Methodology for Rating Commercial Mortgage-Backed Securities (CMBS) (Non-NRSRO)

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SEC Requirements

A general description of the procedures and methodologies used to determine credit ratings. The description must be sufficiently detailed to provide users of credit ratings with an understanding of the processes employed in determining credit ratings, including, as applicable, descriptions of: policies for determining whether to initiate a credit rating; a description of the public and non-public sources of information used in determining credit ratings, including information and analysis provided by third-party vendors; whether and, if so, how information about verification performed on assets underlying or referenced by a security or money market instrument issued by an asset pool or as part of any asset-backed or mortgage-backed securities transaction is relied on in determining credit ratings; the quantitative and qualitative models and metrics used to determine credit ratings, including whether and, if so, how assessments of the quality of originators of assets underlying or referenced by a security or money market instrument issued by an asset pool or as part of any asset-backed or mortgage-backed securities transaction factor into the determination of credit ratings; the methodologies by which credit ratings of other credit rating agencies are treated to determine credit ratings for securities or money market instruments issued by an asset pool or as part of any asset-backed or mortgaged-backed securities transaction; the procedures for interacting with the management of a rated obligor or issuer of rated securities or money market instruments; the structure and voting process of committees that review or approve credit ratings; procedures for informing rated obligors or issuers of rated securities or money market instruments about credit rating decisions and for appeals of final or pending credit rating decisions; procedures for monitoring, reviewing, and updating credit ratings, including how frequently credit ratings are reviewed, whether different models or criteria are used for ratings surveillance than for determining initial ratings, whether changes made to models and criteria for determining initial ratings are applied retroactively to existing ratings, and whether changes made to models and criteria for performing ratings surveillance are incorporated into the models and criteria for determining initial ratings; and procedures to withdraw, or suspend the maintenance of, a credit rating. Market participants are provided the opportunity to comment on the methodologies through the EJR's website (publicly available) for EJR's consideration.

Table of Contents

Scope and Limitations

A methodology sets forth the key analytical considerations and applicable analytics used when EJR assigns or monitors credit ratings or other opinions. EJR applies approved methodologies in the evaluation of a structured finance transaction or debt obligation. Quantitative and qualitative factors set forth in a methodology or in a combination of methodologies are evaluated by an EJR rating committee or discussion group that exercises analytical judgment and considers the regulatory environment, market standards and customary practices in addition to other factors deemed relevant to the analysis.

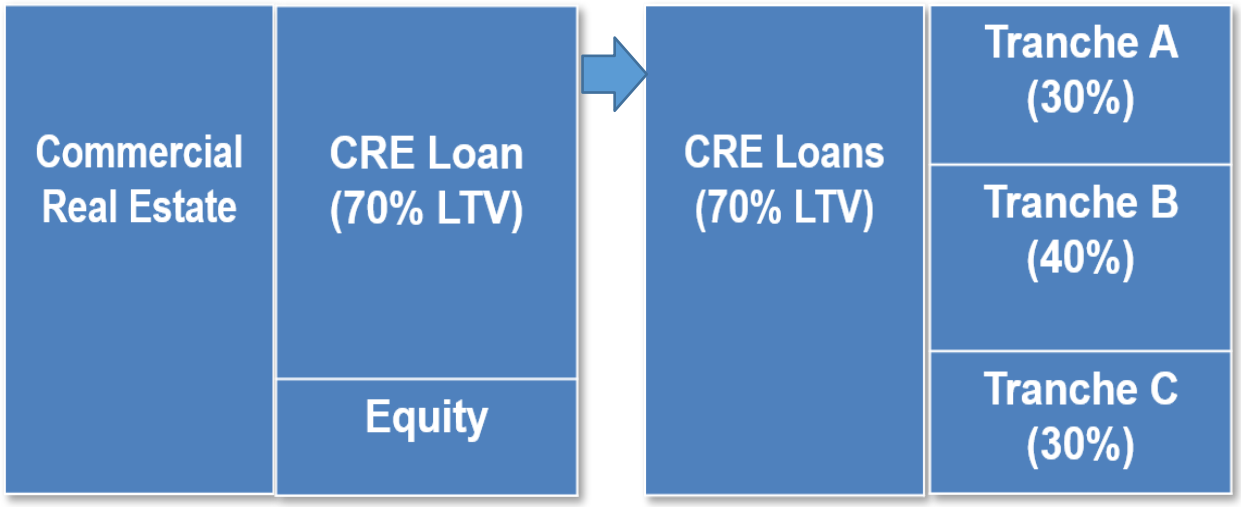
As part of the evaluation process, EJR may opine as to whether the capital structure supports the assignment of a various ratings. In cases when an applicable methodology does not address one or more elements of a transaction or obligation, or such element(s) differs from the expectations contemplated when an applicable methodology was approved, EJR may apply analytical judgment in the determination of any related analytical factor, assumption, rating, or other opinion. For a methodology that incorporates the use of a predictive model, EJR may also depart from the rating stress(es) implied by the predictive model. EJR typically expects there to be a substantial likelihood that a reasonable investor or other user of the credit rating(s) would consider a two-notch or more deviation from the rating stress(es) implied by the predictive model to be a significant factor in evaluating the rating(s). When a rating committee determines a material deviation, EJR discloses the material deviation and its analytical judgment for the material deviation.

Introduction and Overview

This methodology should be read in conjunction with EJR's General Methodology for Rating Asset Backed and Structured Finance Obligations (Non-NRSRO).

Securitizations are typically based on two doctrines: (1) segregation of the seller's risks from the performance of the assets and (2) assets whose underlying characteristics and performance can be analyzed and, to some degree, predicted. Within CMBS transactions, day-to-day servicing and problem loan resolution are typically handled by third-party servicers that are most commonly independent from the loan seller. Servicer(s) are typically expected to operate in the best interests of the majority of investors in the transaction.

Most CMBS transactions involve a review of the underlying collateral or a sampling thereof to assess collateral-level credit risk. The quantitative and qualitative factors could result in a difference from the rating implied by the EJR parameters are included in this methodology.



Example of a CMBS Transaction Structure

CMBS transactions are typically comprised of one or more CRE loans ("Loans") which are placed in a special purpose entity to minimize the bankruptcy risk. Then securities (i.e., tranches) are issued backed by the cashflows generated by the pool assets. Normally, cash is allocated to the various tranches in a waterfall fashion such that the senior tranches are serviced first, and the cash is allocated to the subordinated tranches in a waterfall like manner. Above is a simplified example, whereby a commercial real estate asset is funded via a Loan with a 70% loan to value ("LTV"). The described loan and other loans are placed in a pool whereby the assumed weighted averageLTV is 70%, and the pool is funded via three tranches (A, B, and C).

To assess credit quality of the tranches, it is helpful to consider the support provided by the subordinated tranches. In addition to subordination levels, consideration must be given to the timing and levels of cash inflows (both interest and principal), defaults, recoveries, fees, and other items, and on the liability side, the timing and level of the various payments (i.e., the waterfall).

Key Steps in the Rating Process

Below is a description of the key steps in the rating process.

I. Assess Property Net Operating Income and Cash Flow

The first step for analyzing CMBS transactions is evaluating the underlying credit quality of the individual mortgages that form the pool. Fundamental credit analysis of any real estate-related funding is based on an evaluation of the net cashflow ("NCF")of each property. Ultimately, a property pays its obligations only if, on a consistent basis, the NCF exceeds the cash obligations; EJR aims to determine a normalized NCF.

Note, cashflow can be depressed or enhanced by factors such as capital improvements, upfrontpayments, tenant buildout costs and other items. NOI can be over or under-stated by above or below market leases, short-term leases, and other items.

II. Assess Property Values

After determining the NCF, EJR applies various capitalization rates ("Cap Rates") to assess the property's value and derive an Adjusted Property Value (i.e., the property's NCF divided by EJR's estimated Base Case Cap Rate). This approach mirrors the analysis, which is normally conducted to determine what if anything can be realized from the liquidation of the property.

Cap Rates applied will typically be from recognized third party public sources, that publish periodic updates which consider property types, tiers, classes, and other factors. Additionally, EJR *may* perform sensitivity analyses on the Cap Rates and adjust them based on property quality, market strength, and other property type-specific factors to assess the ability of the transaction to sustain adverse developments.

Circumstance dependent, EJR may choose to consider other means for assessing the value of properties such as prices per squarefoot, building costs, and other such factors, although typically the NOI multiples are typically more reliable for mature properties.

III. Assess Default Probability and Life of Assets

A. We attempt to calculate the weighted average default probability of the portfolio by using EJR Loan-to-Value metrics. More specifically:

- Each probability of default rating is associated with an EJR Loan-to-Value ratio. EJR maps the Loan-to-Value ratio to the EJR rating which then maps to the probability of default for each asset with the remaining asset life. EJR assumes the asset is in default when the EJR Loan-to-Value ratio is above 100%.
- To measure the default probability of the portfolio, EJR calculates the WAPD of the portfolio as well as the weighted average life (WAL) of the portfolio. EJR derives the WAPD as the current balance weighted average of the PD of each asset in the portfolio:

$$\mathrm{WAPD} = \sum_{i=1}^{N} (\mathrm{PD}_i * \mathrm{W}_i)$$

Where: PD_i=PD of asset i

W_i=current balance-based weight of asset i

N=number of assets in the portfolio

B. Similarly, the weighted average life (WAL) of the portfolio is the current balance weighted average of the remaining life of the individual asset.

$$\text{WAL} = \sum_{i=1}^{N}(\text{Remaining Life}_i * \text{W}_i)$$

Where: Remaining Life_i = Remaining life of asset

W_i = current balance-based weight of asset *i*

N = number of assets in the portfolio

C. Once WAPD and WAL have been calculated, EJR maps out the weighted average cumulative default probability of the portfolio in the default probability table.

IV. Assess Interest Rate

At its discretion, typically based on market conditions, EJR may apply interest rate curves (such as the Secured Overnight Financing Rate or SOFR) froma third-party data provider as interest rate assumptions. Currently, we do not assume a discretenumber of interest-rate scenarios to reflect the potential for shifts in short-term rates over time.

V. Derive Cashflow

Again, EJR, typically will use data from a third-party provider to calculate the cashflows. EJR may then create scenarios in the tools provided by the third-party data source according to the weighted average default assumption, then set recovery rate and interest rate as the values we calculated above.

VI. Estimate Loss

Estimated loss of each tranche in each scenario calculated as below:

$$L = \frac{PV_{promise} - PV_{received}}{PV_{promise}}$$

Where: $PV_{promise}$ = present value of the total promised cashflow that should be received (by using the coupon rate of the tranche as a discount rate, the present value should equal to the current balance of the tranche)

$PV_{received}$ = present value of the total cashflow received in that scenario (we are using coupon rate of the tranche as discount rate)

We determine the life of each tranche as the time range of a tranche's principal payments assuming zero defaults on the underlying collateral. Based on the Estimated Loss (EL) and WAL of the tranche, a rating can be mapped via the Estimated Loss Table.

VII. Assign Ratings based on Base Case

When assigning the rating, EJR considers the look-though loan-to value and EL for each tranche in a base case scenario. EJR may adjust or smooth the tranche rating according to the capital stack.

For single borrower & single asset ("SASB") CMBS transactions, EJR mainly relies on the look-though loan-to value to assign the rating for each tranche. For the new issuance of SASB transactions, EJR may derive the ratable proceeds for each loan at each rating category solely based on the look-though loan-to value. EJR uses the loan-to-value benchmark as the starting point for tranching and the benchmark could be adjusted by the diversification, asset quality, etc.

Other Considerations

When assigning a rating, EJR typically conducts sensitivity analysis on property values by applying a "haircut" to the projected NCF. The EJR parameters typically provide the base credit enhancement for a transaction given the EJR rating level. Considering the idiosyncratic nature of the asset class, there can be other qualitative factors that can affect EJR's assessment of credit risk and may justify further adjustments to loss assumptions from the base level credit enhancement. For example, DSCR ratios or other credit metrics may not fully capture the credit risk embedded in a loan where the property is occupied by a single tenant whose use thereof is unique (i.e., special purpose). Certain transactions may also have elevated risks when loans are pooled due to excessive sponsor or tenant concentrations, and further qualitative adjustments may be warranted to compensate for these risks. Also, the EJR analytical process may also include a comparative analysis of the current transaction's credit metrics and risk profile as measured against the risk profile of comparable transactions.

A. Debt Service Coverage (Initial and Term)

The debt service coverage ratio ("DSCR") is typically defined as either NOI or NCF divided by the debt service obligation and in a key measure of the property's capacity to service debt. The "Term DSCR" is the stabilized NCF divided by the maximum actual annual debt service obligations of the borrower throughout the term of the loan. EJR may use DSCR tests on stabilized NOI or NCF (includingreserves if any) to determine the likelihood of default over the term of the loan. In the case of floating-rate loans, EJR will aim to stress interest rates.

B. Refinance Risk and Refinance DSCR

Many commercial mortgages do not fully amortize, but rather have a balloon payment at maturity. Frequently, such balloon payments are satisfied through refinancing. However, the timing of such loan maturities can have a significant impact on the borrower's ability to refinance because of increased interest rates, reduced demand for rented space, depressed real estate

values or a decline in liquidity in the real estate markets. EJR may consider various factors related to refinance risks.

C. Market Conditions

Market considerations come into play in an analyst's recommendation of a loan's performance stability as well as a loan's Debt Yield Benchmark. Thus, market considerations could affect both the Probability of Default ("PD") and the Loss Given Default ("LGD") for any given loan. EJR may recognize market liquidity by giving credit to loans that are in increasing demand and/or limited supply, owner-occupied and other factors which might impact values.

Similarly, in times of widespread and severe economic stress, anecdotal observations as well as market studies indicate diversification provides little, if any, benefit as most assets in a portfolio tend to perform similarly. During such times, EJR may adjust its analysis and will typically not provide a benefit to portfolio/asset diversification. During relatively benign economic climates, EJR will generally provide analytical consideration to diversification in its evaluation of a transaction. In either scenario EJR typically discloses its view, approach, and rationale in the rating report.

D. Loan Size and Fixed Liquidation Fees

Size may have an impact on a loan's severity of LGD. In general, the larger the asset, the lower the loss severity or LGD as a percentage of principal. This can be explained, in part, by the fixed nature of most workout expenses, which typically include legal fees, capex, broker fees, foreclosure or specially serviced asset fees, all of which can be disproportionably large for smaller loans. EJR may recognize the impact of loan size.

E. Leasehold Interests

Having a fee (or fee simple) interest (i.e., owning the land and the improvements) in a CRE asset assumes ownership of an asset into perpetuity – one that creates revenue and often appreciates. A leasehold exists when the ground is leased; a ground lease effectively splits a fee simple asset into two ownership interests: the leased fee and the leasehold. The leased fee interest maintains ownership in the land and enters a long-term lease (typically 50 years or with extension options). The leasehold estate often aims to enable the lessee to develop an income-producing asset (improvements) on the site, which then enables the lessee to recover construction costs and a return on capital prior to maturity of the initial term of the lease. If a loan on a property subject to a ground lease needs to be refinanced in the near future, the expected valuation may be impacted.

F. Resecuritizations or ReREMICs

A resecuritization of a real estate mortgage investment (ReREMIC) is viewed as a pass-through of interest, principal, and losses from one or more underlying CMBS certificates held in a newly

created trust. ReREMICs often employ a simple A/B (or senior/subordinate) structure, with Class B providing additional credit support to Class A via subordination. In most ReREMICs, interest payments on Class A and Class B are distributed on a pro rata basis, and principal is paid sequentially.

When rating ReREMICs, EJR is assessing the trust's ability to make the full principal payment by the transaction's legal final maturity date. These transactions typically define interest rate as the lesser of the bond coupon or the available interest funds; therefore, the EJR rating does not provide an opinion on the timeliness or amount of interest payments the investor may receive. The trust's only obligation is to pass through the interest proceeds net of fees from the underlying securities.

When rating ReREMICs collateralized by CMBS securities, EJR employs the following approach and analysis. Typically, EJR does not publicly rate the underlying transaction(s), but the process to rate ReREMICs is the same as if EJR were to publicly rate the class using the surveillance methodology. When assessing the risk, an analysis is usually performed by using the publicly available CRE Finance Council Investor Reporting Package files from the latest remittance period. EJR analyzes the underlying certificate based on the performance of the underlying loans and the transaction structure. EJR reviews transactions and focuses on reviewing the larger assets, the specially serviced loans, and the loans on the servicer's watchlist. If EJR believes that it has sufficient information to provide a rating to the ReREMIC bond, it addresses some of the lack of information in the underlying loans by applying higher NCF haircuts to the servicer reported NCF and also by stressing the NOI volatility. The ratings assigned are dependent on the performance of the underlying transaction and reflects the CE of the ReREMIC structure in addition to the look-through CE of the underlying bond. When multiple bonds are pooled, EJR will typically use this same approach.

While EJR is not normally concerned with the timing of losses and recoveries because that timing is relatively difficult to predict, there may be occasions where EJR does take a view on the timing of losses and recoveries on the underlying certificates. This most often happens in a first- or second-pay super-senior class rather than a long-duration super-senior class. When taking a view on the timing of losses and recoveries of the underlying certificate, EJR might front-load the loans that it expects to experience the highest loss, thereby minimizing the loan-specific recovery proceeds to the first-pay bonds within the waterfall. By front-loading the loans with the highest loss, EJR can see if the class in question will be repaid prior to the super-senior tranche experiencing a loss.

G. Agency (GSE) Multifamily CMBS

The Freddie Mac Fixed Rate K-Series (K-Series) facilitate the securitization of multifamily mortgages. These mortgages primarily finance affordable or low-income rental housing where the property has five or more rental units. Under the K-Series program, multifamily mortgages typically conform to the same underwriting guidelines that apply to Freddie Mac mortgages held

on balance sheet. Like CMBS conduit loans, Freddie Mac multifamily loan-level CE is a function of loan-level credit metrics and other relevant factors as applied and determined by the same set of criteria applied to CMBS loans. Typically, K-deals benefit from structural enhancements whereby senior tranches A-1, A-2 and A-M are guaranteed (along with any IOs referencing the notional from these tranches) by Freddie Mac.

Conclusion

We have presented here the primary factors that we consider when assigning ratings to and monitoring the ratings of CMBS liabilities. The analysis includes modeling of a transaction's cash flows; reviewing the characteristics of the assets and liabilities; reviewing the transaction structure; and evaluating the probability of repayment of interest and principal. It is our intention to update this report whenever we make material changes to our rating approach.

Defined Terms

Cap or Capitalization Rate – typically, the rate at which the NOI is divided to derive and indication of value

Cashflow - typically the cash which can be derived from the property. Normally NOI less expenditures related to the property such as tenant improvements, brokerage fees, and other costs.

CE or Collateral Enhancement – the amount of subordinated capital

CLO – Collateralized Loan Obligation

CMBS – Commercial Mortgage-Backed Security

CRE – Commercial Real Estate

DSCR – Debt Service Coverage Ratio

Ground Lease - A ground lease is an agreement in which a tenant, the lessee, is permitted to use and develop a piece of land for a specified lease period, after which the land and all improvements are returned to the property owner, the lessor.

GSE - Government Sponsored Entity

Leasehold Improvements - Modifications made by an owner or a lessee to render a space or property

more usable.

Lease - A contract between the owner of a specific asset, the lessor, and another party, the lessee, allowing the latter to use/hire the specific asset. The lessor retains the right of ownership, but the lessee typically acquires the exclusive right to use the asset for a specific period in return for a specific stream of payments (rent).

Leased Fee - an ownership interest held by a landlord with the right of use and occupancy conveyed by lease to others; usually consists of the right to receive rent and the right to repossession at the termination of lease

LGD – Loss Given Default

LTV – Loan to Value

NOI – Net Operating Income

PD – Probability of Default

SOFR - Secured Overnight Financing Rate

WAPD – Weighted Average Probability of Default

Additional Considerations

Determining Available Corpus

For each property, the amount which is available to lenders is limited to the lesser of (i) the property's value or (ii) the outstanding mortgage. (If there is an excess of value over the mortgage, such excess cannot be used to fund the shortfall for any other property, i.e., properties are not cross-collateralized.) Therefore, the Base Case and Stress Case Available Corpus must be evaluated for each property individually to determine the pool's Available Corpus. *Note, since the maximum amount provided to the Corpus is the lesser of the property's value or the outstanding loan, this approach obviates the need for adjustments for second liens.*

Base Case and Stress Case Debt to Available Corpus (DAC) & Assigning Ratings

The pool's Base Case and Stress Case Available Corpus is compared to the tranche level debt to obtain the Debt to Available Corpus (DAC) ratio for each tranche. We consider the DAC ratio to be analogous to an LTV ratio and via the Base Case DAC, EJR will apply LTV ratios it deems appropriate to derive our ratings.

Transitional CRE Transactions

Transitional CRE transactions typically contain loans secured by CRE that are in a transitional stage, needing lease-up, significant capex or additional asset repositioning. These loans are generally structured with features such as future funding, performance holdbacks or other reserves to help the borrowers execute on their business plan to stabilize the asset.

These structural features are generally to be used to fund renovations of the properties, fund leasing costs and to pay interest or debt service during the renovation process. For these transitioning loans, EJR employs many of the same approaches discussed in the CMBS methodology with adjustments EJR deems appropriate.

Interest Rate Risk

EJR does not typically conduct interest rate sensitivity analyses. However, depending on the economic and interest rate environment, EJR in its sole discretion may elect to conduct additional sensitivity analysis. Specifically, we may consider the prevailing forward interest rate curves (such as the SOFR or Euribor curve) as a base case. Often, the loans are floating rate, and as such,EJR might apply stress. To the extent that a loan has an interest rate cap from a counterparty rating consistent with EJR methodologies, EJR looks to the lower of the EJR stressed rate or the interest rate cap. To the extent that these transactions allow for a period of predefined ramp uploans or re-purchase loans, EJR makes the assumptions that future loans will look similar to a sample of the loans already in the pool or based on parameters that would mimic a worst-case pool construct.

Credit Tenant Leases

In certain circumstances, EJR may consider rating securities (the Rated Debt) issued by a borrower primarily based on the credit strength of the property's tenant and the NOIs from the related property lease. These transactions are commonly referred to as Credit Tenant Leases (CTL). EJR has a separate methodology on CTLs.