MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

Moody's Approach to Rating Repackaged Securities

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This rating methodology replaces *Moody's Approach to Rating Repackaged Securities* published in March 2019. We added a footnote for further transparency on our approach to monitoring transactions, and we made limited editorial updates. The updates do not change the substantive approach of the methodology.

1. Executive Summary

This methodology describes our global approach to rating and monitoring single-tranche repackaging transactions (repacks) in which the repayment of the rated securities depends primarily on the performance of one or more rated assets and/or entities.

The term "repack" applies to a wide range of structured instruments. Repacks may also be termed "structured notes," particularly in the US. In its simplest form, a repack involves the issuance of securities by a special purpose vehicle (SPV) in order to purchase, or provide credit protection for, a bond, note, loan or other financial asset (the underlying asset).

This methodology does not address resecuritizations with the issuance of multiple tranches. These securities are rated either based on our methodology addressing resecuritizations of asset-backed securities (ABS), residential mortgage-backed securities (RMBS), and commercial mortgage-backed securities (CMBS) or the relevant collateralized debt obligation (CDO) or collateralized loan obligation (CLO) methodology.[1]

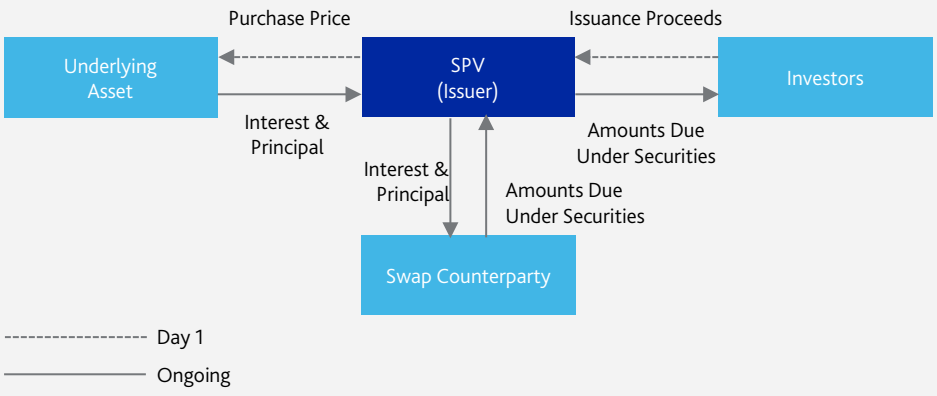
2. Types of Structural Features

In some repacks, the issuer enters into a hedge contract with a financial institution (the counterparty) to hedge mismatches between the scheduled cash flows from its assets and the amounts it owes to investors. The hedge contract is generally a swap exchanging, for example, fixed for floating interest or flows in one currency for those in another. Exhibit 1 shows the structure of a repack involving the purchase of an underlying asset (a cash structure) combined with a hedge contract. For simple transactions with no swaps, the references to a swap counterparty should be omitted.

[1] For more information, a link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

EXHIBIT 1

Typical Cash Structure

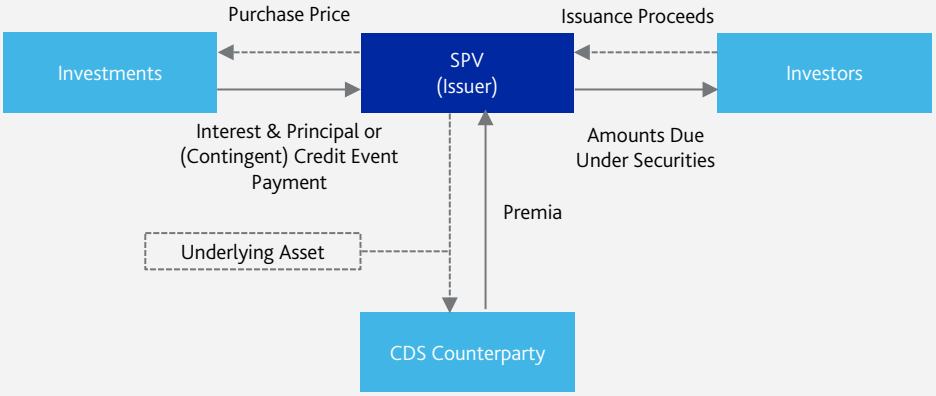


Source: Moody's Investors Service

In transactions where the issuer provides credit protection, it typically uses the proceeds of issuance to acquire investments, such as highly rated government bonds with the same maturity as the repackaged securities. The investments collateralize the issuer's obligations as protection seller under a credit default swap (CDS) referencing the underlying asset. Exhibit 2 shows the structure of a transaction involving a CDS (a synthetic structure).

EXHIBIT 2

Synthetic Structure

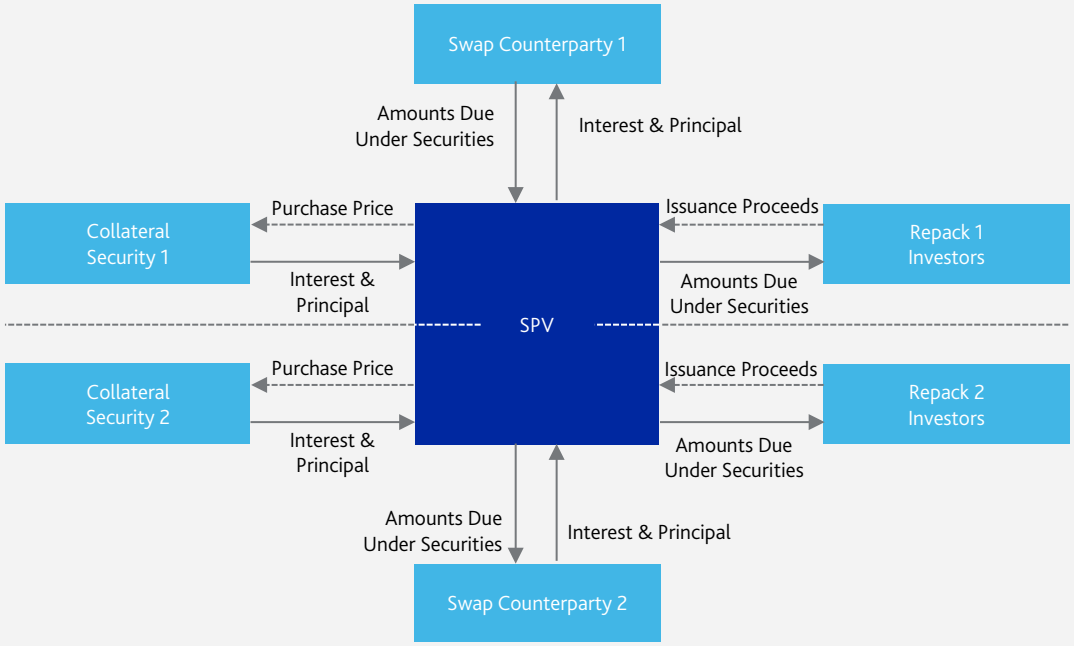


Source: Moody's Investors Service

An issuer may issue repackaged securities in connection with either a standalone transaction or multiple transactions under a program. Exhibit 3 shows the structure of a simple program with two repackaging transactions.

EXHIBIT 3

Program Structure



Source: Moody's Investors Service

3. Structural Analysis

The key elements of our structural analysis are set out below. Not all elements are considered for each repack, as, for example, most repacks do not contain swaps and are not synthetics.

3.1 True Sale

If an issuer purchases an underlying asset, it may be exposed to the risk of clawback or re-characterization. In certain cases, depending on the jurisdiction and transaction features, we may receive a legal opinion on true sale.

3.2 Ring-fencing

When an issuer is established to issue multiple series under a program (see Exhibit 3), we assess whether the assets relating to each rated transaction are ring-fenced such that they are unavailable to contracting parties and investors under other transactions.

In some jurisdictions, ring-fencing may be achieved by operation of statute. For example, under the Luxembourg Securitization Law, each issuance under a program can be treated as a distinct compartment, with creditors having recourse only to the assets lodged in the compartment that generated their claim.

Alternatively, ring-fencing may be achieved by way of security. For example, under English law, assets that are subject to a fixed charge are available to secured creditors ahead of all other creditors.[2]

In the absence of ring-fencing, we consider – taking account of the program documentation[3] and any other relevant factors – whether the aggregate amount of claims generated by any single transaction may exceed the proceeds of that transaction's assets. We also assess whether rated transactions may be negatively affected by tax liabilities of the issuer.

3.3 Expenses

In repackaging transactions, all cash flows received by issuers from underlying assets are normally applied to make pass-through payments to swap counterparties and investors. Therefore, an issuer's ordinary operating expenses (e.g., service provider fees), and any extraordinary expenses (e.g., costs of litigation) must be met from another source, such as an undertaking to pay by a suitably rated third party or a dedicated fund established at closing. We consider whether an issuer will have sufficient funds to pay its expenses and the potential consequences for rated securities if it does not.[4]

3.4 Matching Payments

Any mismatch – either in terms of timing or amount – between the payments an issuer is expected to receive (assuming its assets and counterparties do not default) and those it is required to make, may lead to a default on repackaged securities. We therefore assess (1) how payment dates are aligned, taking account of potential prepayments, clearing times and grace periods; (2) the liquidity of any Investments the issuer will need to sell on or before scheduled payment dates; and (3) whether the issuer has any unhedged exposures to movements in market rates.

3.5 Alignment of Interests

In many repackaging transactions, a certain "controlling" creditor is authorized to direct the trustee in taking key actions, such as declaring events of default and enforcing security over underlying assets. We generally assume that such directions will be given in the interests of investors. However, if the interests of the controlling creditor are misaligned with those of investors, for example when it is the counterparty, and its authority to direct is not suitably restricted, we may account for the risk of alternative trustee directions.

3.6 Definition of Credit Event

For synthetic structures, we review the definition of "credit event" to determine how it compares to our definition of default. For example, a repack might define a credit event as a restructuring that is not considered a default under our rating definition. Please see our approach to rating corporate synthetic CDOs (CSOs)[5] for more details on the various credit event stresses we may apply.

[2] Even if a security arrangement achieves ring-fencing, it may not fully protect against the risk of involuntary insolvency proceedings, which can have negative effects such as a moratorium on enforcement or swap termination. We assess this risk in accordance with our cross-sector methodology for assessing bankruptcy remoteness in structured finance. For more information, a link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[3] Program documentation may, for example, restrict an issuer from entering into contracts without suitable limited recourse provisions.

[4] A lack of funds to pay expenses will not necessarily have negative consequences; for example, if a service provider agrees to suitable limited recourse, it may be obliged to perform even if it is not paid.

[5] For more information, see our methodology for rating corporate synthetic CDOs. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

3.7 Swap Termination Risk

The termination of an interest rate or currency swap contract or of a CDS can have negative consequences for an issuer, such as the loss of hedging (or premium payments) or a senior-ranking termination payment owed to the counterparty ahead of payment due to investors. We therefore review the events of default and termination events in each swap agreement and assess the probability of their occurrence. By way of example, if the relevant provisions of the ISDA Master Agreement are applied and modified in line with our swap framework,[6] we generally assume that the risk of termination (excluding termination resulting from a failure to pay or counterparty default, which we address below) is negligible.

4. Quantitative Analysis

Our quantitative analysis focuses on the risks relating to the credit quality of the assets backing the repack and of the counterparties. We generally determine the expected loss posed to investors by adding together the severities for loss scenarios arising from either underlying asset default, and if applicable, swap counterparty risk, each weighted according to its respective probability. We then translate the expected loss to a rating using our Idealized Expected Loss rates.[7] This exercise is straightforward in the event the repack has no swaps, as the rating of the repack generally mirrors that of the underlying asset, subject to considerations of other sources of risk, such as account bank, investments and operational risk.[8]

4.1 Cash Structure

Our quantitative analysis for cash structures with swaps generally focuses on two key sources of risk: (1) underlying asset default risk, and (2) swap counterparty risk.

Underlying Asset Default Risk

In general, if a default event occurs with respect to the underlying asset, the defaulted instrument will be sold, the transaction will be unwound in accordance with the transaction documents and a swap termination event will occur. Depending on the market value of the swap at the relevant time, we anticipate that the counterparty will either elect to stop making its scheduled payments to the issuer or claim a termination payment against the issuer (which will generally rank senior to investors). We discuss termination payments in more detail below.

We model the effect of an underlying asset default by reference to its rating.[9]

Swap Counterparty Risk

In the event that the counterparty defaults, the issuer may become unhedged, in which case we assume the transaction will be unwound. We determine the probability of the issuer becoming unhedged in accordance with the relevant section of our methodology for assessing counterparty risks in structured finance including linkage to swap counterparties, with particular regard to the rating of the counterparty and any rating trigger provisions.

[6] For more information, see our cross-sector methodology for assessing counterparty risks in structured finance. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[7] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions* (a link can be found in the "Moody's Related Publications" section) and in the "Loss Benchmarks" section.

[8] For more information, see our cross-sector methodology for assessing counterparty risks in structured finance. A link can be found in the "Moody's Related Publications" section.

[9] In instances where an underlying asset benefits, for example, from a guarantee, we model, when relevant, the effect of an underlying asset default by reference to the guarantor's rating.

The loss severity is a function of the liquidation proceeds of the underlying asset relative to the notional amount of the repackaged securities and any termination payment the issuer will receive from the defaulted counterparty.

The liquidation proceeds of a performing underlying asset depend on the pricing environment at the time of liquidation and may be influenced by various factors, including interest and currency rates (as applicable), credit quality, and liquidity. Assumed liquidation proceeds are repack specific and typically range from 50%-100% of the notional amount of the collateral.

Termination payments owed under terminated swaps are functions of the types and tenors of the swaps. Assumed termination payments are determined on a repack-by-repack basis and may range from as little as 1-5% of the notional to 50%, or possibly more in extreme circumstances. Actual termination payments received from a defaulting counterparty depend upon the termination payments owed, whether collateral has been posted and any potential recovery against the defaulted counterparty.

4.2 Synthetic Structure

In a synthetic structure, losses to investors may result from a default of (1) an underlying asset; (2) any Investments held by the issuer; or (3) the CDS counterparty.

We generally assume that, if the CDS counterparty or an investment defaults, the CDS will terminate and the issuer may be required to make a termination payment which could be substantial. Therefore, unless such payment ranks below amounts due to investors, and this subordination is highly likely to be enforceable in the relevant jurisdiction, we may cap the rating of the securities in the manner described in our approach to rating CSOs.[10]

In determining the severity of losses for a synthetic structure, we generally apply the same principles as in our approach to rating CSOs.

5. Qualitative Analysis

Assigned ratings will generally reflect the structural and quantitative analysis described above as well as consideration of qualitative factors and other factors determined to be relevant by the rating committee.

6. Monitoring

Our approach to monitoring the ratings of outstanding repack transactions is generally similar to the approach we use to assign initial ratings, except for those elements of the methodology that become less relevant over time or are not expected to change. Certain components, such as reviews of legal structures of existing transactions or true sale opinions, are static and will generally not be re-reviewed unless circumstances warrant.

Our approach to monitoring the ratings of outstanding repack transactions tracks the ratings of underlying assets and, if applicable, counterparties such as swap providers. A change in a rating of an underlying asset or swap counterparty will trigger a review of a repack. For repacks with a swap, a review may also be

[10] For more information, see our methodology for rating CSOs. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

conducted due to a change of the expected loss severity arising in the event of swap or underlying asset default.[11]

7. Loss Benchmarks

In rating repackaged securities in which a model is used to derive an expected loss, we select loss benchmarks referencing the Idealized Expected Loss table[12] using the Symmetric Range, in which the lower-bound of loss consistent with a rating category is the midpoint (strictly, the geometric mean) between the Idealized Expected Loss of the rating category and the Idealized Expected Loss of the next higher rating category. The upper-bound of loss is analogously determined as the geometric mean between the Idealized Expected Loss of the rating category and the Idealized Expected Loss of the next lower rating category. Mathematically, the benchmark boundary is computed as an equal 50/50 weighting on a logarithmic scale. That is, the benchmark boundaries of loss appropriate for evaluating rating category R are given by:

[1] $$Rating\ Lower\ Bound_R = exp\{0.5 \cdot \log(Idealized\ Expected\ Loss_{R-1}) + 0.5 \cdot log(Idealized\ Expected\ Loss_R)\}$$

[2] $$Rating\ Upper\ Bound_R = exp\{0.5 \cdot \log(Idealized\ Expected\ Loss_R) + 0.5 \cdot log(Idealized\ Expected\ Loss_{R+1})\}$$

Where:

- $Rating\ Lower\ Bound_R$ means the lowest Idealized Expected Loss associated with rating R and the expected loss range of rating R is inclusive of the $Rating\ Lower\ Bound_R$;
- $Rating\ Upper\ Bound_R$ means the highest Idealized Expected Loss associated with rating R and the expected loss range of rating R is exclusive of the $Rating\ Upper\ Bound_R$;
- $R\text{-}1$ means the rating just above R;
- $R+1$ means the rating just below R.
- The Rating Lower Bound for Aaa is 0% and the Rating Upper Bound for C is 100%. These are not derived using the formula.

[11] For example, in methodologies where models are used, modeling is not relevant when it is determined that (1) a transaction is still revolving and performance has not changed from expectations, or (2) all tranches are at the highest achievable ratings and performance is at or better than expected performance, or (3) key model inputs are viewed as not having materially changed to the extent it would change outputs since the previous time a model was run, or (4) no new relevant information is available such that a model cannot be run in order to inform the rating, or (5) our analysis is limited to asset coverage ratios for transactions with undercollateralized tranches, or (6) a transaction has few remaining performing assets.

[12] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions.* A link can be found in the "Moody's Related Publications" section.

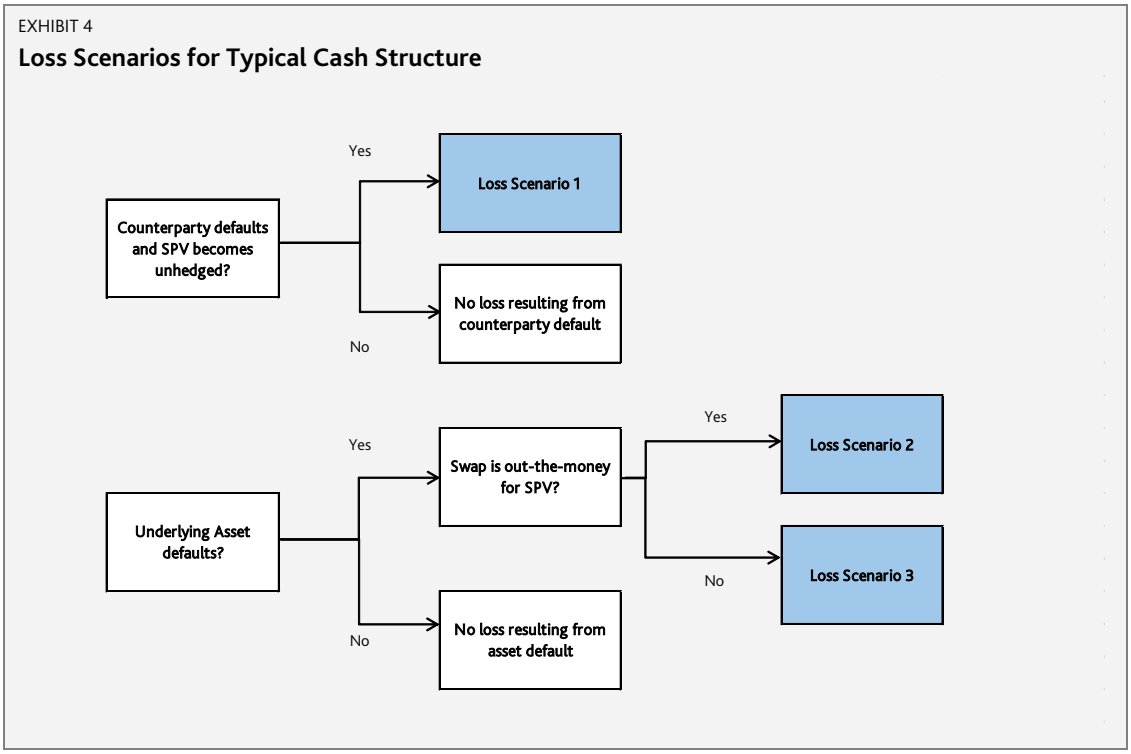
Appendix A: Decomposing the Quantitative Analysis in Hedged Repacks

The section below presents a framework for analyzing the two risk factors described in the "Quantitative Analysis" section above to which cash structure repacks with swaps are exposed. We may apply this framework when assessing the quantitative risk of repacks with swaps.

In a cash structure with swaps, we generally consider three loss scenarios, as shown in Exhibit 4.

EXHIBIT 4

Loss Scenarios for Typical Cash Structure



Source: Moody's Investors Service

We generally assume that, in each loss scenario, the repackaged securities will become subject to early redemption and the issuer will liquidate the underlying asset midway through the weighted average life (WAL) of the underlying asset.

Loss Scenario (1)

Loss Scenario (1) occurs if the counterparty defaults and, as a result, the issuer becomes unhedged. If the issuer is *out-of-the-money* (OTM) under a defaulting swap, we assume it will remain hedged by entering into a replacement swap at no cost. Therefore, in this scenario in which the issuer becomes unhedged, the swap is necessarily *in-the–money* (ITM) for the issuer.

As stated above, we determine the probability of Loss Scenario (1) in accordance with the relevant section of our approach to assessing counterparty risks in structured finance including swap counterparties.[13]

The loss severity in Loss Scenario (1) is a function of two components:

[13] For more information, see our cross-sector methodology for assessing counterparty risks in structured finance. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

1) The liquidation proceeds of the underlying asset relative to the notional amount of the repackaged securities; and

2) Any swap termination payment the issuer will receive from the defaulted counterparty.

The liquidation proceeds of a performing underlying asset will depend on the pricing environment at the time of liquidation and may be influenced by various factors, including credit quality and liquidity. In particular, for Loss Scenario (1), we assume the liquidation proceeds may be negatively affected by any exposures to interest and/or currency rates.[14] Liquidation proceeds are transaction-specific, and we typically assume they can range from 50%-100% of the notional amount of the underlying asset.

The termination payment owed by a defaulted counterparty will depend on the type and tenor of the swap. We assume that it will range from as little as 1-5% of the notional to 50%, or possibly more in extreme circumstances. The proportion of a termination payment that an issuer will actually receive depends on whether collateral is posted by the counterparty and the recovery rate for any remaining unsecured claim, which we assume in line with our usual recovery rate assumptions.[15]

Loss Scenario (2)

Loss Scenario (2) occurs if the underlying asset defaults at a time when the swap is OTM for the issuer.

We generally assume that the probability of Loss Scenario (2) occurring is the product of the default probability of the underlying asset and the probability of a swap being OTM at the time of default, which we typically assume to be 50%.

The loss severity in Loss Scenario (2) is a function of:

1) The recovery proceeds of the defaulted underlying asset relative to the notional amount of the repackaged securities; and

2) Any termination payment owed by the issuer to the non-defaulted counterparty.

The recovery proceeds of a defaulted underlying asset will depend on its loss severity and, in the event the repackaged securities are not denominated in the same currency as the underlying asset, the relevant foreign exchange rate at the liquidation date. We assume that the severity of loss for defaulting underlying assets can range from very high values in the case of lowly rated, thin structured finance tranches to 50% or below for plain vanilla corporate collateral. Where applicable, we estimate future movements of the relevant foreign exchange rate in the same manner as for Loss Scenario (1).

We generally assume that the issuer will be required to make a swap termination payment, which we estimate in the same manner as for Loss Scenario (1). The impact of this payment on the funds available to pay investors will depend on its ranking in the issuer's waterfall of payments.

Loss Scenario (3)

Loss Scenario (3) occurs if the underlying asset defaults at a time when the swap is ITM for the issuer.

[14] We size potential interest and currency rate movements using the principles described in our cross-sector methodology for assessing counterparty risks in structured finance including swap counterparties. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[15] We generally give benefit to collateral if the counterparty is already posting collateral or is required to do so upon it ceasing to have a Counterparty Risk Assessment or senior unsecured rating of Baa2 or above. We further generally assume that posted collateral will cover 50% of the termination payment, although we may assume a lower or higher amount according to the applicable collateral formulae and any other relevant factors.

We generally assume that the probability of Loss Scenario (3) occurring is the product of the default probability of the underlying asset and the probability of a swap being ITM at the time of default, which we typically assume to be 50%.

The loss severity in Loss Scenario (3) is a function of the recovery proceeds of the defaulted underlying asset relative to the notional amount of the repackaged securities. We determine this in the same manner as for Loss Scenario (2), save that any exposure to currency movements will have a negative effect in Loss Scenario (3).

We generally assume that the counterparty will choose not to terminate the swap so as to avoid making a termination payment to the issuer, and give no value to any scheduled swap payments beyond the liquidation date.[16]

[16] Under Section 2(a)(iii) of the ISDA Master, a non-defaulting party is not required to make scheduled payments. Moreover, even where Section 2(a)(iii) does not apply - for example, when there is no Event of Default with respect to the issuer – we generally consider that the amount of post-liquidation swap payments that will be paid to an issuer is too uncertain for us to give value for.

Appendix B: Example of Quantitative Analysis for a Cash Structure

This section presents a theoretical example of the type of quantitative analysis we may conduct when analyzing a repack with a swap. The numbers in Exhibit 5 are illustrative and not intended to represent our approach in general.

EXHIBIT 5

Floating Rate Asset; Bullet Repayment; Cross-Currency Risk

Underlying Asset	Swap
Rating = Aa1	Probability of becoming unhedged = Aa3
Outstanding principal amount = $100 million	Transfer trigger = Baa2; collateral trigger = A3
Bullet repayment due in 4 years	Hedges cross-currency risk
Not denominated in currency of securities	Termination payments rank senior
Bears the same floating interest rate as repackaged securities	

Source: Moody's Investors Service

Loss Scenario (1)

The probability of becoming unhedged is commensurate with a rating of Aa3.[17] Therefore, by reference to our Idealized Expected Default rates,[18] the probability of Loss Scenario (1) is **0.101%.**

The loss severity is a function of:

1) Liquidation proceeds: The underlying asset is subject to liquidity and cross-currency risk, but not interest rate risk. We will assume a liquidity haircut in this example of 5%, thereby yielding $95 million in cash proceeds from sale of the non-defaulted instrument. Further, we assume a 20% haircut due to cross-currency risk, yielding liquidation proceeds of $76 million.

2) Termination payment owed to the issuer from the defaulted counterparty: Due to the type of swap, the termination payment is linked to the cross-currency haircut in the liquidation proceeds. We reduce this amount by giving credit to the collateral posted and recovery against the defaulted counterparty. In our example, we give 50% credit to collateral posted and 45% recovery for the remaining termination payment owed. This results in a total payment of $14.5 million to the issuer from the defaulted counterparty.

Loss Scenario (2)

The probability of Loss Scenario (2) equals the product of 0.021% (i.e. the Idealized Expected Default rate for the underlying asset), and 50% = **0.0105%.**

We assume the recovery rate of the defaulted asset is 45%, yielding $45 million in proceeds. The swap is OTM for the issuer, meaning that the issuer must make a termination payment to the non-defaulted counterparty. We will assume that the termination payment owed from the issuer to the counterparty is $20 million.

[17] As determined in accordance with our cross-sector methodology for assessing counterparty risks in structured finance including swap counterparties.

[18] With a horizon of four years. For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions.* A link can be found in the "Moody's Related Publications" section.

By assumption, the cross-currency swap is OTM for the issuer in this scenario, so the currency mismatch in this structure simultaneously works to the benefit of the issuer to increase the value of the assets relative to the repacked note. This increases the recovery proceeds to 1.2 * $45 million = $54 million.

The total loss severity in Loss Scenario (2) is therefore $100 million - $54 million (liquidation proceeds) + $20 million (termination payment) = $66 million, or **66%.**

Loss Scenario (3)

The probability of Loss Scenario (3) equals the product of 0.021% (i.e. the idealized default rate for the underlying asset), and 50%[19] = **0.0105%.**

We assume the recovery rate of the defaulted asset is 45%, yielding $45 million in proceeds. As the swap is ITM for the issuer, no termination payment to the non-defaulted counterparty will be made, but the value of the assets relative to the repackaged securities is reduced. We assume the cross-currency haircut of 20% reduces this amount to $36 million. The total loss severity in Loss Scenario (3) is therefore $64 million, or **64%.**

EXHIBIT 6

Expected Loss

	Probability (P)	Severity (S)	Expected Loss (P*S)
Loss Scenario 1	0.101%	9.5%	0.010%
Loss Scenario 2	0.0105%	66%	0.007%
Loss Scenario 3	0.0105%	64%	0.007%
TOTAL			**0.023%**

Source: Moody's Investors Service

We then compare the expected loss results against the loss benchmarks as described above.[20]

[19] Assuming a 50% probability that the swap will be ITM at the time of default. We may adjust this assumption on a case-by-case basis, as appropriate.

[20] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions* (a link can be found in the "Moody's Related Publications" section) and in the "Loss Benchmarks" section.

Appendix C: Exchangeable Securities

In some structured finance transactions,[21] such as in commercial mortgage-backed securitizations, specified liability classes (called reference classes) may be exchanged for an exchangeable class, and the exchangeable class subsequently may be exchanged for its respective reference classes. The exchangeable class is entitled to receive the sum of interest and principal distributable on its reference classes that are exchanged for the exchangeable class; the holder of the reference classes would receive the same cash flow as a holder of the related exchangeable class. The initial certificate balance of the exchangeable class is equal to the aggregate of the initial certificate balances of its reference classes.

When we do not specifically model exchangeable classes as part of the liabilities of a securitization, we use this methodology to rate exchangeable classes. Because exchangeable classes are a combination of the component reference classes, we rate exchangeable notes using the Weighted Average Expected Loss (WAEL) of the reference classes. We use the results of the WAEL calculation in conjunction with the loss benchmarks as described above.[22] In cases where the rating which we determine on the basis of the WAEL of the reference classes is more than three notches higher than the rating on the lowest-rated reference class, we would rate the exchangeable class three notches higher than the lowest-rated reference class.

[21] Exchangeable securities related to US RMBS transactions are analyzed using our methodology for rating US RMBS. For more information, a link to our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

[22] For more information, see the discussion of Idealized Probabilities of Default and Expected Losses in *Rating Symbols and Definitions* (a link can be found in the "Moody's Related Publications" section) and in the "Loss Benchmarks" section.

Moody's Related Publications

Credit ratings are primarily determined through the application of sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. A list of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which include a discussion of Moody's Idealized Probabilities of Default and Expected Losses, and which is available here.

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