CLO Rating Methodology

Structured Finance

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1. Executive summary

This document provides the latest update of our CLO Rating Methodology. The update contains editorial changes and clarifications. The update does not affect existing ratings.

1.1 Definitions and applicability

This document describes Scope Ratings' methodology for rating collateralised loan obligation (CLO) transactions. This methodology complements the General Structured Finance Rating Methodology and should be read together with the Counterparty Risk Methodology (both available at www.scoperatings.com).

We define a CLO as a transaction backed by non-granular portfolios mainly comprising corporate leveraged loans of European or North American borrowers[1]. These loans can be either broadly syndicated or privately originated[2]. CLO issuers generally appoint an asset manager to source, replace or work out collateral assets subject to predefined asset eligibility criteria, portfolio limits and covenants.

This methodology also applies to other transactions presenting comparable analytical characteristics, such as certain collateralised debt obligations or transactions backed by share units of one or several managed funds investing in corporate leveraged loans. Transactions backed by portfolios of more than 50 effective corporate exposures[3] and subject to a passive management approach would generally fall under our SME ABS Rating Methodology.

1.2 Methodology highlights

Our approach to rating CLO transactions considers the following elements:

Greater differentiation based on asset manager quality and performance. Our analysis relies on transaction-specific input assumptions that factor in the track record of the asset manager. We use a fundamental bottom-up approach and sequentially analyse the asset manager, the assets, the portfolio and the structure, taking into account the considerable discretion left to the asset manager in the governance of the transaction. Our analysis of the asset manager is therefore a key component of the rating process and includes five main parts: corporate overview, financial strength and business continuity, operations, strategy and track record. These qualitative findings also impact our quantitative assumptions, thereby influencing our overall assessment of the transaction.

Stable senior protection. The methodology ensures stable protection buffers through the cycle for the most senior ratings**.** Our base case assumptions and application of various stresses align with our fundamental view on the performance of CLO notes. For example, protection buffers for BBB_{SF} rated CLO notes backed by a portfolio of broadly syndicated leveraged loans are designed for tranches that are unlikely to suffer losses in an environment whose default rates correspond to historical peaks since 1980. Similarly, protection buffers necessary to support a note rated AAA_{SF} shall allow senior tranches to withstand environments with exceptional levels of default, i.e. with rates in excess of historical peaks for an extended period.

Transparent model portfolio. The composition of the collateral pool will evolve with the asset manager's strategy and credit views. We construct a model portfolio that best represents the collateral pool's risk profile throughout the life of the transaction, building on the results of our asset manager analysis and asset analysis. Details of the initial portfolio at the closing date, the asset manager's ramp-up plan, and structural features such as maximum portfolio concentrations, trading limits and collateral quality tests also shape the model portfolio.

Flexible use of available portfolio metrics. The Scope weighted average loss factor (WALF) is a key portfolio loss metric consistent with our expected loss framework. Together with our metrics on a portfolio's credit quality and default-weighted recovery rate (Scope weighted average rating factor [WARF] and Scope weighted average recovery rate [WARR]), this provides asset managers with a flexible set of measures that enables dynamic portfolio management within pre-defined limits. However, our methodology allows CLOs to be rated based on industry standard metrics already available in the transaction.

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[1] Our definition of CLO transaction includes warehouse facilities commonly used pre-closing of a transaction backed by broadly syndicated corporate leveraged loans. We can consider transactions with collateral predominantly stemming from other geographies than Europe and North America.

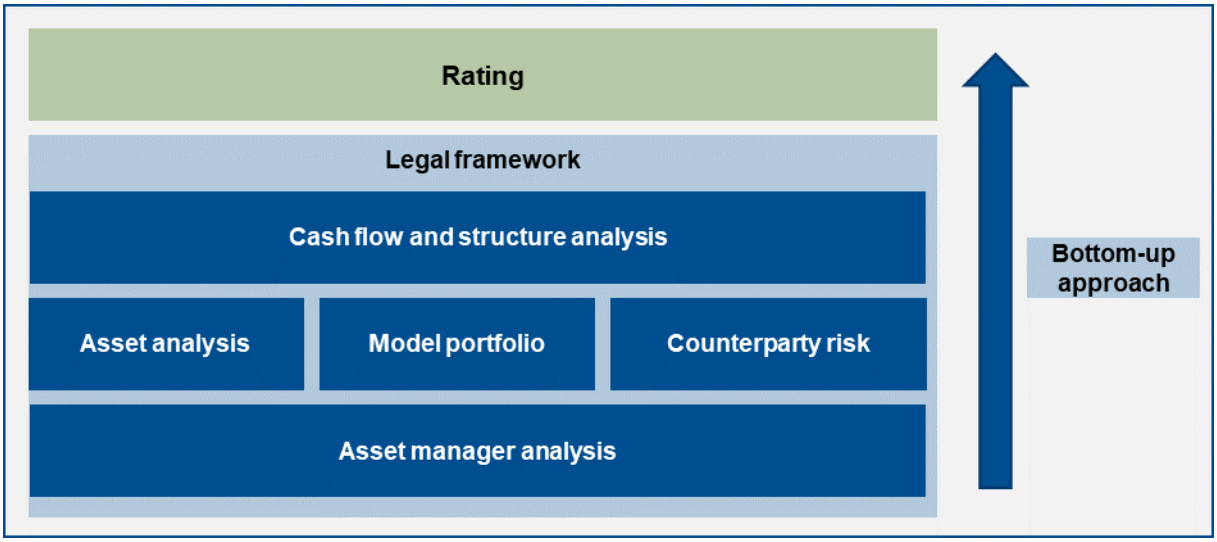
[2] Broadly syndicated leveraged loans are typically extended to companies with EBITDA levels of EUR 50m or above, while target borrowers' EBITDA in the private debt (also called direct lending) markets typically range from EUR 10m to EUR 50m.

[3] The effective number of obligors in a portfolio is derived using the inverse of the Herfindahl index.

2. Analytical framework

The analytical framework (Figure 1) covers six analytical areas: i) the asset manager analysis; ii) the asset analysis; iii) the model portfolio; iv) the cash flow and structure analysis; v) the counterparties; and vi) the legal framework.

Figure 1. Analytical building blocks



Our structured finance ratings constitute a forward-looking opinion on the relative credit risks. A rating reflects the expected loss associated with payments contractually promised by an instrument on a payment date or by its legal maturity. Our approach is described in our General Structured Finance Rating Methodology, available here.

We analyse the collateral pool's risk profile and project its performance throughout the life of the transaction. Our analytical inputs incorporate our view on the asset manager's ability to perform under the desired strategy, the initial portfolio's characteristics at the closing date, if available, and structural characteristics such as portfolio concentration limits and collateral quality tests. Our asset analysis considers default and recovery rates for each asset as well as a correlation framework for the collateral pool. Given the limited diversification of CLO portfolios, we generate the portfolio's default distribution via Scope's portfolio model, which applies a Monte Carlo simulation with a Gaussian copula dependency framework. The resulting default distribution is used for our cash flow analysis, which incorporates assumptions on asset amortisation, prepayment rates, default timing, foreign exchange rates, and interest rates. We analyse the expected loss of an instrument by applying rating-specific asset recovery rate assumptions that are tiered to represent haircuts that increase with the rating target. We build on the asset manager analysis and asset analysis to create a model portfolio that aims to best represent the collateral pool risk profile throughout the life of the transaction.

Qualitative and quantitative inputs are equally essential to the analysis and account for the rating's sensitivity to key analytical assumptions. The analytical outcome may depart from the strictly quantitative findings as it reflects qualitative and fundamental credit views on risks that are crucial to the assessment. For example, an asset manager's incentives, skills or monitoring processes can drive the performance of a managed CLO transaction, but these aspects may not be perfectly captured under a purely quantitative approach.

In this document we present the six areas of analysis for the rating and monitoring of CLO transactions.

2.1 Asset manager analysis

Our view on the asset manager[4] impacts quantitative parameters and influences our overall assessment of the transaction. To appraise the manager's governance quality and ability to perform under the desired strategy, we divide our analysis into five main parts: corporate overview; financial strength and business continuity; operations; strategy; and track record.

[4] The asset manager analysis does not result in an asset manager rating as assigned by Scope Analysis, for instance. In the case of a transaction backed by multiple portfolios managed independently, the asset analysis will focus on the fund of funds manager, selecting the underlying fund investments.

Appendix 4.1 illustrates the points that we cover in each of the five above-mentioned areas of analysis and give an example of how our recovery rate assumptions respond to findings.

We complement the information we receive from the asset manager with public information.

2.2 Asset analysis

The concentrated nature of the collateral pool warrants a line-by-line analysis of the assets. We assign individual probabilities of default to the assets alongside pair-wise correlation factors and generate the default rate distribution of the overall portfolio. Rating-conditional recovery rate assumptions on default are used to project cash inflows for each note class and the resulting losses for each default rate scenario. We determine the expected loss for each note class by integrating the losses under the different default rate scenarios, weighted by their respective probability.

2.2.1 Individual asset default rate

As a first step in our analysis, we project the default rate distribution for the portfolio with a Monte Carlo simulation. The simulation generally consists of numerous iterations to allow results to converge, randomly determining whether assets have defaulted and, if so, the timing of default. We determine asset default by applying a Merton model, which compares a random asset value against a defined threshold value. Each asset threshold value is derived from the asset default risk and its risk horizon. The default risk of an asset is driven by the credit quality of its obligor.

We infer the credit quality of an obligor using available internal and external measures following the principles set out in the General Structured Finance Methodology (section 'Obligor and risk presenter concentration risk'). We expect most obligors in a portfolio of broadly syndicated corporate leveraged loans to be rated by Scope or another supervised and regulated credit rating agency, whereas privately originated leveraged loans are usually not rated. Appendix 4.2 illustrates the different options available to derive the obligors' credit quality.

2.2.2 Recovery rate analysis

We assign a recovery rate to each asset based on its type (loan or bond), seniority, security and, when available, loss given default. We identify four main recovery categories in the CLO universe and for which individual assets exhibit similar characteristics:

- First-lien secured loan
- Second-lien secured loan
- Senior secured bond
- Senior unsecured bond

For assets whose type, seniority or security falls outside the four categories, we derive a possibly distinct recovery rate based on the asset's specific key drivers. Mezzanine loans are an example of such assets: here, we can derive recovery rate assumptions by following a bespoke analysis, for which the main considerations include the experience of the asset manager in that area, underwriting practices, or the targeted proportion of such assets in the collateral pool[5]. The use of broadly syndicated mezzanine loans in CLO transactions has, however, been very limited since 2010.

We derive the base case recovery rate for the four main categories using historical corporate recovery data. Figure 2 below summarises the base case recovery rates.

Figure 2. Base case recovery rate by recovery category (as a percentage of par value)

Recovery category	Base case scenario (B target rating)
First-lien secured loan	70.0%
Second-lien secured loan	30.0%
Senior secured bond	65.0%
Senior unsecured bond	40.0%

[5] Other examples include revolving obligations, super-senior or unitranche loans. We expect the purchase of structured finance securities as collateral to be prohibited.

Market- or sector-related factors can cause recovery rate prospects to deviate from these average assumptions. These include a company's leverage and debt structure (e.g. unitranche or first-lien coupled with second-lien tranches) and an asset's underwriting standards, such as the quality and types of covenants. If a transaction has information on these or includes specific criteria, we incorporate them and adjust base case assumptions in Figure 2 to reflect potential positive or negative effects.

We then analyse the expected loss of a rated tranche by applying rating-conditional recovery rate assumptions that are tiered to represent haircuts that increase as the target rating becomes higher. This approach ensures higher ratings can withstand more severe stresses. It also accounts for the sensitivity of higher-rated tranches to the volatility of recovery rates as well as the generally cyclical nature of defaults and recoveries (periods with high rates of default are usually associated with low recovery rates). Figure 3 shows the indicative recovery rate haircuts specific to CLO transactions, which are applicable to all recovery categories.

Figure 3. Indicative recovery rate haircuts

Rating stress	B (base case)	BB	BBB	A	AA	AAA
Haircut	0%	4%	14%	21%	36%	48%

As an example, the recovery rate for first-lien secured loans when analysing portfolio losses under an A rating stress is 55.3% = 70.0% * (1 – 21.0%). This tiering reflects our view that CLO notes rated BBB_{SF} are likely to perform in a stressed environment with default rates corresponding to historical peaks while those rated AAA_{SF} can even withstand environments whose default rates exceed historical peaks. Figure 4 summarises the recovery rate assumptions by category.

Figure 4. Indicative recovery rate assumptions by category

Recovery category / rating stress	B (base case)	BB	BBB	A	AA	AAA
First-lien secured loan	70.0%	67.2%	60.2%	55.3%	44.8%	36.4%
Second-lien secured loan	30.0%	28.8%	25.8%	23.7%	19.2%	15.6%
Senior secured bond	65.0%	62.4%	55.9%	51.35%	41.6%	33.8%
Senior unsecured bond	40.0%	38.4%	34.4%	31.6%	25.6%	20.8%

The jurisdiction of collateral assets can have a large influence on expected recoveries, as standard loan documentation may differ with the different geographies, laws and court systems. The numbers above assume that the predominant jurisdictions are North America and Western Europe. If a collateral pool significantly differs from this profile, we incorporate the local idiosyncrasies in the category-specific base case assumptions on recovery rates and haircuts.

2.2.3 Correlation framework

Correlation parameters are essential inputs to the Gaussian copula function used to obtain the portfolio's default rate distribution. For each iteration of our Monte Carlo simulation, we determine asset default by comparing a random asset value against a defined threshold value derived from the asset maturity and credit quality. This random asset value is constructed as a standard Gaussian random variable, defined as a linear combination of standard independent Gaussian random variables. The independent Gaussian random variables comprise a set of market risk factors as well as an idiosyncratic component specific to the asset in question. The common market risk factors define the default dependency framework, simply referred to here as the correlation framework.

We have defined a correlation framework for CLO transactions with three different market risk factors:

- Global: this reflects macroeconomic influences.
- Country: this geographical factor reflects a common dependency on domestic economic and political developments.
- Industry: corporates from the same industry have the same business cycle and sector perspectives.

The weights attributed to each factor are used to determine the interdependence between the assets and therefore the portfolio's default rate distribution[6]. Larger weights assigned to the market risk factors imply smaller idiosyncratic risk and contribute to scenarios in which widespread default in the collateral pool is more probable.

Our indicative average correlation parameters for CLO transactions are set out in Figure 5.

Figure 5. Indicative average correlation parameters for a diversified CLO transaction

Market risk factor	Correlation parameter
Global	2.0%
Country	5.0%
Industry	20.0%

We defined the above parameters in line with academic findings and public benchmarks[7]. They also accord with our fundamental views on the performance of CLO notes: BBB_{SF} rated notes are likely to perform in environments whose default rates correspond to historical peaks while AAA_{SF} rated notes are likely to perform when default rates exceed historical peaks for an extended period.

We consider these correlation parameters in the context of North American and European CLO transactions with assets located in those regions. If a transaction significantly differs from market benchmark standards, we adjust the correlation framework or its components for the additional risk, if any. For example, for a collateral pool with excessive concentrations in several obligors or related obligors, we would apply an additional risk factor to the assets linked to these obligors. An unusual concentration in one particular industry or the presence of obligors from developing markets is another example for which we are likely to consider an industry-specific add-on or an 'emerging market' risk factor. A longer-than-usual ramp-up period would also warrant further stress to the correlation parameters.

2.3 Model portfolio

The following parameters are necessary in order to capture the transaction's risk factors and define the model portfolio:

- Number of assets and obligors, portfolio weights and target size
- Asset type: loan versus bond
- Asset security
- Geography: breakdown by the country of the obligor's incorporation
- Industry: breakdown by the obligor's business sector
- Credit quality of the portfolio
- Maturity profile
- Spread, coupon and original issue discount
- Ramp-up profile

Specific assumptions for each parameter above are discussed in the following sections. If a CLO transaction does not feature a portfolio concentration limit or a collateral quality test that would normally influence a parameter of the model portfolio, we make a specific assumption for the parameter in question based on available information and the asset manager analysis. We supplement our analysis with sensitivity tests around the main assumptions. We expect transactions backed by privately originated loans to feature fewer portfolio limits and tests as the ongoing management of the portfolio mainly involves the origination of new assets rather than active trading in the secondary market. Consequently, for such transactions, the shaping of the model portfolio relies more heavily on our asset manager analysis, with a particular focus on track record and the experience of past transactions with similar strategies.

[6] Factors are defined as the square root of the respective correlation parameters.
[7] Including the correlation factor set between 12% and 24% for large corporates in the Basel III (IRB Approach) framework.

The model portfolio is also determined as a function of the life cycle of the transaction. Once the reinvestment period has ended, the flexibility of management is usually reduced, therefore more weight can be given to the current state of the portfolio, as it is unlikely to change significantly due to portfolio trading.

2.3.1 Portfolio target size and obligor weights

For transactions that are significantly ramped at closing[8], we use the initial portfolio to derive the number of assets and obligors and their weight distributions. If concentration limits apply to a limited number of top obligors, we stress the largest relevant concentrations until the maximum concentration allowed by the transaction's portfolio profile tests is reached. For instance, if a single obligor's concentration limit is 2.5%, with the exception that three obligors can reach 3% and the 10 largest combined can reach 20%, the model portfolio will set the top three and top 10 concentrations at 9% and 20%, respectively.

In the case of transactions where the initial portfolio does not yet exist or is only very partially ramped[9], we assess whether the indicated portfolio target size, number of assets and obligors as well as weight distributions are commensurate with the transaction's strategy, the asset manager's origination capacities and the length of the ramp-up period. We adjust the portfolio target size down, resulting in a more concentrated asset pool, if we determine that the portfolio is unlikely to be ramped to the level initially planned by the asset manager. During the ramp-up phase, we determine the levels of obligor concentration with respect to our assumed model portfolio target[10], unless the ramped portfolio already exceeds that level. After the ramp-up phase, obligor concentrations become a function of the outstanding asset portfolio size[11].

If only a general obligor concentration limit is available, or in the absence of such limits, we stress the weights of a number of top obligors based on available information and the asset manager analysis.

2.3.2 Fixed-rate assets

CLO transactions may specify concentration limits for assets that pay a fixed-rate coupon. We consider such concentration limits and the asset manager's current CLO transactions to derive the model portfolio.

2.3.3 Asset security

CLO transaction documentation generally limits non-secured or non-senior collateral in the portfolio[12]. Under a AAA rating stress, the model portfolio maximises non-first-lien senior secured exposures to capture the lower recovery rates expected for such assets. If the transaction has a collateral quality test based on a Scope WARR and under a AAA rating stress, the model portfolio will set the recovery rate assumption commensurately with the covenanted level.

2.3.4 Geographic concentration

If the CLO transaction has maximum concentrations based on the country of the obligor's incorporation or operations, the model portfolio will have a geographic breakdown of obligor weights considering these limits. In addition, we examine the asset manager's current transactions and compare geographic concentrations with market standards. If the asset manager's portfolios show good or average diversification, we will derive the model portfolio's geographic distribution in line with the asset class's standards, otherwise we will reflect potential concentration risk by overweighting certain geographies in the model portfolio.

2.3.5 Industry concentration

For transactions that are significantly ramped at closing, we use the transaction's initial portfolio to derive the number of industries and their weight distributions. For transactions that are not or only partially ramped, we derive the industry distribution based on the proposed strategy and our asset manager analysis.

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[8] This is usually the case for transactions backed by a portfolio of broadly syndicated leveraged loans that typically feature ramp-up periods of six months or less and an initial portfolio more than 50% ramped.
[9] This is usually the case for transactions backed by a portfolio of privately originated debt that typically feature ramp-up periods of two to four years.
[10] See Appendix 4.2 - Determination of the obligors' credit quality.
[11] Including cash investments retained in the structure.
[12] Transactions backed by privately originated debt generally outline targeted ratios for non-senior collateral but do not feature a hard covenanted limit.

In addition, we examine the asset manager's current transactions and compare industry concentrations with market standards. If the asset manager's portfolios show good or average diversification, we will derive the model portfolio's industry distribution in line with the asset class's standards, otherwise we will reflect potential concentration risk by overweighting certain sectors in the model portfolio.

If profile tests for a limited number of larger sectors are available, we assume that the portfolio features the maximum top industry concentration allowed by the transaction. For instance, if the single industry concentration limit is 10%, with the exception that the three largest industries combined are limited at 40% and the largest at 15%, the model portfolio will set the largest and the three-largest concentrations at 15% and 40%, respectively.

Appendix 4.3 lists the different Scope industries. If the transaction uses a different industry list, we will map its classification to ours.

2.3.6 Credit quality

If substantially ramped, we use the transaction's initial portfolio and the conclusions of our asset manager analysis to derive the model portfolio's credit quality. If the transaction evaluates collateral quality based on the Scope WARF[13] under a AAA rating stress, we set the model portfolio's credit quality to ensure its WARF is commensurate with the covenanted limit. In the absence of a Scope WARF, we use the transaction's WARF. Appendix 4.4 expands on the Scope WARF. See also 'Further Considerations Related to Collateral Quality Tests'.

For transactions that are not or only partially ramped, we derive the credit quality distribution based on the proposed strategy and our asset manager analysis. This includes an analysis of past investments made by the manager under similar strategies, case studies on particular credits and an assessment of the default track record. When applicable, we also consider the transaction concentration limit for CCC assets and the manager's strategy relating to this segment to infer the concentration of CCC assets in the model portfolio.

2.3.7 Time to maturity and amortisation

As assets can be replenished during the reinvestment period – usually subject to portfolio profile tests and collateral quality tests – the transaction portfolio's weighted average life (WAL) will be longer than that of the initial portfolio. We assume that, during the reinvestment period, scheduled principal repayments are reinvested in collateral whose risk profile is similar to that of the model portfolio. We also adjust the model portfolio's WAL such that the WAL of a portfolio accounting for the reinvestments is commensurate with the transaction's covenanted level. In the absence of such limit, we ensure that the model portfolio's WAL is in line with the asset manager's strategy accounting for the realised tenors of the type of assets that are invested in.

We determine whether the transaction permits the purchase of assets whose maturity dates are longer than the rated notes' final legal maturity date and make specific assumptions to represent them (see section 2.4.10 'Final legal maturity date').

2.3.8 Spread and coupon

If substantially ramped, we use the transaction's initial portfolio and weighted average spread (WAS) minimum to derive the portfolio's weighted average spread and weighted average coupon. Spreads of CLO portfolios currently being managed and their relative distance to WAS minimum and WARF maximum limits provide insight into the asset manager's strategy. We use this information to derive the portfolio's weighted average spread.

For transactions that are not or only partially ramped, we derive spread assumptions based on current spreads observed for the proposed strategy, covenanted minimum WAS, if applicable, and our asset manager analysis, which includes an analysis of past investments made by the manager under similar strategies.

Under a AAA rating stress, we set the portfolio weighted average spread commensurately with the covenanted minimum.

2.3.9 Further considerations related to reinvestment

Interest and principal proceeds may be reinvested in eligible collateral during the reinvestment period. We assume the reinvested collateral and the model portfolio to have similar risk profiles. Our model portfolio's default rate distribution also does not capture

[13] Scope's rating factor is a numerical value that equates to the 10-year idealised default probability multiplied by 100.

the default risk of reinvested collateral. We compensate for this by assuming for each default rate scenario that the reinvested collateral defaults at the default rate of a given scenario and recovers at the portfolio's recovery rate.

2.3.10 Further considerations related to collateral quality tests

Our definition of the Scope WALF enables asset managers to measure the portfolio's risk with a loss metric following our expected loss framework (see Appendix 4.4). Portfolio minimum quality can be defined with the Scope WALF or a combination of Scope WARF and WARR.

Certain structures offer the flexibility of dynamic portfolio management, whereby the asset manager can select several limits from a pre-defined matrix (e.g. on WARF, WARR, WAS) and therefore adapt to the then-prevailing market conditions. Our methodology is flexible and the pre-defined matrix can also be applied to Scope WALF, WARF or WARR.

In the absence of tests defined with Scope metrics, we use the transaction's existing tests and matrices to derive the model portfolio.

2.4 Cash flow and structure analysis

We calculate the losses on each note class using Scope's cash flow model by projecting the collateral pool's cash flow, taking into account the transaction's structural features. On the asset side, the main quantitative inputs are the model portfolio and its default rate distribution, ramp-up profile, default timing, recovery rate, recovery timing, spreads and prepayment rate. On the liability side, we consider expected note size, coupons, transaction fees and expenses, any reserves covering liquidity or credit risk, and transaction tests (e.g. coverage and reinvestment tests) and quantify the identified counterparty risks, if any.

The analysis determines cash flows available to the note classes at each default scenario as well as the associated probability of that scenario. From this we calculate the expected loss for each note class over an expected risk horizon, with the result benchmarked against Scope's idealised expected loss table (available here).

2.4.1 Ramp-up profile

For transactions where the initial portfolio may not yet exist or be only very partially ramped, we build a ramp-up profile for the asset portfolio. Our assumed length and speed of deployment depend on the transaction's covenants and our assessment of the manager's ability to deploy the committed capital during the investment period. We also look at the deployment of previous transactions, if possible. We assume that each addition to the portfolio has the same risk profile as the model portfolio.

2.4.2 Default timing

The simulation we use to project the portfolio default distribution also generates default timing profiles, which can be constructed for the entire collateral pool and in dependency of default quantiles.

To assess the transaction's resilience to default timing, we test scenarios with different timing profiles and compare them to the model-implied default timing scenario. Figure 6 illustrates the type of scenario that we could consider for a CLO transaction with an expected risk horizon of seven years and a reinvestment period of three years.

Figure 6. Illustrative default timing scenarios

Default timing scenario / annual defaults as a percentage of cumulative defaults	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Front-loaded	30%	30%	5%	5%	5%	5%	5%	5%	5%	5%
Mid-loaded	5%	5%	30%	30%	5%	5%	5%	5%	5%	5%
Back-loaded	5%	5%	5%	5%	30%	30%	5%	5%	5%	5%

We adapt the scenarios to the transaction's specific features. For example, the length of the reinvestment period or the portfolio profile can result in a further stress to the front-loading or back-loading of defaults. We also incorporate the asset manager's approach to default timing recognition, which is ascertained during the asset manager analysis.

The default timing simulations flow into our quantitative analysis. If the structure is sensitive to a particular scenario, we will account for such a scenario or even use it as a base case, in some instances replacing the model-implied default timing scenario.

2.4.3 Recovery lag

We assume that recovery proceeds from defaulted assets are fully realised 12 months after default. In practice, however, the recovery time lag varies with the defaulted credit and the way in which recovery proceeds are realised. In the case of broadly syndicated leveraged loans, this is because the asset manager may wait until the conclusion of a workout process involving multiple lenders or may realise recovery proceeds earlier by selling the defaulted asset on the secondary market. For privately originated debt, the asset manager will generally take a more active role in the recovery or restructuring process.

Our 12-month base case assumptions may deviate depending on the recovery lag for past and current CLO transactions under management and the asset manager's strategy for recovery workouts, or if the collateral pool's characteristics differed significantly from portfolios found in North American and European CLO transactions issued since 2010.

2.4.4 Prepayment rate

We do not incorporate unscheduled principal cash flows in our analysis as the asset manager can reinvest them, usually even after the reinvestment period has ended, subject to several conditions including on the portfolio's profile and collateral's quality.

2.4.5 Fees

Our cash flow projections include fees and expenses in a CLO transaction as well as any potential associated caps. Fees usually comprise taxes and statutory fees owed by the issuer, the issuer's profit, the trustee's fees and expenses, and administrative expenses (e.g. for the corporate services provider, rating agency). Such fees are usually capped to protect the interest payments made to the rated notes. Expenses above the cap are generally paid after interest is paid to the most junior rated notes. In the absence of caps, we set our fees' assumptions at levels that would allow suitable replacement of the service provider in case of adverse scenarios.

Management fees paid to the asset manager are also common to CLO transactions. Typically, these consist of senior management fees paid before interest payments on the most senior notes, and subordinated management fees paid after the most junior-rated notes. Senior management fee rates are set at the inception of the transaction, while subordinated fees also depend on collateral pool performance. If the original asset manager is replaced owing to underperformance, senior management fees are likely to be the only source of income until the performance of the collateral pool recovers. Therefore, the senior management fee should be set at market level to attract suitable replacements. We will stress the senior management fees that we deem to be too low.

2.4.6 Liquidity risk analysis

The issuer's available funds may be insufficient to cover senior costs and interest payments on the notes. This may be due to insufficient cash flows received from the asset portfolio or the default of a key counterparty such as the swap counterparty, account bank, or paying agent.

Transactions backed by a portfolio of broadly syndicated leveraged loans usually feature a 'separate and interconnected' priority of payments, under which principal collections can be used to cover senior costs and interest payments, hence mitigating the risk of a liquidity shortfall.

If interest received on collateral assets are less frequent than payments on the notes, the issuer can usually manage the cash flow mismatch by entering into a derivative agreement with an eligible swap counterparty. A transaction's eligibility criteria generally prohibit the acquisition of assets that pay less frequently than annually as well as zero-coupon obligations.

We analyse the different sources of liquidity risk in the transaction and assess features that may remedy a liquidity shortfall. In the absence of such features, we model the liquidity gap in our cash flow analysis.

2.4.7 Exposure to interest rate risk

Interest rate risk in CLO transactions arises from mismatches between interest received on the collateral pool and interest paid on the different classes of notes. This may relate to the nature of interest payments (e.g. floating versus fixed), or their frequency (e.g.

CLO notes usually pay every three or six months whereas collateral asset interest ranges from monthly to annually). CLO transactions generally address this risk via portfolio covenants[14] or hedging agreements.

Unless fully covered structurally or hedged, we would analyse the sensitivity of the transaction to material changes (upward or downward) in interest rates throughout the transaction life. (see Appendix 4.5 for a detailed example).

The results of the stresses flow into our quantitative analysis in the form of additional potential losses to the rated instruments in scenarios where the unhedged interest rate risk materialises.

2.4.8 Exposure to foreign exchange risk

This risk can arise when the currencies used to purchase collateral assets differ to the currency at which the notes are denominated. CLO transactions usually mitigate this by requiring the issuer to enter into an asset swap with an eligible counterparty. This swap converts all cash flows from the asset into the notes' base currency at a fixed rate. If the underlying asset is redeemed early, the issuer can redeem the asset swap at no extra cost, ensuring prepaid or recovered principal is realised in base currency. This protects the issuer against foreign-exchange fluctuations, irrespective of the underlying asset's performance. Other types of derivatives can also be used, such as FX forwards and FX options.

For CLO transactions with significant residual foreign exchange risk, we apply transaction-specific stresses to reflect the foreign-exchange rate, interest rate fluctuations, as well as prepayment and default rates for assets that force the structure to convert the currency of principal to meet contractual payments. We do this by generating the transaction's cash flows under combined foreign exchange rate and interest rate scenarios, for which we would have derived a probability distribution based on historical data.

2.4.9 Top obligor stress

We usually apply stresses to address the risk that top obligors might default at lower recovery rates than those assumed in our base case. Top obligors include those representing 5% or more of the portfolio balance and the two largest exposures, irrespective of whether they exceed the 5% threshold. Factors including the outcome of the asset manager analysis and the transaction's life stage determine whether we apply the top obligor stress. We are more likely to apply such stresses after the reinvestment period where the asset portfolio is less subject to change.

Figure 7 summarises the selection criteria and applied stresses.

Figure 7. Top obligor stress

Element	Value
Selection criteria	5% or more of the portfolio balance and two largest exposures
Haircut to rating-conditional recovery rates	10%

2.4.10 Final legal maturity date

Transactions that include assets that mature or for which the recovery process may be concluded after the final legal maturity date are exposed to market value risk. Therefore, we assume transaction-specific liquidation haircuts based on the nature of the collateral and remaining time to maturity. We consider that a long remaining time to maturity and low credit quality would require larger liquidation haircuts. We also incorporate our assessment of the asset manager's ability to maximise proceeds in such a situation.

2.5 Counterparty risk analysis

2.5.1 Materiality of financial and operational risks

We evaluate 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. We also assess the extent to

[14] The portfolio covenants typically ensure that the notional of floating-rate assets remains in line with the notional of floating-rate liabilities.

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.

The asset manager may have the possibility to purchase loan participations in broadly syndicated leveraged loan transactions, which exposes the issuer to the credit risk of the participation's seller. We expect the transaction's documentation to prevent widespread use of participations and restrict single seller exposures based on rating requirements. We will model such counterparty risks in the absence of such restrictions.

2.5.2 Asset manager quality

The asset manager analysis is crucial for the ratings of managed CLO transactions. Our rating methodology emphasises qualitative credit judgement based on objective components (see section 2.1 'Asset manager analysis'). Our conclusions from the asset manager analysis also affect our quantitative analysis, including portfolio recovery rates and the model portfolio's characteristics.

2.6 Legal risk review

Legal risks can mainly arise from three sources: i) the assets and their transfer to the issuing entity (e.g. true sale); ii) the entity issuing the rated debt and its legal structure (e.g. bankruptcy remoteness); and iii) the transaction parties (e.g. enforceability of contractual obligations by the transaction parties). We review available legal opinions to gain comfort on our assumptions regarding relevant legal issues.

Further detail can be found in our General Structured Finance Rating Methodology.

3. Complementary analysis: data quality and monitoring

3.1 Integration of ESG factors in our analysis

We take into account the principles of responsible investment (UNPRI), which ask credit rating agencies to evaluate which ESG factors are credit-relevant, to transparently disclose environmental, social and governance (ESG) factors that are considered in credit ratings and to regularly review the ways ESG factors are integrated into credit analysis. We incorporate the risks arising from a transaction's exposure to ESG factors[15] as part of the analytical approach reflected in this rating methodology. For further reference, see our General Structured Finance Methodology.

3.2 Data adequacy, data guidelines and portfolio data

Our method can be adapted to a wide range of data formats produced by the transaction parties without the need of a particular template or data after processing. We acknowledge that risk information systems and the disclosure of large and medium-sized banks and asset managers have improved both in volume and quality in the last decade, particularly for monitoring and recovery functions.

We leverage on market and macroeconomic data to extrapolate performance references and complement our analysis with a thorough assessment of the asset manager's processes and systems.

Our bottom-up approach allows us to build a differential credit view on the asset manager, the assets and the portfolio. For this purpose, we assess the adequacy of information received. We highlight the limits of available data and request additional information when available data is insufficient to analyse a transaction.

3.2.1 Flexibility in portfolio data templates

We do not use a proprietary portfolio template for CLO portfolios and welcome different formats, provided that the information contained is relevant for analysing the assets' risk characteristics. Appendix 4.6 provides a guideline on the typical line-by-line portfolio information that is most relevant for CLO transactions.

[15] See Appendix 4.1 'Details of the asset manager analysis'. ESG factors are also embedded in Scope's ratings of the pool's assets, where relevant.

3.2.2 Data checks

We will request additional information or clarifications from an issuer or its agents if available information conflicts with our understanding. These checks do not, however, comprehensively verify the reliability and accuracy of the information used for the rating analysis. We will review the reliability of information by examining the alignment of interests between originators and noteholders, and/or the independence and experience of the parties providing information for the rating analysis. For example, independent legal opinions generally support our legal analysis, whereas representations by an affected party would be deemed weak.

Conference calls and operational review visits also provide us with more detail on information received.

3.3 Rating sensitivity

We have designed our analytical framework for structured finance transactions to ensure rating stability for high investment-grade ratings. To achieve this, we use rating-conditional stresses or adequate levels of volatility around the mean case.

Applying rating-conditional recovery rates adds more stability to high ratings. This is because the ratings' protective cushions, which become larger as the rating becomes higher, can absorb deviations from initial base case assumptions during monitoring.

Our rating reports show the stability of ratings with respect to shocks to relevant analytical assumptions. Sensitivity tests reflecting shifts in the mean default rate and expected recovery rate illustrate how much and in which direction ratings depend on quantitative assumptions (Figure 8). Sensitivity test scenarios should not be interpreted as likely or expected scenarios for the transactions.

Figure 8. Typical sensitivity tests considered during the analysis

Analytical assumption tested	Shifts considered
Mean default rate	+ 50%
Recovery rate	– 25%

3.4 Monitoring

We monitor CLO transactions using performance reports such as those produced by the asset manager, the trustee or the collateral administrator. Our ratings are monitored continuously and reviewed at least once a year or earlier if warranted by events.

Further details can be found in our General Structured Finance Rating Methodology.

4. Appendix

4.1 Details of the asset manager analysis

Figure 9 illustrates the points covered in each of the five themes of the asset manager analysis.

Figure 9. Asset manager analysis

Theme		Transactions backed by broadly syndicated leveraged loans and high yield bonds	Transactions backed by privately originated leveraged loans
CORPORATE OVERVIEW		An overview of the asset manager's overall corporate structure gives us an insight into the company's scale, resources and governance. Our review includes the structure of the board, the shareholder base, the experience and track record of senior management, broad corporate goals, degrees of vertical and horizontal integration, growth of assets under management (for the whole company and the strategy in question) and expansion plans.	
FINANCIAL STRENGTH AND BUSINESS CONTINUITY		We assess the asset manager's financial stability and capacity to operate in the medium to long term. We look at financial results, available public credit ratings, and the stability of the funding base. We examine the importance of these types of transaction in the company's business as well as the potential reliance on a limited number of asset classes or products. We enquire whether any litigation involving the company is ongoing, whether any adverse conclusions can be drawn from recent audits conducted by a regulatory body or external party, if available, and if there is any potential threat to the company's reputation.	
OPERATIONS	**Structure of the CLO management unit**	We assess the staffing, seniority and expertise of the team members in the light of the proposed transaction. To understand the transaction's strategic importance, we compare its size to the assets under management by the CLO team and the overall company.	
		Key structural considerations include: i) the number of portfolio managers or personnel with power over investment decisions; ii) the composition and governance of the investment committee; iii) the number of CLO transactions dedicated to a portfolio manager; and iv) the expertise of the credit analysis team, e.g. areas of coverage, number of credits assigned per analyst.	Key structural considerations include: i) the presence of a dedicated sub-team for the transaction in question; ii) the quality and depth of the network with sponsors, intermediaries and target companies; and iii) the composition and governance of the investment committee.
	Key personnel and staff turnover	The investment strategy's quality, execution and ongoing management rely on the origination, portfolio management, research and trading teams. Industry expertise is essential. Stability among key decision-makers also ensures the strategy's continuity and usually indicates sustainable performance. We also assess whether the company's human resources management is satisfactory in order to attract, develop and retain talents (e.g. compensation structure, training and mobility opportunities)	
	Technology infrastructure and trade operations	Investing in technology helps to keep the asset manager competitive and facilitates timely information. We assess the extent to which the manager is committed to investments in technology and how prepared it is to deal with disruptions (e.g. disaster management, cyberattacks). A strong trade operations team helps to ensure that positions are reconciled and performance measures generated daily, thereby preventing costly mistakes and providing the portfolio management team with a clear picture of the status of each transaction. We assess the quality of the reporting process and whether staffing is adequate, including any outsourcing.	

Theme		Transactions backed by broadly syndicated leveraged loans and high yield bonds	Transactions backed by privately originated leveraged loans
	Risk and control functions	We assess whether risk and control functions are: i) adequately staffed (including outsourcing); ii) separated from the front office teams; and iii) how their independence is governed and preserved; and iv) the level of control they have over investment decisions.	
STRATEGY	**Overall credit strategy and investment process**	An investment strategy reflects the asset manager's fundamental credit outlook (e.g. the general state of the economy, the stage in the business cycle, industry headwinds and tailwinds) as well as more technical aspects (position in the capital structure, liquidity, volumes, supply and demand in both primary and secondary markets, choice of sponsors). The investment strategy and the timing of its execution will define the performance of the manager's various portfolios. We assess the manager's investment narrative, the clarity of the expressed credit views and how they fit with the transaction's objectives. We analyse if the transaction's fee structure satisfactorily incentivises the asset manager to deploy the proposed strategy and the general alignment of interest with debt investors. If available, we also review selected case studies representative of the strategy.	
		Key elements of consideration include: i) the universe of instruments with an adequate risk/return profile and an industry covered by the team of credit analysts; ii) the sourcing of investment opportunities (e.g. whether the asset manager looks at primary and secondary market opportunities at an early stage); and iii) the reliance on internal credit scoring as well as inputs into that scoring system.	Key elements of consideration include: i) the depth and sophistication of the origination process; ii) the size and industry of target companies; iii) all-in target yields in contrast with the desired level of risk; iv) the main characteristics of originated loans including the typical security package and covenants; and v) the choice of and interactions with private equity sponsors.
	Monitoring and ongoing management processes	The frequency and quality of portfolio reviews are essential to the detection of early signs of weakness in a credit or industry. An indicator such as the average number of credits covered by analyst, or the asset manager's experience in avoiding defaults and downgrades, helps to determine the quality of the ongoing management processes. We assess the efficiency of the monitoring process in light of the frequency of dialogue with the borrowers and the quality of the risk management and monitoring tools (e.g. presence of automatised processes to detect credit underperformance).	
	Management of deteriorating credits and distressed credits	We assess specific measures usually taken by the asset manager to avoid default for deteriorating credits or to maximise recoveries in the case of distressed borrowers. When available, we analyse case studies highlighting the manager's recovery strategy.	
	Adherence to the principles for responsible investment	We analyse the asset manager's approach to environmental, social and governance (ESG) factors in terms of credit risk and the way it influences its investment strategy. We examine which tools and benchmarks are used to assess the adherence and performance of any strategy focused on ESG factors.	
TRACK RECORD		Our analysis of the performance of vintage transactions helps to address questions such as: Was the manager active after the reinvestment period? How did the portfolio migrate in comparison to concentration limits and collateral quality tests? What are the cushions for the different overcollateralisation tests? How many credit impairments have the portfolios suffered? We compare the final recovery rate achieved by the asset manager compared to the market recovery rate for defaulted credits in portfolio and look for trends regarding the length of such recovery processes.	Our analysis of vintage transactions focuses on performance and transaction metrics including yield, IRR, spreads, credit impairments and losses, the credit quality of the portfolio, the speed of ramp-up, achieved portfolio size, the weighted average life, the presence of long-dated assets, and diversification profiles for obligors, business sectors and geographies. We aim to assess whether the portfolios were deployed according to the stated strategy.

The gathered information enables us to derive a score for each area, highlighting the strength and weaknesses of the asset manager, as well as an overall score. Adjusting our recovery rate assumptions is an example of how the findings of the asset manager analysis can influence quantitative parameters: significant and sustained outperformance in an asset manager's credit strategy coupled with a strong overall score increases our base case recovery rate, with positive adjustments tiered via haircuts that increase as the target rating becomes higher. Conversely, significant and persistent underperformance coupled with a weak overall score results in a negative adjustment. Figure 10 illustrates the indicative haircuts for the asset manager performance adjustments.

Figure 10. Indicative haircuts for the asset manager performance adjustments

Rating stress	B (base case)	BB	BBB	A	AA	AAA
Haircut	0%	20%	40%	60%	80%	100%

For instance, assuming a positive addition of 5pp to the base case recovery rate, the recovery rate for first-lien secured loans when analysing portfolio losses under an A rating stress is 57.3% = 55.3% + 5.0% * (1 – 60.0%). Adjustments to the base case recovery rate indicatively range from -5pp to 5pp. Performance is not considered in the AAA recovery scenario, as this scenario predominantly captures systemic shocks, which asset managers tend to have less control over.

4.2 Determination of the obligors' credit quality

This appendix gives an example of how we may determine an obligor's credit quality:

1) Scope's rating of the obligor
2) If 1) is unavailable, we derive the credit quality from available Moody's, S&P and Fitch ratings as follows:
   a) Collect Moody's Corporate Family Rating (Moody's CFR)[16], Fitch Issuer Default Rating (Fitch IDR), S&P Issuer Credit Rating (S&P ICR)[17] or equivalent private rating
   b) If the three ratings are available, we use the second worst rating
   c) If only two such ratings are available, we use the worst rating of the two
   d) If only one such rating is available, we use this rating
3) If 2) is unavailable, a credit assessment by Scope or its affiliates[18] of the obligor
4) If 3) is unavailable, a mapping based on available external credit risk measures or the obligor's financial metrics (e.g. net debt, EBITDA, total interest expenses) and business sector[19]

Figure 11 illustrates the use of the above-described options in alignment with the principles of our large-obligor analysis (section 'Obligor and risk presenter concentration risk' of our General Structured Finance Methodology) and accounting for the specificities of CLO transactions.

Figure 11. Determination of an obligor's credit quality

Obligor concentration	Options to determine credit quality
Less than 5%	1) to 4)
Between 5% and 10%	1) to 3)
Between 10% and 25%	1) to 2)
Above 25%	1) only

[16] If no Moody's CFR is available, Moody's LT Issuer Rating is used.
[17] In each of the three cases, if there is no obligor rating but a debt instrument of the obligor is rated, we use the debt instrument rating with the following notching to infer available Moody's, S&P or Fitch ratings, as applicable: zero notches for senior unsecured debt, one notch down for senior secured debt and one notch up for subordinated debt. One notch down will be applied to any ratings which have been put on negative review (or equivalent status).
[18] A credit assessment could be in the form of a credit estimate or any form of credit quality reference, provided our analysts are comfortable with its quality. Please refer to section 'Sensitivity analysis' of our General Structured Finance Rating Methodology for more information on the sensitivity analysis we perform on credit assessments.
[19] We perform consistency checks to review whether the exposures' considered credit quality level is consistent with credit quality benchmarks available for the obligor type.

To assess the credit quality of the collateral pool (using Scope WARF or an equivalent metric), we use the par-weighted average of the rating factor derived from the inferred credit quality of each of the assets. Depending on the transaction documentation and for obligors for which the credit quality is determined using option 2), we use the average rating factor derived from available Moody's, S&P and Fitch ratings (as defined above).

4.3 Scope industries

Figure 12 shows the list of Scope industries.

Figure 12. List of Scope industries

Scope industry
Aerospace and defence
Agriculture and farming
Automotive
Banking and finance
Food, beverage and tobacco
Industrial manufacturing
Chemicals, plastic and rubber
Construction and materials
Consumer durables
Packaging and containers
Energy
Healthcare equipment and services
Real estate: development
Real estate: non-development
Wood and paper products
Pharmaceuticals and biotechnology
Software and hardware
Accommodation, leisure & entertainment
Media
Mining and metals
Wholesale and retail trade
Professional services
Consumer services
Government and public sector
Telecommunications and networking
Transportation and logistics
Utilities

4.4 Scope transaction metrics

This section defines metrics that are useful for determining a portfolio's credit quality, recovery rate and losses. These metrics are particularly useful for broadly syndicated leveraged loan portfolios as they provide asset managers with a flexible set of measures that enables dynamic portfolio management within pre-defined limits.

Scope weighted average rating factor (WARF)[20]

The Scope WARF is computed as the par-weighted average of the Scope rating factor of each of the assets in the portfolio, as shown in Figure 13.

Figure 13. Scope rating factor per credit quality level

Credit quality	Scope rating factor
AAA	0.260
AA+	0.386
AA	0.657
AA-	0.878
A+	1.264
A	1.630
A-	2.311
BBB+	3.404
BBB	4.950
BBB-	7.996
BB+	11.173
BB	16.266
BB-	22.109
B+	28.445
B	34.491
B-	43.709
CCC	79.624
CC	100.000
C	100.000

Scope weighted average recovery rate (WARR)

The Scope WARR is computed as the average of the asset recovery rates and weighted by notional value and the Scope rating factor. The Scope WARR is a default-weighted measure of the portfolio recovery rate.

Scope weighted average loss factor (WALF)

The Scope WALF brings Scope WARF and Scope WARR together into a metric of portfolio losses which accords with our expected loss framework. The Scope WALF is defined as:

$$Scope\ WALF = Scope\ WARF * (1 - Scope\ WARR)$$

[20] Scope's rating factor is a numerical value that equates to the 10-year idealised default probability multiplied by 100

4.5 Illustrative stressed interest rate scenarios

We assess a CLO transaction's sensitivity to interest rate fluctuations by considering scenarios that stress interest rates both upwards and downwards. In the case of broadly marketed North American and European CLO transactions with a limited interest rate exposure[21], we could consider scenarios combining a relative shift and an additive shock such as the one below:

Upwards stress:

We define $r_{up,t}$ as:

$$r_{up,t} = r_t * \left(1 + a_{up,t}\right) + b_{up,t}$$

where:

r_t is the interest rate curve based on prevailing interest rates and future forecasts, $a_{up,t}$ the shift and $b_{up,t}$ the shock at time t

Downwards stress:

We define $r_{down,t}$ as:

$$r_{down,t} = r_t * \left(1 - a_{down,t}\right) - b_{down,t}$$

where:

$a_{down,t}$ is the shift and $b_{down,t}$ the shock at time t

We define the indicative shift and shock time vectors as per Figure 14 and Figure 15 for euro and US dollar rates, respectively[22].

Figure 14. Indicative shift and shock vectors for euro

Time period (years)	$a_{up,t}$	$b_{up,t}$	$a_{down,t}$	$b_{down,t}$
0.25	10%	2.50%	50%	1.25%
0.5	10%	2.50%	50%	1.25%
1	10%	2.50%	50%	1.25%
2	20%	2.25%	50%	1.00%
3	30%	2.25%	45%	1.00%
4	40%	2.00%	45%	0.90%
5	50%	2.00%	45%	0.90%
6	60%	1.75%	45%	0.80%
7	70%	1.75%	45%	0.80%
8	80%	1.50%	45%	0.70%
9	90%	1.50%	45%	0.70%
10	100%	1.25%	45%	0.60%
12	120%	1.25%	40%	0.50%
15	150%	1.00%	40%	0.50%

[21] For transactions with a material residual interest rate exposure, we consider additional scenarios that amplify variations of the interest rate curves.
[22] We use different indicative shift and shock vectors for other currencies with the same idea of stressing interest rates upwards and downwards. However, we expect the vast majority of the transactions to be potentially exposed to either euro or US dollar rates.

Figure 15. Indicative shift and shock vectors for US dollars

Time period (in years)	$a_{up,t}$	$b_{up,t}$	$a_{down,t}$	$b_{down,t}$
0.25	10%	3.00%	50%	1.75%
0.5	10%	3.00%	50%	1.75%
1	10%	3.00%	50%	1.75%
2	20%	2.75%	50%	1.50%
3	20%	2.75%	45%	1.50%
4	30%	2.50%	45%	1.40%
5	30%	2.50%	45%	1.40%
6	50%	2.25%	45%	1.30%
7	50%	2.25%	45%	1.30%
8	80%	2.00%	45%	1.20%
9	90%	2.00%	45%	1.20%
10	100%	1.75%	45%	1.10%
12	120%	1.75%	40%	1.00%
15	150%	1.50%	40%	1.00%

The above examples to derive upwards and downward stresses are illustrative; we can consider other scenarios.

4.6 Indicative data templates

This appendix contains the information we use for the CLO analysis. We can provide an example template in Excel format along with detailed instructions upon request.

This information is neither exhaustive nor mandatory. Other types of information may be more relevant for a given collateral pool. We therefore encourage asset managers and arrangers to contact us if alternative information is available for the rating analysis.

Limited or poor-quality data could affect our ability to rate a transaction.

Loan-level line-by-line information

- Loan name
- Obligor name
- Asset type (loan versus bond)
- Seniority
- Currency
- Maturity date
- Coupon type (floating versus fixed)
- Outstanding notional
- Spread and coupon
- Libor floor
- Price
- LoanX ID or ISIN
- Geography
- Scope industry
- Facility size
- Public rating(s) from Fitch, Moody's and S&P (or other supervised and regulated credit rating agency)
- If no public rating is available, an external credit risk measure or the obligor's financial metrics such as revenues, EBIT/EBITDA, net debt, enterprise value and total interest expense

4.7 Glossary

Term	Definition
Asset eligibility criteria	Set of criteria that an asset must fulfil at the time of purchase by or on behalf of the issuer
Collateral quality tests	Set of tests performed on a regular basis that compare collateral pool metrics such as remaining life, credit quality, recovery rate expectations, spread, diversification against defined limits
Herfindhal index	Common measure of concentration, e.g. obligor concentration in the collateral pool
Leveraged loan	Secured loans where the borrower is sub-investment-grade (generally highly indebted) or the spread at issuance is higher than a certain threshold
Model portfolio	Scope's representation of the collateral pool's risk profile throughout the life of the transaction
Original issue discount	Discount in price from an instrument's face value at the time it is first issued
Portfolio profile tests	Set of tests performed regularly that compare collateral pool metrics such as obligor, asset type, seniority type, coupon type, geographical, sector concentrations against defined limits
Ramp-up phase	Period after first closing date where the asset manager uses proceeds to purchase additional assets
Scope's cash flow model	Cash flow model calculating the expected loss
Scope's portfolio model	Monte Carlo simulation model used to analyse the credit risk of more concentrated asset pools
WALF	Scope's weighted average loss factor defined as a function of WARF and WARR
WARF	Scope's weighted average risk factor: par-weighted average of the Scope rating factor of each of the assets in the portfolio, a measure of credit quality
WARR	Scope's weighted average recovery rate: average of the asset recovery rates weighted by notional value and the Scope rating factor

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