Covered Bonds follow-up Rating

BayernLB/ Bayerische Landesbank
Public Sector Covered Bond Program

Creditreform Rating

Rating Object		Rating Information	
Bayerische Landesbank, Public Sector Covered Bond Program		Rating / Outlook : **AAA / Stable**	Type: Rating Update (unsolicited)
Type of Issuance : Public Sector Covered Bond under German law Issuer : Bayerische Landesbank		Rating Date : 26.11.2019 Rating Renewal : Withdrawal of the rating	
LT Issuer Rating : A- (Bayerische Landesbank) ST Issuer Rating : L2 Outlook Issuer : Stable		Rating Methodology : CRA „Covered Bond Ratings"	

Program Overview

Bonds nominal value	EUR 18.167 m.	WAL maturity covered bonds	7,00 Years
Cover pool value	EUR 22.651 m.	WAL maturity cover pool	8,00 Years
Cover pool asset class	Public Sector	Overcollateralization (nominal/committed)	24,68%/ 2,00%
Repayment method	Hard Bullet	Min. overcollateralization	2%
Legal framework	German Pfandbriefe Act	Covered bonds coupon type	Fix (89,60%), Floating (10,40%)

Cut-off date Cover Pool information: 30.09.2019.

Contents

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Rating Action

This follow-up report covers our analysis of the public sector covered bond program issued under German law by Bayerische Landesbank („Bayerische Landesbank "). The total covered bond issuance at the cut-off date (30.09.2019) had a nominal value of EUR 18.167,26 m, backed by a cover pool with a current value of EUR 22.651,15 m. This corresponds to a nominal overcollateralization of 24,68%. 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") affirms the covered bond program with a AAA rating. The AAA rating represents the highest level of credit quality and the lowest investment risk.

Key Rating Findings

+   Covered Bonds are subject to strict German legal framework (PfandBG), and full recourse of the covered bonds to the issuer.

+   Current high overcollateralization (OC) of 24,68% as of 30.09.2019

-    Cover pool has a high obligor geographical concentration

Table1: Overview results

Risk Factor	Result
Issuer rating	A- (rating as of 17.09.2019)
+ Legal and regulatory framework	+4 Notches
+ Liquidity and refinancing risk	+1 Notch

| = Rating after 1ˢᵗ uplift	AA+
Cover pool & cash flow analysis	AAA
+ 2ⁿᵈ rating uplift	+1
= Rating covered bond program	**AAA**

Issuer Risk

Issuer

Our rating of Bayerische Landesbank covered bond program is reflected by our issuer rating opinion of Bayerische Landesbank. Currently the issuer has a long term rating of A- assigned by Creditreform Rating AG. BayernLB is one of the largest Landesbank in Germany. High asset quality, current capitalization and growth perspective (via DKB), among other factors, grant BayernLB in a relevant position among its competitors in the banking sector. For a more detailed overview of the issuer rating, please refer to the issuer rating report as of 19.09.2019 available at the webpage of Creditreform rating AG.

Structural Risk

Transaction structure

Figure1: Overview of Covered Bond emission | Source: CRA
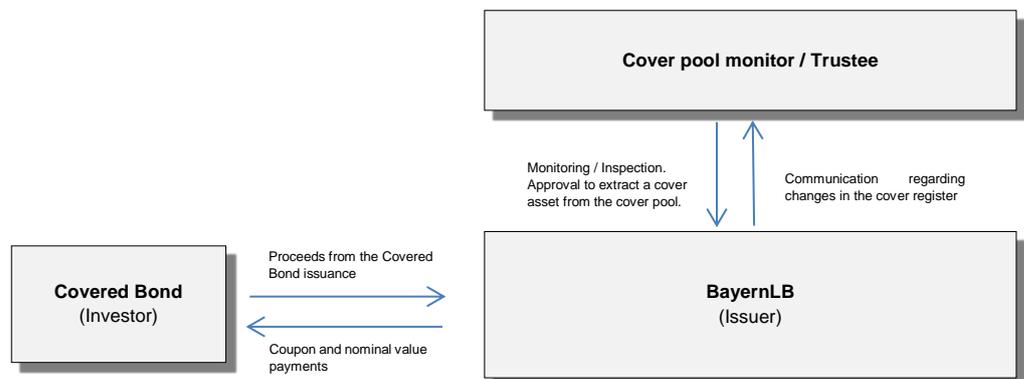
Legal and Regulatory Framework

The legal basis of covered bond („Pfandbriefe") programs in Germany is the German Covered Bond Act (Pfandbriefgesetz, "PfandBG") dated 22 May 2005 and the relevant secondary legislations. The PfandBG was last amended on 2019. Under this framework, banks can issue covered bonds backed by pool of mortgages, public sector assets, registered ship mortgages or registered liens on registered aircrafts.

The covered bondholders have direct recourse to the issuer and a preferential claim over the cover pool assets secured by its cover asset class. For public sector covered bonds ("Öffentliche Pfandbriefe") the cover assets comprise of public sector exposures to sovereigns, regional and local authorities confined to EU/EEA countries, Switzerland, USA, Canada and Japan.

An independent trustee (Treuhänder) ensures that the cover assets are correctly recorded in the relevant cover register and that their inclusion meets eligibility criteria. In the event of issuers insolvency, a special administrator („Sachwalter") will be appointed by the regulatory authority BaFin to manage the cover pool. Furthermore, on a regular basis BaFin audits cover pool assets, usually every two years.

In general, we consider the structural framework for covered bonds in Germany as positive, as the PfandBG 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. Due to those reasons, with regard to the regulatory and structural framework for German covered bond programs, we have set a rating uplift of four (+4) notches.

Liquidity and Refinancing Risk

According to PfandBG, it is compulsory for the covered bond issuers to maintain an overcollateralization (OC) of at least 2%, measured on a daily net present value and on a weekly stressed net present value basis. Furthermore, the Issuer is required to maintain a liquidity buffer to cover, for the next 180 days, all debt service outflows (interest and principal) and derivative transactions.

The underlying cover pool must be subjected to a stress test at least weekly to ensure the present value coverage, and that the OC is maintained in case of changes in interest rates and exchange rates. The stress scenarios are either static, dynamic or model-based. Derivatives can be an additional measure to hedge interest rate and currency risks.

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

The European Commission, on April 2019, has also adopted the directive to provide for enhanced harmonisation for 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.

The German PfandBG and the stipulated risk management processes for liquidity risks constitute, in general, a comparatively strict framework by which they can be effectively reduced. Refinancing risks, however, cannot be structurally reduced due to the hard bullet repayment structure, which can only be cushioned by sufficiently high overcollateralization or other liquid funds to bridge the asset-liability mismatches. We assess the overall legal provisions on liquidity management for German Covered Bond programs as positive and set a rating uplift of one (+1) notch.

A more comprehensive overview of the regulatory framework can be found in our initial rating report. It is worth mentioning that, the PfandBG had a recent amendment that came into force on March 2019. It ensures that existing and future business with UK and Northern Ireland might remain eligible for the cover pool, in particular in case of UK being no longer a part of the EU. Hence, UK and Northern Ireland are now considered as third countries in the PfandBG, this implies that new lending business will be covered up by the same provisions as for third countries such as Switzerland, the USA, Canada and Japan.

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 30.09.2019, the pool of cover assets consisted of 87.001 debt receivables from 58.249 debtors, of which 94,32% are domiciled in Germany. The total cover pool volume amounted to EUR 22.651,15 m in bonds (4,57%), loans (95,43%) 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 27,49%. Table 2 displays additional characteristics of the cover pool:

Table 2: Cover pool characteristics | Source: Bayerische Landesbank

Characteristics	Value
Cover assets	EUR 22.651 m.
Covered bonds outstanding	EUR 18.167 m.
Substitute assets	EUR 313,50 m.
Cover pool composition	
Public Sector	98,62%
Substitute assets	1,38%
Other / Derivative	0,00%
Number of debtors	58.249
Bonds	4,57%
Loans	95,43%
Other	0,00%
Average asset value	EUR 256,75 k.
Non-performing loans	0,0%
10 biggest debtors	27,49%
WA seasoning	NA
WA maturity cover pool (WAL)	8,00 Years
WA maturity covered bonds (WAL)	7,00 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 30.09.2019 (see figure 2):

Figure 2: Distribution by remaining time to maturity I Source: Bayerische Landesbank
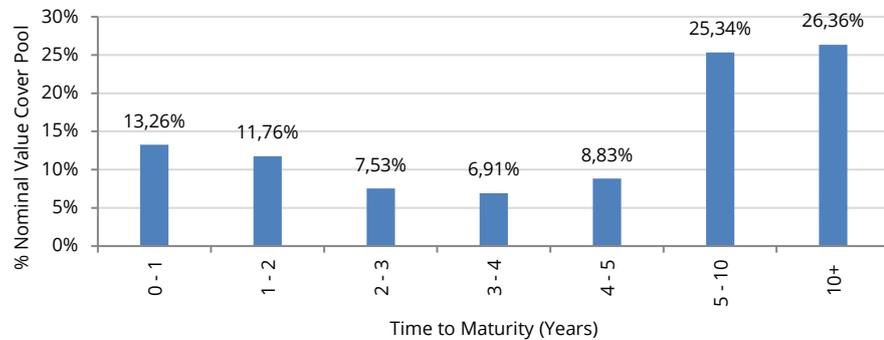
Maturity profile

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

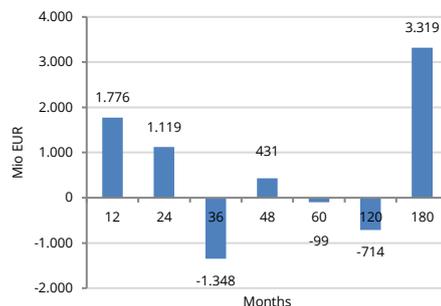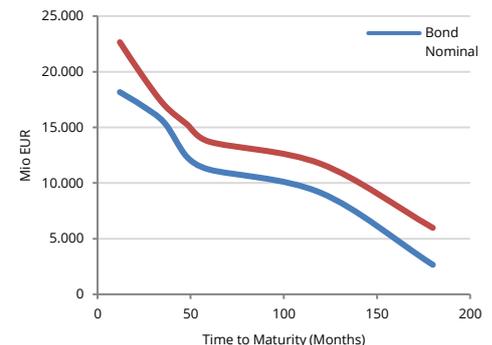Figure 3: Cover asset congruence | Source: Bayerische Landesbank

Figure 4: Amortization profile | Source: Bayerische Landesbank

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 legal framework provides for weekly stress tests to be conducted on interest rate- and currency risks. Therefore, interest rate risk could be mitigated by the 2% OC requirement. Currency risk, on the other hand, is also limited for this program as 96,16% of the cover pool assets and 93,52% of the cover bonds are denominated mainly in euro. Nevertheless, we have applied interest rate and foreign exchange stresses on the cash flows for each rating level according to our methodology.
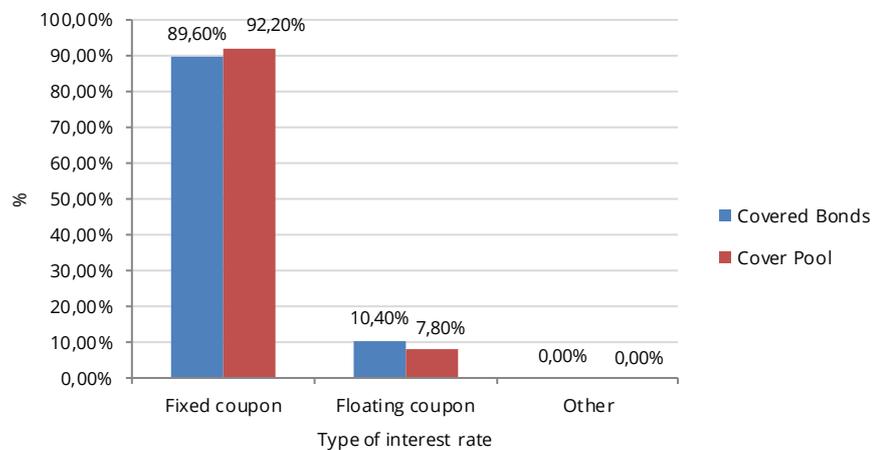
Table 3: Program distribution by currency | Source: Bayerische Landesbank

Currency	Volume	Share (%)
Cover Pool		
EUR	21.780 m	96,16%
CAD	19 m	0,08%
CHF	4 m	0,02%

GBP	577 m	2,55%
USD	272 m	1,20%
Covered Bond		
EUR	16.990 m	93,52%
GBP	674 m	3,71%
USD	503 m	2,77%

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

Figure 5: Type of interest rate | Source: Bayerische Landesbank

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. 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 4)

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

Rating	Default Rate (%)	Recoveries (%)	Expected Loss (%)
AAA	15,50%	35,90%	9,94%
AA+	13,24%	38,40%	8,16%
AA	11,93%	40,90%	7,05%
AA-	9,82%	42,56%	5,64%
A+	9,07%	44,23%	5,06%
A	8,47%	45,90%	4,58%
A-	7,55%	47,56%	3,96%

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
AAA	13,03%	0,80%
AA+	11,76%	0,80%
AA	10,93%	0,80%
AA-	10,15%	0,80%
A+	9,55%	0,81%
A	9,06%	0,81%
A-	8,41%	0,81%

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 a 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 available information as of 30.09.2019, 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	**11,41%**
AA+	9,14%
AA	7,52%
AA-	5,69%
A+	4,90%
A	4,36%
A-	3,59%

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%, remained unchanged at the base case i.e. a rating of AAA for this program. (see Table 7):

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

Defaults \ Recovery	Base Case	-25%	-50%
Base Case	**AAA**	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. Consequently, the secondary rating uplift was set at one (+1) notch.

Covered Bonds follow-up Rating
BayernLB/ Bayerische Landesbank
Public Sector Covered Bond Program

Creditreform C
Rating

9/15

Counterparty Risk

Derivatives

No derivatives in use at present.

Commingling

In the event of issuer's bankruptcy, in order to avoid commingling of funds, the PfandBG 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.

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Public Sector Covered Bond Program

Creditreform C
Rating

10/15

Appendix

Rating History

Event	Rating Date	Publication Date	Result
Initial Rating	10.12.2018	19.12.2018	AAA / Stable
Rating Update	26.11.2019	28.11.2019	AAA / Stable

Details Cover Pool

Table 8: Characteristics of Cover Pool | Source: Bayerische Landesbank

Characteristics	Value
Cover Pool Volume	EUR 22.651 m
Covered Bonds Outstanding	EUR 18.167 m
Substitute Assets	EUR 314 m
Share Derivatives	0,00%
Share Other	100,00%
Substitute Assets breakdown by asset type	
Cash	0,00%
Guaranteed by Supranational/Sovereign	0,00%
Central bank	0,00%
Credit institutions	100,00%
Other	0,00%
Substitute Assets breakdown by country	
Issuers country	100,00%
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 Sector	98,62%
Total Substitute Assets	1,38%
Other / Derivatives	0,00%
Number of Debtors	58.249
Distribution by debtor type	

Central Government	8,67%
Regional authorities	40,95%
Municipal authorities	43,59%
Other	6,80%
Distribution by asset type	
Loans	95,43%
Bonds	4,57%
Other	0,00%
Average asset value	EUR 257 k
Share of Non-Performing Loans	0,00%
Share of 10 biggest debtors	27,49%
WA Maturity (months)	96
WAL (months)	96,00
Distribution by Country (%)	
Belgium	0,59
Denmark	0,16
France	1,19
Germany	94,32
Spain	0,04
Sweden	0,11
United Kingdom	3,40
Canada	0,08
US	0,10

Table 9: Participant counterparties | Source: Bayerische Landesbank

Role	Name	Legal Entity Identifier
Issuer	Bayerische Landesbank	VDYMYTQGZZ6DU0912C88
Servicer	Not applicable for the jurisdiction	Not applicable for the jurisdiction
Account Bank	Not applicable for the jurisdiction	Not applicable for the jurisdiction
Sponsor	Not applicable for the jurisdiction	Not applicable for the jurisdiction

Figure 6: Program currency mismatches | Source: Bayerische Landesbank
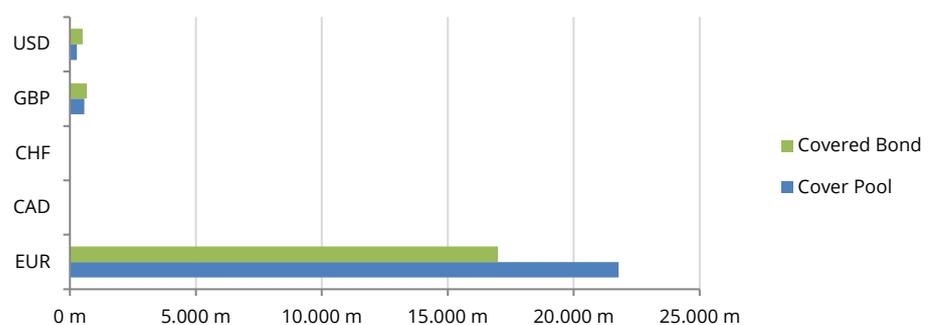
Key Source of Information

Documents (Date: 30.09.2019)

Issuer
- Audited consolidated annual reports of Bayerische Landesbank 2015-2018
- Final Rating report as of 17.09.2019
- Rating file 2019
- Miscellaneous Investor Relations Information and Press releases
- Peergroup-Data and other data from eValueRate/CRA

Covered Bond and Cover Pool
- HTT Reporting from Bayerische Landesbank as of 30.09.2019
- Base Prospectus of Bayerische Landesbank as of 13.05.2019
- Market data of 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 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 24 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 Bayerische Landesbank

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 and AFM Kamruzzaman both based in Neuss/Germany. On 26.11.2019, the rating was presented to the rating committee by the analysts and adopted in a resolution.

The rating result was communicated to Bayerische Landesbank, 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.

Conflict of Interests

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.

Rules on the Presentation of Credit Ratings and Rating Outlooks

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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