SCOPE Ratings

General Structured Finance Rating Methodology

Structured Finance

8 May 2026

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1. Introduction

1.1 Scope of application and rating definitions

This methodology applies to all types of structured finance instruments, generally in the form of debt instruments issued by a bankruptcy-remote special-purpose vehicle (SPV) or by other types of entities sharing similar characteristics (which also are referred to as SPVs throughout this document) and exposed to the performance of real or financial securitised assets. The securitised assets' economic risk can be transferred to the issuer via either legal ownership (true sale) or credit derivatives (synthetic transfer), where the latter may be funded or unfunded. This methodology also applies to ratings assigned to reflect the ability of an issuer to honour its obligations as counterparty under financial contracts (see Section 7.1 Rating obligations under bilateral financial contracts). Scope may also assign ratings to instruments defined under unexecuted contracts which are related and tied to an executed one.

This methodology applies to transactions issued out of European jurisdictions and in other jurisdictions where terms and conditions, legal frameworks and institutional frameworks are similar thereto.

This methodology applies to both the assignment of new ratings and the monitoring of existing ratings.

Structured finance instruments issued by an SPV are generally non-recourse or limited-recourse debts. Their repayment is driven primarily by the underlying collateral's performance and the transaction's priorities of payment or loss allocation mechanisms. Collateral can include a wide range of financial or real assets encompassing sectors such as real estate, consumer credit, small and medium-sized enterprises (SMEs), corporates, project finance and infrastructure. Specific considerations outlined in the asset-class-specific methodologies (see Appendix 9.3) supersede the general considerations outlined in this document.

Scope's structured finance credit ratings

A structured finance rating reflects the expected loss associated with the non-payment of the coupons and principal payments contractually promised by an instrument on a payment date or by its legal maturity. It factors in both the likelihood of default on such payments and the loss severity expected upon default, referencing the instrument's weighted average life. While the expected loss approach forms the cornerstone of Scope's analysis, the agency also assesses the likelihood of default and may limit the rating of instruments that have a low expected loss but a high default likelihood. For more detail, refer to the technical notes on Section 8.1 Expected loss framework and Section 8.2 Timely payment and probability of default analyses.

Scope's structured finance credit ratings constitute a forward-looking opinion on the relative credit risks of a debt instrument. The definition of default is provided under Scope's Rating Definitions.

Scope's quantitative analysis may be adjusted by qualitative considerations. These generally relate to unquantifiable elements or are applied when Scope identifies certain limitations such as highly volatile cash flow model results. The qualitative analysis incorporates factors such as the quality of origination and servicing procedures, operational risks, the transaction's complexity and incentive structure, the legal and tax framework, excessive counterparty risks, or the macroeconomic context. Scope does not mechanistically limit the maximum rating achievable by a securitisation based on the credit quality of the country of the issuer or of the securitised assets.

Scope applies the 'SF' suffix to structured finance instruments in line with Regulation No. 1060 of the European Parliament and the European Council. Such instruments include asset-backed securities (ABS), mortgage-backed securities (MBS), collateralised debt obligations (CDO) or collateralised loan obligations (CLO). The suffix is not applied to non-tranched asset securitisations or obligations under financial contracts. Scope may, however, apply this methodology and relevant addendums to analyse the credit risk of instruments not subject to the 'SF' suffix.

Scope does not apply rating Outlooks to its structured finance ratings.

Local- and foreign-currency structured finance instrument ratings

Unless otherwise specified, our ratings on structured finance instruments apply equally to liabilities in local and foreign currency. We view transfer and convertibility risks as negligible in investment grade countries. As a result, in those jurisdictions, local and foreign currency structured finance instrument ratings are at the same level.

Conversely, for structured finance transactions issued out of or with relevant exposures located in countries assessed by Scope with a sovereign credit quality of below BBB-, we may assign both foreign and local currency ratings and potentially constrain the foreign currency rating at the level of the sovereign rating.

Foreign currency ratings address the risk that a structured finance instrument incurs a loss due to transfer and convertibility risks such as government-imposed restrictions on foreign-currency payments. These risks may affect the payments from: i) the issuer to the investor; ii) the assets to the issuer; and/or iii) a relevant third-party to the issuer or investor. We may give credit to reserves or insurances or other mitigation mechanisms if these sufficiently protect the transaction from such risks.

1.2 Key components

This methodology consists of several essential components that provide a comprehensive evaluation of structured finance instruments. It involves detailed assessments of i) collateral risk; ii) structural risk; and iii) counterparty risk. The collateral risk analysis emphasises the quality, performance and diversification of the underlying assets. The structural risk analysis focuses on the key structural features of the transaction, including cash flow mechanisms, liquidity and interest risks. The counterparty risk analysis examines operational and financial risks stemming from the rated instrument's exposure to the various counterparties. Together, these elements deliver an integrated and robust framework for rating structured finance transactions.

1.3 Data sources

Key assumptions in this methodology are informed by discussions with external parties – such as issuers, institutional owners, regulators and governments – and Scope's analysis of financial and non-financial information such as issuer financial statements and annual reports, bond documentation, and financial market, industry and economic data and history. Assessing the adequacy and completeness of the information available for the rating process is a prerequisite. We aim to identify data limitations, such as partial or missing information, and highlight them in our analysis. Scope applies conservative assumptions when data quality on the collateral pool is poor or historical data sets only cover a short time period, to reflect the greater uncertainty in these instances. Insufficient quantitative or qualitative data may even make it impossible to assign a rating.

2. Executive summary

2.1 Latest methodology updates

This document is the latest update of Scope Ratings' General Structured Finance Rating Methodology. It incorporates material updates as well as non-material changes. The update provides additional guidance on our analytical approach, aims to improve transparency and ensures greater consistency among Scope's asset-class-specific methodologies, and – under certain circumstances – allows for a simplification of analytical methods and assumptions.

Material changes relate to the sections listed below:

- recoveries upon default (see Section 3.1.2)
- senior expenses and portfolio yield assumptions (see Section 3.1.5)
- interest rate assumptions (see Section 4.1.4)
- extended guidance on rating obligations under bilateral financial contracts (see Section 7.1)

Non-material changes include the following:

- editorial changes and enhancements to the structure of the methodology to improve readability
- extended guidance on revolving portfolios' risk analysis (see Section 3.1.4)
- extended guidance on transactions' monitoring procedures (see Section 6.4)
- updated illustrative average residential market-value-decline assumptions per country (see Table 4)
- streamlining of former Section 5.1.6. Portfolio concentration risk, and alignment of the analytical approach to assess direct and indirect credit risk exposures (see Section 3.1.3 Concentration risk and line-by-line credit analyses)
- streamlining of former Section 5.2.6 Insurance-related credit enhancement (new Section 4.1.6)

2.2 Methodology highlights

Scope's quantitative analysis is supported by the use of tools and models, primarily Scope's proprietary Cash Flow Model and Cash Flow Model Master Waterfall (CFM and CFM MW, together the Cash Flow Models), which reflect a transaction's key structural features (notes' tranching, priorities of payment, sources of liquidity, etc) and capture Scope's input assumptions. The distribution of lifetime defaults of the underling portfolio and lifetime recovery assumptions generally constitute our key assumptions.

The models provide an indicative rating primarily based on an instrument's expected loss and weighted average life (which are benchmarked against Scope's idealised expected loss table, available on scoperatings.com) and, in certain cases, constrained by the instrument's probability of default. The results of the Cash Flow Models may be adjusted by qualitative considerations, which may relate to the collateral analysis, the transaction structure analysis, or counterparty risks and incentives.

Scope's counterparty risk analysis reflects the regulatory and supervisory framework for banks, such as bail-in and stronger prudential metrics, and the resulting limited likelihood for banks to default in the short term. Non-adequately mitigated counterparty risk may limit the final achievable rating, link it to the counterparty's performance, or even lead Scope to not assign a rating. For further detail please see Scope's Counterparty Risk Methodology.

The collateral behind structured finance instruments can include a large variety of assets like loans, credit lines, bonds or credit default swaps. Assets can reflect secured or unsecured risk exposures and can also be real assets. Asset obligors include consumers, corporates or even public entities and sovereigns. Collateral can vary widely in composition, ranging from a few heterogeneous assets in commercial mortgage-backed securities (CMBS) or CDO/CLO transactions to several thousand relatively homogeneous assets in ABS, residential mortgage-backed securities (RMBS) or SME ABS transactions. For SME ABS, collateral may comprise numerous assets, but with only a few representing a large portion of the total balance.

Scope's preferred approach for assessing the credit quality of the underlying assets depends on the portfolio characteristics, such as its lifespan, granularity[1], homogeneity[2] and turnover options.

- In the case of granular portfolios subject to substantial replenishment, typical for revolving ABS structures, Scope generally focuses on the historical performance of the originator's loan book and on the assets' eligibility criteria. For portfolios which are either static or feature only limited turnover options, Scope complements the analysis with a focus on the specific characteristics of the securitised pool.
- In the case of non-granular portfolios, Scope's preferred approach is to analyse loan-by-loan data. Subject to certain concentration thresholds, Scope may produce a credit rating or an assessment on some or all credit assets in the pool and may also incorporate external credit assessments from a regulated bank or other rating agencies (see Section 3.1.3 Concentration risk and line-by-line credit analyses).

Portfolio granularity also determines the selection of the modelling approach that captures Scope's default assumptions. We may measure granularity by obligor, industry or region.

- Granular portfolios allow for a statistical analysis of historical performance data. When the collateral portfolio is granular but exhibits certain significantly heterogenous features, Scope may under certain circumstances segment the analysis of historical data into different asset type buckets, or, in the case of the most concentrated positions, examine them on a line-by-line basis.
- For collateral pools with low granularity or high concentrations, Scope generally produces a non-parametric distribution of defaults that reflects specific assumptions for each asset using a Monte Carlo simulation method, typically with a Gaussian copula dependency framework (see Technical Note 8.4 Scope Portfolio Model).

The building blocks of Scope's structured finance analysis – collateral risk analysis, structure analysis and counterparty risk analysis – are addressed in Sections 3 to 5, respectively. Section 6 discusses the complementary analysis, while Section 7 addresses transaction-type-specific considerations. Section 8 provides technical details on Scope's quantitative tools and methods.

3. Collateral risk analysis

The collateral risk analysis involves the determination of the asset performance assumptions which constitute inputs to Scope's Cash Flow Models, such as defaults and associated recoveries. We incorporate the analysis of historical performance data into our assumptions, complemented by a forward-looking view on the macroeconomic cycle or other relevant factors. Section 3.1 discusses analytical methods and assumptions applicable to the collateral pool of assets, such as the distribution of lifetime portfolio defaults, recovery assumptions and line-by-line credit assessments. Section 3.2. addresses important qualitative performance drivers embedded in our analysis. As an example, the assessment of asset management, servicing and origination

[1] To assess portfolio granularity, Scope measures the equivalent effective number of exposures – the inverse of the Herfindahl Index. E.g. formula of effective number of obligors: $D_{obligors} = \frac{1}{\sum_{i=1}^{obligors} p_i^2}; where\ p_i = \frac{Balance\ _{obligor\ i}}{Total\ Balance}$

[2] Homogeneity indicates whether portfolio assets share a lot of characteristics that allow us to use similar assumptions to describe their credit profile.

procedures is particularly important for revolving transactions or for transactions whose assets require intensive care or dynamic management.

Table 1: Summary of asset types and typical characteristics of core structured finance asset classes

		Typical characteristics of the asset types			Asset analysis	
Deal types	**Underlying assets**	**Risk horizon**	**Collateral granularity**	**Homogeneity**	**Focus**	**Asset-individual rating or credit assessment**
ABCP	Commercial discount credits or credit advances	Short term	Granular	Homogeneous	Originator loan book	No
Credit cards	Credit card balances	Short term	Granular	Homogeneous	Originator loan book	No
Trade receivables	Commercial credit	Short term	Granular	Homogeneous	Originator loan book	No
Auto ABS	Auto loans or auto leases	Medium term	Granular	Homogeneous	Securitised portfolio	No
Consumer ABS	Consumer loans	Medium term	Granular	Homogeneous	Securitised portfolio	No
RMBS	Residential mortgages	Long term	Granular	Homogeneous	Loan by loan or securitised portfolio	No
SME ABS	Loans to small and medium-sized enterprises	Medium term	Granular	Mixed	Loan by loan or securitised portfolio	Possible
NPL ABS	Non-performing or unlikely-to-pay loans	Medium term	Granular	Mixed	Loan by loan	No
Corporate CLO/CDO	Corporate leveraged loans, large corporate bonds, credit default swaps	Medium term	Non-granular	Relatively homogeneous	Loan by loan or securitised portfolio	Yes
CMBS	Commercial mortgages	Medium to long term	Non-granular	Heterogeneous	Loan by loan	Yes
CRE loans	Commercial real estate loans	Medium to long term	Non-granular	Heterogeneous	Loan by loan	Yes
Reverse mortgage	Equity release mortgages	Long term	Granular	Mixed	Loan by Loan	No
Credit-linked notes/ repackaging	Any financial assets	Medium to long term	Single asset	N/A	Pass-through rating/asset by asset	Yes
Insurance-linked securitisation	Pool of insurance contracts or reinsurance contracts referencing a portfolio of exposures	Medium term	Granular	Homogeneous	Securitised portfolio of exposure	No
Other/esoteric	Real assets, funds shares, credit default swaps, other	Short to long term	Non-granular	Heterogeneous	Bespoke	Possible
Project finance CLO	Project finance debt	Medium to long term	Non-granular	Heterogeneous	Loan by loan	Yes

Source: Scope Ratings

3.1 Analytical methods and assumptions

3.1.1 Portfolio default distribution

For granular pools, Scope typically assumes an inverse Gaussian distribution to approximate the portfolio's lifetime default rate distribution. The parameters of the distribution (the mean default rate and its coefficient of variation) are generally calibrated based on vintage data provided by the originator, potentially adjusted by qualitative factors and our forward-looking view on macroeconomic conditions (see Technical Note 8.5 Vintage analysis). Scope may also consider transaction benchmarks exposed to similar collateral, public historical data, proprietary data, market studies by reputable providers and academic research.

For collateral pools with low granularity or high concentrations, Scope generally produces a non-parametric distribution of defaults using the Scope Portfolio Model (see Technical Note 8.4). The model implements a Monte Carlo simulation capturing line-by-line defaults assumptions, which are derived based on the methods described in Section 3.1.3.

3.1.2 Recoveries upon default

Scope may apply two alternative methods to determine aggregate recovery rates on lifetime portfolio defaults, namely stochastic recovery rates (i.e. the probability distribution of recovery rates is approximated with a beta distribution), or rating-conditional recovery rates (i.e. recovery rate assumptions that decrease as the rated instrument's target rating becomes higher). Scope's standard approach is to model stochastic recoveries on granular portfolios where recoveries assumptions may be derived through statistical analysis or historical data[3]. By contrast, we apply rating-conditional recovery rates on portfolios which primarily rely on a fundamental analysis of recoveries[4], or where the implementation of a parametric distribution faces practical limitations, for instance, due to the existence of different recovery regimes[5].

The beta distribution that we apply to approximate the stochastic recovery rate distribution is defined by two parameters: the mean of the distribution, which reflects our base case recovery rate, and a distressed quantile, which is derived by applying a distressed recovery rate haircut to the mean. In addition, we model a portfolio default rate distribution which moves in locked dependency with the recovery rate distribution such that higher defaults are associated with lower recovery prospects and vice-versa (i.e. full dependency assumption).

Under the rating-conditional method, the B rating-level assumption also reflects our base case recovery rate, while distressed market conditions are captured under the AAA rating-level assumption. Intermediate assumptions between B and AAA under the rating-conditional method are derived through interpolation techniques.

The calibration of base case and distressed recovery rates can also follow two different approaches: a statistical analysis of recovery performance, which is typically applied to granular portfolios (secured or unsecured), or a fundamental analysis of recoveries, which is generally only applicable to secured exposures (see Technical Note 8.6 Asset recovery analysis).

Base case recovery rates depend, among other factors, on the nature of the exposure (i.e. unsecured or secured), the type of security, and the degree of overcollateralisation. Accordingly, they may vary significantly across transactions and asset classes, ranging from low double-digits to close to full recoveries.

Distressed recovery rate haircuts typically range between 25% and 40%. Applicable haircuts depend on a variety of factors such as the transaction-specific characteristics of the collateral portfolio (e.g. granularity, type of security, average loan-to-value if applicable and liquidity), the assumed level of dependency between defaults and recoveries, the volatility and length of historical recovery rate time series, and our forward-looking view on economic and local market conditions. Transaction-specific assumptions may rely on benchmark transactions with similar asset characteristics.

3.1.3 Concentration risk and line-by-line credit analyses

Portfolios exposed to significant credit risk concentrations require individual credit assessments. Scope may assess the credit quality of individual risk presenters internally or based on external credit risk parameters mapped to Scope's rating scale. Subject to the concentration thresholds displayed in Table 2, Scope may rely on the following options:

1) Ratings by Scope
2) Ratings from other credit rating agencies accepted under the Eurosystem credit assessment framework, [6]
3) Other external ratings from supervised and regulated credit rating agencies[7]
4) Credit estimates or similar assessments by Scope or its affiliates[8]
5) Other credit risk measures[9] or fallback assumptions

Table 2: Standard approach for individual credit risk analysis

[3] Typically, consumer and Auto ABS, SME ABS, CLOs/CDOs and RMBS
[4] Typically, CRE, CMBS, NPL ABS
[5] For instance, for portfolios benefiting from insurance or guarantee protections, or transactions exposed to residual value risk.
[6] Second-best rating is chosen if more than one is available
[7] Second-best rating is chosen if more than one is available
[8] i.e. point-in-time assessments which differ from ratings in that they rely on less information than ratings and as such are not assigned based on a rating methodology.
[9] Such as internal rating models of the originator, loan book vintage data or public rating benchmarks from a regulated and supervised credit rating agency.

Concentration thresholds[10]	Assessment approach hierarchy and applicability
Less than 5%	1, 2, 3, 4, or 5
5% <= exposure < 10%	1, 2, 3, or 4
10% <= exposure < 25%	1, 2, or 3
Exposure >= 25%	1 or 2

Source: Scope Ratings

For any entity that has not publicly filed for bankruptcy or any other debt protection scheme, Scope may use stale credit estimates subject to certain conservative adjustments. If the credit estimate is not older than 18 months, Scope will apply a conservative adjustment of up to three notches. If the credit estimate is older than 18 months, e.g. for operational reasons like credit relevant information not received on time, Scope will cap the assumed credit quality of the risk presenters at the lower of B-, or the latest adjusted credit estimate assignment. Please refer to Section 6.3 regarding the sensitivity analysis.

3.1.4 Revolving portfolio risk analysis

When the composition of the initial portfolio is materially exposed to negative portfolio migration risk, we may model a hypothetical portfolio incorporating appropriate stresses to the key portfolio characteristics or incorporate revolving portfolio risks qualitatively into our analysis[11].

The risk of a negative migration of the portfolio characteristics is assessed case by case, based on various factors such as i) the duration of the revolving period; ii) whether the portfolio is actively or passively managed; iii) the portfolio amortisation profile, which may affect the expected turnover rate; iv) portfolio covenants and asset eligibility criteria; or v) origination criteria or the asset manager's reinvestment strategy and track record.

We typically model a transaction's cash flows from the beginning of the amortisation phase and benchmark the instrument's expected loss against its expected weighted average life over the amortisation phase. In this context, we also assess the risk that cumulative losses during the revolving period erode a transaction's available credit enhancement.

3.1.5 Other collateral assumptions

3.1.5.1 Senior expenses

We generally assume the aggregate of portfolio management, administrative and statutory expenses payable by the issuer and senior to the rated instruments as a percentage of the outstanding portfolio balance, subject to a floor amount. Our assumption may reflect fee levels defined in the legal documentation or be subject to a minimum rate, particularly to address the risk of a servicer or asset manager replacement event.

For asset classes which feature low market fees and good degree of available replacements, benchmark minimum senior expenses typically range between 0.3% and 0.5% as a percentage of the outstanding portfolio balance. Such portfolios typically feature granular, homogeneous and passively managed assets. Lower fee assumptions may be applicable if this is consistent with the contractual documentation and a counterparty replacement event is extremely unlikely relative to the instrument's assigned ratings. Conversely, assets which require intensive care – such non-performing loans (NPL), specific commercial real estate (CRE) portfolios, or certain actively managed corporate debt portfolios – are subject to higher senior fees including, among others, special servicing fees, asset management fees and advisory fees.

3.1.5.2 Portfolio yield

We generally model a portfolio yield vector prior to defaults and prepayments.

For granular, static portfolios, we apply a haircut to contractual rates to address the risk of yield compression arising from the concentration of defaults and prepayments on the highest yielding receivables. Our standard assumption is that 20% of initial lifetime defaults and prepayments are allocated to the highest-yielding receivables over time. Yield compression may also result from the originator and debtor renegotiating a loan, which may be allowed by the transaction documents to a certain limit.

For revolving, passively managed portfolios, we may consider potential changes in the yield vector caused by turnover of receivables, based on transaction covenants which usually set a minimum guaranteed yield either on aggregate or for each new

[10] Obligor concentration is measured as a percentage of the outstanding (fully ramped if applicable) portfolio balance, while the concentration of indirect risk presenters (such as a lessee of a securitised asset) is generally measured based on their expected contribution to lifetime transactions cash flows.

[11] For instance, the assigned rating may deviate from Scope's Cash Flow Model output.

loan. For ramping up or actively managed portfolios, in addition to the consideration of transaction covenants, we may also account for the manager's strategy and track record as well as market benchmarks to derive portfolio yield assumptions.

3.2 Qualitative performance drivers

3.2.1 Originator, asset manager and servicer evaluations

The performance of the underlying assets can be affected by different transaction parties such as the originator, asset manager and servicer. Where applicable, we review the operational processes employed by each of the originator, asset manager or servicer when assigning new ratings, in particular for transactions whose assets require intensive care, dynamic management or active workout.

The review of the processes may lead to adjustments to the transaction's assumptions regarding e.g. the default rate, the recovery rate or lag, or portfolio yield. We expect the parties to have sufficient operational experience in the relevant market and in originating, managing and servicing the products comprised in the pool to be securitised. We also expect the parties to provide historical performance and recovery data. The more detailed principles for our review of the originator, asset manager and servicer are published as part of the asset class specific methodologies, where applicable. If relevant we can also refresh the reviews of the originators, asset manager and servicer during the monitoring process.

We review the risks associated with the originator's products, underwriting guidelines and controls applied during the origination process with the objective to assess whether the assets from an originator are likely perform in line with, better or worse than assets from other originators, particularly in times of stress. The quality of the origination practices and controls may manifest itself as a better, or worse, performance relative to comparable asset pools originated by a typical originator. Scope also evaluates the asset portfolio manager's ability, incentives and potential to add value in the context of the transaction. This is particularly important for managed transactions with covenants that limit or allow a significant margin for credit deterioration from the actual characteristics of the invested collateral. This is also important for transactions whose performance is driven by value generation from active asset management such as capital expenditure plans and business plans connected with transactions exposed to real estate.

For transactions involving active management of the collateral pool, i.e. to source, develop, work out, add, exchange or remove assets, Scope examines the potential risks related to the asset manager's performance. The relevance of this analysis greatly depends on the level of discretion left to the manager or servicer and how this can maximise, preserve or destroy the collateral pool's value. As an example, the performance of NPL transactions depends on the servicer's capabilities. Special servicers also played a key role in maximising recoveries in recent European CMBS transactions. Similarly, the active role of CLO managers helped to not only preserve the portfolio par value of several transactions during economically distressed periods, but also accelerate the transactions' recovery by seizing investment opportunities to reconstruct notional par.

Scope analyses the asset manager or servicing agent by reviewing its structure, skills, expertise, processes, performance and track record, considering:

- the agent's economic incentives within the structure, e.g. remuneration, interest in the transaction's performance, and how or to what extent its interests are aligned with those of debt investors;
- the importance of the securitised asset segment within the agent's overall development strategy;
- the standard of care and general liability; and
- reputational risk.

3.2.2 Representations and warranties

Scope considers the strength and expected impact of representations and warranties made by transaction parties, including those made by the originator of the assets in the collateral pool. In some instances, Scope may complement representations and warranties with any external audits performed on the pool.

For the portfolio audits, Scope generally relies on the standard agreed-upon procedures that recognised accounting firms apply for the respective asset class and a given level of portfolio granularity.

4. Structure analysis

Scope replicates the most important features of a transaction's liability structure to measure how, when and to what extent cash flows generated from collateral cover costs and liabilities borne by the structure. The analysis provides an expected loss, an expected weighted average life and a probability of default for each rated instrument.

Where relevant, Scope applies stressed market assumptions, for instance, on interest and foreign exchange rates, to test the robustness of a given structure. Other assumptions affecting the structure analysis may be obtained from the analysis of the transaction documents or assessed qualitatively. For instance, the most constant parameters relevant to income and expense assumptions are derived from contractual terms governing the structure, while parameters that are not contractually specified or include provisions for variable components will be incorporated into Scope's qualitative assessment.

4.1 Analytical methods and assumptions

4.1.1 Cash flow model implementation

Scope typically derives an expected loss and an expected weighted average life for each rated instrument though the implementation of Scope's Cash Flow Models. The models incorporate Scope's asset and market assumptions and replicate the relevant features of the transaction structure (see Technical Note 8.3 Scope's Cash Flow Models).

Key structural features generally include: i) the order of priority of rated notes' interest and principal payments; ii) the instrument's payment frequency; iii) enhancement features such as excess spread, cash reserves or liquidity buffers; iv) mismatches of cash flows between the underlying collateral and the issuer's financial obligations; v) the coverage of the issuer's ordinary and extraordinary expenses; vi) guarantees or hedging mechanisms; vii) covenants, performance triggers or other protective mechanisms; and viii) call, early-redemption, asset-substitution or new-issuance features.

For simple structured finance transactions for which cash flow allocation does not drive the rating, Scope may derive the notes' expected loss directly from the collateral pool's loss distribution and allocate losses to the rated instrument in each scenario, instead of computing expected loss through a full cash flow allocation. For instruments that are not subject to material credit enhancements, the expected loss of the rated debt instrument may equal a simple weighted average of the expected loss of each asset securing the instrument's repayment.

4.1.2 Liquidity coverage

While Scope's structured finance ratings are anchored in the measure of expected loss, Scope also assesses the frequency of missed payments.

A liquidity shortfall in a transaction, i.e. the issuer's available funds being insufficient to cover senior costs and interest payments on the notes, may occur in different instances, such as i) insufficient cash flows received from the securitised portfolio; ii) a servicer disruption causing a temporary cash interruption; iii) the servicer's default resulting in issuer and servicer funds being commingled; and iv) the default of a key counterparty such as the swap counterparty, account bank or paying agent. We analyse whether liquidity support in a structure can reduce the risk of missed interest payments over certain periods, such as the time needed to replace a disrupted servicer.

The liquidity coverage needed to achieve a certain rating depends on a variety of factors such as: i) the type of assets being securitised and the complexity of the servicing procedures; ii) the transaction's liability structure; iii) the counterparties' operational and financial strength; and iv) available counterparty replacement mechanisms. The first layer of liquidity protection is generally provided by regular cash inflows, excess spread, and 'principal to pay interest' mechanisms. Scope's analysis considers stresses on reference interest rates and may account for optional liquidity injections, derivative contracts ensuring a certain level of liquidity, and the effectiveness of servicer replacement mechanisms, such as back-up servicing agreements.

In securitisations of plain-vanilla performing assets, the minimum liquidity support needed to achieve ratings in the AAA or AA categories ranges between two and six months of the expected senior fees and interest on the senior non-deferrable notes. For investment grade ratings on senior non-deferrable notes in the A or BBB categories, our analysis can incorporate the incentives in place and capabilities of a transaction party to provide additional liquidity to a transaction.

For transactions whose assets produce irregular cash flows or require complex servicing, Scope may only assign ratings in the AAA or AA categories if the minimum liquidity coverage ranges from 12 to 18 months. For investment grade ratings on senior non-deferrable notes in the A or BBB categories, we consider qualitative mitigants such as optional liquidity injections, but we may still require a certain level of readily available liquidity, e.g. in the form of a liquidity reserve.

Mezzanine and junior notes typically have coupons that are deferrable, making these instruments less sensitive to liquidity risks as a non-payment of interest would typically not trigger a default on these notes. However, as they become the most senior note following the repayment of originally higher-ranking instruments, the application of a transaction's events of default may shift. Consequently, in the context of the liquidity coverage analysis, Scope generally defines the senior note as the most senior note at a given point in time during the life of the transaction.

4.1.3 Interest payment deferral

When structured finance instruments contractually allow for interest to be deferred and then potentially accrued for performance reasons, Scope will consider a downward adjustment of the instrument's rating. We only assign ratings in the AAA or AA categories if a liquidity shortfall is highly unlikely (see technical note 8.2 Timely payment and probability of default analyses).

Scope is unlikely to assign investment grade ratings to instruments that allow discretionary interest deferral over long periods, i.e. greater than the shorter of one year or two interest payment dates.

4.1.4 Interest rate assumptions

Interest rate risk is the risk that the interest rate payable on the rated instruments differs from the interest rate on the securitised assets. Such risk may stem from i) different rate types (fixed or floating) between the securitised portfolio and the rated instruments, or asset-liability mismatches; ii) basis risk (where both the portfolio and the notes have a floating rate, but they are linked to different reference rates); and iii) reset date mismatch (where both the portfolio and the rated instruments have floating rates linked to the same reference rate, but the reset dates are different).

To mitigate interest rate risks, the issuer may enter into a contractual hedging agreement. We assess the main terms of the hedging agreement to determine how effectively the risk is mitigated. When both assets and liabilities have floating rates, high interest rates combined with elevated defaults create a mismatch as interest expense remains high while income from defaulted assets disappears. This dynamic can lead to severe negative carry and liquidity stress, as funding costs persist even when asset cash flows collapse.

Scope's general approach to capturing interest rate risk is to model alternative interest rate scenarios and capture a stressed scenario considering the transaction's structural features under our cash flow model base case.

We normally test three non-rating-conditional scenarios: the reference rate's forward curve, an upward interest rate stress, and a downward interest rate stress. This approach applies to most transactions, where the significance of potential interest rate fluctuations is deemed relatively low[12]. Under the upward interest rate scenario, we round the current reference rate upwards or downwards to the nearest quarter of a percentage point and add 25 bps per quarter over the following eight quarters, capped at 9%, if applicable. Under the downward interest rate scenario, we round the current reference rate upwards or downwards to the nearest quarter of a percentage point and subtract 25 bps per quarter over the following eight quarters, applying a floor at -1%, if applicable.

We apply rating-conditional interest rate assumptions for CRE/CMBS and NPL ABS transactions, respectively exposed to refinancing risk and the negative cost ofc carry of non-income generating assets (see Technical Note 8.7 Rating-conditional interest rate framework). This approach may also apply to other transactions where the significance of potential interest rate fluctuations is deemed relatively high, due to particular structural features. For instance, if fixed-floating risk is fully unhedged, transactions exposed to severe negative carry due to elevated expected defaults, or structures heavily reliant on a yielding cash reserve. [13]

4.1.5 Foreign exchange rate assumptions

Foreign currency risk typically occurs when the securitised asset portfolio is (partly or fully) denominated in a currency other than that of the rated instrument. Scope considers the impact of foreign exchange rate fluctuations on a rated instrument on a transaction-specific basis, typically by applying a haircut to cash flows exposed to the foreign currency. Scope may give credit to structural or contractual hedges, depending on their ability to mitigate the risk for the rated instrument.

4.1.6 Insurance-related credit enhancement

When credit enhancement available in a transaction includes insurance protection, Scope's analysis focuses on the contractual provisions and the credit quality of the insurers.

The analysis of the insurance contracts' provisions focuses on the conditionality of the protection, timing delays of the payment from the insurance company, and potential scenarios under which a payment claim for loss coverage could be filed, while at the same time the insurance company can put a defence to not pay (see Appendix 9.1 Legal considerations in structured finance). This analysis would be based on our understanding of the insurance contracts, supported by legal opinions.

[12] Typically based on common hedging mechanisms, such as interest rate swaps or caps, or "naturally hedged" structures (i.e. when the interest rates earned on the underlying assets move in tandem with interest rates paid on the liabilities).

[13] Scope will generally determine the significance of interest rate risk exposure qualitatively, based on a transaction's structural features and/or transaction benchmarks.

We incorporate the credit quality of the individual insurers based on external ratings, mapped to Scope's rating scale. The type of external ratings we accept is subject to the degree of exposure to the insurer and/or the type of protection provided by the insurance:

- If the exposure to a single insurer exceeds 25% and the protection provided by the insurance results in credit substitution (i.e. when the rating of the instrument can be directly derived from the credit quality of the insurers), we only accept public ratings from agencies accepted under the Eurosystem credit assessment framework, or other specialised supervised and regulated rating agencies which are leaders in their field. If there is more than one public rating available, we use the second best.
- Otherwise, if the exposure to a single insurer is less than 25% or the protection provided by the insurance covers only a certain portion of the projected losses, we also accept public ratings from other supervised and regulated credit rating agencies. Should there not be a public rating available for certain individual exposures, we may assess the exposure supported by sensitivity analysis or choose not to rate the transaction.

4.2 Qualitative performance drivers

4.2.1 Contracts and frameworks review

Scope examines the structure's legal integrity to identify any legal issues or weaknesses that could affect transaction performance, for example, taxes on collateral affecting cash flows. A key element affecting structural integrity is how likely the issuer could default for reasons not related to collateral or counterparty risks. Even if the collateral and counterparties are performing well, an issuer's default may lead to collateral liquidation and expose the instrument to market value losses.

The analysis of how legal aspects affect credit risk considers the transaction structure and incentive mechanisms, among others. Scope's credit view depends on the associated credit risk and the applicability of legal principles as described below and in Appendix 9.1 Legal considerations in structured finance. The latter may result in adjustments to Scope's analytical assumptions. For instance, legal aspects determine the mechanisms and features that Scope can give credit to when analysing available sources of credit enhancement in a transaction.

Scope generally assesses risks related to unclear or imprecise definitions in the legal documents, for example, on key transaction mechanisms defining transaction default and termination events.

Scope considers third-party expert opinions on tax and legal analysis. Typically, Scope examines whether these opinions confirm:

- the SPV capacity and authorisation;
- that all transaction documents constitute valid, legally binding and enforceable obligations of the parties;
- the effectiveness of the true sale (unless there is a synthetic credit risk transfer);
- the effectiveness of SPV bankruptcy-remoteness elements; and
- the taxation of underlying assets, transaction documents and the SPV.

Legal opinions may merely contain assumptions and qualifications. If any of these cast doubt on the opinion, Scope will discuss the implications with the transaction's counsel and arranger to better gauge the impact on the structure's robustness.

For cash transactions, Scope assesses the legal robustness of the true sale to evaluate the risk of collateral claw-back and consolidation on the seller's balance sheet should the seller default shortly after the collateral's sale. Scope may also examine whether, upon default of the originator, securitised assets could become subject to set-off claims from the obligors (set-off risk). For example, if the obligor holds a cash deposit account with the originator, the obligor may be able to set off a part or the whole outstanding debt against the deposit amount, generating a loss for the transaction.

The risk of an issuer's bankruptcy cannot be fully eliminated. However, the issuer can be protected through standard securitisation features specific to the issuer's nature, activities and relationships with transaction parties. Scope evaluates the strength of protective elements, which include the issuer's legal nature, restrictions on its activity, its ownership structure and its limited liabilities. Scope also reviews the limited-recourse and non-petition provisions in transaction contracts aimed at preventing other contractual parties from causing the issuer's default.

4.2.2 Optional features

If the transaction embeds optional features, Scope generally assumes the investor would take a passive role, unless the investor's incentives to act are deemed sufficiently strong. For example, when an investor has the option to alter transaction features, e.g. advance additional funds to a transaction to raise the credit enhancement of the rated instrument, Scope generally does not consider its impact on the ratings but monitors the effects should this option be exercised.

If the transaction is redeemed at the option of the noteholders, we will determine whether such exercise leads to a distressed debt exchange[14] as per our credit ratings definitions. In such cases, we will mark the rated instruments as defaulted before withdrawing the ratings. If the exercise does not constitute a distressed debt exchange, we will simply withdraw the ratings. The same logic applies in the case of an amendment of the transaction's terms and conditions which has been agreed by the noteholders and leads to an early redemption.

5. Counterparty risk analysis

Scope evaluates the credit risk impact on the rated instrument stemming from the transaction's exposure to the various transaction counterparties in terms of both financial risk and operational risk. The materiality of an exposure is assessed as excessive, material or immaterial depending on the impact the counterparty default would have on the rated instruments. Scope also assesses the extent to which available measures mitigate or reduce counterparty risk in the specific context of the transaction. More detail on the approach can be found in Scope's Counterparty Risk Methodology.

6. Complementary analysis

6.1 Country and industry risks

Scope does not systematically cap the maximum rating achievable by a securitisation based on the sovereign credit quality of the country of the issuer or of the securitised assets. However, a material exposure to a financially weak domestic sovereign is viewed as a material credit risk that may negatively impact the rating.

Scope carries out a qualitative, forward-looking evaluation of systemic trends affecting the countries and industries to which the transaction is exposed, such as macroeconomic and industry risk factors that may impact instrument performance. For countries rated below investment grade, Scope also assesses transfer and convertibility risks, or the risk of institutional meltdown within the transaction's risk horizon.

6.2 Environmental, social and governance (ESG) disclosures

Scope will disclose relevant ESG factors in its publications to the extent they are drivers of the rated instrument's risks and outline how those were taken into account in the analysis. The absence of such disclosures should therefore be read as ESG considerations (including climate change risk factors) that were not a relevant driver of transaction risks.

We consider how regulation and self-imposed ESG targeted actions can impact the future cash flows generated by the securitised pool of assets and the assets' securing claims long-term sustainable value. For a pool of diversified assets, the direct impact is more muted than for concentrated pools due to off-setting and diluting effects. Where we believe that ESG-related risks materially increase the uncertainty about future cash flows and collateral values, but where we do not have enough information or historical data to project their impact, we may incorporate the ESG risks through a qualitative adjustment.

ESG factors may impact the credit risk profile of structured finance transactions indirectly. They feed into our analysis through ESG aspects already incorporated in corporate or bank ratings on specific issuers, included either in a securitisation or in counterparties of the transactions such as account banks or portfolio servicers.

For more details on ESG factors, see Appendix 9.2.

6.3 Sensitivity analysis

Scope supplements the quantitative analysis and model input calibration by testing the sensitivity of the results. This includes selecting the main variables that drive an instrument's credit profile and assessing which assumptions on these variables would change the instrument's rating. The rating committee decides whether such potentially stressed assumptions correspond to a scenario whose likelihood is consistent with the rating. Scope may also test whether different stress levels in the collateral pool might shift the rated instrument from investment grade to non-investment grade, or vice versa.

For concentrated exposures above the 5% concentration threshold (see Section 3.1.3), Scope also tests the sensitivity of the rated instrument to a joint default scenario of the two largest risk presenters whose credit quality has not been derived from a supervised regulated rating. If relevant, Scope will disclose the sensitivities in the respective rating report.

[14] To make such a determination, we will not consider the redemption at the option of the noteholders as part of the original terms of the debt.

6.4 Monitoring procedures

6.4.1 Monitoring schedule and data sources

All outstanding ratings are monitored on an ongoing basis through high-level checks and reviewed in more detail at least once a year, or earlier if warranted by events. Ongoing reviews re-evaluate the initial rating analysis, focusing on actual transaction performance evidence, our evolving credit outlook and, in the case of revolving portfolios, the credit profile of replenishment assets and potential changes to underwriting standards.

Scope typically monitors structured finance transactions based on performance reports produced by the servicer, the management company, the collateral agent, or trustee in the transaction, as well as on information from the originator or other key transaction agents. If the information provided by issuer or its agent is of insufficient quality or inappropriately delayed, Scope may have to consider the impact on the ratings and may even withdraw the rating.

6.4.2 Rating committees and monitoring reviews

A review of outstanding credit ratings can be completed in the form of a rating committee or a monitoring review. A rating committee is conducted to assess relevant changes to the analysis or new rating drivers which may lead to a rating action. A monitoring review may be conducted if no rating action is warranted.

A rating committee may result in a rating action based on i) the re-assessment of the transaction's key rating drivers; ii) an adjustment of a transaction's key cash flow model assumptions; iii) the occurrence of any material changes to actual or expected portfolio composition; iv) a material change to a transaction's liability structure or other structural features; or v) a change in counterparty risk exposure.

A monitoring review is performed by means of peer group comparison, benchmarking against the rating-change drivers and/or a review of the transaction's performance over time. Monitoring reviews may be performed for single-name credit ratings or for a portfolio of credit ratings.

6.4.3 Analytical integrity

The process for monitoring applies the same methodologies, tools and models as the process for new credit ratings. Notwithstanding, the analysis relies on elements which are assessed in depth during the initial credit analysis only. For instance, i) contractual and legal analyses are only revisited during the monitoring phase if relevant changes to the applicable legal and contractual frameworks are observed; ii) the analysis of actual transaction performance data during the monitoring phase may supersede the initial vintage analysis on granular ABS; iii) the periodic review of operational and servicer procedures may only be relevant for transactions exposed to long revolving periods and high portfolio turnover rates; iv) for asset classes where loan-level data was used at inception, the portfolio's payment patterns can be better performance indicators than updated loan-level or pool characteristics.

Analytical tools and models applied to assign an initial rating must be re-run if underperformance or outperformance is considered relevant and has occurred over a sufficiently long period, and/or when developments regarding analytical assumptions since the prior review are considered material. If changes to the underlying portfolio's performance assumptions and to the transaction's capital structure are deemed immaterial for the current ratings, we may not require a re-run or update of the tools and models supporting the current ratings.[15]

7. Transaction-type-specific considerations

7.1 Rating obligations under bilateral financial contracts

A rating assigned to an obligation under a bilateral financial contract measures the expected loss associated with a contract party (issuer) not fulfilling its contractual payment obligations to its counterparty under the terms of the financial contract. Such financial contracts generally refer to derivative contracts, including swaps, forwards, options, securities lending and repurchase agreements, or contracts entered into under the form of a master agreements with annexes.

[15] Some common examples are: 1) when a transaction is still in its revolving period and, monitoring the evolution of the distance to triggers, there is no negative trend showing a likelihood of the revolving triggers to be breached, 2) when the capital structure has improved following positive portfolio performance, but the note's rating is already at the maximum possible level, (either because the note is rated AAA, or because it is limited by a qualitative constraint such as excessive counterparty risk, insufficient transaction liquidity, or a very negative asset class outlook), 3) when performance has not improved and the rating is already reflective of a very high likelihood of default (i.e. C to CCC ratings) and mainly supported by a qualitative assessment of expected recoveries given an assumed event of default, 4) a lack of new relevant information means model outputs would not affect the rating, and 5) the main model inputs have not materially changed to the extent it would change outputs since the last time the model was run.

The rating does not address the capacity of the counterparty facing the issuer to fulfil its obligations. If such party were to default under the contract terms we would withdraw the rating. Thus, we do not address the ability of the issuer to pay contract termination costs if it is not the defaulting party.

The main rating drivers relate to:

- the definition of the issuer's obligations under the financial contract that establishes a financial exposure,
- the credit risk assessment of the issuer, accounting for:
  - the credit quality of its assets
  - its legal setup;
  - other counterparty risk relating to third parties which have a role under the financial contract (e.g. custodian, account bank)[16]; and
- the recovery analysis.

Our default analysis of the financial contract focuses on the issuer's events of default under the terms of the contract, which, if not cured in time, would lead to i) a financial loss for the party facing the issuer; and ii) the termination of the contract. A contractual event of default would not by itself lead us to consider the issuer as having defaulted under such a financial contract. Our analysis will incorporate widely accepted cure options[17] and the parties' incentives to terminate contracts early, particularly for events related to operational failures.

Our recovery analysis applies the principles laid out in the respective asset-class-specific methodologies. For financial contracts under a master agreement with strongly regulated issuers investing predominantly in tradeable securities, we may assess the impact of the recovery prospects with a recovery framework, expressed as notching from the implied rating derived from the default analysis. The framework accounts for three factors[18]:

- the legal and contractual framework that govern the seniority ranking of any remaining claim towards the issuer (factor I below);
- the availability, enforceability and efficiency of effective overcollateralisation maintenance mechanisms applicable to senior and pari-passu exposures (factor ii); and
- the value preservation capacity of the assets backing the remaining claim in such scenarios, considering particularly credit and market risks (factor iii).

Factor	Maximum uplift	Explanation
i) Established priority of payments	2 notches	The maximum uplift may be granted if there is a seniority benefit to the claim under the rated financial contract in an issuer liquidation scenario and substantial overcollateralisation after the deduction of positions senior to the contract claim. This seniority benefit may come in the form of an explicit outline in applicable insolvency law, or as a contractual provision backed by a supportive legal opinion. If we conclude that the counterparty's risk to the issuer is equivalent to the equity holders and the senior claims are negligible, the uplift for this factor will be zero notches. Otherwise, we might even deduct a notch.
ii) Effective overcollateralisation maintenance	2 notches	The maximum uplift may be granted if there is issuer-wide visibility on the specific overcollateralisation maintenance mechanisms and policies applicable to all relevant exposures which we judge efficient to maintain the effective exposure, i.e. widely accepted transfer limits, thresholds, frequencies and haircuts. We may grant zero notches in the absence of such maintenance mechanisms.
iii) Collateral value preservation capacity	2 notches	The maximum uplift may be granted if the issuer's assets (including posted collateral) show high value preservation capacity, such as a portfolio of investment grade debt instruments with at least 50% of the assets being of AA- or better credit quality, without any substantial equity instruments share. We may consider zero notches of uplift if the collateral is non-investment grade quality, and even deduct one notch if there is a substantial portion of equity investments or other market risks (such as foreign exchange risk).

[16] For further detail please see Scope's Counterparty Risk Methodology.
[17] Such cure options may include the application of penalty charges, cash settlement provisions or redelivery agreements.
[18] Applying to bilateral financial contracts where the issuer is a US money market fund or a EU/UK UCITS.

Factors ii and iii can only result in an additional positive notch uplift if we conclude that we can assign at least one notch of uplift under factor i. The maximum recovery uplift which can be granted is limited by the maximum number of notching difference that we allow per rating between the probability of default rating and the expected loss rating, as per Section 8.4.

In the case of master agreements where maturities can vary, we will consider the tenor of the rated obligation with the minimum of one year.

8. Technical notes

8.1 Expected loss framework

Scope estimates the expected loss and the expected weighted average life (WAL) for each rated tranche and associates them with Scope's idealised expected loss table to derive the expected loss benchmark rating for a given instrument.

A tranche's expected loss and expected WAL are the probability-weighted averages of a tranche's losses and WALs obtained for all possible portfolio default rates in the probability distribution. This is shown in expressions (1) and (2).

The loss of a tranche under a given default rate scenario $\boldsymbol{i}$, $\boldsymbol{LRi}$, is the difference between the par value of the tranche and the present value of all principal and interest cash flows for the investor, discounted at the promised rate of the tranche, as shown in expressions (3) and (4).

The WAL of a given default rate scenario $\boldsymbol{i}$ is derived by considering all principal and interest cash flows for the investor, as shown in expression (5).

(1) $EL = \sum_{i=1}^{N} prob\{scenario_i\} \times LR_i$

(2) $\text{Expected}\{WAL\} = \sum_{i=1}^{N} prob\{scenario_i\} \times WAL_i$

(3) $LR_i = \frac{par - \sum_{i=1}^{N} PV^{i}_{@promised\,rate}}{par}$

(4) $CF_t^i = Principal\ CF_t^i + Interest\ CF_t^i$

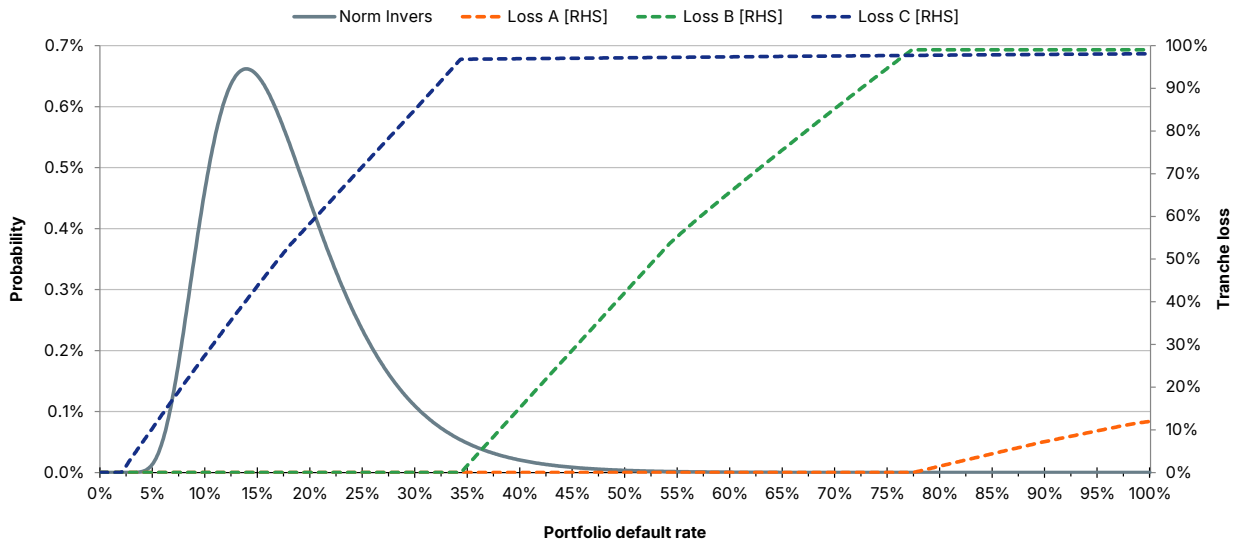
(5) $WAL_i = \frac{\sum_{t=1}^{T} t \times CF_t^i}{\sum_{t=1}^{T} CF_t^i}$ ([19])

Scope also derives a tranche-specific probability of non-timely payment, which is used to derive an indicative probability-of-default rating. The model-driven final rating indication is primarily driven by the expected loss benchmark rating, but also factors in the benchmark probability-of-default rating (see Section 8.2 Technical note on timely payment)

Figure 1 illustrates the losses on each level of a three-tranche structure for each portfolio default rate. The loss rates are expressed as a percentage of the tranche notional at closing. In this example, it is notable how class C benefits from excess spread that is not trapped by the transaction until the first assets are classified as defaulted. This together with a different discount factor allows class C's maximum losses to be lower than the maximum possible for class B. The probability-weighted loss for class B would, however, be smaller than that of class C.

[19] Our calculations consider $WAL_i = 0$, if there is no cash-flow in scenario i.

Figure 1: Sample portfolio distribution and corresponding losses in a three-tranche structure



Source: Scope Ratings

8.2 Timely payment and probability of default analyses

Scope complements the analysis by assessing an instrument's probability of default. The rating assigned to a structured finance tranche may be lower than the rating derived from its expected loss and expected WAL if the probability of missing at least one payment which is due and payable is high relative to the expected loss.

The expected loss framework does not always sufficiently differentiate between the credit qualities of timely-payment and ultimate-payment instruments as the time value of coupon deferral is generally negligible, depending on the size of a tranche. As further explained below, Scope can analyse both timely-payment and ultimate-payment structures in the quantitative analysis. Most structured finance ratings consider a timely-payment structure for the most senior outstanding note, but Scope can also assign ultimate-payment ratings if both i) the terms and conditions of the notes allow for that; and ii) it is not uncommon in the relevant market or asset class. Scope's rating communication will detail if a rating reflects ultimate payment.

Additionally, Scope believes the probability of missed payments should be remote for instruments rated AAA and AA, irrespective of their terms and conditions, given that investors in highly rated securities expect strong certainty on timely payment, regardless of how small a time-value loss is.

As part of the general analysis, Scope computes the probability of missing at least one payment under all possible default scenarios for the underlying exposures (0% to 100%), which is then compared to the cumulative default probabilities implicit in Scope's idealised expected loss table. When assigning a final rating, Scope applies a degree of tolerance in line with the relationship between the long- and short-term rating scales as published in its Rating Definitions. For example, a tiny number of missed payments in the tail of a tranche's life may be acceptable, particularly if they result from technical defaults captured in the quantitative analysis. We apply analytical metrics to investigate i) the time period for which a due amount has remained unpaid; and ii) whether a due amount was ultimately paid and what the difference is between the probability of default under timely-payment considerations and the probability of ultimate payment failure.

Depending on the respective instrument target rating level, we deem the levels in Table 3 acceptable.

Table 3: Acceptable notch difference between probability of default and expected loss model result per instrument target rating

Instrument target rating level	Acceptable notch difference probability of default and expected loss model result
AAA	4 notches
AA- to AA+	5 notches*
BBB- to A+	6 notches*

*(particularly when it is a tiny number of missed payments, as evidenced by additional analytical metrics)

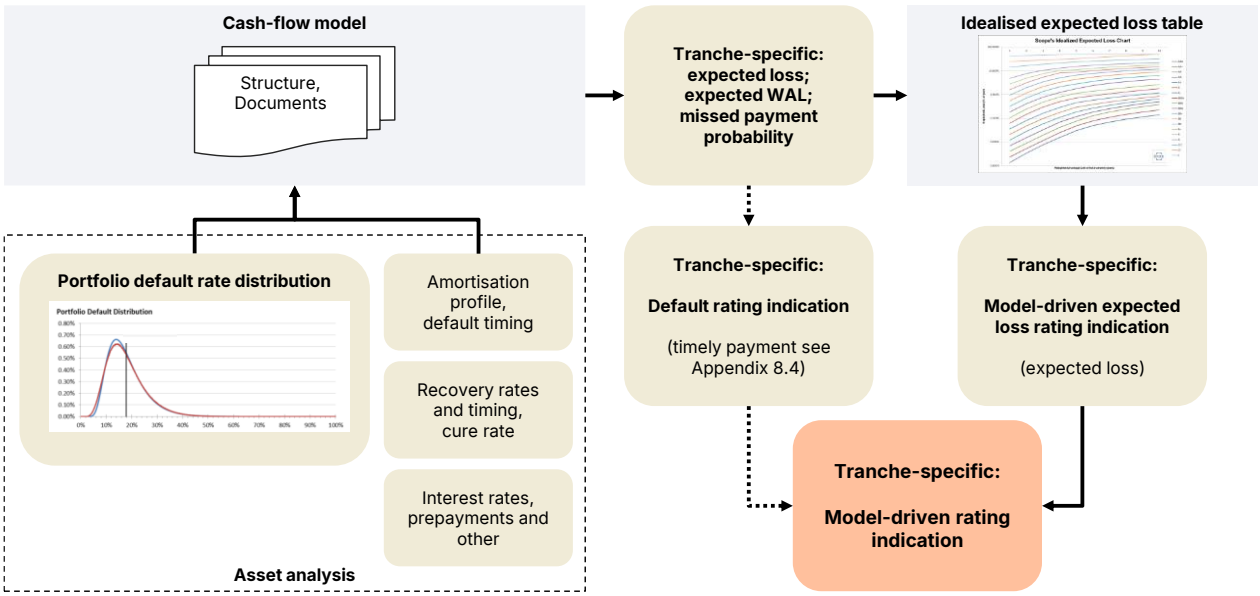
When the model results indicate a probability of default which is important, i.e. commensurate with the default probabilities below the B category according to our idealised default probability table, then we generally restrict the notch difference to maximum of five notches. The five-notch difference is, however, only acceptable when the model results for the probability of default are close to, albeit below, the B category in the idealised default probability table.

In addition, Scope pays particular attention when there is an important risk of a default or default-like event, as further defined in the Rating Definitions, within the next year to year and a half. The degree of risk can be quantified either i) as a function of a quantitative output which shows a high probability of default for a significant amount in relation to the total transaction amount; or ii) through a qualitative assessment of such a probability, for example, reflecting our view on current refinancing conditions. In such cases the notch difference is normally not higher than four notches and the level depends on the quantity and certainty of the recoveries as further described in the Rating Definitions.

8.3 Scope's Cash Flow Models

Scope's Cash Flow Models implement the quantitative framework described in Sections 8.1 and 8.2 above. The CFM MW provides a standard setup for the inputs whereas the CFM allows for the modelling of non-standard features. The analysis determines the cash flows available for each tranche of a structure when considering a given default rate for a portfolio of assets. The algorithm naturally separates into cash-generating and cash-consuming parts as described below.

Figure 2: Diagram of the structure analysis and Cash Flow Model implementing Scope's quantitative framework



Source: Scope Ratings

Asset treatment (cash generation[20]):

The assets generate future cash flows according Scope's asset assumptions (see Section 3 Collateral risk analysis) and other market parameters such as foreign exchange and interest rates. Asset assumptions are specific to the analysed transaction.

Performing assets pay interest and amortise according to a specified schedule. Defaulted assets are excluded from the asset balance, and the assumed recovery will be distributed over time according to a defined recovery schedule. Delinquent assets can fully or partially cure before defaulting. The performing asset balance in each period undergoes the following sequence:

1. Add back cures to the opening performing asset balance (if assumed[21]);
2. Subtract new delinquent loans to the opening performing asset balance;
3. Calculate interest over the period based on the resulting performing asset balance (steps 1 and 2);
4. Subtract prepayments over the period; and
5. Subtract amortisation over the period.

[20] We may also apply the cashflow model to a synthetic transaction, considering the modelled cash-generation as the de-risking of the referenced risky assets.

[21] Please note the CFM MW does not provide for the modelling of delinquencies and subsequent cures. However, we assume assets to be non-performing before defaulting based on the transaction's default definition.

The generated cash is passed to the securities according to the main interest and principal priority-of-payment features defined in the transaction structure.

Liability treatment (cash consumption[22]):

Scope's Cash Flow Models have a very flexible description of the priorities of payment for the different transaction structures. The models feature a set of accounts that keeps track of outstanding liabilities and received or paid cash amounts. We may simplify the structure if certain mechanisms become irrelevant for the rating of certain liabilities. For example, subordinated items in a priority of payments are irrelevant if the junior tranche is not rated.

8.4 Scope Portfolio Model

The Scope PM implements a numerical procedure to estimate the default and expected loss metrics of an amortising pool of assets. The approach is based on a Monte Carlo simulation, which randomly determines, on a line-by-line basis, whether the assets of the pool have defaulted and the time of the default occurrence. Multiple iterations of the simulation generate statistics which are used to estimate the pool's default characteristics. Line-by-line asset defaults are determined by applying a Merton model, which compares a random asset value against a defined threshold value. If a default happens, the corresponding default time is determined along with the outstanding balance at that time, as defined by the asset's amortisation profile. This information is used to ascertain the aggregate default rate at the end of each iteration, calculated as the total balance of defaulted assets divided by the total initial balance. The default frequency is determined as the number of defaulted assets divided by the total number of assets. The statistics of such values over all iterations constitute the final portfolio default rate and frequency curves.

The asset's threshold value is implied by the asset's default risk and its risk horizon. The random asset value is driven by the combination of a set of market risk factors and an idiosyncratic component for each asset. The common market risk factors create a default dependency framework. Typically, the different factors reflect the key dependency factors of the respective asset, for instance, their geographic location, industry or other relevant elements. In most cases, asset values will also depend on a global factor that reflects macroeconomic influences. The weights assigned to these factors are voted on by a rating committee, which considers the transaction's characteristics and the public benchmark's sensitivity to the weights of those factors.

In mathematical terms, Scope constructs the Gaussian random variable Z_j, as a linear combination of standard independent Gaussian random variables $z_1, \dots, z_{n;}\, z_j^{id}$:

$$Z_j = \sum_{i=1}^{n} \beta_i \cdot z_i + \beta_j^{id} z_j^{id} ,$$

where the sum of weights $\sum \beta_i$ is less than one and the idiosyncratic factor weight is calculated as $\beta_j^{id} = \sqrt{1 - \sum \beta_i^2}$ to make the Z_j standard Gaussian.

The model can also generate loss statistics when used with asset-per-asset recovery rate assumptions. Additionally, the model reports default timing profiles, which can be constructed for the entire pool and in dependency of default quantiles. This allows a detailed look into the conditional default term structure.

8.5 Vintage analysis

This technical note provides information on techniques (extrapolation, segmentation and rebasing) applied by Scope to analyse vintage data (i.e. historical credit performance data, presented in static cohorts). While vintage data can relate to defaults, recoveries or losses, in this note, we refer consistently to defaults for ease of reading. Same methods can be applied to analyse losses and recoveries provided in vintage format.

We generally conduct vintage analysis during the initial rating phase of granular securitisations (including consumer, auto, residential mortgage or SME transactions) to determine the portfolio expected mean default rate and variance. The estimated default rate from the initial vintage analysis is normally gradually substituted during the monitoring phase with the analysis of the actual transaction performance data, which means that the vintage analysis is not re-performed during the monitoring phase.

Extrapolation of vintage data

[22] In a synthetic transaction, the modelled liability cash consumption replicates the risk cover release for the different liability instruments.

The provided vintage data does not always cover the entire life cycle of securitised assets, but incomplete vintage data still contain useful information on likely lifetime defaults. We therefore extrapolate the incomplete vintages as a source for our collateral assumptions.

For a given vintage, we calculate the cumulative amount of defaulted loans over time divided by the aggregate original balance of the loans included in the vintage. We extrapolate default rates on any given vintage based on the historical pattern observed on older vintages, up to the time horizon determined by the oldest vintage. We may apply analytical judgement to exclude younger or older vintages from the analysis, e.g. if they are significant outliers or behave in a very different way compared to the other vintages. The extrapolation is done by calculating the weighted average growth rate of the cumulative defaults between each period since origination and using that as an estimate for the future growth rates for each period for the shorter vintages by multiplying the last historical data point for a vintage by one plus the average cumulative defaults for the next period.

Segment analysis

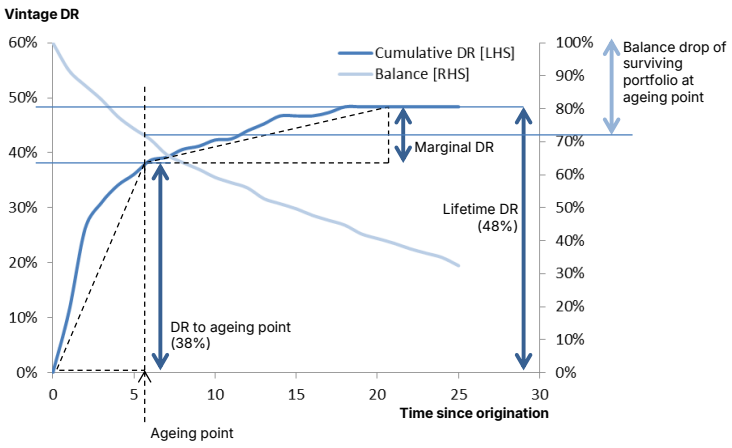
Scope may conduct a segmented vintage analysis when i) the securitised pool contains a significantly different concentration of the segments compared to the overall historical portfolio data; and ii) the historical data by product segment contains a sufficient number of underlying exposures to make the analysis statistically relevant. Scope may then choose to derive individual asset assumptions (the default rate and potentially also the recovery rate; the coefficient of variation normally is only sized for on an aggregated basis) by segment, or to weight the segment results with the expected concentrations in the securitised pool. The former approach may apply to revolving portfolios when revolving criteria also covers segment concentrations, while the latter approach would typically apply to static portfolios or to revolving portfolios without specific segment criteria.

Rebasing – adjustments for seasoning

The shape of default vintage curves is not determined only by the credit quality of the underlying obligors improving, but also other factors such as i) the compounding of survival rates; ii) the amortisation of the initial balance; iii) prepayments; iv) the expiration of contracts at maturity; and v) higher propensity of obligors to pay as equity builds up in a financed object[23]. The term structure of each series in a vintage set also captures the point in an economic cycle. Consequently, if we think that the abovementioned factors are important we may adjust our vintage analysis to account for the ageing of the portfolio and the drop in performing balance. The rebasing is described by the following expression and illustrated in Table 3 with an example. [24]

$$\text{Portfolio remaining lifetime default rate (DR)} = \frac{\text{Marginal DR from ageing point}}{1 - \text{DR to ageing point} - \text{drop in performing balance}}$$

Figure 3: Rebasing of marginal default rate (DR) from vintage analysis



$$\text{Portfolio remaining lifetime DR} = \frac{(48\% - 38\%)}{1 - 38\% - 28\%} = 29.4\%$$

Source: Scope Ratings

8.6 Asset recovery analysis

Scope starts by estimating the portfolio recovery rates, using one of two different approaches which can effectively coexist: i) a statistical analysis of recovery performance, for example, vintage analysis, when available data is adequate and the securitised pool is granular – applicable to secured and unsecured exposures; or ii) fundamental analysis – generally only applicable to

[23] Less relevant for unsecured loans or loans to SMEs.

[24] If the drop in portfolio balance cannot be estimated, we may apply a qualitative adjustment, based on expert judgement or relevant peer comparison.

secured exposures. When determining the recovery rate assumption we also rely on benchmarking with other relevant transactions or market trends and other qualitative considerations.

Scope applies a fundamental analysis for secured exposures in non-granular portfolios and can, if deemed necessary, complement the statistical analysis with the fundamental approach for granular portfolios of secured exposures. The fundamental approach relies on analysing asset price movements and asset liquidity. This approach is most appropriate when data limitations prevent a statistical analysis. The security value is the stressed value of the underlying asset.

When the security provides first-lien claims on the underlying asset, for instance, a security on real estate that the agency believes cannot be challenged, the fundamental recovery analysis can be used. It can also be used for non-first-lien claims if Scope has clear evidence about prior ranking claims.

While real estate security represents most of the analysed cases with secured exposures, Scope may also give credit to other forms of security such as pledges on cash accounts and real or financial assets so long as enforceability cannot be legally contested, and market value and liquidity risks can be estimated.

Fundamental recovery rate analysis

Under the fundamental approach, Scope assesses the risks associated with the underlying security, typically a real estate asset, on a line-by-line basis. The analysis results in a rating-conditional haircut to the appraisal value of the security, delivered by a third party in the context of the analysis. Such a security value haircut has three components: 1) the appraisal quality assessment; 2) market value risk; and 3) liquidity and other idiosyncratic risks.

Appraisal quality assessment

Scope assesses the quality of property appraisals considering i) the transparency of the appraisal process; ii) the quality of the valuation techniques applied; iii) the age of the appraisals; and iv) the appraiser's incentive to conduct unbiased valuations.

Scope generally relies on the latest appraisals from independent third parties to estimate current property values. However, property appraisals connected with secured NPL securitisations may require extra attention due to i) outdated valuations; ii) simplified valuation procedures, e.g. desktop or statistical valuations; or iii) valuation biases arising from an appraiser's lack of independence from transaction parties.

Scope captures limitations on appraisal quality through transaction-specific haircuts. In addition, seasoned valuations are updated through indexation techniques based on public or private real estate indices.

Market value risk

Forward-looking market value risks are captured through rating-conditional, market-value-decline (MVD) assumptions. Table 4 illustrates residential MVD assumption benchmarks for several European countries. Scope may apply transaction-specific MVD assumptions which deviate from benchmarks. Common examples of when we may deviate from such benchmarks are: 1) when the collateral assets are non-granular or concentrated in specific regions; 2) if recent movements in the underlying house price index (HPI) have been particularly strong, or 3) if changes to the macro-economy and to the country´s sovereign rating have been acute.

Table 4: Illustrative average residential MVD assumptions per country

Instrument's rating	AUT	BEL	CYP	DNK	FIN	FRA	DEU	GRC	HUN	IRL	ITA	NLD	NOR	PRT	POL	ESP	SWE	GBR
CCC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B-	2.3%	1.9%	1.9%	2.0%	1.5%	1.6%	2.0%	2.9%	3.8%	2.5%	2.1%	2.3%	2.4%	2.6%	2.9%	2.4%	2.2%	2.0%
B	4.6%	3.8%	3.9%	3.9%	3.0%	3.2%	4.0%	5.7%	7.5%	4.9%	4.3%	4.6%	4.7%	5.3%	5.8%	4.8%	4.3%	4.1%
B+	6.9%	5.7%	5.8%	5.9%	4.5%	4.9%	6.0%	8.6%	11.3%	7.4%	6.4%	6.9%	7.1%	7.9%	8.6%	7.2%	6.5%	6.1%
BB-	9.2%	7.5%	7.7%	7.9%	6.0%	6.5%	8.0%	11.4%	15.0%	9.9%	8.6%	9.1%	9.4%	10.6%	11.5%	9.6%	8.7%	8.2%
BB	11.5%	9.4%	9.6%	9.8%	7.5%	8.1%	10.0%	14.3%	18.8%	12.3%	10.7%	11.4%	11.8%	13.2%	14.4%	12.0%	10.9%	10.2%
BB+	13.7%	11.3%	11.6%	11.8%	9.0%	9.7%	12.0%	17.1%	22.5%	14.8%	12.8%	13.7%	14.2%	15.8%	17.3%	14.5%	13.0%	12.3%
BBB-	16.0%	13.2%	13.5%	13.8%	10.5%	11.3%	14.0%	20.0%	26.3%	17.2%	15.0%	16.0%	16.5%	18.5%	20.1%	16.9%	15.2%	14.3%
BBB	18.3%	15.1%	15.4%	15.7%	12.0%	12.9%	16.0%	22.8%	30.0%	19.7%	17.1%	18.3%	18.9%	21.1%	23.0%	19.3%	17.4%	16.4%
BBB+	20.6%	17.0%	17.3%	17.7%	13.5%	14.6%	18.0%	25.7%	33.8%	22.2%	19.2%	20.6%	21.2%	23.7%	25.9%	21.7%	19.6%	18.4%
A-	22.9%	18.9%	19.8%	19.7%	15.0%	16.2%	20.0%	28.6%	37.5%	24.6%	21.4%	22.9%	23.6%	27.1%	29.6%	24.8%	21.7%	20.5%
A	26.7%	22.0%	22.3%	23.0%	17.5%	18.9%	23.4%	31.4%	41.3%	28.7%	23.5%	26.7%	27.5%	30.5%	33.3%	27.9%	25.4%	23.9%
A+	30.6%	25.2%	24.8%	26.2%	20.0%	21.6%	26.7%	34.3%	45.0%	32.8%	25.7%	30.5%	31.5%	33.9%	37.0%	31.0%	29.0%	27.3%

AA-	34.4%	28.3%	27.3%	29.5%	22.5%	24.3%	30.0%	37.1%	48.8%	36.9%	27.8%	34.3%	35.4%	37.3%	40.7%	34.1%	32.6%	30.7%
AA	38.2%	31.4%	29.7%	32.8%	25.0%	27.0%	33.4%	40.0%	52.5%	41.0%	29.9%	38.1%	39.3%	40.7%	44.4%	37.2%	36.2%	34.2%
AA+	42.0%	34.6%	32.2%	36.1%	27.5%	29.7%	36.7%	42.8%	56.3%	45.1%	32.1%	41.9%	43.3%	44.1%	48.1%	40.3%	39.9%	37.6%
AAA	45.8%	37.7%	34.7%	39.4%	30.0%	32.4%	40.0%	45.7%	60.0%	49.3%	34.2%	45.7%	47.2%	47.5%	51.8%	43.4%	43.5%	41.0%

Source: Scope Ratings
Note: The stress levels displayed in Figure 5 reflect jurisdiction-specific adjustments that cater for the respective HPI's peak-to-trough distance, the index volatility and a jurisdiction-specific macroeconomic risk adjustment.

Scope's MVD assumptions are derived based on a quantitative analysis of the underlying house price indices, which comprises three building blocks: 1) the quantification of AAA assumptions that reflects a very distressed and remote scenario; 2) CCC assumptions, which generally reflect current market conditions; and 3) a bi-sectional interpolation between the AAA and CCC assumptions to derive intermediate rating level assumptions. To ensure the consistency of the analysis across jurisdictions, we use public house price indices that are methodologically homogeneous.[25] Next, we describe each of the building blocks in more detail.

AAA assumptions

Scope's AAA residential MVD assumptions reflect a baseline 40% stress applied equally to all jurisdictions or regions, which has been calibrated considering maximum HPI declines observed across multiple jurisdictions during periods of stress dating back to the second quarter of the 20th century[26]. This baseline stress is then adjusted (upwards or downwards), considering recent HPI-specific dynamics (typically covering the last 15 years) and the current macroeconomic context.

Specifically, Scope considers three adjustments to the 40% baseline stress. First, a potential downward adjustment (i.e. MVD decrease) to reflect the distance between the current HPI and the HPI cycle peak. Second, an upward or downward adjustment for relatively volatile or stable HPIs, respectively. Third, a potential upward adjustment which addresses jurisdiction-specific macroeconomic risks and is assigned using the jurisdiction's sovereign rating. The combination of these adjustments results in a maximum possible AAA MVD of 60% for any given jurisdiction with an investment grade sovereign rating, which is roughly commensurate with the worst historical drawdown observed by Scope (Netherlands, 63%, 1921-1936).[27] Exceptionally, Scope may apply a qualitative overlay to its quantitative approach, for instance, if the reliability or quality of the underlying HPI is considered poor or if the quantitative results are excessively sensitive to the time horizon of the analysis. Scope also qualitatively floors the minimum AAA MVD at 30%.

CCC assumptions

Scope's base case assumptions generally reflect current market conditions. i.e. stable prices. However, as part of the analysis Scope assesses 1) short-term HPI trends in the context of current cyclical conditions; 2) the medium-term real estate outlook based on macroeconomic and credit indicators; and 3) potential long-term structural vulnerabilities such as excessive levels of private or corporate debt. Scope may adjust its base case assumption to incorporate a forward-looking view reflecting short-term expectations of increasing or decreasing HPIs, particularly for countries and regions where a certain direction is emphasised by the different risk drivers.

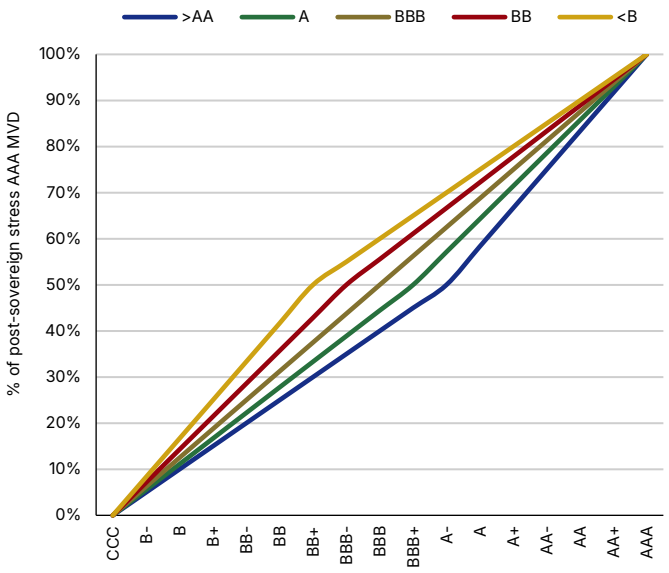
Interpolation benchmarks

Scope considers deterministic interpolation benchmarks to derive intermediate MVD stresses. The vector of choice is subject to an assessment of sectoral and/or macroeconomic risks as of the MVD benchmark cut-off date (see Table 4), which can be typically assessed through the countries sovereign rating (see Figure 4). Scope may apply transaction-specific interpolation vectors which deviate from the interpolation benchmarks, particularly when perceived macroeconomic risks have strongly increased since the aforementioned cut-off date. As a general rule, Scope will frontload MVD stresses along the rating scale in countries where the underlying macroeconomic risk or real estate price uncertainty (or both) is considered high on a relative basis. Conversely, we will backload MVD stresses along the rating scale in countries where the underlying macroeconomic risk or real estate price uncertainty (or both) is considered relatively low.

[25] The analysis considers house price information provided by the Bank for International Settlements.
[26] Among others, USA (1926-1941) and UK (1927-1934).
[27] For very low-rated jurisdictions, the maximum possible AAA MVD could go as high as 75%.

Figure 4: Illustrative average residential MVD assumptions per country

	Sovereign rating category buckets				
	>AA	A	BBB	BB	<B
CCC	0.0%	0.0%	0.0%	0.0%	0.0%
B-	5.0%	5.6%	6.3%	7.1%	8.3%
B	10.0%	11.1%	12.5%	14.3%	16.7%
B+	15.0%	16.7%	18.8%	21.4%	25.0%
BB-	20.0%	22.2%	25.0%	28.6%	33.3%
BB	25.0%	27.8%	31.3%	35.7%	41.7%
BB+	30.0%	33.3%	37.5%	42.9%	50.0%
BBB-	35.0%	38.9%	43.8%	50.0%	55.0%
BBB	40.0%	44.4%	50.0%	55.6%	60.0%
BBB+	45.0%	50.0%	56.3%	61.1%	65.0%
A-	50.0%	57.1%	62.5%	66.7%	70.0%
A	58.3%	64.3%	68.8%	72.2%	75.0%
A+	66.7%	71.4%	75.0%	77.8%	80.0%
AA-	75.0%	78.6%	81.3%	83.3%	85.0%
AA	83.3%	85.7%	87.5%	88.9%	90.0%
AA+	91.7%	92.9%	93.8%	94.4%	95.0%
AAA	100.0%	100.0%	100.0%	100.0%	100.0%



Source: Scope Ratings

Scope's MVD assumptions reflect a forward-looking view at a specific cut-off date. Therefore, Scope periodically reviews its forward-looking MVD assumptions to reflect material changes to the underlying HPI or in the macroeconomic environment.

This does not necessarily imply, however, that Scope retroactively adjusts past MVD assumptions in the context of the monitoring process. Instead, we typically assess realised recoveries against our fundamental recovery rate assumptions and holistically adjust transaction-specific recovery rate assumptions if appropriate.

Liquidity and other idiosyncratic risks

Asset liquidity is a key driver of expected recoveries and implies transaction-specific fire-sale discount assumptions.

Scope's fire-sale discount assumptions are benchmarked against jurisdiction-specific historical evidence of market liquidity and may capture qualitative adjustments reflecting the nature of the collateral. e.g. residential versus non-residential. Such assumptions are derived on a deal-by-deal basis to account for i) servicer-specific historical evidence of appraisal values relative to the sale price (if available); or ii) transaction-specific risks, driven by the ageing of the collateral, the workout options available to the servicer, asset marketability and quality, information asymmetries, obsolescence, among others.

The servicer's methods can impact the recovery significantly both in terms of timing and the actual recovery rate. Scope's recovery analysis therefore also considers the servicer's ability by adjusting the expected recovery rates upwards or downwards and by reducing or prolonging the expected time for recoveries.

If not captured directly within the fire-sale discount assumptions, Scope deducts liquidation costs from the estimated gross recovery proceeds. Additionally, a stochastic analysis may address specific risks, e.g. concentration, or low liquidity. When permitted by data, Scope may also consider a distribution of security values to capture market value and liquidity risks.

Scope may apply higher stresses to capture negative collateral selection, which is typically performed for very seasoned NPL portfolios. Scope may also apply an MVD floor or a recovery rate cap to address data limitations like non-stationary or too short historical time series.

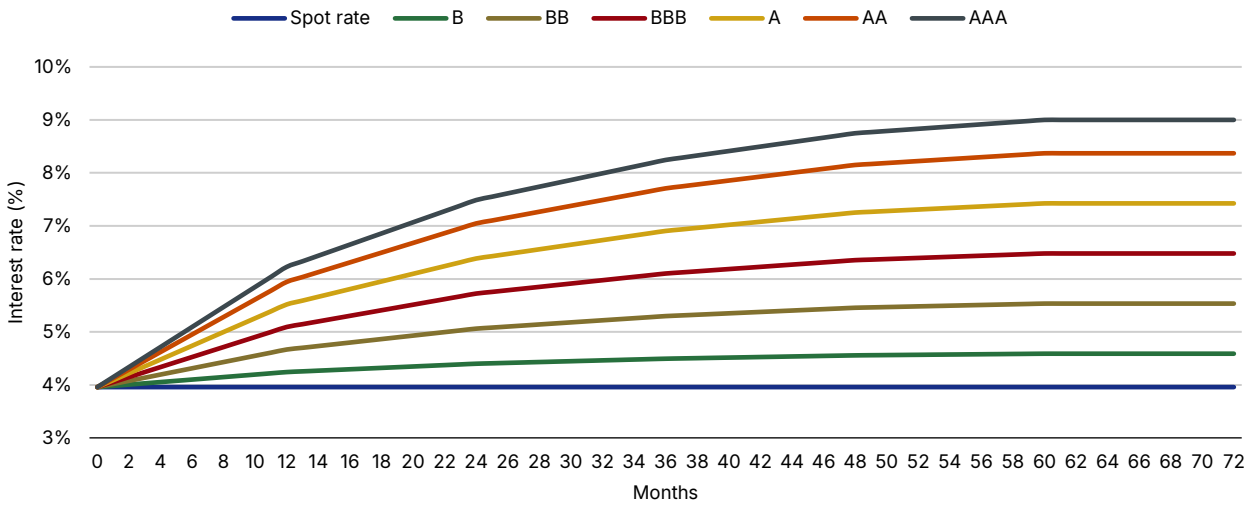
8.7 Rating-conditional interest rate framework

For CRE CMBS and NPL transactions, we stress variable reference rates applicable either to the assets or the liabilities by applying rating-conditional interest rate vectors, under both an increasing and a decreasing interest rate scenario. Such vectors gradually increase/decrease from the current transaction currency three-month interbank rate level to a perpetual rating-conditional plateau/floor at the end of year five. For all interest rate tenors of the major western currencies (US dollar, pound sterling and euro), the AAA plateau and floor are fixed at 9.0% and -1.0%, respectively, with a gradual convergence of the plateau and floor levels to the transaction currency three-month interbank spot rate for lower rating categories. We assume the path to the plateau or floor to be frontloaded for all rating scenarios. For transactions exhibiting a long duration (above 10 years), the interest rate levels may revert to a more benign level after a certain period of time.

In addition to the above stresses, we may also test the current forward rate scenarios as well as alternative interest rate paths that could be more detrimental and may not be fully captured by the above stresses. These additional tests ensure a comprehensive evaluation of the transaction's resilience under adverse and unexpected interest rate environments. The rating committee assesses whether such alternative interest paths correspond to a scenario whose likelihood is consistent with the rating.

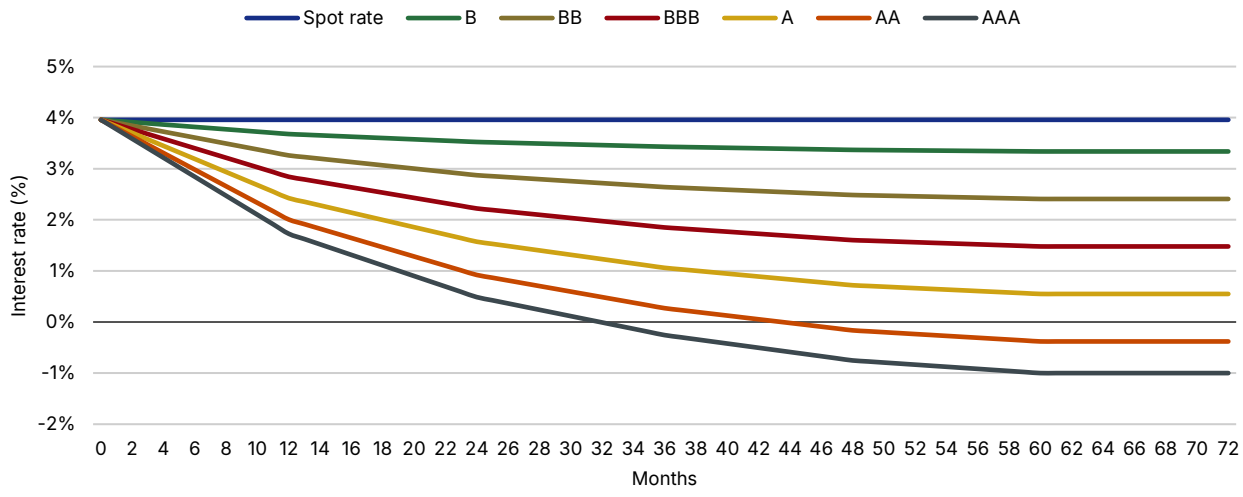
Figure 5 and Figure 6 illustrate the two rating-conditional scenarios for transactions exposed to Euribor fixed-floating risk, as of end of 2023, starting from a spot rate of 4%.

Figure 5: Indicative interest rate stress vectors for rising Euribor rates (end-2023)



Source: Scope Ratings

Figure 6: Indicative interest rate stress vectors for declining Euribor rates (end-2023)



Source: Scope Ratings

In Scope's view, the AAA interest rate plateau (9%) represents a level of stress to national debt service ratios which is approximately commensurate with those observed in the US in the early 1980s, when the central bank policy rate peaked at about 19% against the backdrop of a significantly less indebted economy than today. While other Western economies show similar patterns which justify the same AAA assumption, Scope may apply a different plateau for transactions exposed to currencies other than the euro, US dollar and pound sterling. Furthermore, Scope may adjust the AAA stresses (for each of the major currencies individually) if market rates move too close to the plateau level and, at the same time, the market implied probability of reaching the plateau level peaks. We periodically assess such a probability based on implied volatility metrics from traded options on fixed-income underlyings.

Scope's AAA interest rate floor (-1%) has been determined qualitatively. Recent European history has proved that interest rates can indeed go negative for a sustained period. However, in Scope's view the limits of unconventional monetary policies have already been tested and it is extremely unlikely that we will see rates falling below the -1% threshold, at least in the short term or for a sustained period. As for the plateau assumption, however, Scope may revisit this view from time to time.

9. Appendices

9.1 Legal considerations in structured finance

We conduct a legal analysis during the initial rating phase, which may be revisited during the monitoring phase only if relevant changes to the applicable legal and contractual frameworks are observed.

Asset analysis

The quality of the underlying assets and the SPV's legal recourse to asset proceeds are essential to all structured finance and asset-based finance transactions.

Enforceable assets

To determine if the assets produce cash flows that can cover an SPV's liabilities, Scope assesses whether payments owed to the SPV are valid and enforceable at the amount required.

Applicable laws can challenge the existence and enforceability of claims and obligations stemming from assets. These laws may prohibit certain transactions, e.g. usury, fraudulent dealings, or collusion; may grant counterparties extraordinary termination rights (consumer protection); or may stipulate formal prerequisites, e.g. filings or notarisation. Scope assumes the validity and enforceability of obligations and typically confirms this via a third-party legal opinion. When the transaction allows the purchase or substitution of assets at a later stage, the originator or collateral manager will generally explicitly represent any factual elements necessary for obligations to be existing and enforceable. Especially when the SPV's asset base consists of a pool of assets, the analysis may focus on whether a transaction party, i.e. the originator or the collateral manager, is contractually obliged and capable of validating the assets' existence and enforceability.

Even if payment obligations were originated in a valid and enforceable fashion, a creditor may be unable to fully benefit from them. Scope always considers any right of the obligor to refuse full payment due to statutory defences, or any contractual changes to payment obligations. In this context, set-off, dilution and encumbrances may negatively impact the ratings.

i) Set-off

Set-off may be invoked by a debtor that holds a monetary cross-claim against a creditor. In this case, the debtor could be released from honouring the creditor's claim up to the amount of the cross-claim. Depending on the jurisdiction, set-off rights may be a statutory defence, contractually agreed and in some instances may be contractually waived. Set-off risk can arise in consumer credit or SME loan securitisations if the securitised loans' originator holds debtors' deposits or equivalent.

If set-off is successfully exercised by a debtor, the value of the securitised assets may be substantially reduced or cancelled, impacting the SPV's income. Where such cross-claims exist or are likely, Scope examines whether documents on the assets contain waivers of set-off rights and whether these are valid under the relevant jurisdiction[28]. If such waivers were not agreed on or are not recognised by the applicable jurisdiction, Scope assesses whether any structural features can mitigate the negative impact of set-off, such as a dedicated reserve. If the originator undertakes to indemnify the SPV to cover the risk, Scope considers whether this could affect the true sale of the assets (see below). Scope also evaluates whether the borrower has been notified of the transfer as this can limit the potential set-off.

Set-off may also create challenges for the structure if exercised by transaction parties such as the servicer, cash manager or account bank. In most structures, transaction parties contractually waive their right to set off any amounts against their obligations with the SPV.

ii) Dilution

Dilution may affect a transaction's cash flow. For example, in a trade receivables securitisation, dilution gives debtors the opportunity to pay less for an underlying contract than the face value at which it was sold. Dilution may occur for several reasons

[28] In some jurisdictions, the amount that the debtor is entitled to set off against the issuer crystallises at the date of the receivable assignment's notification. As a result, if such a notification is performed at closing, the amount at risk can be quantified and decreases over time as the portfolio amortises.

based on different legal concepts such as contractual arrangements (fast pay or volume rebates), discounts, credit notes, and statutory withholding rights like price reductions due to defects in the deliverable goods or the services rendered.

Dilution reduces cash flow from an asset. Scope assesses this risk by considering documents governing the asset, the obligor's representations, contractual safeguards and legal opinions. Where the risk of dilution cannot be excluded but is adequately quantified, Scope's assessment may rely on appropriate mitigants like dilution reserves.

iii) Encumbrances

Other impediments include encumbrances of rights to the assets, i.e. if any rights have been pledged or charged or are subject to a security interest for the benefit of a third party. This third party may be entitled to enforce its rights on the asset if the requirements have been fulfilled. Where such encumbrances must be made public to be valid, e.g. German mortgages must be recorded in a register, Scope assesses whether the public records have been checked by the transaction counsel. If there are no requirements for publication, Scope may rely on appropriate representations.

Legal benefit of the assets

Following the acquisition of the receivables for the securitised portfolio, the issuer should be legally entitled to receive cash flows generated by these assets.

In any cash securitisation, Scope takes a two-step approach to analyse the asset transfer, examining the actual transfer and the true-sale requirement. The transfer of the asset property does not apply to synthetic transactions. For this type of transaction, Scope's legal analysis focuses on the valid, legally binding and enforceable nature of payment obligations on the party transferring the risks to the SPV. This aims to determine whether the issuer will benefit from cash flows arising from the synthetic exposure to the asset.

i) Transfer

The actual transfer of the asset must be legally valid, binding and enforceable for the issuer to benefit from cash flows generated by the asset.

a) Transferability

The asset's transferability may be restricted by law or by contract. For instance, a bank loan's terms can limit transferability in terms of minimum amounts, number of transfers and qualifying transferees. The latter can pose a challenge for a valid transfer to the SPV if only financial institutions qualify as transferees under the loan contract. In this regard, Scope typically relies on the originator's representations and on legal opinions. In managed or revolving structures, Scope examines the undertakings of agents selecting the assets to be purchased during the life of the transaction. For instance, the collateral manager of an actively managed transaction may only purchase assets after verifying transfer restrictions, and Scope typically assesses whether the manager has the skills to comply with his obligation.

b) Perfection of transfer

Formal requirements must be met to perfect a transfer of securitised assets. If the legal opinion does not address this issue, Scope assesses whether relevant documentary proof is adequate, e.g. registry excerpts, or capital account statements. Transactions such as trade receivables securitisations may be structured so that the originator is not required to notify debtors of the asset transfer. This is typically the case when the seller, due to commercial reasons, does not want debtors to be informed about the sale of the receivables. Depending on the jurisdiction and transfer type, notification may be unnecessary for a transfer to be valid.

ii) True sale

In structured finance the term 'true sale' stems from the early days of US securitisation transactions and describes one characteristic of the transfer: its indefeasibility in an insolvency of the seller (normally the originator) of the assets. If the transfer of the assets to the issuer is a true sale, the ownership of the assets cannot be challenged by any creditor of the seller or by its insolvency administrator (or equivalent). The effectiveness of a true sale can be called into question depending on the jurisdiction governing the transfer and the applicable insolvency regime. The two major challenges to a true sale, which have been the subject of numerous court cases and academic discussions, are claw-back and re-characterisation.

a) Claw-back

Most jurisdictions provide for claw-back mechanisms to protect the creditors of an insolvent entity that has transferred assets or has otherwise diminished the value of its asset base, not only during but also prior to insolvency. In such cases, the transfer may be rescinded so that the transferred asset is 'clawed back' for the benefit of creditors by the insolvency administrator into the insolvency estate of the insolvent transferor. Such claw-backs can occur in the event of fraud but also when a transfer detrimental to the obligor's creditors falls within a certain observation period prior to insolvency. Scope's analysis considers the transaction's nature and the transferor's financial situation. Since Scope is generally not in a position to assess whether the transaction was effected at arm's length, Scope typically relies on corresponding representations from the parties. The transferor's financial situation and credit risk will also be considered. A strong true-sale opinion will typically cover, amongst other insolvency searches, a check of applicable registers for filings of insolvency proceedings with respect to the transferor. Since not all stages of a company staggering towards insolvency are subject to a public filing, Scope looks for standard representations on the seller's solvency, and if a solvency certificate issued by a court or chamber of commerce is provided, this would serve as another mitigant to address potential concerns regarding the transferor's financial stability and the risk of claw-back.

To mitigate claw-back risks associated with repurchases by the originator during the life of the transaction, we consider the implementation of limitations on the volume or frequency of repurchases. If repurchases exceed a certain predefined amount, the obligation by the originator to provide a solvency certificate, issued by a court, chamber of commerce, or another authoritative body, mitigates claw back risk.

b) Re-characterisation

The second major challenge to a true sale is the re-characterisation of the asset transfer into a security over the asset. Should the seller become insolvent, the SPV would cease to be the asset's legal owner but would have a monetary claim secured by the asset against the seller. This jeopardises the timely payment of cash flows due to the delay caused by enforcing the security interest. When assessing the legal nature of the asset transfer and determining whether it might be re-characterised as a secured claim, the courts may consider the conduct of the transferor and transferee, how the assets are controlled and serviced, the ownership of the economic benefit, or the distribution of loss associated with the asset. The validity of a true sale could be challenged when the originator covers certain risks related to the assets.

A legal opinion confirming the perfection of the true sale (true-sale opinion) is necessary due to the diversity of aspects which can call a true sale into doubt, along with the differences in how jurisdictions recognise a true sale. The scope of the legal opinion may be reduced when the relevant jurisdiction has securitisation laws or insolvency regimes that facilitate or establish a true sale by law.

The issuer and the SPV

The issuing SPV constitutes one of the defining features of any structured finance transaction. This vehicle de-links the underlying assets from the originator's credit risk, enabling the structure to rely solely on the credit risks stemming from the assets. The issuer must fulfil several restrictive criteria to ensure payments from the assets are neither interrupted nor negatively affected during the life of the transaction. These criteria can be grouped into the SPV's two main goals: bankruptcy remoteness and non-consolidation. The first should prevent the SPV from entering insolvency proceedings, while the second should prevent the assets of the SPV from being affected by the insolvency of its parent or other related company.

Bankruptcy remoteness and non-consolidation are targeted through different types of corporate entities like SPVs, depending on the jurisdiction under which they are set up. To facilitate structured finance transactions, some jurisdictions have issued specific securitisation laws providing for the incorporation of bankruptcy- and consolidation-remote SPVs. A corporate entity not benefiting from this kind of statutory backup could still be structured to meet requirements. Structured finance transactions often rely on orphan SPVs and/or on jurisdictions that provide appropriate securitisation laws to ensure bankruptcy remoteness and non-consolidation.

Bankruptcy remoteness

SPVs are set up as bankruptcy-remote vehicles to reduce the risk of insolvency proceedings being initiated against the SPV. This feature is particularly important given the detrimental effect an insolvency can have on a transaction. First, the payment of interest and principal to investors may be halted in an insolvency scenario to protect other creditors. Second, a default resulting from such a shortfall may enable investors to enforce the security interest over the assets, which could result in fire sales. Finally, an insolvency is likely to trigger the termination of services and contracts entered into by the SPV that are vital for the transaction.

The different structural elements resulting in bankruptcy remoteness can be separated into restrictions that have been contractually agreed by transaction parties or that limit the number of potential claimants against the SPV. These elements apply cumulatively to the structure.

i) Issuer events of default

Even though SPVs are set up as bankruptcy-remote entities, there are certain defined events that can trigger a default and start the contractually outlined enforcement process. These events usually relate to: i) non-payment, in particular non-payment of due claims under the most senior outstanding debt instrument; ii) issuer insolvency and liquidation proceedings; iii) unlawfulness and invalidity; iv) repudiation; v) breach of material obligations; and vi) misrepresentation. We review such legal clauses and our analysis incorporates any non-market-standard events of default while modelling non-payment as the only event of default.

ii) Contractual restrictions

The essential contractual arrangements include limited-recourse and non-petition clauses, which generally form part of any transaction document creating potential obligations for the SPV. Their purpose is to prevent transaction parties from initiating bankruptcy proceedings against the SPV. The SPV typically grants pledges over all assets to a trustee, which reduces other creditors' incentives to file for bankruptcy, thus benefiting investors. Legal opinions will typically confirm that such contractual arrangements are valid, legally binding and enforceable.

a) Limited recourse

All creditors of the SPV (including the investors) agree to limit their recourse against the assets of the SPV. The limited recourse will typically be subject to the cash available under the waterfall of payments, complemented by a corresponding limit on termination rights. Therefore, it will not constitute an event of default if cash flows cannot cover the SPV's obligations towards creditors after the waterfall is applied.

b) Non-petition

All creditors of an SPV (including the investors) typically agree not to file, initiate or take part in insolvency proceedings against the SPV. As such, clauses can be invalid in certain jurisdictions, or the non-petition clause may sometimes be limited to a certain timeframe.

c) Asset pledges

Pledging the SPV's assets to a security trustee for the benefit of the investors provides the latter with recourse to the assets should this prove necessary to protect their investment. More importantly, it is crucial in the context of bankruptcy remoteness to dissuade other creditors from filing for bankruptcy. Ultimately, the investors will have priority over the assets' enforcement proceeds, with no significant assets to be liquidated for the benefit of other creditors to remain in the insolvent SPV's estate.

d) Debt limitation

The SPV must comply with the conditions listed below to not incur obligations other than those under the transaction's provisions. This limits the risk of a cash flow mismatch leading to an SPV's insolvency; ensures the waterfall is shielded from debt not initially anticipated in the structure; and ensures no third parties can file for the SPV's bankruptcy. These conditions are commonly made subject to representations of the SPV, which typically include, among others:

- No existing debt: the SPV has no past obligations towards third parties not set up explicitly for the rated transaction.
- Limits on debt: the SPV is prohibited from incurring debt other than that created in the transaction documents and under applicable laws, including taxes. Plans for further debt may be capped to be quantifiable for the credit risk analysis.
- Limited business purpose and powers: the SPV's constitutional documents set out a business objective and powers that are strictly limited to the issuance of the debt and the dealings necessary to set up and maintain the transaction structure.
- No employees: the SPV cannot enter into commitments regarding employment contracts, including pension liabilities.
- No subsidiaries: the SPV cannot create subsidiaries that could incur obligations for which the SPV might be liable.

Non-consolidation

Consolidation risk is the threat that the SPV and/or its assets are consolidated with (the estate of) another legal entity. This consolidation could ensue from corporate reorganisations or insolvency proceedings relating to the parent company.

i) No corporate reorganisation

To prevent a corporate reorganisation from affecting the SPV or its assets, negative covenants may prevent the SPV from entering mergers, consolidations or other forms of corporate reorganisations. These covenants normally extend to prohibiting dissolution, liquidation or asset sales, although do not strictly address consolidation risk per se.

ii) No statutory consolidation

In certain jurisdictions, insolvency proceedings may allow assets of the SPV to be consolidated with the insolvency estate of the parent company. This risk is sometimes addressed through orphan SPVs or by choosing a jurisdiction that prohibits such consolidations. If consolidation is a threat in the applicable jurisdiction, it may still be mitigated through structural elements. In this case the transaction may typically include elaborate separateness covenants and independent management provisions, ensuring the SPV will be treated by the applicable insolvency regime as a separate entity, i.e. will not be consolidated with an insolvent parent company.

Other SPV safeguards

While Scope's legal analysis focuses on bankruptcy remoteness and non-consolidation, other contractual safeguards can be either essential or at least beneficial to the overall robustness of any structured finance transaction. These include, among others, representations regarding the fulfilment of appropriate regulatory requirements, the existence of independent management and a restriction on changes to the constitutional documents of the SPV.

i) Necessary licenses and authorisations

The SPV must possess all the necessary licences and authorisations to ensure its business can comply with all legal obligations and regulations. Any lack thereof could result in additional liabilities through the asset transfer's validity being under threat, transaction documents being voided, or fines from supervisory authorities. The SPV documents may contain adequate representations. As a result, legal opinions may not include such qualifications.

ii) Independent management

SPVs are generally managed by a board that is independent from the SPV's parent or other transaction parties. This prevents the board from being wrongly incentivised in its management of the SPV and limits the risk of a dependent manager filing for voluntary insolvency to benefit certain transaction parties or the SPV's parent company. One independent director may suffice if, according to the SPV's constitution, that director can ensure board decisions are not influenced by transaction parties with interests contrary to the investors'.

iii) No change to constitutional documents

Scope is aware that the above-mentioned, and necessary, restrictions to the SPV could be changed by its owners, who are generally entitled by law to amend constitutional documents at their discretion. This risk can be mitigated by covenants prohibiting changes before transaction parties are notified and appropriate consents obtained, including, in certain cases, investor approval.

Guarantee contracts

Sometimes transaction counterparties or even direct exposures in the transaction can be guaranteed by entities with a different credit profile. With the help of legal opinions, Scope will consider whether the credit risk of the guaranteed transaction party can be replaced by the credit risk of the guarantor. Credit substitution may be contemplated if the guarantee features the following characteristics:

- **Irrevocable:** the guarantee cannot be revoked in relation to obligations entered into prior to the termination of the guarantee.
- **Unconditional:** the claim of the guarantee is not conditional e.g. upon the beneficiary of the guarantee having pursued its rights vis-à-vis the debtor or the completion of other prerequisites or defences the principal debtor may have against the fulfilment of its duties under the guaranteed obligation, etc.
- **Demand:** the guarantor agrees to pay upon the beneficiary's demand. The support is particularly strong, if the guarantor agrees to not dispute the payment with the argument that the guaranteed case has not occurred (first demand).
- **Beneficiaries:** the guarantee is for the benefit of the SPV or the security trustee and enforceable by the same.
- **Amendment/termination:** any amendment or termination of the guarantee is typically subject to the consent of the beneficiary.

Some insurance contracts can also comprise similar concepts as guarantees and if Scope deems that those insurance contracts in substance work as guarantees we can apply credit substitution approach also in those cases, although they are formally called insurance contracts.

Taxation

Scope considers any liabilities originating from taxes that could affect cash flows and hence the instrument's rating. Potential tax liabilities are a major concern, not only because they are senior obligations by law in most jurisdictions, but also because non-payment could result in regulatory actions affecting the SPV or the structure. Tax liabilities usually rank senior to all other payment obligations in the cash flow priority of payments.

Sources of tax liabilities

Tax liabilities arise for diverse reasons and Scope groups them according to the transaction item they affect.

i) Taxes on assets

These can take the form of:

- withholding taxes on payments to be made from the assets to the SPV;
- Value-added tax on the transfer of an underlying asset; or
- stamp duties for the perfection of the asset transfer.

ii) Taxes on the SPV

Earnings of the SPV can be taxed unless it is tax-neutral or tax-transparent. In any case, tax solely on profit would not affect the structure, i.e. earnings after deducting cash needed to service the rated debt plus senior-ranking obligations.

iii) Taxes on transaction parties' payments and withholding taxes on derivatives

Payments by third parties, credit enhancement providers or derivative counterparties could also be taxed.

Tax analysis

Scope generally assesses tax liabilities by relying on tax opinions. Cross-border transactions may add complexity via tax re-characterisation or secondary tax liabilities. Tax re-characterisation is relevant when a jurisdiction in which the SPV is not resident applies its tax regime to the SPV, for instance, a jurisdiction in which a company providing all essential services to the SPV is domiciled. Secondary tax liabilities can have an effect when an SPV's parent has unpaid taxes and the relevant jurisdiction requests payment from the SPV. Double-taxation treaties governing cross-border taxation, among other mitigants, can help to reduce tax risks.

Scope may not need to rely on external tax assessments to demonstrate that no tax obligations exist if the relevant transaction documents contain valid, legally binding and enforceable gross-up clauses in favour of the SPV; or if the generated cash flow is enough to settle all potential tax claims. Additionally, Scope considers whether withholding taxes could be due on derivatives and, if that is the case, whether the counterparty will gross up the payments or not.

Scope's ratings do not address the potential taxes borne by investors on their investment in the rated instrument.

9.2 ESG factors

9.2.1 Environmental risks

Environmental issues can be decomposed into i) physical risks, which are changes in the weather/climate or environment that would impact economies or directly assets (vehicles, properties); and ii) transition risks, which are the societal changes arising from a transition to a low-carbon economy, which could affect asset prices. Scope aims to integrate acute environmental risk when the transaction is directly exposed to events such as natural disasters or other environmental aspects, particularly in case of a long duration of the exposure, and if there is no hedge in the form of an appropriate insurance or cost coverage in place.

To also integrate the long-term emergence of chronic environmental risks, we may conduct sensitivity analysis, for example, by investigating the impact of certain climate change scenarios. The dedicated stress tests will then be published in our press release.

9.2.2 Social risks

Structured finance transactions are by nature exposed to very specific social risks which may deviate from our usual definition of social risks for corporates or sovereigns. Existing frameworks from the sovereign or corporate world are not directly adaptable to structured finance transactions, due either to the long-term nature of the factor, i.e. demography, or the nature of the issuer, a SPV with no customers or employees.

Nonetheless, the securitised assets may be exposed to social risks. Here we have seen several different issues ranging from i) the fundamental dynamics of society as whole (demographics, income/employment distribution, etc.); ii) the current household resilience (household indebtedness, social benefit); down to iii) the specific transaction-related issue (e.g. lending to borrowers who are underserved by high street banks). Moreover, social risk in structured finance transactions may also occur via laws and regulation risks, like property squats in Spain, the introduction of new debt-like products in securitised pools, or the introduction of debt moratoria across Europe. Such social factors are incorporated into our analysis within the definition of the default and/or recovery rate we apply or the respective volatility parameter.

Additionally, social risks stemming from the key transaction parties, i.e. the originator, servicer, or asset manager, are factored in our counterparty risk analysis.

9.2.3 Governance risks

Governance is core to our analysis of structured finance transactions. We expect strict adherence to the documentation, calculations, reporting and transaction covenants; deviations from these may trigger a rating review and could even jeopardise the rating maintenance or lead to the withdrawal of the rating if changes, e.g. a reorganisation of the rated entity, alters the fundamental nature of the transaction. Although not described as an explicit rating factor in our methodology, our ratings systematically reflect those risks through: i) our assessment of the legal structure, using concepts linked to the notion of simple, transparent and standardised transactions or just reflected by the structural governance, the legal construct used to implement the securitisation; ii) the counterparty governance, i.e. the quality of the transaction parties, including their own operational due diligence; and iii) the qualitative governance aspects, which consider the alignment of interest of the involved parties. Incorporating weak governance into our analysis can be quantitatively and qualitatively through key rating drivers or corresponding adjustments to supplementary rating drivers or may lead to a rating process conclusion without assigning a rating.

Structural governance is our assessment of the legal structure of the transaction as per Appendix 9.1 Legal considerations in structured finance. We review the transaction documentation and raise any concerns regarding the structure, execution and enforcement of the security as well as any anomalies in the waterfall. Concerns are included in our publications and comparisons are made with established standards.

Counterparty governance is our assessment of the quality of the involved transaction parties. It is described in the relevant methodologies with our different areas of focus and examples of the elements used in our analysis. This includes, inter alia, the quality of origination, strength of lending standards and due-diligence processes.

Qualitative governance aspects relate to the purpose of the transaction and the existing (or absence thereof) alignment of interests between investors and the different parties to the transaction. This is discussed during the rating process and embedded into our opinion.

9.3 Standard structured finance asset classes and dedicated methodologies

Consumer and auto ABS

Collateral pools backing consumer ABS or auto ABS transactions are often homogeneous and contain many loans. The portfolio assessment for such transactions considers pool characteristics, the quality of the pool's servicing, the originator's lending standards, and Scope's forward-looking performance expectations based on historical data and macroeconomic forecasts. Additional details can be found in Scope's Consumer and Auto ABS Rating Methodology.

RMBS – residential mortgage loans

RMBSs are securitisations of granular and homogenous portfolios of standard mortgage loans to purchase, refinance or refurbish a residential property. The portfolio assessment for such transactions considers the pool's characteristics, the quality of the pool's servicing, the originator's lending standards, and Scope's forward-looking performance expectations incorporating historical data and macroeconomic forecasts. Some RMBS transactions might show limited granularity; thus Scope might complement the portfolio analysis with a loan-by-loan analysis, at least for the largest loans.

SME ABS

Depending on the granularity of the securitised pool, Scope either performs a loan-by-loan analysis or assumes an idealised portfolio. Scope may assess the pool's credit quality by examining individual credit ratings and internal assessments, calibrating historical data, and incorporating the internal rating systems of loan sellers. Scope also incorporates its macroeconomic view on the relevant SME market. Details on these procedures can be found in Scope's SME ABS Rating Methodology.

Non-performing loans

Structured finance securitisations of NPL portfolios, while similar to performing loan transactions, have the key difference that their income consists of an irregular flow of recovery amounts, as opposed to the regular cash flows paid by performing debtors. Scope's analysis focuses on the portfolio servicer's ability to extract the security value, the collateral appraisal quality (especially for security from real estate), the security liquidity, the recovery timing as well as the applicable legal framework and enforcement proceedings. Details on these procedures can be found in Scope's Non-Performing Loan ABS Rating Methodology.

CDO/CLO – corporate credit

CDO/CLO transactions expose investors to portfolios comprising leveraged loans, large corporates' bonds and also credit default swaps on corporates. The characteristics of these instruments are relatively homogenous. However, portfolios composed of such instruments are often non-granular and require a credit-by-credit analysis to assess credit risk. Scope relies on its ratings, internal assessments on each underlying instrument or, when available, monitored ratings from other regulated credit rating agencies. Details on these procedures can be found in Scope's CLO Rating Methodology.

CMBS and CRE loans

The underlying collateral of CMBS transactions and CRE loan securitisations is often non-granular and highly heterogeneous. For these transactions Scope assesses each underlying CRE loan. This is achieved by reviewing economic features, tenant credit quality, property quality, debt structure, rent roll, the macroeconomic environment, and the borrower's ability to service the loans. Details on these procedures can be found in Scope's CRE Security and CMBS Rating Methodology.

Credit-linked notes and asset repackaging

Credit-linked notes can be used to repackage a variety of assets under a different format, thus modifying the underlying assets characteristics. The instruments' cash flows are linked to the asset's cash flows, the derivative contracts' cash flows, or both. Such structure may either pose significant counterparty risks or modify the underlying asset's payment characteristics, e.g. payment maturity profile, currency, or coupon basis.

The analysis of such structures will typically rely on modelling the timing of default of both i) the underlying entities; and ii) the derivative counterparty. It also applies the cash flow mechanism, including any hedging arrangements as per the legal documentation. The analytical focus is therefore on the legal structure, including typically existing credit support annexes, and counterparty risks.

Insurance-linked securitisation

Insurance-linked securitisation instruments cover any debt issuances whose repayments are linked to the realisation of claims on a portfolio of granular insurance exposures either from all risk types or from a single risk type, for example, catastrophe bonds. The analysis of such exposures uses the same concept as for credit exposures, where claim frequency is akin to default frequency and claim severity akin to loss severity. The assessment of such transactions considers the risk transfer characteristics, the underwriting standards, the quality of the claims management and Scope's forward-looking claims expectation based on historical data.

Project finance loans securitisations

Project finance assets are usually very heterogeneous since the asset class covers financing for infrastructure, transport, energy and real estate. Project finance often addresses public needs. Scope's analysis of structured finance instruments backed by project finance loans generally involve the preparation of a rating or a credit assessment on each underlying loan in the collateral pool. The assessment incorporates a detailed view of the economics of each project, the project phase and the liability-servicing abilities, including seniority and credit enhancement. Scope also considers the off-takers and guarantee providers, which often play a significant role with respect to going-concern operations. More information regarding the analysis of individual project finance loans is available in Scope's General Project Finance Rating Methodology.

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