Creditreform Covered Bond Rating

NORD/LB Luxembourg S.A. Covered Bond Bank
Public Sector Covered Bond Program

Creditreform Rating
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Rating Object	Rating Information	
NORD/LB Luxembourg S.A. Covered Bond Bank, Public Sector Covered Bond Program	Rating / Outlook : **AA- / Stable**	Type: Initial Rating (unsolicited)
Type of Issuance: Public Sector Covered Bond under Luxembourgish law Issuer: NORD/LB Luxembourg S.A. Covered Bond Bank	Rating Date: 11.02.2019 Monitoring until: Withdrawal of the rating	
LT Issuer Rating: BBB- (NORD/LB CBB) ST Issuer Rating: L3 Outlook Issuer: Stable	Rating Methodology: CRA „Covered Bond Ratings"	

Program Overview

Nominal value	EUR 4.058 m.	WAL maturity covered bonds	6,80 (Years)
Cover pool value	EUR 5.428 m.	WAL maturity cover pool	7,28 (Years)
Cover pool asset class	Public Sector	Overcollateralization (nominal/committed)	33,77%/ 22,00%
Repayment method	Hard Bullet	Min. overcollateralization	2%
Legal framework	Luxembourg's covered bond law	Covered bonds coupon type	Fix (97,18%), Floating (0,02%), Other (2,80%)

Cut-off date Cover Pool information: 31.12.2018.

Content

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Summary

This rating report covers our analysis of the public sector covered bond (*"lettres de gage"*) program issued under Luxembourgish law by NORD/LB Luxembourg S.A. Covered Bond Bank („NORD/LB CBB"). The total covered bond issuance at the cut-off date (31.12.2018) had a nominal value of EUR 4.057,80 m, backed by a cover pool with a current value of EUR 5.428,19 m. This corresponds to a nominal overcollateralization of 33,77%. The cover assets mainly include German public sector assets as well as obligations of regional and local authorities in Germany.

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") has assigned the covered bond program an AA- rating. The AA- rating represents a very high level of credit quality and very low investment risk.

Key Rating Findings

+ Covered Bonds are subject to strict legal requirements (Luxembourg's covered bond law)
+ Covered bonds are backed by the appropriate cover asset class
+ Covered bond holders have recourse to the issuer
- Shrinking net interest margin of NORD/LB (Group) due to the higher refinancing costs
- A significant share of cover pool assets are located outside of EEA

Table1: Overview results

Risk Factor	Result
Issuer rating	BBB- (rating as of 13.07.2018)
+ Legal and regulatory framework	+4 notches
+ Liquidity and refinancing risk	+1 notch
= Rating after 1st uplift	A+
Cover pool & cash flow analysis	AA-

+ 2nd rating uplift	+1
= Rating covered bond program	**AA-**

Issuer Risk

Issuer

Our rating of NORD/LB Luxembourg S.A. Covered Bond Bank is reflected by our rating opinion of NORD/LB (Group) due to its group structure. Therefore, we refer to our rating of NORD/LB (Group).

The Norddeutsche Landesbank Girozentrale (hereinafter: NORD/LB) was founded in 1970 through the merger of four formerly independent predecessor institutes: Braunschweigische Staatsbank (founded in 1765), Hannoversche Landeskreditanstalt (founded in 1840), Niedersächsische Landesbank Girozentrale (founded in 1917) and the Niedersächsische Wohnungskreditanstalt Stadtschaft (founded in 1918). Currently, NORD/LB acts as a Landesbank of Lower Saxony and Saxony-Anhalt and a giro center for the savings banks in Lower Saxony, Saxony-Anhalt and Mecklenburg-Vorpommern. NORD/LB is increasingly active as an originator for the structured financing of ships and airplanes. This universal bank focuses mainly on northern Germany and offers the entire range of financial services in addition to structured financing. Its headquarters are in Hanover, Braunschweig and Magdeburg.

Since 1 January 2017, NORD/LB has been the sole carrier of Bremer Landesbank (BLB) with a 100% share in the share capital. Bremer Landesbank was in financial straits in June 2016 due to ship loans that were no longer serviced and high value adjustments because of ECB's tightened banking supervision. In 2016, it posted a loss of approximately EUR 1,4 billion. The merger of NORD/LB and Bremer Landesbank took place on 1 September 2017. The legal supervision of the BLB is exercised by the Lower Saxony Ministry of Finance. The integration of Bremer Landesbank will initially cause additional restructuring costs within NORD/LB before any synergistic effects occur. In addition, regulatory requirements represent another cost factor.

The reduction of the troubled shipping portfolio has been the dominant topic of NORD/LB for many years. Nonetheless, the focus will be the reduction of shipping portfolio over the next few years so that the target value of an NPL shipping portfolio of EUR 5 billion can be achieved in 2019 (in Q1 / 2018: EUR 7,9 billion). Accordingly, the earnings situation will not improve significantly in the short term. However, the full integration of Bremer Landesbank and the resulting synergy effects could lead to a cost reduction.

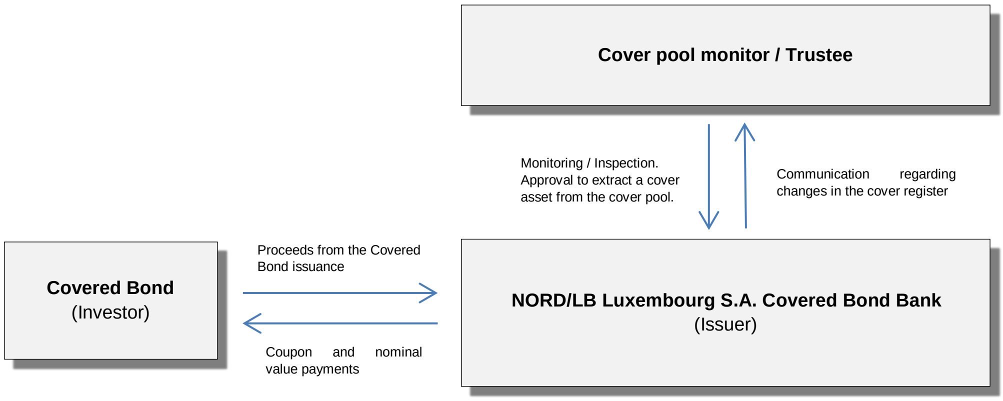
Structural Risk

Transaction structure

Table 2: Overview of all transaction’s parties | Source: CRA

Role	Name
Issuer	NORD/LB Luxembourg S.A. Covered Bond Bank, Luxembourg
Cover pool monitor / Trustee	PwC Luxembourg
Cover pool administrator	Appointed by the insolvency court in case of issuer insolvency

Figure1: Overview of Covered Bond emission | Source: CRA



Legal and Regulatory Framework

The legal regulations governing covered bonds in Luxembourg ("Lettres de Gage"), which was introduced in the financial sector law on 1993, was firstly implemented on 1997[1]. Whereat the issuer bank has to be a credit institution with a specialist banking licence according to the financial sector act, its business activities were confined to a bank's principal activities like mortgage lending, public sector financing and lending backed by movable assets in the past. If it is helpful for the main business, the issuer is able to participate in additional banking and financing activities

Regulatory oversight of the issuers and their covered bonds programs are supervised by the CSSF. It checks both the quality of the cover assets and the mandatory overcollateralization. With respect to the independent supervision of the cover pool, CSSF appoints a cover pool auditor which is advocated by the issuer and has to be independent according to law. Overall, the supervision of the covered bond issuer by the regulatory authority is in line with EBA's best practice.

The Luxembourg's covered bond law complies with Article 52 (4) of the UCITS Directive. However, it does not conform to the requisites of credit institutions and investment firms regarding Article 129 of Regulation (EU) No. 575/2013 and to the requirements on access to the activity of credit institutions and the supervision of credit institutions and investment firms concerning the Capital Requirements Regulation (CRR) and Capital Requirements Directive (CRD). Thus, currently, the covered bond legislation is not concordant to CRR. Nevertheless, issuers can conform their outstanding covered bonds to the CRR requirements by restricting their cover pool assets.

In general, covered bonds are eligible for repo transactions with the ECB. Nevertheless, the amendments of the ECB on 28 November 2012 stipulate covered bonds with external, non-intra group securitizations in the cover pool to be no longer appropriate as pledgeable assets for repo transactions as of 31 March 2013. Consequently, new and outstanding covered bonds with external RMBS or other ABS in the cover pool are no longer repo suitable.

Insolvency Remoteness and Asset Segregation

In the event of issuer insolvency, the cover assets remain in the consolidated balance sheet of the issuer, and are not transferred to an independent legal representative ("in-balance" transaction).

[1] "Loi du 21 novembre 1997 relative aux banques d'emission de lettres de gage", Articles 12-1 to 12-12, 5 April 1993. Further amendments to the law were made in June 2000 (coverage of hedging instruments), in October 2008 (2% minimum coverage, "Lettres de Gage mobilières") and in June 2013 ("Lettres de Gage mutuelles", insolvency rules, transparency rules). In addition, the regislation will be supplemented by two circulars issued by the competent authority, the Commission de Surveillance du Secteur Financier ("CSSF"). These define minimum requirements for the management and control of cover pools (Circular 03/95) and rules for the valuation of real estate (Circular 01/42).

For different asset classes, the establishment of separate cover registers is provided so that the covered assets consist only of assets of the respective primary asset class. If an issuer becomes bankrupt, the cover pool assets including derivatives are identified due to the cover register and are segregated by law from the remaining bankruptcy estate of the issuer in the respective specialized institution and are dedicated to the claims of the covered bond holders.

No direct connection between a single asset in the cover pool and an outstanding covered bond exists. Claims concerning a particular covered bond are backed by the assets in the corresponding cover pool. Thus, to serve all obligations of the cover pool until the final contractual maturity of the last outstanding covered bond, the individual cover pools and covered bonds continue to exist under a bank with limited activity. In addition, covered bond holders can make use of the dual recourse and call for their claims against the general insolvency estate *pari passu* to unsecured bond holders, which fulfils EBA's best practice.

In case of an issuer default, covered bonds do not automatically accelerate. Interest, principal obligations, and derivative contracts registered in the cover pool are met until their contractual maturity. Luxembourg still sticks to the issuance of hard-bullet covered bonds and does not extend maturity by means of soft-bullets or conditional pass-through covered bonds. Thus, the Luxembourgish jurisdiction comprises essential structural features and operational procedures to guarantee the remoteness of the covered bond from the remaining insolvency estate of the issuer and a preferential treatment of the covered bond holders concerning the respective collateral assets, which is considered to be fully aligned with EBA's best practice provisions.

Trustee

The issuer has to nominate a special cover pool monitor that has to be approved by the supervisory authority. Among others, the special auditor is reliable for controlling the cover pool and the respective cover register and the outstanding covered bonds. He or she has to verify that the property valuation is correctly specified and that the assets in the cover pool continue to exist and are sufficient at all times to meet the claims of the covered bond investors until the final contractual maturity of the final covered bond by conducting coverage tests. Additionally, the monitor has to deliver an annual report containing information on the cover register to the CSSF. The appointment of the cover pool monitor matches the provisions of EBA's best practice.

Special Administrator

If an issuer defaults, one or more special administrators different from the general bankruptcy administrator are approved by the court, who have direct access to the cover pool assets. They manage the cash flows arising out of the cover assets and are allowed to issue new covered bonds under the bank with limited activity or make transactions with the central bank to sustain liquidity. Besides, the special administrator can pass on the management of both the cover pool and the respective covered bonds to another bank.

Eligibility Criteria

Eligible cover assets are mortgage assets, public sector assets, movable assets (e.g. ships, aircrafts or trains) and assets backed by institutional guarantees. Each primary asset class equates to an individual class of covered bonds. Mixing of primary asset classes is not allowed, though, an issuer can mix commercial and residential mortgages. Overall, the composition of the cover pool only partially conforms to EBA's best practice.

While with respect to the Lettres de Gage Mutuelles credit institutions have to be located in the EU, the EEA or the OECD, for all other cover assets no such regional restrictions exist. Nevertheless, the assets need to fulfil certain credit quality requirements and must be registered in a public register in the respective country and enforceable against third parties. Overall, cover pool assets can consist of 50% assets from not EU, EEA or OECD countries, as far as they qualify for the credit quality step 1 (CQS 1) and of 10% if they are rated with CQS 2 by a rating agency listed by ESMA.

All liabilities from public sector institutions as well as public private partnerships are eligible cover pool assets. Besides, securitized assets are appropriate cover pool assets if they conform to the eligibility requirements of the particular covered bond type. If securitized assets are not eligible, the amount is constrained to 10% of the cover pool. In both cases, securitization tranches should qualify for the CQS 1 assessed by an ESMA listed rating agency, while merely true sale transactions and no synthetic securitization are permitted.

Regarding Lettres de Gage Publiques, exposures to privately owned credit institutions should not exceed the 20% limit, while exposures to publicly owned credit institutions are not confined. Furthermore, assets within a single cover pool can be exchanged by substitution assets, like cash, assets with central banks or credit institutions, by up to 20% of the nominal value of the outstanding covered bonds.

The LTV limit is 80% for residential property and 60% for all remaining movable and immovable assets as well as commercial real estate loans. If a loan surpasses its LTV limit, merely the first 80% (60%) of the mortgage lending value are eligible cover assets. Consequently, soft limits are in place and fulfill EBA's best practice.

Transparency

With respect to the legal framework, issuers have to fulfill certain transparency requirements and have to publish information on the structure of the cover pool, the covered bonds and the issuers, which fulfills the ECBC Covered Bond Label Initiative. Nevertheless, issuers need not disclose information on all aspects defined as EBA's best practice, like market and liquidity risk, and thus, the jurisdiction is considered only partially aligned. Moreover, concerning the frequency of disclosure Luxembourg contradicts EBA's best practice, as it is not explicitly mentioned in the legal framework.

Systemic Relevance and External Support

Over the past ten years, the overall amount of covered bonds outstanding, which consists merely of public sector covered bonds, decreased significantly from around EUR 36bn to EUR 7bn according to ECBC[2], while it dropped constantly over time. This trend can also be recognized for the covered bond issuance. While the amount was high at around EUR 10bn in 2006 and 2007, it more than halved to EUR 4bn in 2008 and further decreased to around EUR 0,7bn in 2017. Again, almost no mortgage covered bonds were issued during the past ten years.

With reference to the covered bond volume in Luxembourg, which has been shrinking in recent years, Nord/LB CBB is a key player in Luxembourg covered bond market (with the public-sector covered bonds program we have assessed, with a nominal value of more than EUR 4bn outstanding). Likewise, the positioning of the parent company NORD/LB in the German banking sector is also classified as systemically important.

Summary Structural Risk

In general, the Luxembourg's covered bond legislation defines the legal basis for covered bond programs in Luxembourg, it defines clear rules to mitigate risks in particular regarding: insolvency remoteness, asset segregation, investor's special claim vis-à-vis other creditors, the roll and appointment of a special administrator, among other provisions.

Therefore, we considered the structural framework in Luxembourg as positive, accomplishing an adequate set of rules for Luxembourgish covered bonds. Furthermore, we contemplate the importance of Nord/LB CBB in the Luxembourgish covered bonds market in our analysis. Due to those reasons we have set a rating uplift of four (+4) notches.

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[2] Source: EMF-ECBC (2018), ECBC: European Covered Bond Fact Book 2018, EMF-ECBC

Liquidity and Refinancing Risk

Minimum Overcollateralization

The legal framework requires a mandatory minimum overcollateralization of 2% on both a nominal and a net present value basis to meet the costs for the prosecution of the bank in case of default and to bear losses, which is in line with EBA's best practice.

Short-term Liquidity Coverage

The "natural" matching principle applies, according to which the total amount of cover pool assets must be at least as high as the total nominal amount of the outstanding covered bonds including the interest on the outstanding covered bonds. Issuers must perform regular cover tests (internal: daily, trustee: weekly, CSSF: monthly) to monitor the cover pool for minimum cover. The amendments of the Lettre de Gage law in June 2018 also included the introduction of a liquidity buffer of 180 days for hard bullet covered bonds.

Stress Tests and Matching

Although, suitable procedures like natural matching have to be applied by the issuer to guarantee that all obligations of the outstanding cover bonds will be paid, covered bond issuers are not obliged to perform particular covered bond stress tests on their covered bond programs. However, they execute voluntary stress tests on their own and are compelled to common supervisory monitoring. Legal requirement stress testing is considered completely inconsistent with EBA's best practice.

Asset-Liability Mismatch

Asset-liability mismatches ("ALM") arise with different maturities of cover assets and covered bonds. Under the current legislation in Luxembourg, natural matching - i.e. the congruence of present values – forms the essential approach to reduce ALM risk. In addition, the law requires the issuers to cover potential liquidity gaps over the next 180 days to ensure the servicing of pending principal and interest payments.

Repayment Method

This covered bond program issues covered bonds with hard bullet maturity, i.e. a final repayment without extension optionality at the end of the term. Maturity mismatches between cover assets and liabilities thus cannot be mitigated by extension of the legal final maturity. This feature of the covered bond program is considered both qualitatively and within our cash flow analysis.

Refinancing Costs

In the event of the issuer's insolvency, the Luxembourg covered bond legislation stipulates that the special administrator can sell assets of the cover pool or use them as a guarantee for liquidity operations if liquidity shortfalls are foreseeable.

CRA's analysis assumes that refinancing gaps due to ALM will be closed by a sale of assets from the cover pool. In doing so, we take into account related costs in the form of a discount to the nominal value. The quantification of this discount is adjusted following an analysis of relevant market data and will be used in our cash flow analysis.

Other liquidity risks

In order to reduce the exposure to market risk, such as interest rate and currency risk, derivative contracts have to be concluded by law to hedge these risks. However, according to the regulatory framework, no restrictions with respect to the amount and type of derivatives exist as long as they are applied as hedging tool. If a certain derivative contract is signed to guarantee coverage, it has to be registered in the cover register and belongs to the cover pool. Nevertheless, no particular rules are in place considering the exemption of a termination of the derivative contract. Thus, Luxembourg does not completely conform to EBA's best practice.

Summary Liquidity and Refinancing Risk

In comparison to other jurisdictions, the regulatory requirements for liquidity and risk management for Luxemburgish covered bonds are relatively strong, in particular for the presence of regular coverage tests and for the introduction of 180 days liquidity buffer. However, the legislation does not describe specific stress tests for interest rate and currency risk. In addition, Refinancing risks cannot be structurally reduced due to the hard bullet repayment structure, which can only be cushioned by sufficiently high overcollateralization, short-term cash availability, or other liquid funds to bridge the asset-liability mismatches in the portfolio.

Nevertheless, we assess the overall legal provisions on liquidity management for covered bonds programs under the Luxembourg's covered bond legislation as positive and set a rating uplift of only one (+1) notch.

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".

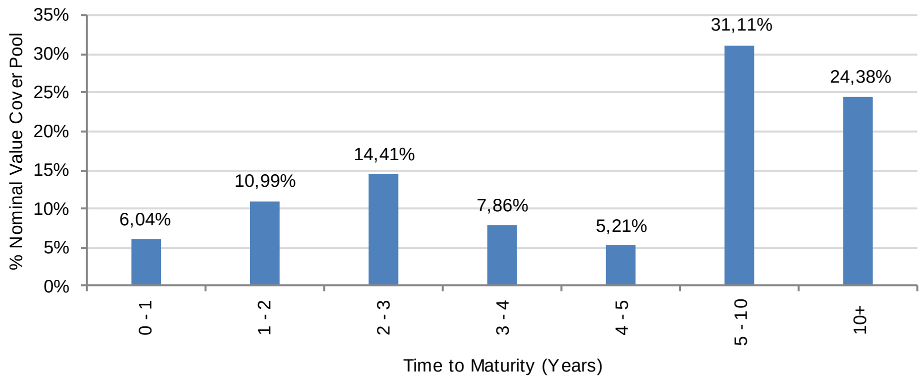
At the cut-off-date 31.12.2018, the pool of cover assets consisted of 381 debt receivables from 225 debtors, of which 42,89% are domiciled in Germany. The total cover pool volume amounted to EUR 5.428,19 m in bonds (43,22%), loans (56,78%) and others (0,00%) which have been lent to the central government, regional authorities and entities, and other debtors. The ten largest debtors of the portfolio total to 24,80%. Table 3 displays additional characteristics of the cover pool:

Table 3: Cover pool characteristics | Source: NORD/LB CBB

Characteristics	Value
Cover assets	EUR 5.428 m.
Covered bonds outstanding	EUR 4.058 m.
Substitute assets	EUR 234,80 m.
Cover pool composition	
Public Sector	95,67%
Substitute assets	4,33%
Other / Derivative	0,00%
Number of debtors	225
Bonds	43,22%
Loans	56,78%
Other	0,00%
Average asset value	EUR 14.247,22 k.
Non-performing loans	0,0%
10 biggest debtors	24,80%
WA seasoning	NA
WA maturity cover pool	7,28 Years
WA maturity covered bonds	6,80 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 31.12.2018 (see figure 2):

Figure 2: Distribution by remaining time to maturity I Source: NORD/LB CBB



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: NORD/LB CBB

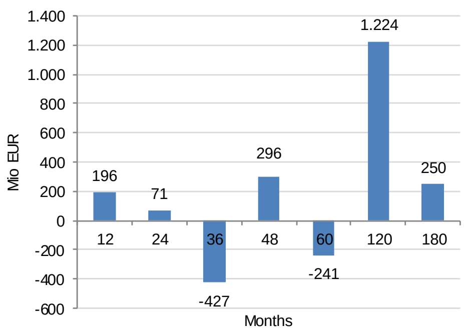
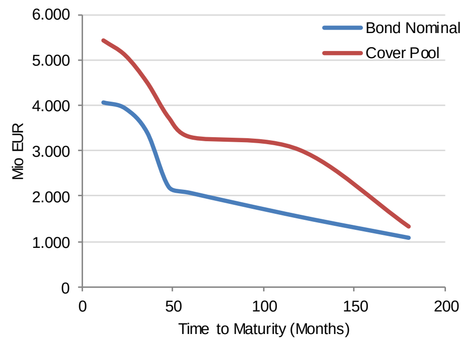


Figure 4: Amortization profile | Source: NORD/LB CBB



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

The program exhibits significant currency risks as 56,59% of the covered pool assets and 24,97% of the covered bonds are denominated in currencies other than euros. On the other hand, 60,70% of cover pool assets and 97,18% covered bond pay a fixed-rate which create interest rate mismatches.

In order to reduce the exposure to the interest rate and currency risks, derivative contracts have to be concluded by law to hedge these risks. However, the legal framework does not provide for obligatory stress tests to be conducted to hedge interest rate- and currency risks. Although the available documentation does not reveal the derivatives agreements to the full extent, CRA assumes that the issuer has entered into partial interest rate and currency swaps to mitigate these risks. As we see that the covered bond program will be exposed to the significant interest rate and currency risks, CRA has applied interest rate and currency stresses on the cash flows for each rating level according to the methodology.

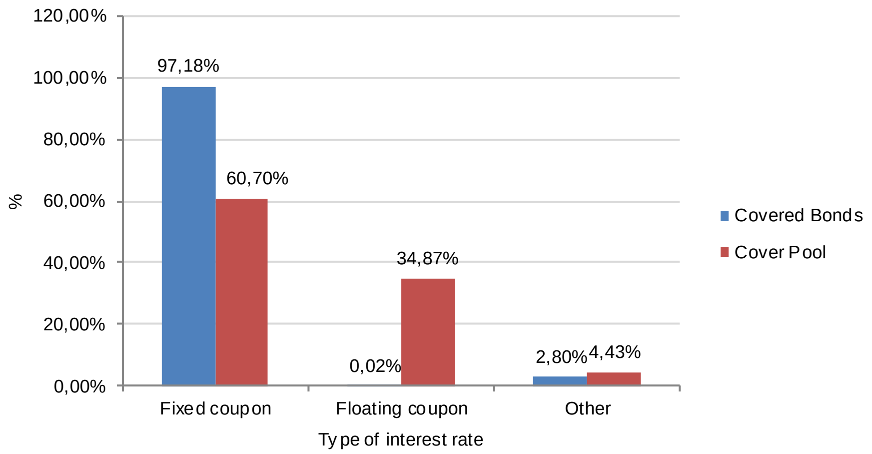
Table 4: Program distribution by currency | Source: NORD/LB CBB

Currency	Volume	Share (%)
Cover Pool		
EUR	2.356 m	43,41%
USD*	1.852 m	34,13%
GBP	1.093 m	20,14%
CAD	122 m	2,24%
CZK	5 m	0,09%
Covered Bond		
EUR	3.045 m	75,03%
USD	808 m	19,91%
NOK	161 m	3,96%
CHF	44 m	1,09%

* *including ‘Other‘ currency*

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

Figure 5: Type of interest rate | Source: NORD/LB CBB



Credit Risk

In Covered Bond Public Sector programs, CRA assesses the credit risk of the cover assets primarily through an assessment of the creditworthiness of the obligors and their future ability to meet all payment obligations. In order to derive a base case assumption for credit risk, CRA uses the CRA Sovereign Ratings of all obligors in the portfolio, which will be taken into account pro-rata. However, 4,03% of the cover assets are allocated in ‘other’ countries. Due to the lack of information, CRA has considered the highest default probability of the obligor/s for ‘other’ country category. The rating reports of relevant sovereigns can be accessed at www.creditreform-rating.de. Using all portfolio information available (number of debtors, sovereign – sub-sovereign, maturity profile, regional diversification etc.), CRA has modelled the cover asset portfolio and, using Monte Carlo simulations, derived a distribution of defaults which can be used to elicit rating-level dependent default assumptions.

Recovery and loss-severity assumptions have been determined in accordance with CRA rating methodology. This includes a differentiation of sovereign- and sub-sovereign credits in terms of loss severities, which is included using the current portfolio composition to determine a weighted average recovery rate.

Using both rating-level dependent default and recovery assumptions, the following loss assumptions have been derived for the current cover pool (see table 5):

Table 5: Cover Pool Base case assumptions | Source: CRA

Rating	Default Rate (%)	Recoveries (%)	Expected Loss (%)
AAA	30,23%	29,32%	21,37%
AA+	26,23%	31,82%	17,89%
AA	24,43%	34,32%	16,05%
AA-	**21,37%**	**35,99%**	**13,68%**
A+	20,19%	37,66%	12,58%
A	19,46%	39,32%	11,81%
A-	18,04%	40,99%	10,65%

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.

Asset-Sale Discount

In our model, short-term liquidity needs and liquidity needs due to asset-liability mismatches will be met with a sale of cover assets available for monetization. Based on secondary market data, CRA assumes a rating-level haircut on the asset value („Asset-Sale Discount“) which represents additional costs of disposal and market risks during the sale of cover assets (see Table 6).

Yield Spread

Since cover assets often have a positive yield spread against the covered bonds issued, CRA uses available public information (i.e. issuers´ annual accounts) to size this assumed spread („Yield Spread“) (see table 6):

Table 6: Cash-Flow Model assumptions | Source: CRA

Rating level	Asset-Sale Discount	Yield Spread
AAA	13,51%	0,41%
AA+	12,23%	0,43%
AA	11,40%	0,45%
AA-	**10,61%**	**0,46%**
A+	10,00%	0,48%
A	9,50%	0,49%
A-	8,85%	0,50%

Rating Scenarios

Scenarios that have been tested in our cash flow model rely on the variation of 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 **AA-** rating scenario, the cash flow model showed that obligations can be paid fully and in a timely manner. In total, the cash flow analysis revealed that the portfolio, given all information available as of 31.12.2018, could be sufficient to repay bond nominal capital notwithstanding the occurrence of extraordinary events. On this basis, the rating of the cover pool within our covered bond program rating has been set at AA-.

Overcollateralization Break-Even Analysis

CRA also performed a breakeven OC analysis. Such OC levels should bear the corresponding losses for a given rating scenario. Main drivers of the analysis are:

- ALM
- Loss level
- Interest rate spreads
- Foreign currency mismatches
- Recoveries.

Performing the breakeven 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 7.

Table 7: Breakeven Analysis | Source: CRA

Rating Level	Breakeven OC
AA-	**32,52%**
A+	29,76%
A	28,35%
A-	25,97%
BBB+	23,56%
BBB	21,38%
BBB-	19,49%

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 (sovereigns). 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. The worst-case scenario, in which we reduce recoveries by 50% and increase credit risk by 50%, the impact can be seen by a change in the implied rating. Based on the base case, there is a high sensitivity of rating in terms of decreased recovery rates and increased defaults (rating reduced by up to 4 notches). In the worst-case scenario, i.e. a 50% decrease in the base case assumptions leads to a reduction in the base-case rating by 6 notches (see Table 8):

Table 8: Covered Bond Program Sensitivity: Credit Quality und Recovery Rates | Source: CRA

Recovery / Defaults	Base Case	-25%	-50%
Base Case	**AA-**	A+	A-
+25%	A	BBB+	BBB
+50%	BBB+	BBB	BBB-

Summary Cash-Flow Analysis

Based on public information and using the base case loss assumptions, the analysis showed that obligations can be paid in full and in a timely manner. Overall, the cash flow analysis revealed that the portfolio, given the used information, may ensure the repayment of bonds' nominal capital notwithstanding the occurrence of the presented stressed scenarios. Therefore, the rating of the cover pool within our covered bond program rating has been set at AA-. Consequently, the secondary rating uplift has been set at one (+1) notch.

Counterparty Risk

Transaction parties

Table 9: Participant counterparties | Source: NORD/LB CBB

Role	Name	Legal Entity Identifier
Issuer	NORD/LB CBB	CAF7KSNT1N0CTA93RI98
Servicer	Not relevant for the issuer and/or CB program at the present time	Not relevant for the issuer and/or CB program at the present time
Account Bank	Banque et Caisse d'Epargne de l'Etat	R7CQUF1DQM73HUTV1078
Sponsor	Not relevant for the issuer and/or CB program at the present time	Not relevant for the issuer and/or CB program at the present time

Table 10: Interest rate and Swap counterparties | Source: NORD/LB CBB

Name	Legal Entity Identifier	Type of Swap
Norddeutsche Landesbank Girozentrale	DSNHHQ2B9X5N6OUJ1236	Cross-currency, Interest rate

Derivatives

Based on the available information, CRA assumes that the issuer has entered into partial derivative agreements in the form of cross-currency and interest rate swaps with its parent company NORD/LB Girozentrale.

Commingling

Incoming cash flows generated from the cover pool will normally be transferred to the Issuer and will be forwarded to the covered bond holders according to the payment terms and conditions. Should the issuer become bankrupt, there is a risk ("commingling risk") that funds may not be returned and commingled with the insolvency estate of the issuer. In order to avoid such risk, the Luxembourg's covered bond legislation stipulates that the cover assets should be isolated from the general bankruptcy estate (insolvency-free assets) and one or special cover pool administrator/s will be appointed to manage the cover pool. Under that mandate the cover pool administrator/s will have the first priority on the up-coming cash flows from the cover pool assets. These cash flows 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	Initial Rating
Result	AA-
Rating Date	11.02.2019
Publication Date	21.02.2019

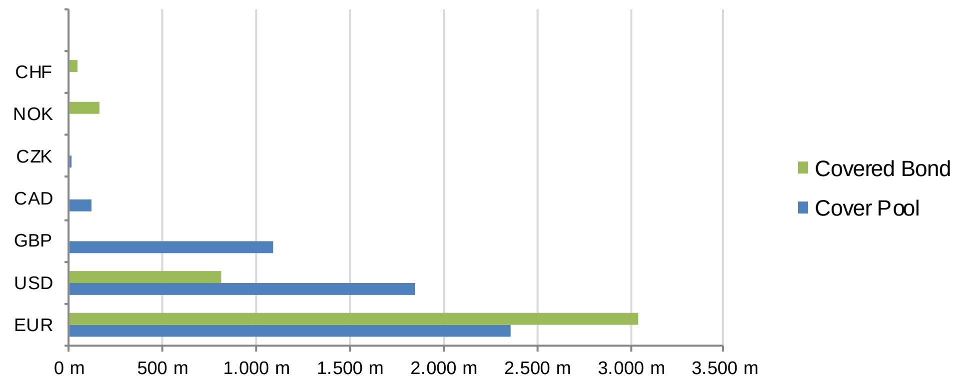
Details Cover Pool

Table 11: Characteristics of Cover Pool | Source: NORD/LB CBB

Characteristics	Value
Cover Pool Volume	EUR 5.428 m
Covered Bond Outstanding	EUR 4.058 m
Substitute Assets	EUR 235 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	100,00%
Other	0,00%
Substitute Assets breakdown by country	
Issuers country	0,00%
Eurozone	62,95%
Rest European Union	37,05%
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 Pools' Composition	
Public Sector	95,67%

Total Substitution Assets	4,33%
Other / Derivatives	0,00%
Number of Debtors	225
Distribution by debtor type	
Central Goverment	3,35%
Regional authorities	17,90%
Municipal authorities	17,30%
Other	61,45%
Distribution by asset type	
Loans	56,78%
Bonds	43,22%
Other	0,00%
Average asset value	EUR 14.247 k
Share Non-Performing Loans	0,00%
Share of 10 biggest debtors	24,80%
WA Maturity (months)	NA
WAL (months)	87,36
Distribution by Country (%)	
Austria	1,94
Belgium	0,70
Czech Republic	0,28
Denmark	0,41
Finland	3,32
France	1,39
Germany	42,89
Netherlands	2,76
Ireland	0,31
Luxembourg	2,65
Poland	1,45
Sweden	1,47
United Kingdom	18,26
Canada	3,86
Japan	0,27
New Zealand	0,07
US	13,94
Other	4,03

Figure 6: Program currency mismatches | Source: NORD/LB CBB



Key Source of Information

Documents (Date: 31.12.2018)
Issuer ▪ Audited consolidated annual reports of NORD/LB (Group) 2014-2017 ▪ Final Rating report as of 13.07.2018 ▪ Rating file 2018 ▪ Miscellaneous Investor Relations Information and Press releases ▪ Peergroup-Data and other data from the S&P Global Intelligence Database
Covered Bond and Cover Pool ▪ HTT Reporting from NORD/LB CBB (31.12.2018) ▪ Market data Public Sector 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 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 S&P Global Market Intelligence subject to a peer group analysis of 62 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 NORD/LB CBB.

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/

This rating was carried out by analysts Edsson Rodriguez und AFM Kamruzzaman both based in Neuss/Germany. On 11.02.2019, the rating was presented to the rating committee by the analysts and adopted in a resolution.

The rating result was communicated to NORD/LB CBB, 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 permitted to issue credit ratings within the EU and is bound to comply with the provisions of the CRA-Regulation.

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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.

In the event of provision of ancillary services to the rated entity, CRA will disclose all ancillary services in the credit rating report.

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The approval of credit ratings and rating outlooks follows our internal policies and procedures. In line with our policy “Rating Committee,” all credit ratings and rating outlooks are approved by a rating committee based on the principle of unanimity.

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

1. Transaction structure and participants

2. Transaction documents

3. Issuing documents

There are no other attributes and limitations of the credit rating or rating outlook other than displayed on the CRA website. Furthermore, CRA considers satisfactory the quality and extent of information available on the rated entity. In regard to the rated entity, Creditreform Rating AG regarded available historical data as sufficient.

Between the disclosure of the credit rating to the rated entity and the public disclosure no amendments were made to the credit rating.

The “Basic data” information card indicates the principal methodology or version of methodology that was used in determining the rating, with a reference to its comprehensive description.

In cases where the credit rating is based on more than one methodology, or where reference only to the principal methodology might cause investors to overlook other important aspects of the credit rating, including any significant adjustments and deviations, Creditreform Rating AG explains this fact in the credit rating and indicates how the different methodologies and other aspects are taken into account in the credit rating. This information is integrated in the credit rating report.

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.

In accordance to Article 11 (2) EU-Regulation (EC) No 1060/2009 registered or certified credit rating agency shall make available in a central repository established by ESMA information on its historical performance data, including the ratings transition frequency, and information about credit ratings issued in the past and on their changes. Requested data are available at the ESMA website: https://cerep.esma.europa.eu/cerep-web/statistics/defaults.xhtml.

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

Disclaimer

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