

RATING METHODOLOGY

30 September 2024

TABLE OF CONTENTS

Executive summary	1
Key credit issues in CTL transactions	3
Monitoring	7
Appendix 1	8
Moody's related publications	10

Contacts

Navneet Agarwal, +1.212.553.3674
CFA
MD-Americas Structured Fin
navneet.agarwal@moody's.com

Sean Marion +44.20.7772.1056
MD-EMEA Structured Fin
sean.marion@moody's.com

Jennifer Wu +852.3758.1310
MD-APAC Structured Finance
jennifer.wu@moody's.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

Rating Methodology

Credit Tenant Lease and Comparable Lease Financings

This rating methodology replaces the *Moody's Approach to Rating Credit Tenant Lease and Comparable Lease Financings* methodology published on June 24, 2020. We have clarified that we generally would not rate a transaction with balloon payments that are not covered by the tenant's rent or residual value insurance under this methodology. We have also made limited editorial updates. These updates do not change our methodological approach.

Executive summary

In this methodology, we describe our approach to rating securities backed by the "credit tenant lease" (CTL) obligations of a Moody's-rated entity.¹ CTL transactions are a special category of commercial real estate finance, the credit analysis of which depends primarily on the property tenant's credit rating and the "bondable" quality of the lease terms between the debt issuer, as landlord and lessor, and the tenant lessee producing the net rent stream, rather than on a traditional real estate analysis of the collateral. CTL loans therefore commonly have debt service coverage ratios much lower and loan-to-value ratios much higher than conventional real estate loans.

We apply a similar approach in rating securities backed by the rent stream from other types of leased collateral where there is a single lease (either to a single lessee or a group of related lessees), as addressed in Appendix 1 to this report. Such a securitization is often structured like a CTL transaction. This is the case, for instance, with securities backed by "spectrum leases" of government-granted licenses in the use of specific frequency ranges of electromagnetic spectrum for telecommunications, typically mobile wireless services. Appendix 1 uses spectrum lease transactions as an example of our approach in rating other types of single-lease transactions. As with CTL obligations, our credit analysis of securities backed by a single lease is predicated on the lessee's credit rating and the terms of the lease between the lessee and the debt issuer, as owner and lessor of the leased collateral.

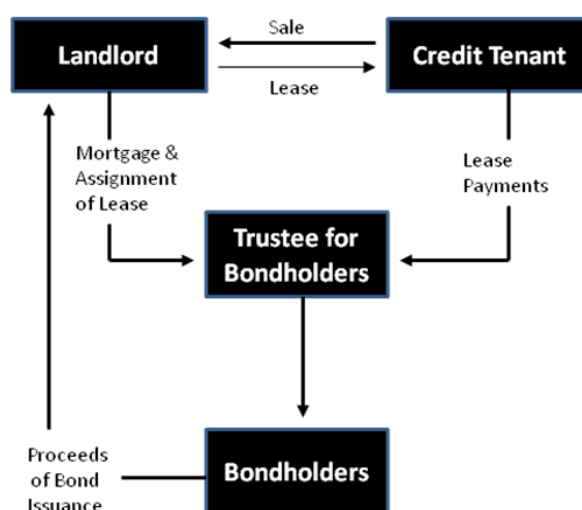
When applying this methodology, a rating committee will consider these and additional qualitative and quantitative factors that they deem relevant when determining ratings for CTL transactions including transactions described in Appendix 1, taking into account characteristics associated with each transaction.

Key analytical factors

The four key factors we analyze in rating CTL obligations are: (1) tenant credit quality, (2) the lease obligation, (3) the structure of the transaction, and (4) the “dark” value (alternatively known as “vacant possession value” or VPV) of the mortgaged property. The structure of a typical rated credit lease financing transaction is illustrated in Exhibit 1.² The rated entity that owns and occupies (or intends to occupy) the property will sell the property to a third-party investor (landlord), who will lease the property back to the rated entity (tenant). The landlord will finance the acquisition of the property with proceeds from the CTL financing and lease back the property to the tenant for a lease term that equals or exceeds the maturity of the debt, at a rent that will assure timely payment of interest and full amortization of principal. As security for the debt issuance, the landlord will assign the lease and rents to a trustee and grant a first mortgage lien on the property.³ Pursuant to the assignment, the tenant will make all payments owed under the lease directly to the trustee (or cash manager or equivalent party), who will use the lease payments to pay interest and principal to the bondholders.

Exhibit 1

Structure of credit lease financings



Source: Moody's Ratings

In most instances, the issuer of the credit lease bonds seeks to achieve the same rating for the bonds as Moody's rating of the tenant's long-term senior unsecured debt.^{4,5}

Deriving probability of default and loss given default⁶

We use a Moody's rating to derive the probability of default (PD) under the tenant's non-terminable lease, which generally will be the tenant's senior unsecured debt rating (or equivalent). We may consider the risk of default to be lower than implied by the tenant's senior unsecured debt rating in certain circumstances, for example, when the leased facility is considered important for the continued business of the tenant. In such cases, we may use other indicators such as the counterparty risk assessment⁷ to derive the probability of lease termination. Finally, if no senior unsecured debt rating is available, we may use a suitable alternative.

Loss given default (LGD) under CTL financings is a function of the loan balance at time of default and net recovery proceeds from the property (plus any potential claims recovered from the tenant). To the extent that the expected LGD under the CTL is in the neighborhood of 55%, the rating of the credit lease bonds will generally be the same as the reference point for the PD described above.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

Structural features and valuations

Aside from the credit quality of the tenant, we will look for or evaluate the following:

- » A bondable lease, which unconditionally obligates the tenant to pay rent in an amount sufficient to timely pay the debt service and fully amortize the principal of the bonds as well as to pay all costs associated with occupying, operating, and maintaining the property, without any set-offs;
- » A landlord that is a special-purpose, bankruptcy-remote entity; and
- » The “dark” value of the real estate collateral; that is, the value of the vacant property assuming rejection of the lease by the tenant in bankruptcy. However, we may make adjustments for the possible affirmation of the lease in bankruptcy.

Key credit issues in CTL transactions

For the CTL bonds or certificates to achieve the same rating as that of the tenant, we expect the following key credit issues, explained in greater detail below, to be adequately addressed in transaction documentation and in other relevant related information.

Bondable lease provisions

Tenant payments

To timely pay the principal and interest due on the bonds without interruption, the tenant is obligated to pay basic rent at times that coincide with, and in amounts at least equal to, the scheduled debt service payments due on the related mortgage loan without any rights of set-off, abatement or counterclaim. This type of lease is known as a “bondable” (or “hell-or-high-water”) lease, because it mimics the attributes of a bond: the pure promise of payment of net rent. The tenant pays all the property maintenance costs and real estate operating expenses of the landlord, any other real estate related expenses, and any ongoing transaction costs to insulate the transaction from any reasonably conceivable real estate risk. Maintenance and operating expenses of the landlord include real property taxes, utilities (water, gas, electric), insurance, repairs and capital improvements, liens and special assessments. Ongoing costs, if any, associated with the bond transaction structure may include yearly trustee and other costs.

Lease term

The term of the lease should equal or exceed the maturity of the debt. Generally the debt at maturity amortizes so that the bondholders rely only on the credit of the tenant for full payment of the debt. Balloon payments introduce refinancing risk, thereby shifting the analysis from the credit of the tenant to the market value of the property at the end of the debt term. In cases of balloon payments that are not covered by the tenant's rent or residual value insurance (see the “Specialized insurance products” section), we generally would not rate the transaction under this methodology.⁸

The lease may not be terminated by the tenant.⁹ However, under certain circumstances of casualty or condemnation discussed below, the tenant may terminate the lease by paying an amount sufficient to fully retire the outstanding debt.

Casualty

Lease payments may not be interrupted by damage to or destruction of any part of the leased property. In the case of damage or destruction, the tenant is required to apply all insurance proceeds to repairing or rebuilding the property as nearly as practicable to its previous fair market value and utility. In the event the insurance proceeds are insufficient to restore the premises, the tenant must complete the restoration at its own expense. If restoration is economically impractical following a substantial casualty, the tenant may terminate the lease by paying a termination amount or purchasing the property in an amount at least sufficient to retire the outstanding debt.

Condemnation / Compulsory purchase

The government may take private property for public use through condemnation or eminent domain proceedings (also known as “compulsory purchase” proceedings in some non-US jurisdictions) if it pays compensation to the property owners. The government may totally, partially or temporarily condemn a property. In such cases, the tenant is obligated to continue to make payments under the lease. However, in the case of a total taking or a partial taking which renders the remaining portion of the property unsuitable for its intended use, the tenant may terminate the lease and pay an amount sufficient to retire the outstanding debt. If the government takes a portion of the property which does not render the remaining portion unsuitable for the tenant to terminate the lease, the

landlord should apply the condemnation award proceeds to partially prepay the debt and thereafter reduce the lease payments due to an amount sufficient to pay all future debt service.

Indemnification

Future lawsuits and claims against the landlord could increase the risk of the landlord's bankruptcy. The tenant generally bears this risk by agreeing to indemnify the landlord from all losses, liabilities, judgments, costs, and expenses arising out of its acts or omissions, or in any way related to the real estate or the financing transaction. In addition, the landlord generally has no monetary or material non-monetary obligations under the lease, nor does the landlord make any material representations or warranties.

Assignment & subletting

Since the rating of the transaction is based on the credit quality of the lease stream, the tenant may assign its interest under the lease or sublet only if the tenant continues to remain liable for all future lease obligations.¹⁰ While this may be true as a matter of law in most states, the lease should expressly provide so.

Environmental

To shield the landlord from possible liability for claims or remediation costs caused by environmental problems, the tenant generally indemnifies the landlord for any liabilities, damages, costs or expenses arising from the release or presence of hazardous waste occurring before or during the term of the lease, whether or not known, unknown, discovered or discoverable before or during such term. We may review environmental assessments for conditions that may have a material adverse effect on the value or operation of the property.

Purchase option

Under certain circumstances, the tenant may be given the right to purchase the property for fair market value from the landlord, thereby terminating the lease. The lease ensures that the purchase price is always in an amount sufficient to retire the outstanding debt.

Guarantee

If the tenant is an unrated subsidiary or affiliate of the rated "credit," the rated entity must guarantee absolutely and unconditionally the timely payment of all sums due under the lease. The guarantee should be drafted to include all commercially customary waivers of defenses.¹¹

Insurance

The tenant is expected to carry adequate property and casualty insurance on the premises. In certain cases, the tenant may self-insure as long as it maintains a Moody's rating within certain investment-grade rating levels.

Bankruptcy-remote landlord

To protect against the risk of the landlord's bankruptcy interrupting the lease stream, the landlord is structured as a single-purpose, bankruptcy-remote entity. The landlord's business purpose is limited by the transaction documents and by its organizational documents to solely owning and leasing the property and issuing the debt. Similarly, the landlord may only transfer the property to a transferee which is also a single-purpose, bankruptcy-remote entity.

Not only the bankruptcy of the landlord, but also the risk of substantive consolidation of the landlord with a bankrupt owner could cause a delay in timely payment of debt service. We will review and evaluate substantive non-consolidation opinions, opining that the landlord would not be consolidated with its owner in the case of an owner bankruptcy.

Property value

To arrive at a final rating outcome, we assess the value of the leased properties, because the ultimate recovery for holders of the tenant's long-term unsecured debt and for holders of debt backed by the tenant's lease is different due to the treatment of leases under the United States Bankruptcy Code ("Bankruptcy Code") and to some extent under the bankruptcy or insolvency rules in other jurisdictions.

If a bankruptcy proceeding is instituted by or against the tenant under the Bankruptcy Code, the tenant has the right to assume or reject the lease. If the tenant rejects the lease, the landlord would not have any cash flow to make payments to the bondholders. The landlord would have an unsecured non-priority claim for damages against the tenant's bankruptcy estate, which claim is typically

assigned to the lender trust as part of its loan collateral. That claim is limited by Section 502(b)(6) of the Bankruptcy Code to an amount equal to the rent reserved under the lease, without acceleration, for the greater of one year or 15% (not to exceed three years) of the remaining lease term. In contrast, the recovery in bankruptcy for holders of long-term unsecured debt issued by the tenant is not subject to this recovery limitation.

Because of this limitation on recovery, the damages that could be claimed by the landlord in all likelihood will not be nearly sufficient to ultimately pay the principal due to the bondholders.¹² Therefore, the valuation of the mortgaged property becomes important to the determination of how much of their principal the bondholders will ultimately realize through the liquidation or re-leasing of the property.

In other jurisdictions, bankruptcy laws provide tenants certain lease rejection rights. We will examine landlords' and tenants' rights specific to each jurisdiction.

We calculate the "dark" value of the property, assuming the complete vacancy of the property after rejection of the lease in bankruptcy. The appraisals we typically request for CTL financings should include this specialized "dark" value calculation. This calculation differs from the property's "lit" value,¹³ because it includes significant lump-sum charges for lost rent, re-tenanting costs, brokerage fees, and unreimbursed maintenance and other holding-period expenses (see the "Elements of 'Dark' Value Calculations" section).

In a Chapter 11 bankruptcy proceeding and in comparable proceedings in other jurisdictions, the tenant is more likely to assume a lease that is critical to its survival or that may contribute to its future profitability. We therefore will assess the strategic importance or economic value of the leased property to the tenant's business. We will then estimate the probability that the lease of the property – or the percentage of leases of a group of properties – may be affirmed by the tenant in a bankruptcy reorganization.

Elements of "dark" value calculations

The "lit" value of an asset assumes a stabilized and continuing rent flow, while the "dark" value considers and subtracts from the "lit" value the effects of a sudden and complete cessation of the rent stream. When a bankrupt tenant rejects its lease, the landlord is saddled with an asset that now drains money for upkeep costs (property taxes, insurance, repairs) previously paid by the tenant; that demands new, significant investment (leasing commission, tenant improvements) to attract a fresh tenant; and that has measurable economic costs (lost rent and the opportunity cost of the money expended for holding period expenses).

To arrive at the "dark" value, we will examine the following costs and deduct these amounts from the "lit" value of the asset.¹⁴

- » *Lost rent.* Because the property is now tenantless, the landlord must seek and sign a new lessee; that takes time. The period of rent loss will vary from asset to asset, from asset class to asset class, and from market to market. Desirable retail space in urban in-fill locations may sometimes be filled-in in as short a period as six months, whereas large built-to-suit office complexes in suburban locations may lie empty for as long as thirty months. The most commonly used period for lost rent is about twelve months, but there is material variation around that figure that is determined only by assessment and understanding of the particular asset.
- » *Loss due to expense carry.* Real estate cannot lie unattended-to. Local property taxes must be paid, or the property will be lost to tax liens; the property must continue to be insured; basic repairs have to be made; if the land is ground leased, the ground rent must be paid on time; and a property manager must be hired to orchestrate these and other things. We deduct carrying expenses, to the extent they accrue during the assumed period of vacancy, from the "lit" value. Some expenses, like utilities, of course are lower because an active tenant no longer occupies the property; others, like insurance or taxes, are inflexible and accrue regardless of occupancy.¹⁵ We generally discount utility charges by 75%, reduce the management fee, repairs and maintenance costs, and general and administrative expenses by 50%, but charge 100% of real estate taxes, insurance premiums, and ground rent, when analyzing the loss due to expense carry.
- » *Opportunity cost of expense carry.* Expense carry costs need to be paid out-of-pocket by the landlord, or by the potential purchaser of, a dark property. Investors expect an equity-type return when investing in real estate, and the layout of these carrying costs has an implicit "opportunity cost" that we factor into the "dark" value. We typically apply a return on equity rate of between 10% and 12% in calculating the value of the "lost opportunity" of the expense carry costs.

- » *Leasing Commissions.* Tenants are almost always found through the use of a leasing broker. Commissions vary from asset class to asset class and from market to market, but range between 2.5% to 6.5% of the annual rent for the life of the lease. Leasing commissions can be one of the larger line items affecting the “dark” value.
- » *Tenant Improvements.* Landlords usually give tenants money or an allowance to construct leasehold improvements. These concessions again vary in generosity depending on the asset class and the market. They may vary from nothing in some markets (retail in New York City) to about US\$5 per square foot for retail in suburban markets to an amount equal to the first year's rent for office buildings.

Other considerations

Ratings and the benefit of earlier amortization

Depending on the senior unsecured rating of the tenant, we may give credit for early or accelerated amortization of the debt. The higher the investment grade rating of the tenant, the more likely that amortization of the debt will be realized, thus decreasing the LGD of the transaction.

Specialized insurance products

Some CTL deals have “almost bondable” leases, where rent may be abated, or the lease cancelled, if casualty or condemnation events occur. In addition, some leases by their terms may terminate prior to full amortization of the debt. Specialized insurance policies have been developed to cover such risks: “lease enhancement policies” for the casualty/condemnation risk, and “residual value insurance” policies for the balloon payment risk. We carefully review such policies to determine that the insurer has unconditionally covered such risks. The rating of the insurer typically must be at least equal to the rating of the tenant. Downgrade or withdrawal of the insurer's rating may adversely affect the rating of the CTL transaction.

Construction risk

If construction of the premises will not be completed until after the rated debt is issued, the tenant's obligation to pay rent usually will not have commenced. In these cases, provisions may be documented to ensure that debt service will be fully and timely paid prior to the tenant's rent commencement date. Typical provisions include the posting of cash reserves or a letter of credit in amounts sufficient to pay debt service until the “date certain” when the tenant's net rent obligation commences. If there is not a certain rent commencement date, the cash reserves or letter of credit should be in an amount sufficient to completely pay down the outstanding principal and accrued interest by a specified, outside date. Alternatively, the lease may provide that the tenant will pay a termination payment equal to the outstanding principal and accrued interest by an outside date.

Impact of property value

If the “dark” value of a property is high enough, we may assign credit lease bond ratings above the senior unsecured rating of the tenant by one or two notches. That is, if the LGD is low enough, the EL of the CTL transaction may be reduced so much that the overall rating of the CTL transaction is consistent with a rating above the tenant's PD reference point.

In other situations, if the “dark” value of a property is low, the LGD would be higher, and we might assign ratings to the issued bonds that are one or two notches below the senior unsecured rating of the tenant.

Jurisdictional law concerns

In the US, case law from state to state may vary in how rigorously the courts will interpret a “hell-or-high-water” lease, though generally such lease terms are exactly honored in the landlord's favor. In other jurisdictions, certain factors could also affect how strictly bondable lease provisions may be enforced, though again, bondable leases generally are honored as written. We may cap or adjust the rating of a transaction to reflect any state or jurisdictional law weaknesses.

Environmental, social and governance considerations

Environmental, social and governance (ESG) considerations may affect the ratings of securities backed by a portfolio of credit tenant lease obligations. For information about our approach to assessing ESG issues, please see our methodology that describes our general principles for assessing these risks.¹⁶

Monitoring

Our approach to monitoring the rating of outstanding transactions is generally similar to the approach we use to assign the initial ratings. Tenant rating and property value are the key rating drivers in monitoring CTL transactions since the other two key rating drivers (bondable lease and bankruptcy-remote landlord) typically remain unchanged over the life of the transaction. CTL ratings may change based on a change in the tenant's senior unsecured debt rating or a change in the appropriate metric used to reflect the risk of default. Additionally, as the transaction seasons and amortizes, "dark" real estate value may become a more important component in our analysis of loss given default provided adequate information is available to determine "dark" value.¹⁷

Appendix 1

Securities backed by a single lease: The example of spectrum licenses

While CTLs are usually rated without a model and simply based on the PD / LGD analysis of the tenant and the buildings, we also rate some other types of securities backed by a single lease. In these cases, we use an approach conceptually similar to our approach for rating commercial real estate CTL obligations but with a full cash flow analysis. In such cases we calculate an expected loss by assuming a probability of default (PD) and loss given default (LGD) based on the credit quality of the lessee, the nature of the collateral, the terms of the lease, and the structural features of the transaction. We use spectrum license financing transactions in this Appendix as an example of how we apply this approach. As noted in the introduction to this report, the structure of a spectrum license lease transaction is similar to CTL and other single-lease transactions. The rated entity that owns the spectrum licenses ("spectrum collateral") sells or contributes them to a special purpose vehicle (the "issuer" or "lessor"), who leases the spectrum collateral back to the rated entity (the "lessee"). The issuer finances the acquisition of the property with the proceeds of the debt it issues to noteholders. Because the lease payments are the sole source of cash flows for paying interest and principal to noteholders, the maturity of the lease occurs simultaneously with or after the maturity of the issuer's debt and the lease payments equal or exceed the payments owed on interest and principal of the debt and all transaction expenses.

Certain features of securities backed by spectrum license leases, as well as features in other types of single-lease transactions, may permit the issuer's notes to achieve uplift beyond the lessee's rating, as discussed below.

Probability of default analysis

Lessee credit quality

We use our rating¹⁸ of the lessee as a starting point to derive the probability that the lessee will default on the lease payments, which generally follows the framework in the "Deriving probability of default and loss given default" section.

Criticality of leased collateral to lessee

We may consider the risk of default to be lower than implied by the lessee's rating in certain circumstances, such as when we view the probability that the lessee will reorganize in the event of bankruptcy as higher than the probability that it will liquidate, and the leased collateral as critical to the continued business operation of the lessee. Because the lessee is typically an operating business entity which originally acquired the leased collateral for its own business purposes (prior to transferring them to the issuer/lessor), it is likely that in a Chapter 11 bankruptcy proceeding under the US Bankruptcy Code, or a comparable reorganization proceeding in another jurisdiction, the lessee will assume a lease that is critical to its survival or will contribute to its future profitability. We therefore assess the strategic importance or economic value of the leased collateral to the lessee's business to estimate the probability that the lessee will assume the lease in a bankruptcy reorganization.

In the case of a spectrum lease transaction, if the lessee has significant franchise value, a large subscriber base and extensive network infrastructure, it may be more likely to reorganize its business in bankruptcy to continue operations than to liquidate. The lessee would then have an incentive to assume the spectrum lease to the extent that the spectrum collateral would be important to its ongoing business operations.

Liquidity reserve

Debt securities backed by spectrum leases may provide for a liquidity reserve to pay interest on the issued notes and expenses during the time it takes to liquidate the spectrum collateral (including any regulatory approval process) and recover on any lease rejection damages claim in a lessee bankruptcy. A well-sized liquidity facility may reduce the risk of default on the issued notes following a lease default.

Loss given default analysis

LGD is a function of the note balance at the time of lease default along with net recovery proceeds from the leased collateral (plus any potential claims recovered from the lessee or any guarantor).

Collateral liquidation value

We calculate the liquidation value of the leased collateral assuming the rejection of the lease in bankruptcy. In the example of spectrum leases, we analyze comparable spectrum license sales and may consider appraisals of the spectrum collateral. An appraised

value is not determinative, however, of the liquidation value we assume in our rating analysis, especially where an appraisal has not considered a distressed liquidation scenario as opposed to the value of the spectrum collateral under current market conditions.

The liquidation value of leased collateral reflects the correlation between the timing of a lessee default and the market value of the leased collateral at such a time. We view a lessee default as most likely to occur in an industry downturn when the leased collateral will likely have a market value lower than at the time of debt issuance. Our examination of distressed liquidation value is analogous to our examination of 'dark' value in analyzing CLT obligations, where we apply an additional stress to the property value by assuming the complete vacancy of the property after rejection of the lease in bankruptcy.

We may apply an additional stress to our assumed liquidation value in certain cases. For instance, an additional stress may be appropriate for spectrum collateral to account for limited historical sales data and less liquidity in the spectrum license market than the commercial real estate market. The level of this additional stress may vary depending on the target rating of the notes.

Recovery from the lessee

To arrive at a final rating outcome, we also assess the potential for recovery from the lessee under the lease's rights and remedies, including the value of any guarantee of the lessee's obligations under the lease.

The expected recovery from the lessee for lease rejection damages may be higher for spectrum collateral and other personal property leased collateral than real estate collateral. If a bankruptcy proceeding is instituted by or against the lessee under the US Bankruptcy Code and the lessee rejects the lease, the lessor has an unsecured claim for damages against the lessee's bankruptcy estate (and any guarantor). When the lease collateral is real estate, that claim is limited by Section 502(b)(6) of the Bankruptcy Code to an amount equal to the rent reserved under the lease, without acceleration, for the greater of one year or 15% (not to exceed three years) of the remaining lease term. However, this limitation does not apply to leases of non-real estate assets, including spectrum collateral.

Loss benchmarks

In evaluating the model output for securities backed by a single lease, such as spectrum leases, we select loss benchmarks referencing the Idealized Expected Loss table¹⁹ 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 the formulas in Exhibit 2:

Exhibit 2

Symmetric loss benchmark boundaries

$$[1] \text{ Rating Lower Bound}_R = \exp\{0.5 \cdot \log(\text{Idealized Expected Loss}_{R-1}) + 0.5 \cdot \log(\text{Idealized Expected Loss}_R)\}$$

$$[2] \text{ Rating Upper Bound}_R = \exp\{0.5 \cdot \log(\text{Idealized Expected Loss}_R) + 0.5 \cdot \log(\text{Idealized Expected Loss}_{R+1})\}$$

Where:

- » $\text{Rating Lower Bound}_R$ means the lowest Idealized Expected Loss associated with rating R and the expected loss range of rating R is inclusive of the $\text{Rating Lower Bound}_R$
- » $\text{Rating Upper Bound}_R$ means the highest Idealized Expected Loss associated with rating R and the expected loss range of rating R is exclusive of the $\text{Rating Upper Bound}_R$
- » $R-1$ 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.

Source: Moody's Ratings

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 includes a discussion of Moody's Idealized Probabilities of Default and Expected Losses, and which is available [here](#).

Endnotes

- 1 If an entity originally rated by us no longer carries a Moody's rating, we may use other means to assess the creditworthiness of the tenant such as a private monitored rating. In certain circumstances, we may withdraw the rating of the CTL transaction.
- 2 For pooled CTLs, we typically use the same asset analysis described in this methodology for an individual CTL and combine it with our framework for assessing default risks and correlations as described in our methodology for rating SF CDOs, including CRE CDOs. For the asset analysis of pooled CTLs, we may use credit estimates on a limited basis. When evaluating the model output for pooled CTLs, we use the expected loss benchmarks described in our methodology for rating SF CDOs, including CRE CDOs. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- 3 Alternatively, a borrower may execute a note, mortgage and assignment of leases to a lender, which then deposits them into a trust. The trust then issues certificates to investors.
- 4 As the rating of the tenant may change over time, generally the rating of the CTL bonds will follow in tandem.
- 5 Where the tenant is a government or government-related entity, the rating of the CTL may be notched down by one to three notches to reflect applicable appropriations risk.
- 6 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.
- 7 For more information, see *Rating Symbols and Definitions*. A link can be found in the "Moody's related publications" section.
- 8 Instead, we may rate the transaction under one of our other CMBS credit rating methodologies. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- 9 The tenant may reject the lease in bankruptcy.
- 10 In some transactions, the tenant may be released from future accruing liability, if our rating of the assignee's senior unsecured debt is at least equal to our tenant's then current rating, and the assignee assumes all obligations and liabilities under the lease.
- 11 For more information, see our cross-sector methodology on how we analyze guarantees. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- 12 Nevertheless, because the landlord typically assigns to the lender rights to its claim under Section 502(b)(6), we will give some credit for this in our analysis.
- 13 For more information, see our other CMBS credit rating methodologies. A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- 14 Note that these are not "market" LTVs; we arrive at these figures using stressed rents, vacancy rates, capitalization rates and other assumptions used to derive our assessment of sustainable value. In EMEA, we also compare the value derived from this approach with the one derived from the approach described in our EMEA CMBS methodology and take the most conservative value of the two approaches.
- 15 After very prolonged vacancy, some jurisdictions may reduce real estate taxes.
- 16 A link to a list of our sector and cross-sector methodologies can be found in the "Moody's related publications" section.
- 17 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.
- 18 In cases where the lessee is unrated, we may use other means to assess the creditworthiness of the tenant such as a private monitored rating. In certain circumstances, we may withdraw the rating of the CTL transaction.
- 19 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.

© 2024 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved. CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and Moody's Investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody's.com under the heading "Investor Relations — Corporate Governance — Charter Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Clasificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions (as defined in Moody's Investors Service Rating Symbols and Definitions): Please note that a Second Party Opinion ("SPO") is not a "credit rating". The issuance of SPOs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

Author

Daniel Rubock

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454