

# **Model description**

## **Covered bond cash flow model**

## PURPOSE OF THE MODEL

1. We use our covered bond cash flow model (cash flow model) as an input when rating covered bonds according to our Covered Bond Rating Methodology.
2. The cash flow model supports our analysis of covered bond pool issue ratings as described in Appendix 1 of our Covered Bond Rating Methodology.
3. The cash flow model simulates the run down of a cover pool, assuming that the issuer is in default and the wind-down process is managed by an administrator. The model simulates stresses at five levels of severity using varying assumptions of credit loss severity, interest rates and pool liquidity.
4. The cash flow model output can impact covered bond ratings in instances where qualitative analysis of the bonds does not result in a 'aaa' assessment. In such instances, a standalone cover pool analysis is used to determine how many notches of uplift are possible. The cash flow analysis is an important component in determining whether or not a standalone cover pool could fulfil the issuer's bond obligations in an event of run down.

## DESCRIPTION OF THE MODEL

5. The cash flow model consists of a stress assumption overview, including input assumptions and stressed credit loss output data, and a detailed forecasting model for five-year cash flows under varying levels of stress. It also allows the database to be updated.
6. The cash flow model enables analysts to assess to which extent the cover pool is able to cover cash flow needs during a five-year wind-down period. The model output details the projected cash flows over five years in varying stress scenarios
7. The projections form the basis of the cash flow analysis summary published in our full reports on rated issuers.
8. In rating committees, the output from the cash flow model is used to determine the number of notches of rating support that a cover pool can be awarded, though the final decision is based on analytical judgment and a committee decision. In addition, analytical judgment is used to determine the level of stress that should be applied as described in the methodology.

## ASSUMPTIONS UNDERLYING THE MODEL/KEY RATING ASSUMPTIONS

9. The key assumptions of the cash flow model are defined in detail in our Covered Bond Rating Methodology for each level of stress. These assumptions include default rates, multi-year credit loss profiles, non-performing loan rates, pre-payment activity, interest rates, bond spreads and margins, liquidation costs and administration fees.

## INPUTS

10. The cash flow model uses data from Harmonised Transparency Templates or similar data typically available on a quarterly basis on issuer websites. Such data provide the initial totals for pool assets and outstanding bonds, as well as the five-year contractual maturity of the assets in the cover pool and the five-year maturity profile of the outstanding covered bonds.
11. In addition, NCR-modelled stressed credit losses are input into the cash flow model, using the assumptions outlined in our Covered Bond Rating Methodology.

## DATA USED IN THE MODEL

12. The cash flow model was designed to simulate the cash flow scenarios defined in our Covered Bond Rating Methodology. The stress levels were determined using back testing based on historical data from Nordic real estate markets.

## THE LIMITS AND WEAKNESSES OF THE MODEL

13. Our standalone cover pool analysis is a conservative simplification of the unwinding of a cover pool to repay obligations. The standalone analysis does not explicitly include new bonds issued by the administrator to achieve short-term liquidity, but we assume that any small differences are managed by the administrator. In addition, the analysis does not consider a scenario in which the administrator issues new bonds to match the duration of outstanding assets. In reality, it is possible for an administrator to take measures for the benefit of investors.
14. Given the assumptions used in the cash flow model and the high-severity, low frequency nature of the event modelled, the likelihood that an actual default and run down would unfold in line with the modelled assumptions is highly uncertain.

## MATERIAL CHANGES TO THE MODEL

15. The cash flow model includes a version updating log and changes require rigorous approval (four-eyes signoff). Checks and balances flag input errors and/or missing data and semantic versioning is used for all updates, no matter how minor. Previous versions are maintained separately.

## RELATED METHODOLOGY AND PRINCIPLES

16. [Covered Bond Rating Methodology](#)
17. [Financial Institutions Rating Methodology](#)
18. [Group and Government Support Rating Methodology](#)
19. [Rating principles](#)

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