

# Creditreform Covered Bond Rating

ING Bank N.V.

Mortgage Covered Bond (Soft Bullet) Program

**Creditreform Rating**

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Rating Object	Rating Information	
<b>ING Bank N.V., Mortgage Covered Bond (Soft Bullet) Program</b>  Type of Issuance : Mortgage Covered Bond under Dutch law Issuer : ING Bank N.V.  LT Issuer Rating: A (ING Bank N.V.) ST Issuer Rating: L2 Outlook Issuer: Stable	Rating / Outlook : <b>AAA / Stable</b>	Type: Initial Rating (unsolicited)
	Rating Date : 20.02.2019 Rating Renewal : Withdrawal of the rating	Rating Methodology : CRA „Covered Bond Ratings”

Program Overview			
Nominal value	EUR 9.500 m.	WAL maturity covered bonds	6,46 (Years)
Cover pool value	EUR 12.042 m.	WAL maturity cover pool	17,47 (Years)
Cover pool asset class	Mortgages	Overcollateralization (nominal/committed)	26,75%/ 6,98%
Repayment method	Soft Bullet	Min. overcollateralization	5%
Legal framework	Dutch covered bonds legislation	Covered bonds coupon type	Fix (41,32%), Floating (58,68%)

Cut-off date Cover Pool information: 31.12.2018.

## Summary

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This rating report covers our analysis of the mortgage covered bonds (soft bullet) program issued under Dutch law by ING Bank N.V. („ING Bank“). The total covered bond issuance at the cut-off date (31.12.2018) had a nominal value of EUR 9.500,00 m, backed by a cover pool with a current value of EUR 12.041,71 m. This corresponds to a nominal overcollateralization of 26,75%. The cover assets mainly include Dutch mortgages obligations in Netherlands.

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 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 recourse to the issuer
- High maturity mismatches between cover bonds and cover assets

Analysts

Edsson Rodriguez  
Lead Analyst  
e.rodriguez@creditreform-rating.de  
+49 2131 109 1203

AFM Kamruzzaman  
Analyst  
a.kamruzzaman@creditreform-rating.de  
+49 2131 109 1948

Neuss, Germany

Table1: Overview results

Risk Factor	Result
Issuer rating	A (rating as of 04.12.2018)
+ Legal and regulatory framework	+4 Notches
+ Liquidity and refinancing risk	+1 Notch
= Rating after 1 <sup>st</sup> uplift	AAA
Cover pool & cash flow analysis	BB+
+ 2 <sup>nd</sup> rating uplift	+/-0
= Rating covered bond program	<b>AAA</b>

## Issuer Risk

### Issuer

Our rating of ING Bank N.V. is reflected by our rating opinion of ING Groep (Group) due to its group structure. Therefore, we refer to our rating of ING Groep (Group).

ING Groep N.V. (hereinafter: ING) is a non-operating holding company headquartered in Amsterdam. The group acts as a parent company for various banks, entities and subsidiaries worldwide, whereby the ING Bank N.V. is the most significant asset and the best known subsidiary as well as the largest financial institute in the Netherlands in terms of total assets. As ING is one of the global systemically important banks (G-SIB), the bank must therefore comply with additional regulatory requirements. ING was founded in 1991 through a merger between the insurance company Nationale-Nederlanden and the banking company NMB Postbank Group.

In April 2016, ING has finalized the program to divest of all its insurance and investment management businesses as a part of the restructuring agreement with the European Commission, which began in 2009 as a result of received state aid. Because of that, ING transformed from a diversified financial services company into a standalone bank holding. ING has presence in more than 40 countries and operates primarily in Europe as well as in North America, South America, The Middle East, Asia and Australia.

ING Group N.V. showed a stable profitability year-over-year (2016 to 2017). In 2017, ING was able to improve its operating income slightly while keeping its operating costs at a stable level (net of various one-off effects). ING Group N.V.'s asset quality remains at a satisfying level YOY. The Group manages to reduce its risk-weighted assets as well as its already relatively low NPL ratio. Overall, the Group's capitalization is sufficient. However, while ING Group N.V. managed to improve its CET1 ratio YOY, the Group showed deteriorating Additional Tier 1 and Total Capital ratios in the same time (fully loaded and phased-in). The overall liquidity situation of ING Group N.V. remains satisfactory.

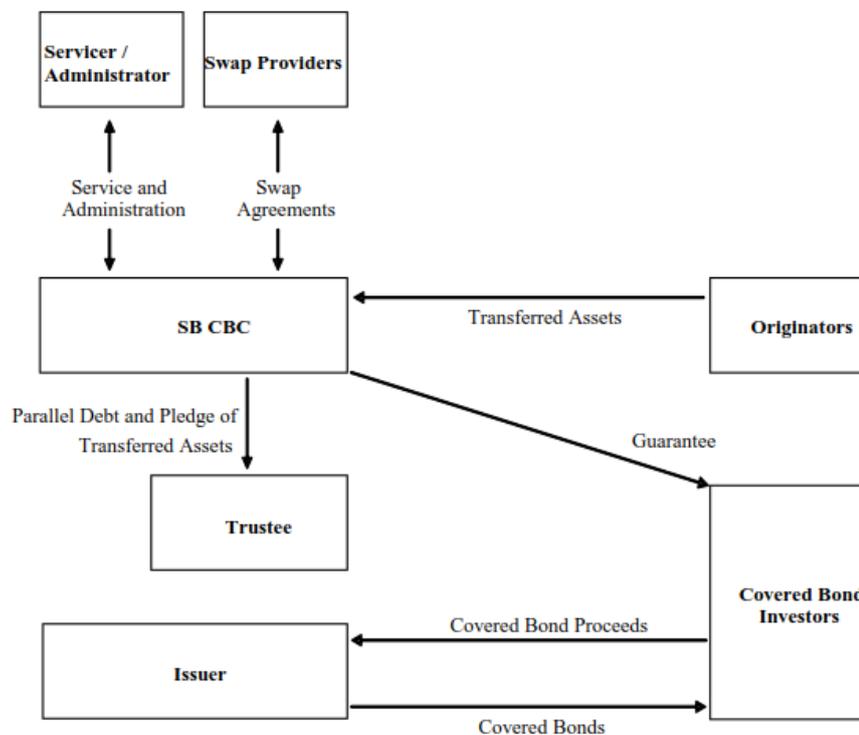
## Structural Risk

### Transaction structure

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

Role	Name
Issuer	ING Bank N.V., Amsterdam
Guarantor	ING SB Covered Bond Company B.V.
Cover pool monitor	Ernst & Young Accountants LLP
Cover pool administrator	The ongoing management of the cover pool is guaranteed by the Security Trustee and the CBC in the event of issuers' insolvency

Figure1: Overview of Covered Bond emission | Source: ING Bank



### Legal and Regulatory Framework

In the Netherlands, the covered bond legislation was passed on 7/1/2008, which was amended in 2014 and implemented into national law. Any universal bank based in the Netherlands with a special license can issue Dutch covered bonds. The Dutch Central Bank, which grants the license, registers the issuing credit institution and the class of covered bonds in a public register. Prior to registration, the issuing credit institution has to submit a detailed report on the planned covered bond program to the Dutch Central Bank and confirm that all regulatory and legal requirements are satisfied. After the registration, the Dutch Central Bank is in charge of the regulatory monitoring of covered bond programs in line with Article 129 CRR, both off-site as well as on-site. On a regular basis, the Dutch Central Bank checks the overcollateralization ratios and examines the compliance with relevant eligibility criteria and their documentation. Furthermore, the Dutch Central Bank monitors market risks, liquidity risks, as well as the healthy ratio<sup>1</sup> of the issuer. In case of any violation with respect to regulatory and legal requirements, the Dutch Central Bank can impose a penalty, deregister an existing issuer and proscribe the issuer from issuing new covered bonds, or deny a new issuer its registration.

The Dutch legal framework accords with the claims of the UCITS Directive 52(4) and with Article 129 CRR, which results in a 10% risk-weighting of Dutch covered bonds. Dutch covered bonds are eligible in repo transactions with the Dutch Central Bank and are compliant with Solvency II and the ECBC Label.

Regarding the implementation of the BRRD, which features resolution authorities with several particular resolution tools and deals with the failure of financial institutions, the Netherlands have translated the directive - including the bail-in tool - into national law on 11/26/2015.

<sup>1</sup> The ratio between the nominal size of the outstanding covered bond program and the consolidated balance sheet of the issuing credit institution. The healthy ratio is constituted individually between the Dutch Central Bank and the corresponding issuer. In case of violation of the healthy ratio, no new covered bond can be issued under the current covered bond program.

### Insolvency Remoteness and Asset Segregation

In the Netherlands, the issuer has to guarantee that the cover assets will be transferred and sold to a separate, non-affiliated, independent legal entity - the Covered Bond Company (CBC). In case of issuer default, the CBC ensures the payment of both interest and principal to the covered bond holders (covered bond guarantee). The CBC is set up for one single covered bond program and is usually managed by a Security Trustee. The CBC can provide a right of retention of the cover assets to the Security Trustee. Furthermore, the CBC can negotiate about the organization and management of cover assets with the different involved parties, like derivative counter-parties, the servicer of the asset monitor and so on. However, the CBC has no banking licence and is not allowed to handle claims that rank *pari passu* or senior to covered bond holders, except it affects management, risk management, liquidity, payment and treatment of corresponding covered bonds and eligible cover assets.

Consequently, covered bond holders have both an ordinary, unsecured claim against the issuer, which is guaranteed by the CBC, and a claim against the CBC secured by the right of pledge on the cover assets. In case of issuer default, the Security Trustee can, if commissioned by the covered bond holders, accelerate the covered bonds against the issuer after an issuer default, but not against the CBC. Revenues from the outstanding debts will be added to the cover pool and used by the CBC to ensure the interest and principal payments to the covered bond holders in a timely manner.

### Trustee

In the Netherlands, the issuer has to ascertain that all requirements are achieved and has to report it to the Dutch Central Bank on a quarterly basis. Furthermore, the issuer has to guarantee and report once a year that it disposes consistent and efficient measures and strategies, so that unencumbered cover assets suffice under various stress scenarios. Besides, the issuer has to hand in the annual report and the annual financial statements of the CBC to the Dutch Central Bank once a year. Regarding investor information, it is obligatory to quarterly disclose information on credit risk, market risk, exchange rate risk, interest rate risk and liquidity risk concerning the underlying covered bond program. Furthermore, the issuer has to publish the nominal value of the issued covered bonds, the amount and structure of cover assets, the various coverage ratios, the ratio with respect to the liquidity buffer, the retention period of covered bonds and the cover pools, the amount of non-performing cover assets and derivative counterparties. Moreover, Dutch covered bond issuers disclose each month investor reports including the result of the asset coverage test and the structure of the cover pool on their website, while they also have elaborated the Harmonized Transparency Template.

### Special Administrator

In case of issuer default or any other crisis with respect to covered bonds, the ongoing management of the cover pool is guaranteed by the Security Trustee and the CBC. The Netherlands fully comply with EBA's best practice regarding the administration of the covered bond program post the issuer's insolvency or resolution.

### Eligibility Criteria

Eligible cover assets are residential mortgage loans with a maximum LTV of 80%, commercial mortgage loans with a maximum LTV of 60%, or ship loans with a maximum LTV of 60%. Claims owed or guaranteed by the public sector, central banks, multilateral development banks or international organisations in line with Article 129 CRR are also eligible cover assets. Furthermore, assets that can be made eligible under a Ministerial Regulation can be included in the cover pool, as well. Overall, substitution assets are permitted up to a limit of 20% of the issued covered bonds. Substitution assets are for instance, exposures to the public sector and to institutions in line with Article 129 CRR, as well as assets that are specifically allowed by the Dutch Central Bank. ABS and MBS as well as impaired loans in line with Article 178 CRR are not eligible cover assets. Furthermore, assets with a particular claim displacing the ownership entitlement of the owner of the assets and exposures of owners of cover assets to the issuing credit institutions or affiliates are also not eligible cover assets.

The geographical scope of legitimate cover assets is confined to EEA countries and to jurisdictions, where the regulatory arrangements and provisions are leastwise comparable to those in the EU.

Overall, primary asset classes in the cover pool are residential mortgages, commercial mortgages, public sector loans and ship loans. However, merely residential and commercial mortgages can be included in one covered bond program, i.e. mixing asset cover pools in one single covered bond program is only allowed with respect to these two asset classes, while the limits considering the predefined composition need to be adhered throughout the program's whole lifetime.

For residential mortgage loans a LTV limit of 80% of the market value at time of origination is in place, while for commercial mortgage loans and for ship loans the LTV limit is 60%. Since 2013, new Dutch mortgages have to obey stringent Loan-to-Income limits at origination. While the hard LTV cap which makes the entire loan ineligible to be included in the cover pool lies beyond 100% for mortgages originated prior to 2018, the hard LTV limit of the original loan lies at 100% since 2018. Once the loan is put in the cover pool, there exists no cap that induces the elimination of the loan from the cover pool. Thus, exceeding the LTV cap does not make the whole loan ineligible for the cover pool, i.e. the limits are soft limits and only the fraction of the loan up to the limit will be considered as eligible cover and included in the asset cover test. The fraction that exceeds the limit will provide an additional credit enhancement.

### Systemic Relevance and External Support

According to the ECBC<sup>2</sup>, covered bonds outstanding increased significantly in the Netherlands over the past years. While the overall amount was EUR 20,5bn in 2008, it more than tripled to EUR 72bn in 2017. This increase is solely reflected in mortgage covered bonds outstanding, as the Netherlands have only issued mortgage covered bonds until now. The high outstanding amount is mainly caused by the boosted issuance of mortgage covered bonds in the aftermath of the financial crisis but also due to the implementation of the covered bond legislation in 2008, which more than doubled from around EUR 5,3bn in 2008 to EUR 14bn in 2011. In 2017, the issuance volume amounted to approximately EUR 12bn.

With a market share of approximately 45% outstanding covered bonds in relation to the entire covered bonds segment as of 2017, ING Bank is one of the largest covered bonds issuer in the Netherlands. Likewise, being the largest bank in the Netherlands, the positioning of ING Bank in the Dutch banking sector has been classified as systematically important.

### Summary Structural Risk

In general, the Dutch covered bond legislation defines the legal basis for covered bond programs in the Netherlands, 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.

We consider the structural framework in the Netherlands as positive, accomplishing an adequate set of rules for Dutch covered bonds. Furthermore, we contemplate the importance of ING Bank in the Dutch covered bonds market in our analysis. Due to those reasons, we set a rating uplift of (+4) notches.

## Liquidity and Refinancing Risk

### Minimum Overcollateralization

The Dutch legal framework stipulates that the minimum mandatory overcollateralization ratio has to be always 5% of the registered covered bonds outstanding on a nominal value basis when the actual outstanding loan amount of the cover assets is considered. In contrast, when the CRR LTV cut-off percentages of the cover assets are regarded, the sum of all cover assets has to be at least as high

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<sup>2</sup> Source: EMF-ECBC (2018), ECBC: European Covered Bond Fact Book 2018, EMF-ECBC

as the nominal value of the registered outstanding covered bonds, i.e. an overcollateralization ratio of 0%. Voluntary overcollateralization will be safeguarded.

### Short-term Liquidity Coverage

On a monthly basis, asset coverage tests have to be conducted to control whether the amount of cover assets exceeds the amount of outstanding covered bonds by the adequate magnitude. For the calculation of the coverage tests, cover assets are included at their nominal value and substitution assets at their market value. In case of a violation of the coverage tests, a one month grace period will be conceded, while the program will be stopped if the coverage tests cannot be fulfilled within this period, i.e. the issuer will neither be allowed to sell cover assets nor to issue new covered bonds.

Since 1/1/2015, in order to sustain liquidity, the issuer has to guarantee by law that the CBC can pay any coupon and redemption obligations (interest and principal coverage) on the covered bonds and any claim of other involved parties that rank senior to covered bond holders within the next 6 months. Considering soft-bullet or conditional pass-through covered bonds with a maturity extension of more than six months, the liquidity buffer has not to be employed for principal payments.

Furthermore, Dutch issuing credit institutions guarantee to mitigate liquidity risks by means of contractual requirements. For instance, issuers of hard-bullet covered bonds conduct with respect to repayments a pre-maturity test 6 or 12 months or less prior to maturity in case of a rating downgrade below P-1/F1+/A-1+ of their short-term rating and implement a pre-maturity liquidity facility, while issuers of soft-bullet covered bonds or conditional pass-through covered bonds use a maturity prolongation. To ensure interest payments within the next three months, covered bond issuers, establish depending on their contractual arrangements, a reserve fund or a reserve accounts.

### Stress Tests and Matching

While the Dutch law does not explicitly demand for risk mitigating provisions or instruments regarding market risks, the legal framework stipulates prescriptions to conduct dynamic stress tests on a regular basis, at least annually according to the Dutch Association of Covered Bond Issuers, and to present it to the Dutch Central Bank. It is obligatory to do stress tests to maintain the healthy ratio and to anticipate credit risk, interest rate risk, currency risk and liquidity risk, while derivative instruments have to be included to hedge these risks. Overall, EBA's guidelines regarding stress testing are satisfied.

### Asset-Liability Mismatch

Asset-liability mismatches ("ALM") arise with different maturities of cover assets and covered bonds. Depending on the issuer and currency of issuance, natural matching - i.e. the congruence of present values – forms the essential approach to reduce ALM risk. In addition, the statutory liquidity coverage requirement for 180 days is a safeguard mechanism to ensure the servicing of pending principal and interest payments.

### *Repayment Method*

In case of an issuer default, covered bonds will continue to exist and they will be reimbursed at the time of their original contractual arrangements, while the CBC will be responsible for interest and principal payments. Failure to pay does not automatically cause a covered bond default. The Netherlands issue hard-bullet covered bonds without any extension period, soft-bullet covered bonds with an extension period up to 24 months to grant additional time to pay back principal and interest payments of covered bonds, as well as covered bonds that go into pass-through in case of non-payment. If the covered bond holders commission the Security Trustee, he or she can induce an acceleration of the covered bonds against the issuer after an issuer default, but not against the CBC. Acceleration against the issuer does not inevitably cause acceleration against the CBC. To guarantee the CBC's insolvency remoteness, neither the issuer nor any affiliate credit institution is permitted to have a stake in or to take the management of the CBC. However, if the CBC goes bankrupt and cannot wipe off the covered bond holders' receivables, an acceleration of the covered bonds will take place in

case of hard- and soft-bullet covered bonds or they go into pass-through mode in case of conditional pass-through covered bonds.

#### Refinancing Costs

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

Issuing banks are allowed to use derivative instruments in the cover pool to hedge market risks, like interest rate and currency risks, and to facilitate risk management. In case of issuer default, derivative contracts in the cover pool cannot be cancelled upon the issuer's bankruptcy and continue to exist. Besides, counterparties have to allocate enough collateral, or have to be substituted, if their credit assessment no longer conforms to necessary requisites. Derivative instruments, like cover pool swaps, rank senior to covered bond holders, while covered bond series swaps rank *pari passu* to covered bond holders and payments of termination amounts of insolvent or downgraded derivative counterparties rank subordinated to covered bond holders.

#### Summary Liquidity and Refinancing Risk

Compared to other jurisdictions, the Dutch covered bonds legislation and the stipulated risk management processes for liquidity risks constitute a comparatively strict framework by which they can be effectively reduced.

Refinancing risks, however, cannot be structurally reduced under the hard bullet repayment structure, which can only be cushioned by sufficiently high overcollateralization or 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 the Dutch covered bond programs as positive which ensures a rating uplift of 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 64.850,00 debt receivables, of which 100,00% are domiciled in the Netherlands. The total cover pool volume amounted to EUR 12.041,71 m in residential (100,00%), commercial (0,00%) and others (0,00%). The ten largest debtors of the portfolio total to 0,08%. Table 3 displays additional characteristics of the cover pool:

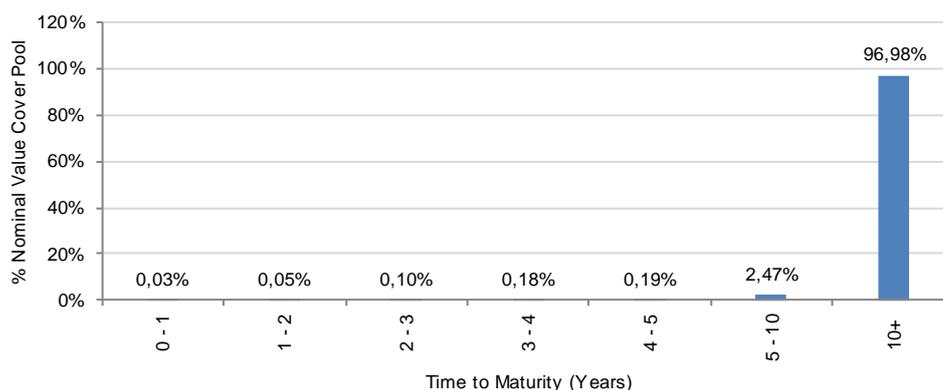
Table 3: Cover pool characteristics | Source: ING Bank

Characteristics	Value
Cover assets	EUR 12.042 m.
Covered bonds outstanding	EUR 9.500 m.
Substitute assets	EUR 0,00 m.
Cover pool composition	
<i>Mortgages</i>	100,00%
<i>Substitute assets</i>	0,00%
<i>Other / Derivative</i>	0,00%

Number of debtors	NA
Mortgages Composition	
<i>Residential</i>	100,00%
<i>Commercial</i>	0,00%
<i>Other</i>	0,00%
Average asset value (Residential)	EUR 97,07 k.
Average asset value (Commercial)	EUR 0,00 k.
Non-performing loans	0,0%
10 biggest debtors	0,08%
WA seasoning	107,04 Months
WA maturity cover pool (WAL)	17,47 Years
WA maturity covered bonds (WAL)	6,46 Years

We have listed an extended view of the composition of the cover pool in the appendix section “Cover pool details”, with, for example, a detailed regional distribution. 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 | Source: ING 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: ING Bank

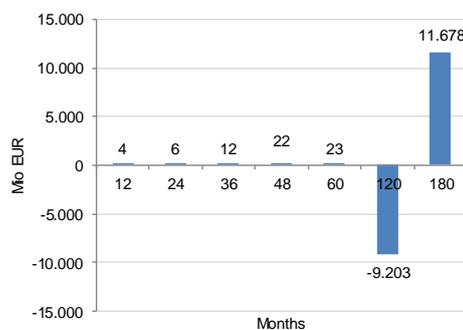
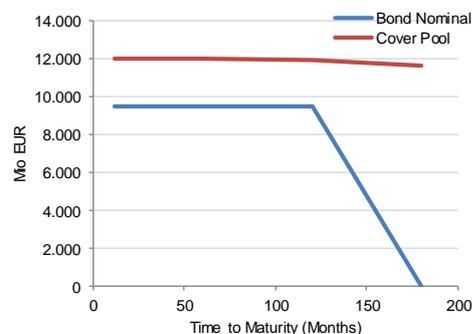


Figure 4: Amortization profile | Source: ING Bank



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

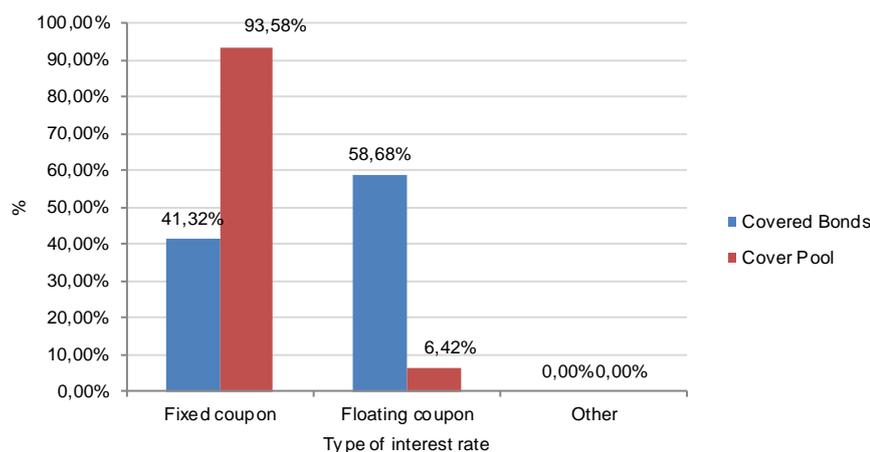
In Netherlands, issuing banks are allowed to use derivative instruments in the cover pool to hedge interest rate and currency risks. Furthermore, the Dutch legal framework provides for regular stress tests to be conducted to anticipate interest rate- and currency risks. Currency risk, regardless that is limited for this program as the cover pool assets and cover bonds are denominated in euros. In our Cash flow analysis we assume that the interest rate mismatches are fully hedged in the form of swap agreements; therefore, CRA did not apply any interest rate stress during the cash flow analysis

Table 4: Program distribution by currency | Source: ING Bank

Currency	Volume	Share (%)
<i>Cover Pool</i>		
EUR	12.042 m	100,00%
<i>Covered Bond</i>		
EUR	9.500 m	100,00%

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

Figure 5: Type of interest rate | Source: ING 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 historical issuer's NPL ratio to derivate a conservative default rate proxy for the approximation through the LHP distribution. For the ING Bank it has been assumed an expected default rate of 0,29% for the LHP. Furthermore CRA has considered a 15,00% correlation to define the LHP distribution. Table 5 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 5)

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

Rating	Default Rate (%)	Recoveries (%)	Expected Loss (%)
A-	12,39%	66,98%	4,09%
BBB+	11,72%	68,52%	3,69%
BBB	11,01%	70,22%	3,28%
BBB-	10,18%	72,41%	2,81%
<b>BB+</b>	<b>8,96%</b>	<b>76,06%</b>	<b>2,15%</b>
BB	7,78%	79,81%	1,57%
BB-	6,55%	84,23%	1,03%

## 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.

#### *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
A-	48,95%	0,88%
BBB+	45,97%	0,90%
BBB	43,07%	0,92%
BBB-	40,03%	0,94%
<b>BB+</b>	<b>36,74%</b>	<b>0,96%</b>
BB	33,12%	0,99%
BB-	29,38%	1,01%

### 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

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- Correlations of cover assets and systematic risk factors
- Recoveries
- Maturity profile of covered bonds and cover assets (ALM)

Within a **BB+** 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 any extraordinary events. On this basis, the rating of the cover pool within our covered bond program rating has been set at BB+.

## Overcollateralization Break-Even Analysis

CRA also performed a break-even 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 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 7.

Table 7: Breakeven Analysis | Source: CRA

Rating Level	Break-even OC
A-	37,01%
BBB+	33,99%
BBB	31,05%
BBB-	27,96%
BB+	<b>24,45%</b>
BB	20,82%
BB-	17,18%

## 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 change in the implied rating. Based on the base case, there is a sensitivity of rating in terms of decreased recovery rates and increased defaults. 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 2 notches (see Table 8):

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

Defaults \ Recovery	Base Case	-25%	-50%
Base Case	BB+	BB+	BB
+25%	BB+	BB	BB
+50%	BB+	BB	BB-

### 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 BB+. This, however, did not ensure any secondary rating uplift which has been set at zero (0) notch.

## Counterparty Risk

### Transaction parties

Table 9: Participant counterparties | Source: ING Bank

Role	Name	Legal Entity Identifier
Issuer	ING Bank N.V.	3TK20IVIUJ8J3ZU0QE75
Servicer	ING Bank N.V.	3TK20IVIUJ8J3ZU0QE75
Account Bank	ING Bank N.V.	3TK20IVIUJ8J3ZU0QE75
Sponsor	Non available information at rating time	Non available information at rating time

Table 10: Interest rate and Swap counterparties | Source: ING Bank

Name	Legal Entity Identifier	Type of Swap
ING Bank N.V.	3TK20IVIUJ8J3ZU0QE75	Interest rate Swap
ING Bank N.V.	3TK20IVIUJ8J3ZU0QE75	Total Return Swap

### Derivatives

This covered bond program uses intra group derivatives in the form of interest rate swaps and total return swaps.

### 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 Dutch covered bonds legislation stipulates that the cover assets should be isolated from the general bankruptcy estate (insolvency-free assets) and the ongoing management of the cover pool will be guaranteed by the Security Trustee and the CBC. Under that mandate, the CBC will have the first priority on the upcoming 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 the event of the Issuer's insolvency.

## Appendix

### Rating History

Event	Initial Rating
Result	AAA
Rating Date	20.02.2019
Publication Date	28.02.2019

### Details Cover Pool

Table 11: Characteristics of Cover Pool | Source: ING Bank

Characteristics	Value
Cover Pool Volume	EUR 12.042 m
Covered Bond Outstanding	EUR 9.500 m
Substitute Assets	EUR 0 m
Share Derivatives	0,00%
Share Other	100,00%
Substitute Assets breakdown by asset type	
Cash	0,00%
Guaranteed by Supranational/Sovereign agency	0,00%
Central bank	0,00%
Credit institutions	0,00%
Other	0,00%
Substitute Assets breakdown by country	
Issuer country	0,00%
Eurozone	0,00%
Rest European Union	0,00%
European Economic Area	0,00%
Switzerland	0,00%
Australia	0,00%
Brazil	0,00%
Canada	0,00%
Japan	0,00%
Korea	0,00%
New Zealand	0,00%
Singapore	0,00%
US	0,00%
Other	0,00%
Cover Pools' Composition	
Mortgages	100,00%
Total Substitution Assets	0,00%
Other / Derivatives	0,00%
Number of Debtors	NA
Distribution by property use	
Residential	100,00%

# Creditreform Covered Bond Rating

ING Bank N.V.

Mortgage Covered Bond (Soft Bullet) Program

**Creditreform Rating**

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Commercial	0,00%
Other	0,00%
Distribution by Residential type	
Occupied (main home)	100,00%
Second home	0,00%
Non-owner occupied	0,00%
Agricultural	0,00%
Multi family	0,00%
Other	0,00%
Distribution by Commercial type	
Retail	0,00%
Office	0,00%
Hotel	0,00%
Shopping center	0,00%
Industry	0,00%
Land	0,00%
Other	100,00%
Average asset value (Residential)	97 tEUR
Average asset value (Commercial)	0 tEUR
Share Non-Performing Loans	0,00%
Share 10 biggest debtors	0,08%
WA Maturity (months)	107,04
WAL (months)	209,70
Distribution by Country (%)	
Netherlands	100,00
Other	
Distribution by Region (%)	
Groningen	2,23
Friesland	2,69
Drenthe	2,41
Overijssel	5,44
Gelderland	10,91
Noord-Holland	23,06
Zuid-Holland	23,64
Zeeland	1,35
Brabant	12,07
Utrecht	9,37
Limburg	2,89
Flevoland	3,94

Figure 6: Arrears Distribution | Source: ING Bank

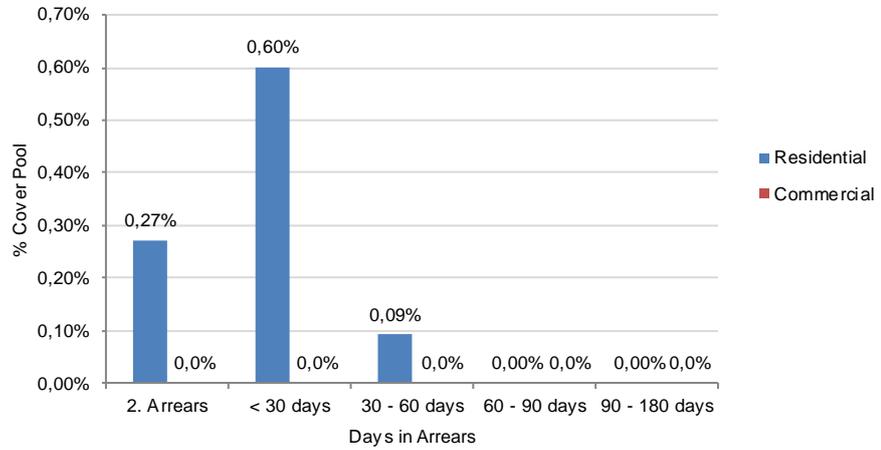


Figure 7: Program currency mismatches | Source: ING Bank

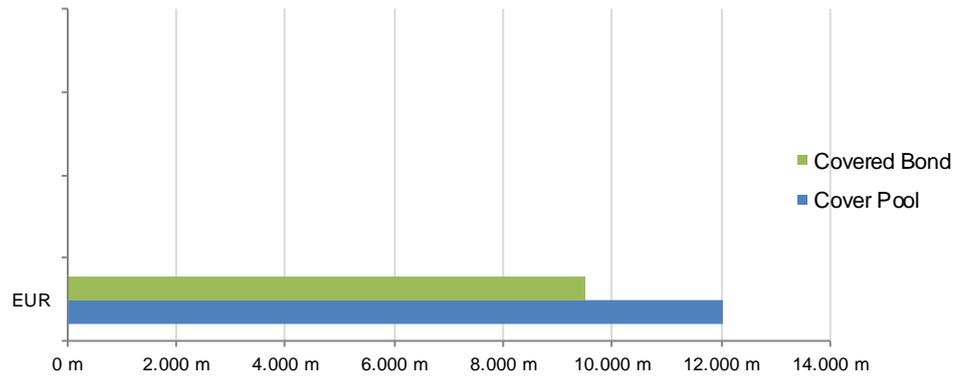
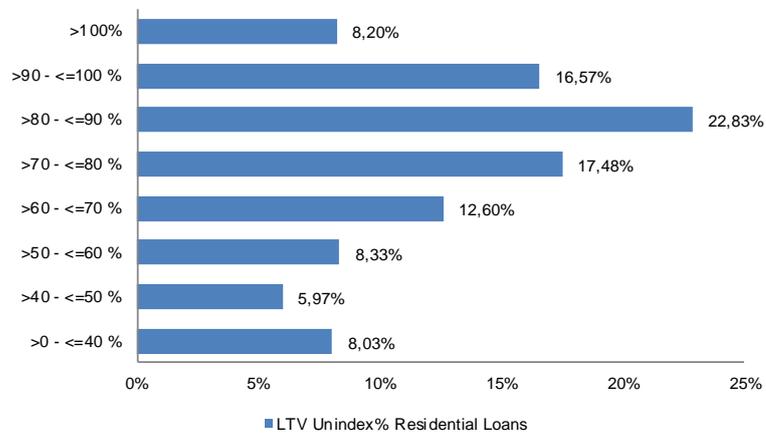


Figure 8: Unindexed LTV breakdown - residential pool | Source: ING Bank



## Key Source of Information

### Documents (Date: 31.12.2018)

#### Issuer

- Audited consolidated annual reports of ING Groep (Group) 2014-2017
- Rating file 2018- Monitoring
- Final Rating report as of 04.12.2018
- Miscellaneous Investor Relations Information and Press releases
- Peergroup-Data and other data from the S&P Global Market Intelligence Database

#### Covered Bond and Cover Pool

- HTT Reporting from ING Bank (31.12.2018)
- Market data Mortgage Cover Bond Program.

## Regulatory and Legal Disclosures

Creditreform Rating AG was neither commissioned by the rating object nor by any other third parties for the rating. The analysis took place on a voluntary basis by Creditreform Rating AG and is to be described in the regulatory sense as an unsolicited rating. The rating was conducted on the basis of Creditreform Rating's "Covered Bond Ratings" methodology 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 35 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 ING Bank.

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

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

This rating was carried out by analysts Edsson Rodriguez und AFM Kamruzzaman both based in Neuss/Germany. On 20.02.2019, the rating was presented to the rating committee by the analysts and adopted in a resolution.

The rating result was communicated to ING 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.

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

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

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The "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.

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

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

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# Creditreform Covered Bond Rating

ING Bank N.V.

Mortgage Covered Bond (Soft Bullet) Program

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Creditreform Rating AG

## Contacts

### Creditreform Rating AG

Hellersbergstraße 11  
D - 41460 Neuss

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

CEO:  
Dr. Michael Munsch  
Chairman of the board:  
Prof. Dr. Helmut Rödl

HRB 10522, Amtsgericht Neuss