

# Covered Bonds follow-up Rating

Nordea Mortgage Bank Plc.  
Mortgage Covered Bond Program

Rating Object	Rating Information	
<b>Nordea Mortgage Bank Plc., Mortgage Covered Bond Program</b>	Rating / Outlook : <b>AAA / Stable</b>	Type: Rating Update (unsolicited)
Type of Issuance : Mortgage Covered Bond under the Finnish law Issuer : Nordea Mortgage Bank Plc.	Rating Date : Rating Renewal until :	21.02.2020 Withdrawal of the rating
LT Issuer Rating : AA- (Nordea Bank) ST Issuer Rating : L1 Outlook Issuer : Stable	Rating Methodology :	CRA „Covered Bond Ratings“

Program Overview			
Nominal value	EUR 16.061 m.	WAL maturity covered bonds	4,17 Years
Cover pool value	EUR 21.943 m.	WAL maturity cover pool	5,40 Years
Cover pool asset class	Mortgages	Overcollateralization (nominal/committed)	36,63%/ 2,00%
Repayment method	Hard Bullet	Min. overcollateralization	2,00%
Legal framework	Finnish Covered Bonds	Covered bonds coupon type	Fix (98,79%), Floating (1,21%)

Cut-off date Cover Pool information: 31.12.2019.

## Rating Action

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This follow-up report covers our analysis of the mortgages covered bond program issued under the Finnish law by Nordea Mortgage Bank Plc. („Nordea Mortgage Bank“). The total covered bond issuance at the cut-off date (31.12.2019) had a nominal value of EUR 16.060,69 m, backed by a cover pool with a current value of EUR 21.943,24 m. This corresponds to a nominal overcollateralization of 36,63%. The cover assets include Finnish mortgages obligations in Finland.

Taking into consideration the issuer rating, our analysis of the regulatory framework, liquidity- and refinancing risks, as well as our cover pool assessment and results of the cash flow analysis, Creditreform Rating AG (“Creditreform Rating” or “CRA”) affirms the covered bond program with an AAA rating. The AAA rating represents the highest level of credit quality and the lowest investment risk.

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## Key Rating Findings

- + Covered Bonds are subject to strict legal requirements
- + Current high overcollateralization (OC) of 36,63% as of 31.12.2019
- + Covered bondholders have full recourse to the issuer
- Special cover pool monitor not independent from the issuer

Table1: Overview results

Risk Factor	Result
Issuer rating	AA- (rating as of 02.07.2019)
+ Legal and regulatory framework	+4 Notches
+ Liquidity and refinancing risk	+1 Notch
= Rating after 1 <sup>st</sup> uplift	AAA

Cover pool & cash flow analysis	AAA
+ 2 <sup>nd</sup> rating uplift	+3 Notches
= Rating covered bond program	<b>AAA</b>

## Issuer Risk

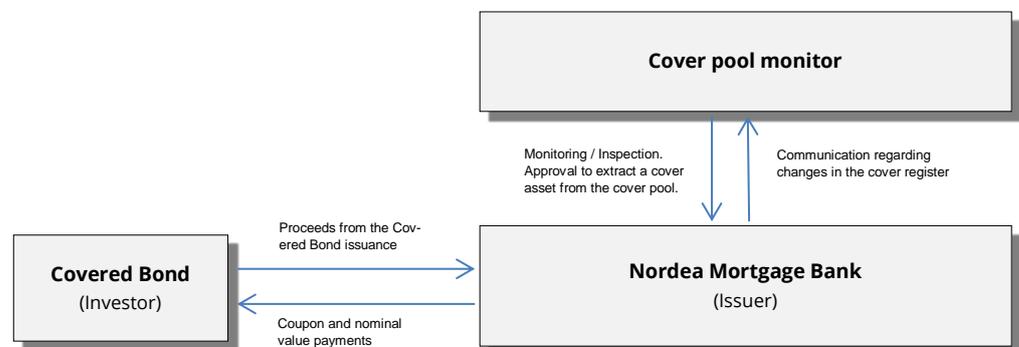
### Issuer

Our rating of Nordea Mortgage Bank covered bond program is reflected by our issuer rating opinion of Nordea Bank Abp (Group) due to its group structure. CRA has affirmed the long-term rating of Nordea Bank at 'AA-' in a Rating Update dated 02 July 2019. Responsible for this affirmation were the bank's stable performance with regard to its income ratios as well as its sound asset quality in the most recent year. However, the increase in its risk-weighted assets leads to declining regulatory capital ratios. For a more detailed overview of the issuer rating, please refer to the webpage of Creditreform Rating AG.

## Structural Risk

### Transaction structure

Figure1: Overview of Covered Bond emission | Source: CRA



## Legal and Regulatory Framework

In Finland, the covered bond legislation is regulated by the Act of Mortgage Credit Bank Operations (HE 42/2010) since 8/1/2010, which is an updated version of old Act on Mortgage Credit Bank from 1999. Under this framework, both universal banks and specialist mortgage banks are permitted to issue mortgage covered bonds in Finland. The Finnish Financial Supervisory Authority (FSA) is responsible for the regulatory, monitoring and permission of covered bond programs, both off-site as well as on-site.

The covered bondholders have direct recourse to the issuer and a preferential claim over the cover pool assets secured by its cover asset class. The cover assets comprise of mortgage loans, equity stakes in Finnish housing companies public sector loans confined to EEA countries. Non-

Finnish cover assets are allowed if the particular jurisdiction complies with specific criteria. However, Finnish covered bond programs only include Finnish cover assets in the cover pools until now.

The Finnish legal framework does not stipulate a special cover pool monitor. The issuer will be then in turn responsible for the cover pool supervision. In case of issuer default or any other crisis with respect to covered bonds, a special administrator guarantees the ongoing management of the cover pool.

In general, we consider the structural framework for Finnish covered bonds as positive as it defines clear rules to mitigate risks in particular regarding insolvency remoteness, investor's special claim vis-à-vis other creditors, among other provisions. Furthermore, it foresees clear defined asset eligibility criteria with soft and hard LTV limits. On the other hand, the Finnish legal framework does not stipulate a special cover pool monitor independent from the issuer. Due to those reasons the rating uplift has been assessed at four (+4) notches, however, the uplift has been set at three (+3) notches, since this uplift yielded the maximum rating for the program.

## Liquidity- and Refinancing Risk

According to Finnish covered bond framework, it is compulsory for the covered bond issuers to maintain an overcollateralization (OC) of at least 2% measured on a daily net present value basis. Voluntary OC will be safeguarded. In addition, the statutory liquidity coverage requirement for 12 months is a safeguard mechanism to ensure the servicing of pending principal and interest payments.

The legal framework stipulates to do static and dynamic stress tests on a monthly basis if market values of cover assets decrease. Furthermore, it is obligatory to do stress tests to anticipate interest rate and currency discrepancies.

In case of issuer default, the special cover pool monitor is permitted to transfer covered bond together with underlying cover assets to another issuing credit institution after the FSA's approval. If the coverage tests cannot any longer meet the requirements, the cover pool monitor can accelerate the covered bonds, which would lead to selling cover pool assets.

The European Commission on April 2019 has also adopted the directive to provide for enhanced harmonisation of the EU covered bond market. Once fully implemented, the directive might have a potential impact on legal and regulatory framework on the issuer and the covered bonds of each EU member states.

In general, the Finnish Covered Bond legislation and the stipulated risk management processes for liquidity risks constitute a comparatively adequate framework by which they can be effectively reduced. Features as the coverage interest and principal payments test within the next 12 months may temper underlying liquidity risk. However, Refinancing risks, cannot be structurally complete reduced under hard bullet repayment structures, which in turn can only be cushioned by sufficiently high overcollateralization or other liquid funds. Nevertheless, we assess the overall legal provisions on liquidity management for covered bonds programs issued in Finland and set a rating uplift of only one (+1) notch. Moreover, the rating uplift conferred zero (0) notch as the maximum rating for this program has already been achieved.

For a more comprehensive overview of the regulatory framework for Finnish covered bond program, please refer to our initial rating report of Nordea Mortgage Bank covered bond program published on February 2019.

## Credit and Portfolio Risk

### Cover pool analysis

The analysis of the cover pool is based on public information which has been made available by the Issuer, in particular the Harmonised Transparency Template („HTT“) as per regulatory requirements. This information was sufficient according to CRA´s rating methodology “Covered Bond Ratings”.

At the cut-off-date 31.12.2019, the pool of cover assets consisted of 326.368 debt receivables, of which 100% are domiciled in Finland. The total cover pool volume amounted to EUR 21.943,24 m. in residential (100,00%), commercial (0,00%) and others (0,00%) loans.

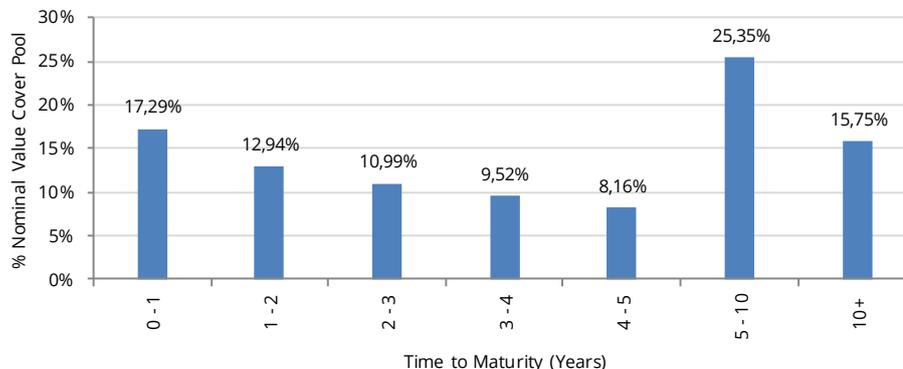
The residential cover pool consists of 326.368 mortgage loans having an Unindexed weighted average LTV of 51,1%. The non-residential cover pool does not have any mortgage loans. The ten largest debtors of the portfolio total to 0,13%. Table 2 displays additional characteristics of the cover pool:

Table 2: Cover pool characteristics | Source: Nordea Mortgage Bank

Characteristics	Value
Cover assets	EUR 21.943 m.
Covered bonds outstanding	EUR 16.061 m.
Substitute assets	EUR 0% m.
Cover pool composition	
<i>Public</i>	0,65%
<i>Substitute assets</i>	0,00%
<i>Other / Derivative</i>	0,00%
Number of debtors	NA
Mortgages Composition	
<i>Residential</i>	100,00%
<i>Commercial</i>	0,00%
<i>Other</i>	0,00%
Average asset value (Residential)	EUR 66,80 k.
Average asset value (Commercial)	EUR 0,00 k.
Non-performing loans	0,39%
10 biggest debtors	0,13%
WA seasoning	NA
WA maturity cover pool (WAL)	5,40 Years
WA maturity covered bonds (WAL)	4,17 Years

We have listed an extended view of the composition of the cover pool in the appendix section “Cover pool details”. The following chart displays the maturity profile of the cover assets at the cut-off date 31.12.2019 (see figure 2):

Figure 2: Distribution by remaining time to maturity | Source: Nordea Mortgage Bank



## Maturity profile

The following charts present the cash flow profile of the Issuer (see figure 3 and figure 4):

Figure 3: Cover asset congruence | Source: Nordea Mortgage Bank

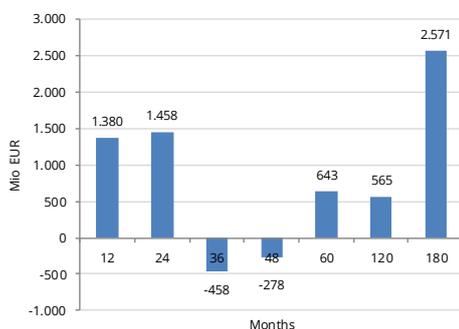
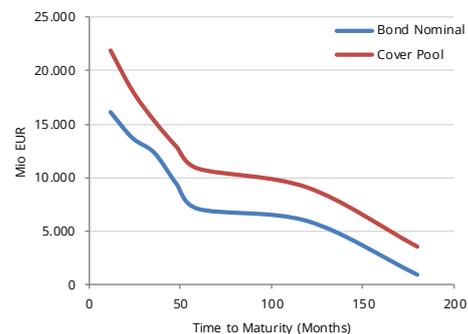


Figure 4: Amortization profile | Source: Nordea Mortgage Bank



During its cash flow modelling, CRA has taken into consideration the maturity structure of cover assets and liabilities. This structure was an integral part of the cash flow analysis.

## Interest rate and currency risk

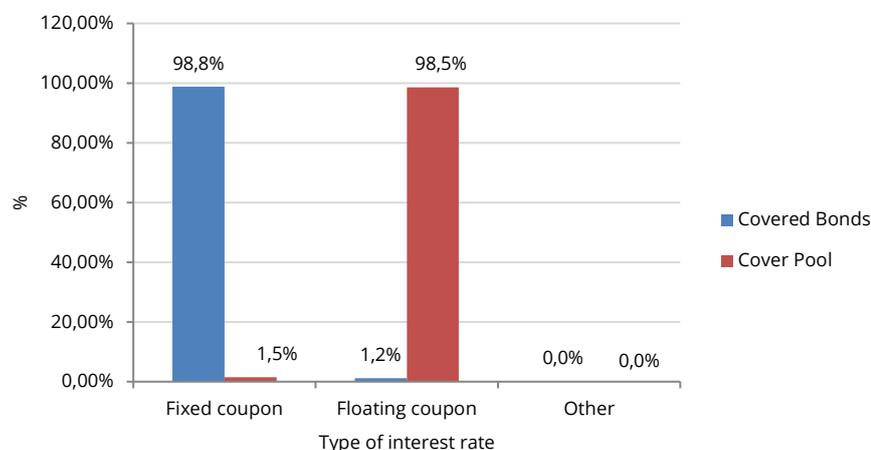
In order to reduce the exposure to the interest rate and currency risks, derivative contracts can be used to hedge these risks. In addition, according to the legal framework, cover assets have to be of equal currency as the covered bonds. Furthermore, the Finish Covered Bond Act stipulates on a monthly basis stress testing to anticipate interest rate discrepancies. Currency risk are hedged in the form of swap agreements. However, as the available documentation does not reveal the derivatives agreements to the full extent, CRA assumes that the issuer has entered into derivative agreements to mitigate partial interest rate risks. Therefore, we have applied interest rate stresses on the cash flows for each rating level according to our methodology.

Table 3: Program distribution by currency | Source: Nordea Mortgage Bank

Currency	Volume	Share (%)
<i>Cover Pool</i>		
EUR	21.943 m.	100,00%
<i>Covered Bond</i>		
EUR	16.061 m.	100,00%

Figure 5 shows the types of interest rate used in this program

Figure 5: Type of interest rate | Source: Nordea Mortgage Bank



## Credit Risk

The credit risk assessment for Mortgage Covered Bond have been determined in accordance with CRA rating methodology for Covered Bonds by means of historical data and particular parameters from the Covered Bonds.

Due to the high granularity of mortgage pools we have characterized these portfolios as big enough and with a homogeneous composition i.e. ("Large Homogeneous Portfolio", LHP). Furthermore, under that premise we have assumed that it is possible to derive a loss distribution. CRA has used the issuer's historical NPL ratios to derivate a conservative default rate proxy for the approximation through the LHP distribution. On the other hand, for the assessment in public sector assets, due to insufficient information, CRA has assumed that such assets are in default i.e. approx. 0,65% of the covered pools value. Summarizing, it has been assumed for the Nordea Bank a combined expected default rate of 1,03% for the LHP. Furthermore, CRA has considered a 15,00% correlation to define the LHP distribution. Table 4 disclosed the expected default rate for each relevant rating level.

In order to derive recovery and loss-severity base case assumption, CRA has used historical data from mortgage price indexes. To determine loan-level recovery assumptions the resulting stressed recoveries assumptions were compared with the portfolio's existing loan-to-value ratios (LTVs).

Based on the default rates and taking into account the recovery assumptions, the following loss assumptions were determined for the current cover pool (see Table 4)

Table 4: Cover Pool Base case assumptions | Source: CRA

Rating	Default Rate (%)	Recoveries (%)	Expected Loss (%)
<b>AAA</b>	<b>34,71%</b>	<b>97,81%</b>	<b>0,76%</b>
AA+	31,53%	97,98%	0,64%
AA	27,29%	98,25%	0,48%
AA-	23,49%	98,52%	0,35%
A+	22,04%	98,63%	0,30%
A	21,96%	98,65%	0,30%
A-	20,90%	98,73%	0,27%

## Cash-Flow Analysis

### Model Assumptions

Based on public information and using the base case loss assumptions, we implement a scenario-based cash flow model. This model aims to test the ability of the structure to service all covered bonds according to their payment profile in diverse stress scenarios. The CRA cash flow analysis assumes that the Issuer has defaulted, i.e. all obligations will be met using cash flows from the cover pool assets only. We also assume that no additional assets will be added to the cover pool during the wind-down phase.

The cash-flow analysis considers, among other factors, asset value haircuts (“asset-sale discount”), and the possible positive yield spread between covered assets and covered bonds (“yield spreads”). To derive the asset-sale discount, CRA assumes, based on secondary market data, a rating level haircut on the asset value. Furthermore, CRA, using available public information (i.e. issuer’s annual accounts), has derived estimations for yield spreads (see table 5):

Table 5: Cash-Flow Model assumptions | Source: CRA

Rating level	Asset-Sale Discount	Yield Spread
<b>AAA</b>	<b>66,67%</b>	<b>0,93%</b>
AA+	61,27%	0,94%
AA	57,79%	0,95%
AA-	54,47%	0,95%
A+	51,92%	0,96%
A	49,83%	0,96%
A-	47,10%	0,97%

### Rating Scenarios

In our cash flow model rating scenarios have been tested considering several central input parameters, such as:

- Portfolio composition (diversification, concentration, granularity)
- Probability of default of cover assets
- Correlations of cover assets and systematic risk factors
- Recoveries

- Maturity profile of covered bonds and cover assets (ALM)

Within an AAA rating scenario, the cash flow model showed that obligations can be paid fully and in a timely manner. Overall, the cash flow analysis revealed that the portfolio, given all used information as of 31.12.2019, may ensure the repayment of bonds' nominal capital notwithstanding the occurrence of the presented stressed scenarios.

## Overcollateralization Break-Even Analysis

CRA also performed a break-even OC analysis taking into considerations the following drivers: ALM, Loss level, Interest rate spreads, foreign currency mismatches and Recoveries. Performing the break-even OC analysis, we took rating-level specific stressed outcomes into account. Based on these analyses, the maximum OC required for each relevant rating level during the whole period has been presented in table 6.

Table 6: Breakeven Analysis | Source: CRA

Rating Level	Break-Even OC
AAA	<b>2,39%</b>
AA+	1,98%
AA	1,65%
AA-	1,34%
A+	1,14%
A	1,01%
A-	0,80%

## Sensitivity Analysis

CRA also evaluates the sensitivity of the structure and program with respect to important input parameters. In particular, the following factors have been varied:

- Credit quality of cover assets
- Recoveries

The following table presents the rating impact of a decline in recoveries and an increase in the credit risk of single debtors. Starting from the best-case, which is represented by our base case assumptions, the analysis reveals the sensitivity of the rating with respect to recovery rates and credit risk. Based on the base case, there is a strong consistency of rating. In the worst-case scenario, i.e. a 50% decreased recovery and 50% increased default possibility, the base-case rating remained at AAA (see Table 7):

Table 7: Covered Bond Program Sensitivity: Credit Quality und Recovery Rates | Source: CRA

Recovery Defaults	Base Case	-25%	-50%
Base Case	<b>AAA</b>	AAA	AAA
+25%	AAA	AAA	AAA
+50%	AAA	AAA	AAA

In general, based on the presented cash flow analysis results, the rating of the cover pool within our covered bond program rating has been set at AAA. This ensures a maximum possible rating uplift of three (+3) notches for this program, however, the secondary rating uplift has been set at zero (0) notch as the maximum rating for this program has already been achieved.

## Counterparty Risk

### Derivatives

Based on the available information, CRA assumes that the issuer has entered into cross-currency swap agreements and intra-group interest rate derivatives agreements.

### Commingling

In the event of issuer's bankruptcy, in order to avoid commingling of funds, the Finnish Covered Bond legislation stipulates that the cover assets should be isolated from the general bankruptcy estate (insolvency-free assets) and a special cover pool administrator will be appointed to manage the cover pool. Under that mandate the cover pool administrator will have first priority on the up-coming cash flows from the cover pool assets, which in turn should be used to cover interest and principal payments of the covered bond holders in event of the Issuer's insolvency.

## Appendix

### Rating History

Event	Rating Date	Publication Date	Result
Initial Rating	11.02.2019	20.02.2019	AAA / Stable
Rating Update	21.02.2020	26.02.2020	AAA / Stable

### Details Cover Pool

Table 8: Characteristics of Cover Pool | Source: Nordea Mortgage Bank

Characteristics	Value
Cover Pool Volume	EUR 21.943 m.
Covered Bonds Outstanding	EUR 16.061 m.
Substitute Assets	EUR 0 m.
Share Derivatives	0,00%
Share Other	100,00%
Substitute Assets breakdown by asset type	
Cash	0,00%
Guaranteed by Supranational/Sovereign agency	0,00%
Central bank	0,00%
Credit institutions	0,00%
Other	0,00%
Substitute Assets breakdown by country	
Issuer country	0,00%
Eurozone	0,00%
Rest European Union	0,00%
European Economic Area	0,00%
Switzerland	0,00%
Australia	0,00%
Brazil	0,00%
Canada	0,00%
Japan	0,00%
Korea	0,00%
New Zealand	0,00%
Singapore	0,00%
US	0,00%
Other	0,00%
Cover Pool Composition	
Public	0,65%
Total Substitute Assets	0,00%
Other / Derivatives	0,00%
Number of Debtors	NA
Distribution by property use	
Residential	100,00%

# Creditreform Covered Bond Rating

Nordea Mortgage Bank Plc.

Mortgage Covered Bond Program

Creditreform   
Rating

Commercial	0,00%
Other	0,00%
Distribution by Residential type	
Occupied (main home)	97,41%
Second home	2,59%
Non-owner occupied	0,00%
Agricultural	0,00%
Multi family	0,00%
Other	0,00%
Distribution by Commercial type	
Retail	0,00%
Office	0,00%
Hotel	0,00%
Shopping center	0,00%
Industry	0,00%
Land	0,00%
Other	100,00%
Average asset value (Residential)	EUR 67 k.
Average asset value (Commercial)	EUR 0 k.
Share Non-Performing Loans	0,39%
Share of 10 biggest debtors	0,13%
WA Maturity (months)	NA
WAL (months)	64,82
Distribution by Country (%)	
Finland	100,00
Distribution by Region (%)	
Aland Islands	0,60
Central Finland	4,69
Central Ostrobothnia	0,74
Etela-Savo	1,59
Kainuu	0,67
Kanta-Hame	2,61
Kymenlaakso	2,48
Lapland	2,10
North Karelia	1,53
North Ostrobothnia	5,03
Ostrobothnia	2,48
Paijat-Hame	3,43
Pirkanmaa	9,62
Pohjois-Savo	2,64
Satakunta	2,36
South Karelia	1,29
South Ostrobothnia	2,51
Uusimaa	46,53
Varsinais-Suomi	7,10

Table 9: Participant counterparties | Source: Nordea Mortgage Bank

Role	Name	Legal Entity Identifier
Issuer	Nordea Mortgage Bank Plc.	7437001LESKGLAEOEU84
Servicer	Non available information at rating time	Non available information at rating time
Account Bank	Non available information at rating time	Non available information at rating time
Sponsor	Non available information at rating time	Non available information at rating time

Figure 6: Program currency mismatches | Source: Nordea Mortgage Bank

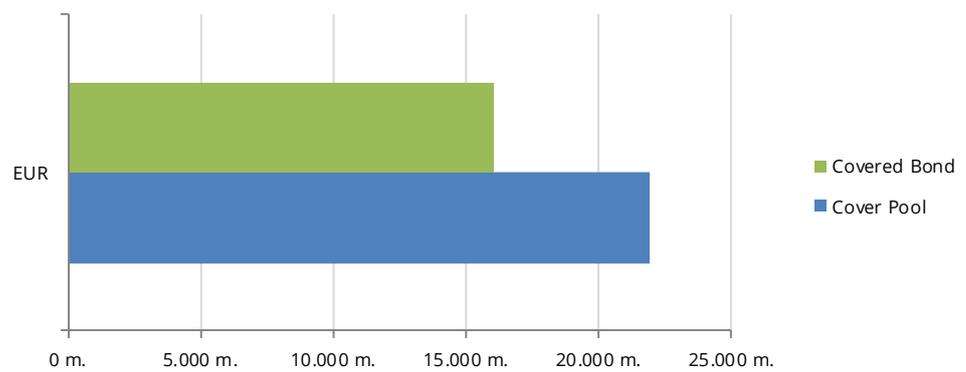
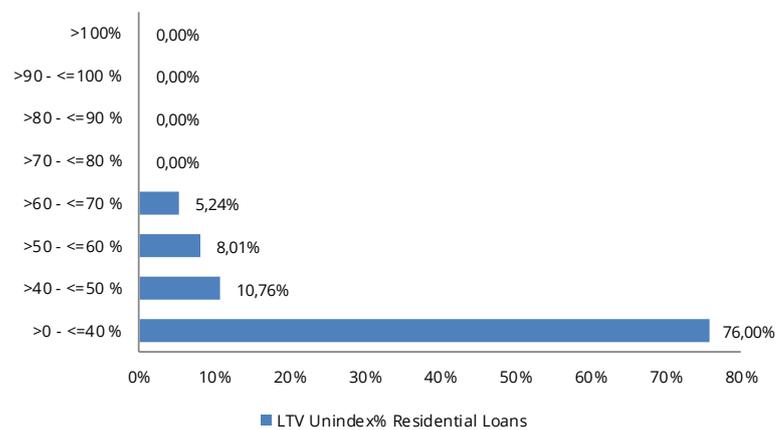


Figure 7: Unindexed LTV breakdown - residential pool | Source: Nordea Mortgage Bank



## Key Source of Information

### Documents (Date: 31.12.2019)

#### Issuer

- Rating Update as of 02.07.2019
- Rating file 2019
- Audited consolidated annual reports of the parent company Nordea Bank Abp (Group) 2016-2019
- Miscellaneous Investor Relations Information and Press releases
- Peergroup-Data and other data from the CRA/eValueRate Database

#### Covered Bond and Cover Pool

- HTT Reporting from Nordea Mortgage Bank as of 31.12.2019
- Market data Mortgage Cover Bond Program

## Regulatory and Legal Disclosures

Creditreform Rating AG was neither commissioned by the rating object nor by any other third parties for the rating. The analysis took place on a voluntary basis by Creditreform Rating AG and is to be described in the regulatory sense as an unsolicited rating. The rating was conducted on the basis of Creditreform Rating's "Covered Bond Ratings" methodology and "Technical Documentation Portfolio Loss Distributions" in conjunction with Creditreform's basic document "Rating Criteria and Definitions".

The rating is based on publicly available information and internal evaluation methods for the rated bank and program. The issuer's quantitative analysis is based mainly on the latest annual accounts, interim reports, other information of the bank pertaining to investor relations, and key figures calculated by eValueRate/CRA subject to a peer group analysis of 36 competing institutes. The cover pool's quantitative analysis for the rated Covered Bond Program was based on the "Harmonised Transparency Template" (HTT) published by the Nordea Mortgage Bank.

A complete description of Creditreform Rating's rating methodologies and Creditreform's basic document "Rating Criteria and Definitions" is published on the following internet page:

[www.creditreform-rating.de/en/regulatory-requirements/](http://www.creditreform-rating.de/en/regulatory-requirements/)

This rating was carried out by analysts AFM Kamruzzaman and Qinghang Lin both based in Neuss/Germany. On 21.02.2020, the rating was presented to the rating committee by the analysts and adopted in a resolution.

The rating result was communicated to Nordea Mortgage Bank, and the preliminary rating report was made available. The Issuer and all relevant parties examined the rating report prior to publication and were given at least one full working day to appeal the rating committee decision and provide additional information. The rating decision was not amended following this examination.

The rating is subject to one-year monitoring from the creation date (see cover sheet). Within this period, the rating can be updated. After one year at the latest, a follow-up is required to maintain the validity of the rating.

In 2011 Creditreform Rating AG was registered within the European Union according to EU Regulation 1060/2009 (CRA-Regulation). Based on the registration Creditreform Rating AG (CRA) is

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No conflicts of interest were identified during the rating process that might influence the analyses and judgements of the rating analysts involved or any other natural person whose services are placed at the disposal or under the control of Creditreform Rating AG and who are directly involved in credit rating activities or approving credit ratings and rating outlooks.

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To prepare this credit rating, CRA has used following substantially material sources:

1. Transaction structure and participants
2. Transaction documents
3. Issuing documents

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The meaning of each rating category, the definition of default or recovery, and any appropriate risk warning, including a sensitivity analysis of the relevant key rating assumptions, such as mathematical or correlation assumptions, accompanied by worst-case scenario credit ratings as well as best-case scenario credit ratings, are explained.

The date at which the credit rating was released for distribution for the first time and when it was last updated including any rating outlooks, is indicated clearly and prominently in the "Basic data" card as a "Rating action"; first release is indicated as "initial rating", other updates are indicated as an "update", "upgrade or downgrade", "not rated", "confirmed", "selective default" or "default".

In the case of a rating outlook, the time horizon is provided during which a change in the credit rating is expected. This information is available within „Basic data“ information card.

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An explanatory statement of the meaning of Creditreform`s default rates are available in the credit rating methodologies disclosed on the website.

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