage banks, ie BRF, Danske Kredit, Nykredit, RD, Totalkredit and Nordea Kredit. Furthermore, the bonds must be fixed-rate, callable

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<sup>1</sup> Currency hedged indices use forward prices from Refinitiv Composite Rate. The indices are still considered to be based on regulated data.

mortgage covered bonds of the annuity, bullet or serial type. Non-callable covered bonds and floating rate notes are not included. Moreover, the bonds may have interest-only periods. In the Nykredit Total Index, the portfolio is rebalanced on the 2nd trading Tuesday of January, April, July and October.

Eligibility for the Nykredit Total Index is not based on the outstanding amount of the bonds, but rather on the trading volume. In order to be included in the index, the bonds must have been traded at least 15 times during the past index period as it is important that the bonds in the index portfolio have a sufficiently high trading frequency to make the official prices credible. Calculation of index performance as well as bond selection is based on official prices published by Nasdaq Copenhagen.

### **Construction of CMI and CSI**

Specifically, the indices are defined as the solution to a minimisation problem. Having chosen a method to measure how well a given set of index weights reflects the market, a minimisation problem can be applied to determine the set of index weights that provides the best possible reflection of the market while obtaining the desired duration or spread risk. In order to determine exactly which bonds make up the market some qualification criteria must be provided.

The minimisation problem that defines the nominal index weights is solved for groups rather than individual bonds. For each group a nominal market weight and modified duration is calculated. The bonds within a group are weighted by their nominal market weight. We seek to minimise the relative squared deviations from the nominal market share of each group while still obtaining the desired MOAD and OAS Risk target. A formal description of the minimisation problem is given in the *Appendix: CMI minimisation problem*.

### **Significance of index**

Since 2008 the Nykredit DMB Index has been included in the European Insurance and Occupational Pensions Authority (EIOPA)'s calculation of the discount curve applied by the life and pension sector to determine the value of liabilities. This means that the Nykredit Danish Mortgage Bond Index has an indirect market impact which is limited to Denmark.

Users of the indices must be aware that changes or cessation of the indices may impact the market reality.

From the beginning of 2023 Nykredit Danish Mortgage Bond Index (M) has been used in the calculation of the volatility adjustment of the discount curve. The eligibility criteria are largely identical for the two indices, and the primary difference between them is, that Nykredit Danish Mortgage Bond Index (M) is rebalanced on the second last trading day of each month while Nykredit Danish Mortgage Bond Index is rebalanced the second (trading) tuesday each quarter. Monthly rebalancing ensures, that new bonds is included in the index faster, which primarily makes a difference in periods with large interest rate movements. In addition the criterion on minimal time to maturity is increased from 1 year to 400 calendar dates in Danish Mortgage Bond Index (M). The reason is, that the montly rebalancing frequency implies, that rebalancing in some months will take place in between refinancing auctions over bullet covered bonds and the payment date on which the bonds they replace will mature. Thus a minimal time to maturity of 1 year would in some cases imply, that a considerable amount of 1Y bullets would be included in the Nykredit Danish Mortgage Bond Index (M) for one to two months and then be excluded based on time-to-maturity. Since the quarterly rebalanced index is rebalanced shortly after each quarterly payment date, these bonds will never be included in the quarterly rebalanced index. A minimal time to maturity of 400 days ensures, that this is also the case for the monthly rebalanced index, and thus that the monthly rebalanced index in practice will "lead" the composition of the quarterly rebalanced index in a more appropriate way.

### **Procedure in case of errors**

Nykredit relies on external data suppliers. If a data error is detected, Nykredit will contact the relevant supplier and request a recalculation before the index is published. If the error is detected later on, the return will generally always be recalculated. However, if an error is identified on the rebalancing date, index weights will not be recalculated. This is to protect the investors. If an investor is mandated to passively track the index, the portfolio will be composed based on published weights, and it will be impossible for investors to allow for any retrospective changes to index weights, making it impossible to measure the return and leaving the benchmark useless.

If Nykredit has made an error following publication of index calculations, key figures will be recalculated using the same procedure as above. Incorrect key figures based on incorrect prices, calculations or similar will always be recalculated. However, incorrect, published weights will not be recalculated as part of the investor protection.

#### **Limitation and notification in case of changes**

In addition to the limitations outlined in the individual index descriptions, indices in group 1 are generally only limited by a functional bond market. If the market collapses and it becomes impossible to obtain official prices, the indices will cease without notice.

The above limitations thus apply to all of Nykredit's indices.

The CMLs and CSIs are limited, however, and their reliability depends on Nykredit's prepayment model. In case of errors in the model, the indices will be affected through the calculated duration used to construct the indices. Duration figures for the individual bonds is available to clients who may use them to validate the indices.

If the methodology changes for one or more indices, a research note will always be published in advance, notifying and explaining the change. This will give index users an opportunity to comment on potential problems with the change. Any changes will be notified as quickly as possible or at least one month before the change enters into force.

#### **Updates and cessation of an index**

Nykredit will review this Benchmark Statement annually to assess whether it requires updating. The Statement will be regularly updated if there are significant changes to procedures or methodology, regardless of whether this is outside the annual review period. If the benchmark type changes, or if the Statement is incorrect or no longer adequate, an update will also be made. The most recent version will always be available at Nykredit's website.

Nykredit reserves the right to cease calculating the indices for business reasons. In this case Nykredit will always give notification of the index cessation at least three months in advance. The notification will be given to Nykredit Markets' sub-

scribers in a research note and through publication at Nykredit's website, which is publicly available.

In extreme situations, as a result of external circumstances, such as market collapse, Nykredit may be forced to cease calculating the index without further notice. Extreme situations could be if Nasdaq Copenhagen is no longer able to deliver data. If the failure to deliver is owed to a mistake made by the supplier, the supplier will be contacted, however. If so, Nykredit will publish information about the cause and timeframe of the cessation at the website.

#### **Complaints procedures**

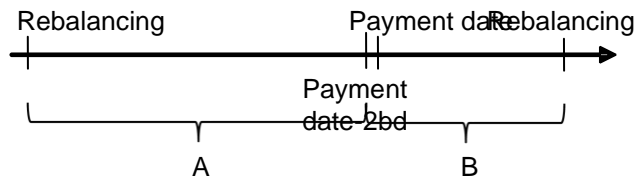
All users of Nykredit's indices may contact Nykredit if they have questions about the representative value of the index, calculations or suggestions for changes to the procedures or methodology.

Users may also file an official complaint, if necessary. In the event of an official complaint, users should use Nykredit's general complaint procedures (read more: [here](#) - file a complaint [here](#)).

## Appendix: Calculation formulas

The figure shows the events that affect the index portfolio.

### Important events for Nykredit DMB Index and Total Index



In addition to the rebalancing, the index portfolio is also impacted when redemptions are excluded.

Source: Nykredit Markets

In the period from rebalancing until redemptions are excluded (period A), the nominal amounts from the rebalancing date are used for calculation of the index performance according to the following formula:

$$\Delta Indeks = \frac{\sum_{i=1}^n (P_i^{ny} + A_i^{ny}) N_i}{\sum_{i=1}^n (P_i^{gammel} + A_i^{gammel}) N_i} - 1$$

where P is the official price quoted on Nasdaq Copenhagen, A is accrued interest and N is the nominal amount on the rebalancing date.

On the trading day where the value date is the payment date (or the first trading day after the payment date, if this is not a trading day), redemptions and coupon interest are reinvested in the index after redemption, and the nominal amounts are adjusted for the redeemed bonds.

$$\Delta Indeks = \frac{\sum_{i=1}^n (P_i^{ny} + A_i^{ny})(N_i - U_i) + (I + A_i^{ny})U_i + L_i}{\sum_{i=1}^n (P_i^{gammel} + A_i^{gammel}) N_i} - 1$$

in which U is the amount of redeemed bonds, I is the redemption price and L is the proceeds from the coupon interest from the payment date.

From the payment date to the rebalancing date (period B), the proceeds are invested in the index, and the index performance is therefore calculated by using the following formula:

$$\Delta Indeks = \frac{\sum_{i=1}^n (P_i^{ny} + A_i^{ny})(N_i - U_i)}{\sum_{i=1}^n (P_i^{gammel} + A_i^{gammel})(N_i - U_i)} - 1$$

In period A, the following formula is used to calculate the index duration:

$$OABPV_{Indeks} = \frac{\sum_{i=1}^n N_i \cdot OABPV_i}{\sum_{i=1}^n N_i}$$

in which OABPV is the duration of the bond.

Duration in period B is calculated as follows:

$$OABPV_{Indeks} = \frac{\sum_{i=1}^n OABPV_i (N_i - U_i)}{\sum_{i=1}^n N_i - U_i}$$

## Appendix: Portfolio criteria

### Portfolio criteria of the Nykredit Total Index

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Portfolio criteria	
1	The bonds must be fixed-rate callable covered bonds.
2	Portfolio rebalancing on the second trading Tuesday of January, April, July and October.
3	The bonds must have been traded 15 times during the past period.
4	The bonds must be issued by one of the major mortgage banks, currently ISIN codes starting with 20, 32, 46, 47, 92, 93, 95 or 97.
5	The bonds must be denominated in DKK.
6	The bonds must be of the annuity, bullet or serial type and may have interest-only periods.
7	The bonds must have terms-to-maturity of at least 1 year.
8	To ensure that the index represents actually issued bonds, Nykredit may adjust the outstanding amount for eg pre-issuance or similar based on specific information. Individual bonds may alternatively be excluded.

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The Nykredit Total Index covers only the callablecovered bond market.

Source: Nykredit Markets

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### Portfolio criteria of the Nykredit Danish Mortgage Bond Index

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Portfolio criteria	
1	Portfolio rebalancing on the second trading Tuesday of January, April, July and October.
2	The bonds must carry either fixed rates or capped floating rates. Inflation-linked bonds and floating-rate bonds are not eligible for inclusion in the index portfolio.
3	At least two of the bond groups must include open bond series.
4	The bonds must have an outstanding amount of at least DKK 5bn. If the ten largest bond groups do not include at least two bond groups with open series, the requirement of an outstanding amount of DKK 5bn is reduced to DKK 1bn for open series.
5	The bonds must be issued by a mortgage bank. Corporate bonds and semi-public bonds issued by eg Kommunekredit and Skibskreditfonden do therefore not form part of the index portfolio.
6	The bonds must be denominated in DKK.
7	The bonds must have terms-to-maturity of at least 1 year.
8	To ensure that the index represents actually issued bonds, Nykredit may adjust the outstanding amount for eg pre-issuance or similar based on specific information. Individual bonds may alternatively be excluded.

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Only highly liquid bonds are included in the Nykredit DMB Index.

Source: Nykredit Markets

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### Appendix: CMI minimisation problem

The number of groups is  $N$ , the index weighting of a group is  $x_i \in [0.1]$ ,  $i = 1, \dots, N$ ,  $i$  is a group's corresponding market weight, and  $\bar{x}_i \in [0.1]$ ,  $i = 1, \dots, N$  is a set of weights. The objective function of the minimisation problem is then:

$$\min_{x_i \in \bar{x}} \sum_{i=1}^N \left( \frac{x_i - \bar{x}_i}{\bar{x}_i} \right)^2$$

The objective function is subject to the constraints that index weights are non-negative, add up to one, and achieve the constant maturity target,  $t_{MOAD}$ . Let  $MOAD_i, i = 1, \dots, N$  be the MOAD of group  $i$ , the constraints can be formalised as the following four constraints.

1.  $\sum_{i=1}^N x_i MOAD_i = t_{MOAD}$
2.  $\sum_{i=1}^N x_i = 1$
3.  $x_i \geq 0, \forall i$
4.  $x_i \geq 1, \forall i$

### Portfolio criteria of the Nykredit Danish Mortgage Bond Index (M)

Portfolio criteria	
1	Portfolio rebalancing on the second last trading day each month.
2	The bonds must carry either fixed rates or capped floating rates. Inflation-linked bonds and floating-rate bonds are not eligible for inclusion in the index portfolio.
3	At least two of the bond groups must include open bond series.
4	The bonds must have an outstanding amount of at least DKK 5bn. If the ten largest bond groups do not include at least two bond groups with open series, the requirement of an outstanding amount of DKK 5bn is reduced to DKK 1bn for open series.
5	The bonds must be issued by a mortgage bank. Corporate bonds and semi-public bonds issued by eg Kommunekredit and Skibskreditfonden do therefore not form part of the index portfolio.
6	The bonds must be denominated in DKK.
7	The bonds must have terms-to-maturity of at least 400 calendar days.
8	To ensure that the index represents actually issued bonds, Nykredit may adjust the outstanding amount for eg pre-issuance or similar based on specific information. Individual bonds may alternatively be excluded.

Only highly liquid bonds are included in the Nykredit DMB Index.

Source: 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.

<b>Table 1: Recommendations – fixed income</b>	Proportion I	Proportion II
Buy	50	0
Sell	50	0

<b>Table 2: Recommendations – portfolio allocation</b>	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](https://nykredit.dk) 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

This research has been prepared by Nykredit Markets, which is part of Nykredit Bank A/S. Nykredit Bank A/S is a financial undertaking subject to the supervision of the Danish Financial Supervisory Authority. Nykredit Bank A/S is a wholly-owned Danish subsidiary of Nykredit Realkredit A/S. Nykredit Bank A/S has significant financial interests in relation to Nykredit Realkredit A/S in the form of standard bank operations and investments in covered bonds and mortgage bonds issued by Nykredit Realkredit A/S. The research complies with the recommendations of the Danish Securities Dealers Association.

Within the past 12 months, Nykredit Bank A/S has carried out major investment bank transactions for – and has acted as manager of public offerings of securities issued by – Bank of America, Goldman Sachs, Cie de Financement Foncier, Santander, Morgan Stanley, BNP Paribas, JP Morgan, Saxo Bank, Sydbank, Lån & Spar Bank, Broager Sparrekasse, Den Jyske Sparekasse, Rønde Sparekasse, Sparekassen Djursland, Sparrekassen Sjælland-Fyn, Middelfart Sparekasse, Credit Mutuel Arkea, Møns Bank, Spar Nord Bank, Nordfyns Bank, Salling Bank, Vestjysk bank, Hvidbjerg Bank, Totalbanken, Erste Group Bank, Unicredit, Nykredit Realkredit, DLR Kredit, ING Group NV., Tresu, DLG, Stark, Intrum, and Frontmatec.

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.

Nykredit Bank A/S has a policy on conflicts of interest for the identification, handling and disclosure of conflicts of interest in connection with the securities trading Nykredit Bank A/S performs for customers. The staff of Nykredit Markets must at all times be alert to any conflicts of interest between Nykredit Bank A/S and customers, between customers, and between staff on the one hand and Nykredit Bank A/S or customers on the other, and must endeavour to avoid conflicts of interest. If the staff of Nykredit Markets become aware of matters which may represent a conflict of interest, they are obliged to disclose such information to their superiors and the compliance function, who will then decide how to handle the situation.

Fixed Income & Nordic Research in Nykredit Markets works independently of Debt Capital Markets, is organised independently of and does not report to any other business areas within the Nykredit Group. The non-independent team of analysts in Fixed Income & Nordic Research may be physically located together with the Sales and Trading functions of Nykredit Markets and may consult with them regularly about market information, including prices and spread levels and trading activity in relation to specific instruments, sectors and asset classes for the purpose of the preparation of marketing communications. Recommendations from analysts of Fixed Income & Nordic Research may differ from recommendations made in Nykredit Markets's Sales and Trading functions and the functions which prepare investment research. The remuneration of analysts is partly based on Nykredit Bank A/S's overall performance including income from investment bank transactions. However, analysts do not receive any bonus or other form of payment directly relating to specific corporate finance or debt capital transactions. Research staff do not receive remuneration relating to investment bank transactions carried out by companies in the Nykredit Group.

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.

Unless otherwise specified, prices stated in this research prevailed at 15:40 CET on the trade day before the date stated on the front page.

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