Covered Bonds follow-up Rating

KBC Bank N.V.

Mortgage Covered Bond Program

Creditreform Rating

Rating Object	Rating Information	
KBC Bank N.V., Mortgage Covered Bond Program	Rating / Outlook : **AAA / Stable**	Type: Rating Update (unsolicited)

Type of Issuance : Mortgage Covered Bond under Belgian law
Issuer : KBC Bank N.V.

LT Issuer Rating : A+ (KBC Bank)
ST Issuer Rating : L2
Outlook Issuer : Stable

Rating Date : 03.02.2023
Rating Renewal until : Withdrawal of the rating
Maximum Validity: 01.01.2050
Rating Methodology : CRA „Covered Bond Ratings"

Program Overview

Nominal value	EUR 11,920 m.	WAL maturity covered bonds	3.48 Years
Cover pool value	EUR 16,612 m.	WAL maturity cover pool	8.12 Years
Cover pool asset class	Mortgages	Overcollateralization (nominal/committed)	39.03%/ 10.50%
Repayment method	Soft Bullet	Min. overcollateralization	5.00%
Legal framework	Belgium Covered Bonds	Covered bonds coupon type	Fix (100.00%), Floating (0.00%)

Cut-off date Cover Pool information: 31.12.2022

Content

Analysts

Philip Michaelis
Lead Analyst
p.michaelis@creditreform-rating.de
+49 2131 109 2157

Qinghang Lin
Analyst
Q.Lin@creditreform-rating.de
+49 2131 109 1938

Neuss, Germany

Rating Action

This follow-up report covers our analysis of the mortgages covered bond program issued under Belgian law by KBC Bank N.V. („KBC Bank"). The total covered bond issuance at the cut-off date (31.12.2022) had a nominal value of EUR 11,920.00 m, backed by a cover pool with a current value of EUR 16,611.88 m. This corresponds to a nominal overcollateralization of 39.03%. The cover assets include Belgian mortgages obligations in Belgium.

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.

Key Rating Findings

+ Covered Bonds are subject to strict legal requirements
+ Covered bonds are backed by the appropriate cover asset class
+ Covered bond holders have full recourse to the issuer
+ High nominal overcollateralization of 39.03% as of 31.12.2023
+ Remarkable improvement of almost all earnings ratios of the issuer; above average performance of earnings metrics

- Significant maturity mismatches between cover assets and covered bonds

Table1: Overview results

Risk Factor	Result
Issuer rating	A+ (rating as of 15.12.2022)
+ Legal and regulatory framework	+4 Notches
+ Liquidity and refinancing risk	+1 Notch
= Rating after 1st uplift	AAA
Cover pool & cash flow analysis	AAA
+ 2nd rating uplift	+3 Notches
= Rating covered bond program	**AAA**

Issuer Risk

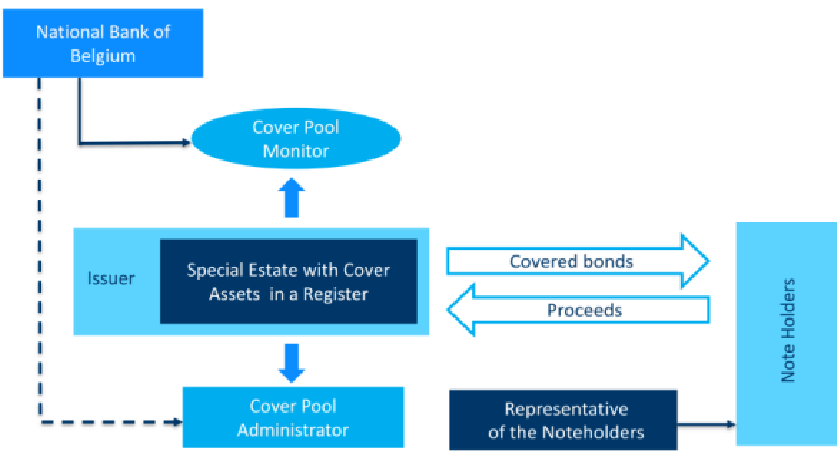
Issuer

Our rating of KBC Bank N.V. Mortgage Covered Bond Program is reflected by our issuer rating opinion of KBC Group N.V. due to its group structure. On 15.12.2022, Creditreform Rating confirmed the unsolicited long-term issuer rating of KBC Group N.V. at A+. KBC Group N.V.'s credit rating affirmation was primarily driven by sound profitability metrics, coupled with high asset quality. KBC has overcome the effects of the Corona crisis well, so we do not expect any significant deterioration in the financial situation due to the economic slow-down in the coming years. The outlook of the Long-Term Issuer Rating of KBC is 'stable'. In the medium term, CRA expects no significant deterioration in profitability and asset quality, due to the war in Ukraine and rising consumer prices. However, in the short term, rising consumer prices may have an impact on KBC's profitability. 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: KBC



Legal and Regulatory Framework

Belgium first introduced the legal framework on covered bonds and their issuance by credit institutions to foster the mobilisation of claims in the financial sector ('Mobilisation Law') on 8/3/2012, which was later incorporated in the Belgian 'Banking law' of 25/4/2014 on the status and supervision of credit institutions. Subsequently, in order to transpose the EU Covered Bond Directive (EU 2019/2162) into national law, the royal decree of 15 February 2022 amended the Covered Bonds Royal Decree as well as Cover Pool Administrator Royal Decree of 12 November 2012. Other secondary legislations such as the NBB Covered Bonds Regulation and the NBB Cover Pool Monitor Regulation have been amended as well. The new framework came into force as of 8 July 2022.

Under this framework, any universal credit institutions in Belgium licensed by the National Bank of Belgium (NBB) is permitted to issue covered bonds, although these institutions need approval from the NBB as covered bonds issuer.

A comprehensive overview of the old covered bond legislation that governed the covered bonds in Belgium, can be found in our initial and follow-up rating reports of KBC Bank Mortgage Covered Bonds. The following major provisions describe the current status of the covered bonds legislation in Belgium.

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 mortgage covered bond programs, either residential or commercial, the respective cover assets comprise of residential or commercial mortgage loans confined to EEA countries. For each program, however, the assets from residential mortgage loans or commercial mortgage loans must represent at least 85% of that program's nominal amount of outstanding Belgian covered bonds. An LTV limit of 80% and 60% are in place for the residential and commercial mortgage loans, respectively.

The Belgian legal framework stipulates that for any covered bond program an external statutory cover pool monitor has to be nominated by the issuer after being accepted by the NBB. Furthermore, in case of issuer default, a special cover pool administrator ("gestionnaire de portefeuille") that is approved by the NBB to manage the cover pool guarantees the ongoing management of the cover pool.

The issuers are also required to publish monthly investor reports according to the minimum disclosure criteria set out by the royal decree.

The Belgian Covered Bonds Law provides clear rules on public supervision, insolvency and segregation of cover assets, the priority of creditors' claims in the event of insolvency, the relevant eligibility criteria for cover pool assets, and the rules for its fiduciary management, which provide adequate structural support for the covered bond programs in Belgium. Due to above reasons we have set a rating uplift of four (+4) notches for the regulatory and structural framework for covered bond programs in Belgium.

Liquidity- and Refinancing Risk

According to the legal framework, an overcollateralization (OC) test is required to ensure mandatory 5% minimum OC ratio on a nominal basis at any time, and the tests have to be executed and fulfilled on a daily basis.

Furthermore, the Issuer is required a liquidity test to maintain a liquidity buffer to cover, for the next 180 days, all debt service outflows (interest and principal) and derivative transactions. Considering soft-bullet or covered bonds with extendable maturity, the calculation of the maximum cumulative net liquidity outflow of the program takes into account the final (extended) maturity date for the capital outflow, as specified in the applicable contractual terms and conditions.

An amortization test has to be conducted to make sure that the cash flows from the cover assets suffice to wipe off any claims of covered bond holders and other involved counterparties. All required tests have to be executed and fulfilled on a daily basis, and the cover pool monitor has to verify at least once a month if the issuers comply with these tests. Furthermore, the issuers are required to perform a quarterly stress test to ensure the liquidity flows maintained in case of changes in interest rates and exchange rates.

In the event of the issuer's insolvency, the Belgian legal framework stipulates that the special administrator can sell assets of the cover pool, use them as a guarantee, or take a loan for liquidity operations if liquidity shortfalls are foreseeable.

In general, the Belgian Covered Bond legislation and the stipulated risk management processes for liquidity risks constitute a comparatively strict framework by which they can be effectively reduced. However, Refinancing risks, cannot be structurally reduced under the hard bullet repayment structures, which can only be cushioned by sufficiently high OC or other liquid funds. Nevertheless, we assess the overall legal provisions on liquidity management for covered bonds programs issued in Belgium and set a rating uplift of only one (+1) notch.

ESG Criteria

CRA generally takes ESG-relevant factors (environmental, social and governance) into account when assessing Covered Bond ratings. Overall, ESG factors have a significant impact on the current rating of this Covered Bond program. CRA identifies governance factors, in particular, to have a highly significant impact on Covered Bond ratings. Since Covered Bonds are subject to strict legal requirements, regulatory risk plays an important role in assessing the credit rating.

The Belgian Covered Bond legislation 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 LTV limits. Additionally, Risk management and internal controls as well as the macro-economic factors such as hedging strategies, interest rates and yield curve are considered to have a highly significant impact on the assessment of the credit rating. Other individual factors with a potential key rating influence were not identified, and therefore did not affect the final rating.

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 31.12.2022, the pool of cover assets consisted of 212,367 debt receivables, of which 100.00% are domiciled in Belgium. The total cover pool volume amounted to EUR 16,611.88 m in residential (100.00%), commercial (0.00%) and others (0.00%) loans.

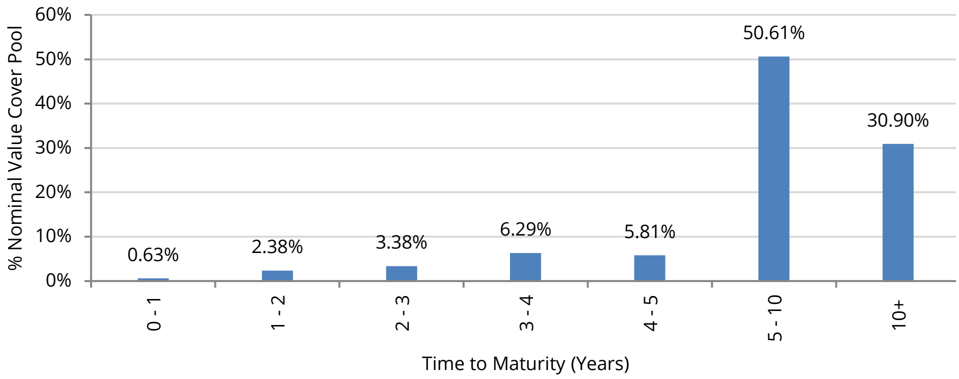
The residential cover pool consists of 212,367 mortgage loans having an unindexed weighted average LTV of 61.94%. The cover pool does not have any non-residential loans. The ten largest debtors of the portfolio total to 0.0006%. Table 2 displays additional characteristics of the cover pool:

Table 2: Cover pool characteristics | Source: KBC Bank

Characteristics	Value
Cover assets	EUR 16,612 m.
Covered bonds outstanding	EUR 11,920 m.
Substitute assets	EUR 22.46 m.
Cover pool composition	
Mortgages	99.62%
Substitute assets	0.14%
Other / Derivative	0.00%
Number of debtors	NR
Mortgages Composition	
Residential	100.00%
Commercial	0.00%
Other	0.00%
Average asset value (Residential)	EUR 119,262 k.
Average asset value (Commercial)	NR
Non-performing loans	0.00%
10 biggest debtors	0.00%
WA seasoning	59 Months
WA maturity cover pool (WAL)	8.12 Years
WA maturity covered bonds (WAL)	3.48 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 31.12.2022 (see figure 2):

Figure 2: Distribution by remaining time to maturity I Source: KBC 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: KBC Bank

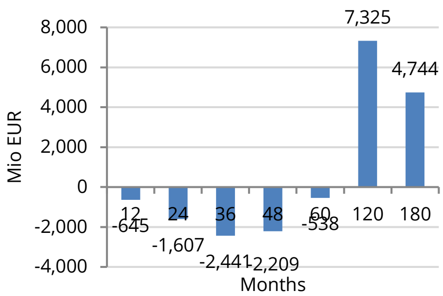
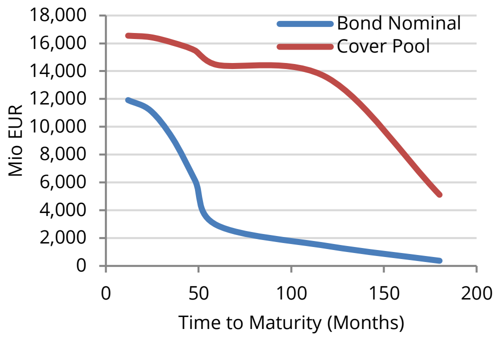


Figure 4: Amortization profile | Source: KBC Bank



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

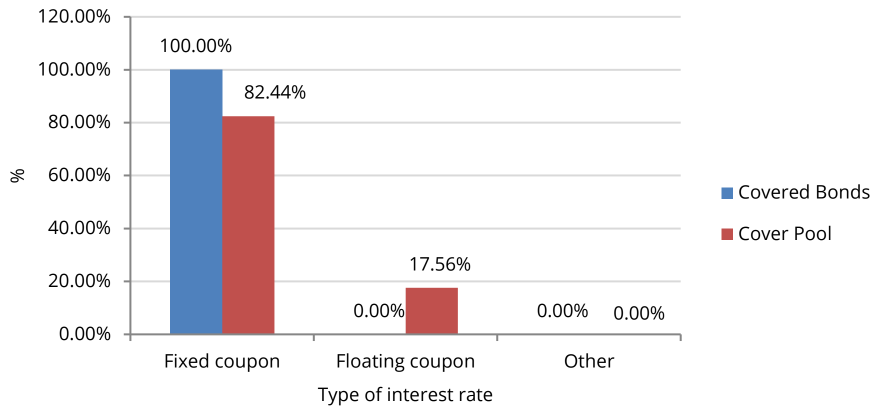
In order to reduce the exposure to the interest rate and currency risks, derivative contracts can be used to hedge these risks. Furthermore, the Belgian Covered Bond Law stipulates that any liquidity needs within the next six months have to be covered by liquid cover assets. Currency risk, on the other hand, is also limited for this program as 100.00% of the cover pool assets and 100.00% of the cover bonds are denominated mainly in euro. Nevertheless, 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: KBC Bank

Currency	Volume	Share (%)
Cover Pool		
EUR	16,612 m.	100.00%
Covered Bond		
EUR	11,920 m.	100.00%

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

Figure 5: Type of interest rate | Source: KBC 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. Additionally, for the assessment of public sector assets in the cover pool, due to insufficient information, CRA has assumed that such assets are in default i.e. approx. 0.24% of the cover pool value. Summarizing, it has been assumed for KBC Bank a combined expected default rate of 1.96% 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 (%)
AAA	**44.38%**	**80.76%**	**8.54%**
AA+	40.93%	82.01%	7.36%
AA	36.22%	83.79%	5.87%
AA-	31.87%	85.13%	4.74%
A+	30.18%	85.66%	4.33%
A	30.09%	85.69%	4.31%
A-	28.83%	86.11%	4.00%

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.

This program issues covered bonds with soft bullet maturity structure, i.e. a 12 months maturity extension upon the final legal maturity. This characteristic of the covered bonds has been taken into account during our cash-flow analysis.

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	**72.93%**	**1.63%**
AA+	67.35%	1.65%
AA	63.75%	1.67%
AA-	60.33%	1.68%
A+	57.70%	1.69%
A	55.54%	1.70%
A-	52.72%	1.71%

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 31.12.2022, 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	**36.64%**
AA+	32.75%
AA	29.38%
AA-	26.55%
A+	24.92%
A	23.93%
A-	22.33%

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. The worst-case scenario, in which we reduce recoveries by 50% and increase credit risk by 50%, the impact can be seen by a reduction in the base case rating by 9 notches to BBB- (see Table 7):

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

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

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 possible uplift of three (+3) notches, however, the secondary rating uplift has been set at zero (0) notch as the maximum attainable rating for this program has already been achieved.

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 Belgian covered bond law 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	20.02.2019	28.02.2019	AAA/ Stable
Rating Update	21.02.2020	26.02.2020	AAA/ Stable
Monitoring	24.03.2020	28.03.2020	AAA/ Watch negative
Rating Update	18.02.2021	24.02.2021	AAA/ Stable
Monitoring	05.07.2021	06.07.2021	AAA/ Watch unknown
Monitoring	11.11.2021	16.11.2021	AAA/ Stable
Rating Update	15.02.2022	21.02.2022	AAA/ Stable
Rating Update	03.02.2023	09.02.2023	AAA/ Stable

Details Cover Pool

Table 8: Characteristics of Cover Pool | Source: KBC Bank

Characteristics	Value
Cover Pool Volume	EUR 16,612 m
Covered Bonds Outstanding	EUR 11,920 m
Substitute Assets	EUR 22 m
Share Derivatives	0.00%
Share Other	100.00%
Substitute Assets breakdown by asset type	
Cash	35.96%
Guaranteed by Supranational/Sovereign agency	64.04%
Central bank	0.00%
Credit institutions	0.00%
Other	0.00%
Substitute Assets breakdown by country	
Issuer country	35.96%
Eurozone	64.04%
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	
Mortgages	99.62%
Total Substitute Assets	0.14%
Other / Derivatives	0.00%

Number of Debtors	NR
Distribution by property use	
Residential	100.00%
Commercial	0.00%
Other	0.00%
Distribution by Residential type	
Occupied (main home)	76.82%
Second home	0.00%
Non-owner occupied	4.35%
Agricultural	0.00%
Multi family	0.00%
Other	18.84%
Distribution by Commercial type	
Retail	NR
Office	NR
Hotel	NR
Shopping center	NR
Industry	NR
Land	NR
Other	100.00%
Average asset value (Residential)	119262
Average asset value (Commercial)	NR
Share Non-Performing Loans	0.02%
Share of 10 biggest debtors	0.0006%
WA Maturity (months)	185
WAL (months)	97
Distribution by Country (%)	
Belgium	100.00
Distribution by Region (%)	
Unknown	0.12
Brussels-Capital Region	6.53
Walloon Brabant	0.95
Flemish Brabant	17.62
Antwerp	27.78
Limburg	12.12
Liège	1.81
Namur	0.13
Hainaut	0.57
Luxembourg	0.13
West Flanders	14.02
East Flanders	18.22

Table 9: Participant counterparties | Source: KBC Bank

Role	Name	Legal Entity Identifier
Issuer	KBC Bank	6B2PBRV1FCJDMR45RZ53
Servicer	KBC Bank	6B2PBRV1FCJDMR45RZ53
Account Bank	KBC Bank	6B2PBRV1FCJDMR45RZ53
Cover Pool Monitor	KPMG	NR

Figure 6: Arrears Distribution | Source: KBC Bank

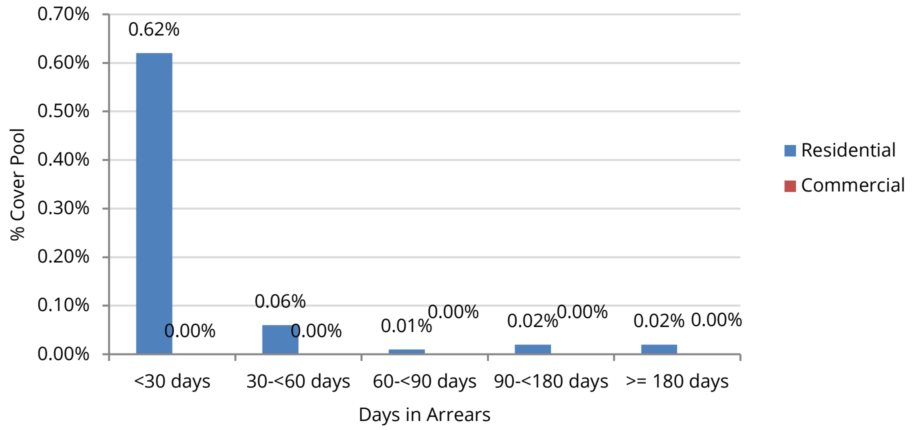


Figure 7: Program currency mismatches | Source: KBC Bank

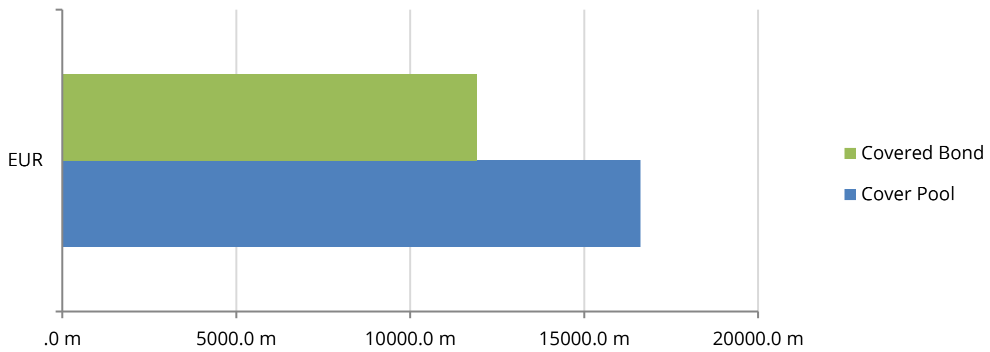
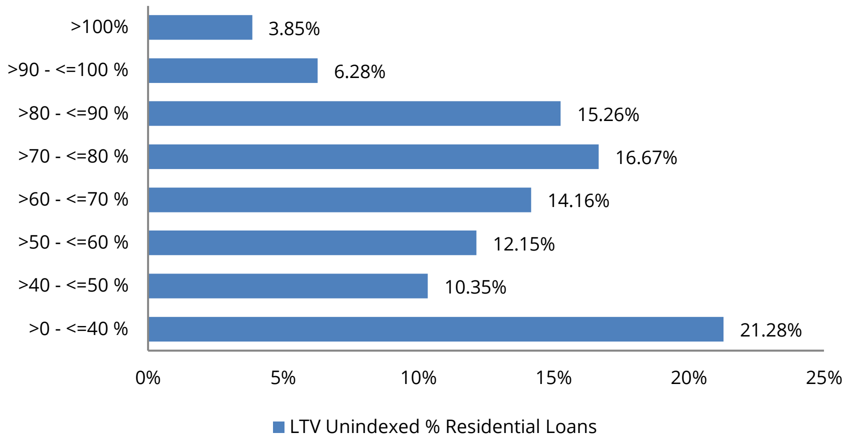


Figure 8: Unindexed LTV breakdown - residential pool | Source: KBC Bank



Key Source of Information

Documents (Date: 31.12.2022)
Issuer ▪ Audited consolidated annual reports of KBC Bank (Group) 2018-2021 ▪ Final Rating report as of 15.12.2022 ▪ Miscellaneous Investor Relations Information and Press releases ▪ Other rating relevant data from CRA eValueRate databank
Covered Bond and Cover Pool ▪ HTT Reporting from KBC Bank as of 31.12.2022 ▪ Base prospectus of KBC Bank Residential Mortgage Covered Bond Program dated 12.07.2022 ▪ Market data Mortgage Covered 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 (v1.1, April 2022) and "Technical Documentation Portfolio Loss Distributions" (v.1.0, July 2018) in conjunction with Creditreform`s basic document "Rating Criteria and Definitions" (v1.3, January 2018). On the subject of ESG (environment, social and governance), Creditreform Rating AG has published the basic document "The Impact of ESG Factors on Credit Ratings" (March 2020).

Unsolicited Credit Rating	
With Rated Entity or Related Third Party Participation	NO
With Access to Internal Documents	NO
With Access to Management	NO

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 CRA/ eValueRate database. The cover pool's quantitative analysis for the rated Covered Bond Program was based on the "Harmonised Transparency Template" (HTT) published by the KBC 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/

This rating was carried out by analysts Philip Michaelis (Senior Analyst) and Qinghang Lin (Analyst) both based in Neuss/Germany. On 03.02.2023, the rating was presented to the rating committee by the analysts and adopted in a resolution. The function of Person Approving Credit Ratings (PAC) was performed by Artur Kapica (Senior Analyst).

On 03.02.2023, the rating result was communicated to KBC 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 permitted to issue credit ratings within the EU and is bound to comply with the provisions of the CRA-Regulation.

Endorsement

Creditreform Rating did not endorse the rating according Article 4 (3), 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 of the issuer.

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

4. Other rating relevant documentation

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 rating report and/or Press release indicate 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 rating report and/or Press Release 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 the rating report and/or Press Release.

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

Any rating performed by Creditreform Rating AG is subject to the Creditreform Rating AG Code of Conduct which has been published on the web pages of Creditreform Rating AG. In this Code of Conduct, Creditreform Rating AG commits itself – systematically and with due diligence – to establish its independent and objective opinion as to the sustainability, risks and opportunities concerning the enterprise or the issue under review.

Future events are uncertain, and forecasts are necessarily based on assessments and assumptions. This rating is therefore no statement of fact, but an opinion. For this reason, Creditreform Rating AG cannot be held liable for the consequences of decisions made on the basis of any of their ratings. Neither should these ratings be construed as recommendations for investors, buyers or sellers. They should only be used by market participants (entrepreneurs, bankers, investors etc.) as one factor among others when arriving at corporate or investment decisions. Ratings are not meant to be used as substitutes for one's own research, inquiries and assessments.

We have assumed that the documents and information made available to us by the client are complete and accurate and that the copies provided to us represent the full and unchanged contents of the original documents. Creditreform Rating AG assumes no responsibility for the true and fair representation of the original information.

This report is protected by copyright. Any commercial use is prohibited without prior written permission from Creditreform Rating AG. Only the full report may be published in order to prevent distortion of the report's overall assessment. Excerpts may only be used with the express consent of Creditreform Rating AG. Publication of the report without the consent of Creditreform Rating AG is prohibited. Only ratings published on the Creditreform Rating AG web pages remain valid.

Creditreform Rating AG

Contacts

Creditreform Rating AG

Europadamm 2-6
D - 41460 Neuss

Fon	+49 (0) 2131 / 109-626
Fax	+49 (0) 2131 / 109-627
E-Mail	info@creditreform-rating.de
Internet	www.creditreform-rating.de

CEO:
Dr. Michael Munsch
Chairman of the board:
Michael Bruns

HRB 10522, Amtsgericht Neuss