

Article Title: ARCHIVE | Guidance | Criteria | Corporates | Recovery: Recovery Rating Criteria For Speculative-Grade Corporate Issuers Data: (EDITOR'S NOTE: —This article is no longer current. See "Sector And Industry Variables: Recovery Rating Criteria For Speculative-Grade Corporate Issuers.") Overview And Scope This guidance document accompanies our recovery rating methodology "Recovery Rating Criteria For Speculative-Grade Corporate Issuers," published Dec. 7, 2016, and provides additional information and guidance related to the analytical application of the methodology. It is intended to be read in conjunction with those criteria. For further explanation of guidance documents, please see the description at the end of this document. Guidance This report provides guidance on what guidelines are generally considered in assessing recovery ratings, as part of the criteria. These fall into the following key categories, which are used in the recovery criteria: EBITDA industry multiples, Discrete asset valuation haircut ranges, Sector-specific approaches, and Prepetition interest rate guidelines. Key Publication Information Originally published in Appendix 3 of "Recovery Rating Criteria For Speculative-Grade Corporate Issuers" on Dec. 7, 2016. We may revise this guidance from time to time when market dynamics warrant reevaluating the variables we generally use in our recovery analysis.

EBITDA Industry Multiples When assessing a company's enterprise valuation, we use the following median EBITDA industry multiples to derive the anchor recovery percentage (before making any adjustments using the recovery adjustment). Table 1 EBITDA Industry Multiples

MULTIPLE (X)	DISCOUNT TO S&P	CAPITAL IQ 15-YEAR LTM TO MARCH 2015 (%)	S&P	CAPITAL IQ 15-YEAR LTM TO MARCH 2015
Aerospace and defense	5.0	42	8.6	Agribusiness and commodity foods
5.0	39	8.2	Auto OEM	5.5
36	8.6	Auto suppliers	5.0	21
6.3	Branded nondurables	6.0	30	8.6
Building materials	5.0	33	7.5	Business and consumer services
5.5	37	8.7	Capital goods	5.0
41	8.5	Commodity chemicals	5.0	29
7.0	Consumer durables	5.0	39	8.2
Containers and packaging	5.0	29	7.0	Engineering and construction
5.0	26	6.8	Environmental services	6.0
36	9.4	Forest and paper products	5.0	36
7.8	Health care equipment	6.0	52	12.5
Health care services	5.5	41	9.3	Leisure and sports
6.5	33	9.7	Media and entertainment	6.5
34	9.9	Metals and mining downstream	5.5	36
8.6	Metals and mining upstream	5.0	42	8.6
Midstream energy	6.5	40	10.9	Oil and gas drilling, equipment, and services
5.5	39	9.0	Pharmaceuticals	6.5
47	12.2	Railroads and package express	5.5	36
8.6	Retail and restaurants	5.0	39	8.2
Specialty chemicals	5.5	34	8.3	Technology--hardware and semiconductors
6.0	42	10.3	Technology--software and services	6.5
44	11.7	Telecom and cable	6.0	38
9.6	Transportation cyclical	5.0	21	6.3

LTM--Last-12-month. As outlined in the criteria, we have derived these industry-specific EBITDA multiples by applying a discount to observed historical earnings multiples (market multiples) for nondistressed companies in the same industry. The market multiples were derived from 15-year last-12-month S&P; Capital IQ valuation multiples to March 2015 for nondistressed companies. In testing the portfolio of defaulted companies that S&P; Global Ratings had rated, the higher haircuts to sectors with particularly high market multiples resulted in more accuracy and less variance than the alternative scenarios.

Financial services We have derived these industry-specific EBITDA multiples by applying a discount to market multiples for nondistressed companies in the same industry. For asset managers and for a financial services finance company (FSFC), we generally start at 5.0x and sometimes scale these multiples up or down by up to one turn of leverage (for example, to 4.0x or to 6.0x) based on our judgment of the specific FSFC subsector or upon our view of the strength of the asset manager or of the FSFC's business risk profile.

Discrete Asset Valuation Guidelines When assessing a company's enterprise valuation using the Discrete Asset Valuation approach, we typically use the following discounts and valuation ranges to derive the anchor recovery percentage (before making any adjustments using the recovery adjustment).

Aircraft Shrinkage rates for fixed assets rely on the remaining life of the asset; depreciation rates (the depreciation factor is 1-depreciation rate) usually mirror the company's accounting assumptions for useful life. For aircraft, we usually apply aircraft-specific depreciation and realization rates, which we update periodically. Table 2 details the realization and depreciation rates for commercial aircraft by life-cycle stage. Table 2 Aircraft Annual Depreciation And Realization Ranges

EQUIPMENT SHRINKAGE/DEPRECIATION (%)	REALIZATION (%)
Highly desirable aircraft	5-9 per year
75-85 Desirable aircraft	9-10 per year
50-65 Less desirable aircraft	10-20 per year
25-40 Auto fleets	For auto fleet assets, we adjust net book values (NBVs) for expected disposal costs. We believe NBVs are a good reflection of disposal values, and so we only apply limited discounts to NBV. Debt facilities tend to be secured by individual vehicles with fleet

reductions resulting in a similar reduction in debt financing. Consequently, we do not shrink assets on the path to default. We generally consider the depreciation and realization rates in table 3 for auto fleet assets. Table 3 Auto Fleet Assets Depreciation And Realization Rates

SECTOR CATEGORY	SHRINKAGE/ DEPRECIATION (%)	REALIZATION (%)
Autos	0-95	Autos
Auto fleets--new	0-95	Autos
Auto fleets--used	0-90	95
Transportation Rental fleets	0-85	Containers and chassis

For container assets, we use NBV (or appraised values, when available), depreciated to the year of default, and then adjust asset values based on the relative desirability of the container by type. We generally consider the following depreciation and realization rates in table 4 for container assets: Table 4 Container Assets Depreciation And Realization Rates

SECTOR CATEGORY	SHRINKAGE/ DEPRECIATION (%)	REALIZATION (%)
Transportation Shipping containers and chassis	4 per year	60-75
Intangibles		

Generally, we assign no values to intangible assets. However, included as appropriate are intangibles that are unique to the business, readily identifiable, generally desirable, and where the value of the asset can be quantified through appraisal of the asset. Our valuations are determined by applying a realization estimate (from a range of distressed realizations) to third-party appraisals, where the realization rate selected reflects our estimate of the intangibles' value at emergence or liquidation. Table 5 below reflects the realization ranges that we generally apply to the appraised value of intangible assets. Table 5 Intangible Assets Depreciation And Realization Rates

SECTOR CATEGORY	SHRINKAGE/DEPRECIATION (%)	REALIZATION (%)
All General intangibles	0-70	Transportation
Routes	0-50	60
Transportation Landing slots	0-50	75
Ships		

For ship assets, we generally adjust the depreciated appraised ship value (to the year of default) based on the age and demand of the asset. Table 6 details the depreciation and realization rates for typical ship assets. Table 6 Ship Assets Depreciation And Realization Rates

SECTOR CATEGORY	SHRINKAGE/DEPRECIATION (%)	REALIZATION (%)
Transportation Barges and tow boats	0-7 per year	0-75
Leisure Cruise ship	0-5 per year	0-85
Transportation Drill ship	0-5 per year	0-75
Transportation Cargo ships	0-5 per year	0-75

Real estate companies (homebuilders) For homebuilders, we believe that at emergence, inventories (depending on the level of cash on hand) will generally be within 25% of current inventory levels. That's because we assume a certain level of cash is used to replenish, and/or fund the build-up of inventory. If liquidity is very tight (the homebuilder is unable to raise capital in the markets and/or if revolver capacity is fully drawn), we assume that it would need to raise cash by winding down its inventory at an accelerated pace. After adjusting for any shrinkage in inventory levels, we consider the inventory realization rates and characteristics in tables 7 and 8. Table 7 Inventory Realization Rate Ranges*

INVENTORY TYPE	HIGH (%)	MEDIUM (%)	LOW (%)
Completed homes / construction in progress	65-75	55-65	45-55
Land under development	55-65	45-55	35-55
Raw land	50-60	40-50	30-40

*Table 15 provides guidance as to what constitutes low, medium, and high. Table 8 Inventory Realization Rate Characteristics

INVENTORY TYPE	HIGH	MEDIUM	LOW
Completed homes/construction in progress	-- Homes are priced at or below conforming loan limits -- Short cycle of time to completion -- Low level of speculative builds -- Higher mix of detached and attached houses -- Homes are priced predominantly within conforming loan limits -- Short-medium cycle of time to completion -- Low-moderate level of speculative builds -- Moderate mix of detached and attached houses -- Homes are priced above conforming loan limits -- Medium-long cycle of time to completion -- Low-high level of speculative builds -- Lower mix of detached and attached houses	Land under development	-- Less amount of time and capital needed to complete improvements and renovation -- Low level of inactive/ mothballed community land developments -- Moderate amount of time and capital needed to complete improvements and renovations -- Low-moderate level of inactive/mothballed community land developments -- Higher amount of time and capital needed to complete improvements and renovations -- Moderate to high level of inactive/mothballed community land developments
Raw land	-- Prime location -- Low level of entitlement requirements -- Recently acquired -- Average location -- Moderate level of entitlement requirements -- Mothballed -- Poor location -- Higher level of entitlement requirements -- Mothballed	Other factors that are applicable to all the above inventory types	-- Low geographic concentration -- Low lot supply -- Low level of impairments expected -- Moderate geographic concentration -- Low-moderate lot supply -- Moderate level of impairments expected -- Moderate to high geographic concentration -- Moderate to high lot supply -- Higher level of impairments expected

Terms used in table 8: Mothballed means development and marketing activity on a

community property is put on hold or shelved. Low geographic concentration means that the locations of the home sites (community) are diversified into different markets and not concentrated in one or two. A high concentration could subject the homebuilder to more sensitivity to the demand in and the strength of that local economy. A low lot supply means that the homebuilder carries a low level of land inventory relative to other homebuilders. This signals that the homebuilder will likely sell those lots sooner and at or close to current prices, but also that it might need to acquire land at current prices as well. (At times of high demand or in markets that are short in land supply, it could mean that the homebuilder must acquire land at higher prices than other homebuilders, which could hold larger land supplies acquired years ago at perhaps discount prices.) Generally it takes about two years to get a community developed (including entitling the land, meaning getting all the regulatory approvals to build the community) from raw land into sellable lots that are ready for home construction. So homebuilders typically carry four to seven years of inventory in various phases of development. Those that are near completion, and thus require minimal additional capital, would likely carry a higher value than those that need a lot more time and capital for the phase to be completed. Model homes and speculative built homes that remain unsold for a relatively long period of time may carry lower values than homes that are contracted to be sold at completion.

Telecom: Towers For telecom towers, we reference recent transaction values as a proxy for current market values. The current valuation is USD\$360,000 per tower when the towers involved conform to the standard format (capable of carrying multiple antennas and not built for a single purpose).

Telecom: Wireless spectrum We generally consider the following depreciation and realization rates in table 9 for telecom assets:

Table 9 Telecom Asset Depreciation And Realization Rates	SECTOR CATEGORY	SHRINKAGE/DEPRECIATION (%)	REALIZATION
SOURCE Telecom Wireless spectrum	0 per year	100% of spectrum (NBV) + 25% of network assets (NBV)	Expert judgment NBV--Net book value.

The value derived from this calculation serves as a floor to the estimated emergence valuation, as we typically determine the emergence value using a multiple of expected emergence EBITDA.

Midstream oil refineries For a refinery that we expect to remain in operation after a default, we will generally value the property, plant, and equipment (fixed assets) at a multiple of between USD\$2,000 and USD\$3,000 per barrel per day of refinery crude oil throughput capacity, depending on our assessment of the relative quality of the assets. These price multiples reflect average historical transaction prices, which we adjust for inflation, to back out the value of working-capital assets and to reflect distressed industry conditions, and that could change if future market conditions and empirical data justify that. We will generally value oil storage terminals owned by oil refineries or operating independently at a price of \$25 per barrel of oil storage capacity. Higher or lower prices may be applicable based upon the location and other relevant features of the storage terminals and assumed prices could change if future market conditions and empirical data justify that.

Independent power producers (unregulated utilities) We generally value independent power producers according to their power generation capacity (as measured in kilowatts (kW)) and an assumed valuation on a \$/kW basis (see table 10). The valuation range is by fuel type adjusted for 1) dispatch characteristics (baseload versus peaking), 2) the regional transmission organization (RTO) exposure of the power plant, and 3) the relative quality of the plant. We update our valuations periodically based on market trends and recent sales data, with assets that have been sold under conditions of duress having the most relevance.

Table 10 Guidelines For Distressed Valuation of Power Assets	FUEL	SOURCE	COAL	NATURAL GAS	NUCLEAR	UNCONVENTIONAL	Dispatch Characteristics (DC)	>> Baseload
Peaking	Baseload	Peaking	N/A	N/A	PJM (regional transmission organization in Northeast U.S.)	0-175	0-25	300-500
125-175	300-500	200-400	Independent Service Operator of New England (ISO-NE)	0-75	0-25	350-450	150-200	200-400
200-400	200-400	New York Independent Service Operator (NYISO)	0-100	0-25	250-700	75-125	0-400	200-400
The Energy Reliability Council of Texas, or ERCOT	0-175	0-25	225-400	50-100	300-500	200-400	Midcontinent Independent Service Operator (MISO)	0-75
0-25	250-350	75-125	100-400	200-400	California Independent System Operator (CAISO)	N/A	N/A	300-400
100-175	N/A	200-400	Southwest Power Pool (SPP)	0-100	0-25	250-350	75-125	200-500
200-400	N/A--Not applicable.	While we provide general guidelines based on the above parameters, we may adjust these based on plant-specific attributes, while assumed valuations could change if future market conditions and empirical data justify that. For instance, the following attributes, among others, could cause us to assess a value outside the listed range: Exposure to future environmental regulation, either						

positively (generally for zero-carbon nuclear or renewable assets) or negatively (generally for coal assets); Participation in a constrained zone within one of the aforementioned RTOs; Any kind of contractual protections (such as power purchase agreements or PPAs, tolling arrangements, or operating contracts); Value for grid stability and reliability (such as a plant that contributes a large percentage of a zone's energy at any given time); and Operational history (assets with weaker track records might be assessed lower, while those that have run less frequently than designed could be assessed higher). Regulated utility fixed assets We use the utility's invested capital as the basis for our gross EV for the regulated business. Where regulators have a mandate to set rates sufficient to recover prudently incurred costs, including the opportunity to earn a return of and on its invested capital, we expect the postbankruptcy value of a reorganized utility's regulated fixed assets to remain largely intact. We think value is likely to be preserved because utility defaults are not tied to a failure of their business model, and the bankruptcy would be likely resolved through a reorganization that would preserve the long-term value of the regulated fixed assets. In most cases, the base is net property plant and equipment (typically without applying a depreciation or realization factor). If the utility is regulated on a different basis than original cost (e.g., fair value or replacement cost), we may use a different figure. We may reduce the value if full recoverability through rates is problematic and therefore the value is likely to be impaired. For instance, if construction cost overruns at a power plant could result in a disallowance, we would conservatively use the original cost estimate of the plant in our calculation. If an entity has other businesses that are unregulated, the value of these assets or operations will be calculated separately using the most relevant approach. For example, if a regulated utility also has some merchant power plants, these may be valued using the DAV guidelines for independent power producers, or a retail distribution business may be valued using a distressed EBITDA multiple approach. Investment holding companies We expect to use the DAV approach for the vast majority of investment holding companies (IHCs). For recovery analysis, we generally assume an IHC will default when the value of its investment portfolio is less than its total debt (when its net asset value, or NAV, turns negative) (see table 11). Until that happens, an IHC could avoid default by the timely monetization of its assets or successful refinancing. Exceptions to this would include situations where: We expect strong financial maintenance covenants may trigger a default before NAV becomes negative, or Favorable liquidity keeps an IHC from defaulting even though NAV is negative. Table 11 Investment Holding Company: Determining Investment Portfolio Values At Default

CURRENT SITUATION

INVESTMENT PORTFOLIO VALUE AT DEFAULT

Current NAV is positive and its debt **DOES NOT** HAVE strong financial maintenance covenants Investment portfolio value = total debt (principal)

Current NAV is positive and its debt **HAS** strong financial maintenance covenants Investment portfolio value = value that would trigger a default (i.e. investment portfolio value exceeds total debt, by definition, due to covenant triggers)

Current NAV is negative Investment portfolio value = typically lower of current or average equity values (e.g. 52-week avg., 200-day moving avg., etc.) as appropriate

NAV--Net asset value. 1. Additionally, we assume that upon default, the IHC's assets are sold to resolve the default. In such a scenario, we expect the forced sale of the equity interests to meaningfully depress realization rates and that the relative liquidity and diversity of the IHC's equity interests will determine the extent of the discount. We use the asset liquidity and asset diversity scores in the IHC methodology to determine the relevant realization rates (1 - the discount rate) (see table 12). We may revise the realization rates in table 12 up or down by 5 percentage points based on expected changes to the portfolio on the path to default as assets are monetized. Table 12 Determining the Realization Rate To Investment Portfolio Value

LIQUIDITY SCORE (%)

Diversity score	1	2	3	4	5
85	85	80	75	75	75
80	80	75	70	65	65
75	75	70	65	60	55
70	70	65	60	55	50
65	65	60	55	50	45
60	60	55	50	45	40
55	55	50	45	40	35
50	50	45	40	35	30
45	45	40	35	30	25
40	40	35	30	25	20
35	35	30	25	20	15
30	30	25	20	15	10
25	25	20	15	10	5
20	20	15	10	5	0
15	15	10	5	0	0
10	10	5	0	0	0
5	5	0	0	0	0
0	0	0	0	0	0

Note: Liquidity and diversity scores are as determined by the IHC criteria. We may revise the realization rates by +/- 5 percentage points to account for likely changes in the portfolio before default. Working capital (all sectors) We generally consider the working-capital depreciation and realization rates outlined in table 13. Table 13 Working-Capital Depreciation And Realization Rates

SECTOR CATEGORY

SHRINKAGE/DEPRECIATION REALIZATION (%)

Category	All Cash (including restricted cash)	80-100	100
Accounts receivable	Consistent with expected contraction on path to default	55 - 85	All
Inventories - raw materials	Consistent with expected contraction on path to default	35 - 85	All
Inventories - work in process	Consistent with expected contraction on path to default	0 - 55	All
Inventories - finished goods			

Consistent with expected contraction on path to default 45 - 65 Shrinkage for working-capital assets depends on the default scenario that is assumed for the hypothetical default. If default is specified as a decline in demand for a company's products, finished goods inventory levels may not decline (shrink) significantly, but the realization rate we assume would reflect the lack of demand and thus be deeply depressed (at the lower end of the range). Similarly, if the hypothetical default scenario assumes the loss of one or more major customers, the shrinkage in receivables may be significant even though the remaining customers continue to pay as agreed, with the realization rate at the higher end of the range. Although we generally assume cash shrinks by 100% in a liquidation scenario, for those sectors where we assume reorganization but value the company using a DAV approach, we may assume modest cash at emergence. Fixed assets (all sectors) Shrinkage for fixed assets should reflect the expected remaining life of the asset and condition; the valuation basis is the higher of net book value or appraised fair market value. Liquidation scenarios would use the lower part of the realization ranges.

Table 14 Fixed Assets: Depreciation And Realization Rates

SECTOR CATEGORY	SHRINKAGE / DEPRECIATION	REALIZATION
All Buildings	2%-5% per year	40%-60%
All Land	0%	70% of NBV / 85% of FMV
All Furniture & fixtures	10% per year	0%-10%
All Machinery & equipment	4%-10% per year	35%-55%
All Rental equipment	5%-10% per year	50%-85%

NBV--Net book values. FMV--Fair market value.

Financial services For financial institutions, we use the EBITDA multiple valuation approach, the DAV approach, or a combination of the two. Financial institutions are sometimes financial asset-intensive companies and are sometimes companies whose liquidation valuations are likely to be based upon future earnings. In addition, financial institutions frequently have financial assets on their balance sheets that have observable values that should be realizable in a liquidation scenario, plus financial services operations that are cash generative for which the valuations are likely to be based on future earnings. When using the combination approach, we typically apply the DAV approach to the assets that we believe have a realizable, observable value while applying the EBITDA multiple approach for the remaining operations, as appropriate. In addition to the typical discount or haircut ranges by sector for corporates, we apply assumptions specific to financial institutions we view as financial corporates. Financial services finance companies We make sector- and asset-specific assumptions for FSFCs. After reducing the value of the assets to reflect a value possible at the time of default, the assets are further haircut to reflect liquidation. We determine asset value haircuts based upon asset-specific information. For example, we typically haircut distressed assets (typically a portfolio of distressed loans or receivables) by 25% because much of the par value is already accounted for in the distressed asset values. We may make moderate adjustments to the haircut to account for differences in company-specific disclosures. For example, we may lower the standard 25% haircut if a company reported the assets at amortized cost rather than using a fair-value approach. We may also adjust the haircut for some distressed assets, such as small or midsize enterprise loans, which may be less liquid and as such have a less reliable mark-to-market relative to consumer credit, for example, and warrant a higher haircut.

Investments/Marketable Securities We generally value marketable securities using a discount to the market value as appropriate.

Sector-Specific Approach: Real Estate Companies For U.S. real estate companies (including REITs), we generally use an income capitalization valuation approach for stabilized income-generating properties, using our current commercial mortgaged-backed securities capitalization table (see the guidance document titled "CMBS Global Property Evaluation Methodology," published March 13, 2019). We have reproduced the relevant data from the CMBS guidance document in table 15 (below), detailing capitalization rates based on certain types of property as well as factors such as the property quality and/or geography. (For non-U.S. companies, we generally use a discount-to-book-value approach.) As part of our recovery analysis, we generally assess up to a 15% discount on the respective capitalization rates to reflect distress in the currently stabilized properties depending on the location, the company's vulnerability to rising vacancies, and ability to refill vacant space or repurpose the property. For nonstabilized nonincome generating properties, we use the discount-to-book-value approach. To the extent a particular property type or quality classification is not listed in table 15, we will consider available market data to derive our own capitalization rates for the subject property type and/or consider the most comparable property type and its characteristics. We will also take into consideration appraisals as part of our recovery analysis.

Table 15 S&P; Global Ratings' CMBS Cap Rates Plus

Distress For Recovery Analysis AS OF DEC. 14, 2020 (GUIDANCE DOCUMENT TITLED "CMBS GLOBAL PROPERTY EVALUATION METHODOLOGY" PUBLISHED ON MARCH 13, 2019) S&P; CMBS CAP RATE DISTRESS: 5% DISTRESS: 10% DISTRESS: 15% MARKET TYPE PROPERTY TYPE PROPERTY SUBTYPE LOW MID HIGH LOW MID HIGH LOW MID HIGH LOW MID HIGH OFFICE (*) Class A - NYC CBD 6.25 N/A N/A 6.56 N/A N/A 6.88 N/A N/A 7.19 N/A N/A Class A - DC CBD 6.75 N/A N/A 7.09 N/A N/A 7.43 N/A N/A 7.76 N/A N/A Class A - other CBD (including Toronto) 7.00 7.50 8.00 7.35 7.88 8.40 7.70 8.25 8.80 8.05 8.63 9.20 Class B - NYC CBD 7.00 N/A N/A 7.35 N/A N/A 7.70 N/A N/A 8.05 N/A N/A Class B - DC CBD 7.25 N/A N/A 7.61 N/A N/A 7.98 N/A N/A 8.34 N/A N/A Class B - other CBD (including Toronto) 7.50 8.00 8.50 7.88 8.40 8.93 8.25 8.80 9.35 8.63 9.20 9.78 Class A suburban - NYC and DC 7.00 N/A N/A 7.35 N/A N/A 7.70 N/A N/A 8.05 N/A N/A Class A suburban (including Toronto) 7.25 7.75 8.25 7.61 8.14 8.66 7.98 8.53 9.08 8.34 8.91 9.49 Class B suburban - NYC and DC 7.50 N/A N/A 7.88 N/A N/A 8.25 N/A N/A 8.63 N/A N/A Class B suburban (including Toronto) 7.75 8.25 8.75 8.14 8.66 9.19 8.53 9.08 9.63 8.91 9.49 10.06 Medical office 8.00 8.50 9.00 8.40 8.93 9.45 8.80 9.35 9.90 9.20 9.78 10.35 Surgical medical 9.00 9.50 10.00 9.45 9.98 10.50 9.90 10.45 11.00 10.35 10.93 11.50 RETAIL Anchored, avg. to above avg. quality 7.00 7.25 7.75 7.35 7.61 8.14 7.70 7.98 8.53 8.05 8.34 8.91 Anchored, below-avg. quality 7.25 7.75 8.25 7.61 8.14 8.66 7.98 8.53 9.08 8.34 8.91 9.49 Unanchored, avg. to above avg. quality 7.50 8.00 8.50 7.88 8.40 8.93 8.25 8.80 9.35 8.63 9.20 9.78 Unanchored, below-avg. quality 8.00 8.25 8.75 8.40 8.66 9.19 8.80 9.08 9.63 9.20 9.49 10.06 Grocery-anchored center 6.75 7.00 7.50 7.09 7.35 7.88 7.43 7.70 8.25 7.76 8.05 8.63 Class A (+/-) 6.00 N/A 7.25 6.30 N/A 7.61 6.60 N/A 7.98 6.90 N/A 8.34 Class B (+/-) 7.50 N/A 9.75 7.88 N/A 10.24 8.25 N/A 10.73 8.63 N/A 11.21 Class C (+/-) 10.00 N/A 12.50 10.50 N/A 13.13 11.00 N/A 13.75 11.50 N/A 14.38 Class D (+/-) N/A 12.75+ N/A N/A 13.39+ N/A N/A 14.03+ N/A N/A 14.66+ N/A Free standing movie theater - sales > \$1MM/screen 8.00 8.25 8.75 8.40 8.66 9.19 8.80 9.08 9.63 9.20 9.49 10.06 Free standing movie theater - sales > \$350k and < or equal to \$1 MM/screen 8.25 8.50 9.00 8.66 8.93 9.45 9.08 9.35 9.90 9.49 9.78 10.35 Free standing movie theater - sales < \$350k/screen 8.50 9.00 9.50 8.93 9.45 9.98 9.35 9.90 10.45 9.78 10.35 10.93 Free standing fitness center 8.25 8.75 9.25 8.66 9.19 9.71 9.08 9.63 10.18 9.49 10.06 10.64 Free standing restaurant/food service 7.75 8.25 8.50 8.14 8.66 8.93 8.53 9.08 9.35 8.91 9.49 9.78 Free standing pharmacy 7.25 7.75 8.25 7.61 8.14 8.66 7.98 8.53 9.08 8.34 8.91 9.49 MULTIFAMILY Class A 6.25 6.75 7.00 6.56 7.09 7.35 6.88 7.43 7.70 7.19 7.76 8.05 Class B 6.75 7.00 7.50 7.09 7.35 7.88 7.43 7.70 8.25 7.76 8.05 8.63 Class C 7.00 7.50 8.00 7.35 7.88 8.40 7.70 8.25 8.80 8.05 8.63 9.20 Student housing Add up to 0.50% to comparable class and market Manufactured housing 7.00 7.50 8.00 7.35 7.88 8.40 7.70 8.25 8.80 8.05 8.63 9.20 Recreational vehicle/seasonal/transient 9.25 9.50 9.75 9.71 9.98 10.24 10.18 10.45 10.73 10.64 10.93 11.21 INDUSTRIAL Industrial/warehouse, above-avg. quality 7.25 7.50 7.75 7.61 7.88 8.14 7.98 8.25 8.53 8.34 8.63 8.91 Industrial/warehouse, avg. quality 7.50 7.75 8.00 7.88 8.14 8.40 8.25 8.53 8.80 8.63 8.91 9.20 Industrial/warehouse, below-avg. quality 8.25 8.50 8.75 8.66 8.93 9.19 9.08 9.35 9.63 9.49 9.78 10.06 Flex-R&D; Add up to 0.50% to comparable quality and market LODGING Recognized industry leader (Trophy Property) N/A 8.25 N/A N/A 8.66 N/A N/A 9.08 N/A N/A 9.49 N/A Luxury, high land cost areas N/A 8.50 N/A N/A 8.93 N/A N/A 9.35 N/A N/A 9.78 N/A Luxury, lower land cost areas N/A 8.75 N/A N/A 9.19 N/A N/A 9.63 N/A N/A 10.06 N/A Full service, above average, high land cost areas N/A 8.75 N/A N/A 9.19 N/A N/A 9.63 N/A N/A 10.06 N/A Full service, above average N/A 9.00 N/A N/A 9.45 N/A N/A 9.90 N/A N/A 10.35 N/A Full service, average N/A 9.25 N/A N/A 9.71 N/A N/A 10.18 N/A N/A 10.64 N/A Extended-stay, above average, high land cost areas N/A 9.25 N/A N/A 9.71 N/A N/A 10.18 N/A N/A 10.64 N/A Extended-stay, above average N/A 9.50 N/A N/A 9.98 N/A N/A 10.45 N/A N/A 10.93 N/A Extended-stay, average N/A 9.75 N/A N/A 10.24 N/A N/A 10.73 N/A N/A 11.21 N/A Limited service, above average, high land cost areas N/A 9.25 N/A N/A 9.71 N/A N/A 10.18 N/A N/A 10.64 N/A Limited service, above average N/A 9.50 N/A N/A 9.98 N/A N/A 10.45 N/A N/A 10.93 N/A Limited service, average N/A 10.00 N/A N/A 10.50 N/A N/A 11.00 N/A N/A 11.50 N/A Limited service, below average N/A 10.50 N/A N/A 11.03 N/A N/A 11.55 N/A N/A 12.08 N/A SELF-STORAGE Self-storage 8.00 8.25 8.50 8.40 8.66 8.93 8.80 9.08 9.35 9.20 9.49 9.78 HEALTH CARE Independent living 8.00 8.25 8.50 8.40 8.66 8.93 8.80 9.08 9.35 9.20 9.49 9.78 Assisted living 9.00 9.25 9.50 9.45 9.71 9.98 9.90 10.18 10.45 10.35 10.64 10.93 Skilled nursing¶ 11.00 11.25 11.50 11.55 11.81 12.08 12.10 12.38 12.65 12.65 12.94 13.23 OTHER Parking garage 8.25 8.50 9.00 8.66

8.93 9.45 9.08 9.35 9.90 9.49 9.78 10.35 Casino 11.50 12.00 12.50 12.08 12.60 13.13 12.65 13.20 13.75 13.23 13.80 14.38 Golf course 11.25 11.75 12.25 11.81 12.34 12.86 12.38 12.93 13.48 12.94 13.51 14.09 Data center 8.50 8.75 9.00 8.93 9.19 9.45 9.35 9.63 9.90 9.78 10.06 10.35 *Class C office properties will have a capitalization rate that is 0.25%-0.50% higher than the relevant class B rate.

¶Health care properties that generate a high percentage of their revenues (typically more than 60.0%) from private-pay patients may have a capitalization rate up to 0.50% lower. CBD--Central business district. All regions (except for the U.S.) In our view, the discount-to-book-value approach continues to be the most appropriate for all regions, except for the U.S., with respect to stabilized properties. It is the best way to capture stabilized and nonstabilized property values for the purpose of estimating recovery prospects for creditors and in the case of European companies that report under IFRS. These standards require property book values stated in financial statements to be fair valued on an annual basis. As such, we base our recovery analysis on the book value as the starting point for assessing debt recoveries for creditors. However, as it is not uncommon for real estate developers across the world to use an income capitalization approach in valuing properties, including the determination of fair value under IFRS, we may use this approach in some instances when we consider it to be more appropriate, on a case by case basis, in lieu of the discount-to-book-value approach. In the U.S., property book values reflect the historical cost of the properties. Therefore, it is not fair-valued and does not necessarily reflect current market values unless the properties were recently acquired. As such, it is not the optimal value to use the book values as a base to determining debt recoveries for stabilized properties, except in some cases when the discount-to-book-value approach is the most appropriate for the recovery analysis. For nonstabilized properties such as land, properties under development or construction, and/or properties completed but in the process of leasing out its space, we generally use the discount-to-book value. Standard realization rates The standard realization rates assessed in our discount-to-book-value approach depend on certain characteristics of the properties and their operating performance. Table 16 Real Estate Property Realization Rate Ranges

PROPERTY TYPE	HIGH (%)	MEDIUM (%)	LOW (%)
Stabilized income-generating properties	70-80	60-70	40 - 60
Non-stabilized non-income-generating properties/land under development/construction	65-80	50-65	35-50
Land held for future development	60-75	45-60	30-45

Table 17 Real Estate Property Realization Rate Characteristics

PROPERTY TYPE	HIGH	MEDIUM	LOW
Stabilized income-generating properties	-- Low concentration of tenants -- High tenant rent coverage -- Strong regional economy -- High asset liquidity with minimal restrictions to complete the sale (for example, a very low or no portion of properties locked by a specific tenant) -- Moderate concentration of tenants -- Moderate tenant rent coverage -- Moderate asset valuation by the company than that held by third party -- Moderate strength regional economy -- Moderate asset liquidity some restrictions to complete the sale (for example, a moderate portion of properties locked by a specific tenant) -- High concentration of tenants -- Low tenant rent coverage -- Weak regional economy -- Low asset liquidity with substantial restrictions to complete the sale (for example, the owner cannot sell it in distress unless the tenant releases the property)		
Non-stabilized non-income-generating properties/land under development/construction	-- Less amount of time and capital needed to complete improvements and renovations -- Strong likelihood of potential tenant ramp-up based on demography/geography -- Lower level of speculative land acquisition or construction in progress -- Moderate amount of time and capital needed to complete improvements -- Moderate likelihood of potential tenant ramp-up based on demography/geography -- Moderate level of speculative land acquisition or construction in progress -- Higher amount of time and capital needed to complete improvements and renovations -- Moderate to low likelihood of potential tenant ramp-up based on demography/geography -- Higher level of speculative land acquisition or construction in progress		
Land held for future development	-- Prime location -- Low level of entitlement requirements -- Recently acquired -- Average location -- Moderate level of entitlement requirements -- Mothballed -- Poor location -- Lower level of entitlement requirements -- Mothballed		

All of the above--jurisdictional impacts and other factors that could affect the valuation -- Highly leveraged -- Low geographic concentration -- Diverse demographics -- Easy accessibility and convenience to property -- Strong regional economy/low volatility in housing prices -- Moderately leveraged -- Moderate geographic concentration -- Moderately diverse demographics -- Moderate accessibility and convenience to property -- Moderate regional economy/moderate volatility in

housing prices -- Moderately-lowly leveraged -- Moderate to high geographic concentration -- Homogenous demographics -- Difficult accessibility and convenience to property -- Weak regional economy/high volatility in housing prices

Prepetition Interest Rate Guidelines We generally use the following prepetition interest rates, which we also use in our interest calculations for exposure at default and the EBITDA proxy calculations. Benchmark rates Our prepetition interest rate consists of a benchmark rate plus a margin: LIBOR/SONIA (British pound): 3% EURIBOR (euro): 2.5% USD LIBOR/SOFR (U.S. dollar): 2.5% CHF LIBOR/SARON (Swiss franc): 1% SELIC (Brazilian real): 5% CETES (Mexican peso): 5% RBA (Australian dollar): 3% BOI (Israeli shekel): 3% When evaluating benchmark rates or regions not listed above, we attempt to estimate a benchmark rate based upon long-term median levels and cap the benchmark rates at 5%. Note: The benchmark rates for certain countries, usually in Group B jurisdictions (such as Brazil), have been capped at 5%. Total interest is also capped at 10% for these countries. Our margin assumptions for variable-rate debt with financial maintenance covenants are: The higher of the top of the pricing grid or 5% on first-lien debt, The higher of the top of the pricing grid or 8% on second-lien debt and junior debt, and The top of the pricing grid on asset-based loans.

Guidance On Operational Adjustments As discussed in paragraphs 84 and 86 of the criteria, estimated emergence EBITDA may understate or overstate the actual EBITDA that a reorganized company could earn. Typically, in such cases, the anchor recovery percentage would not adequately reflect a debt instrument's recovery prospects and we may consider making an operational adjustment. The prospective actual EBITDA the reorganized company could earn will depend on its sector and the unique attributes that determine its going-concern value and ability to reorganize successfully. Some of the indicators that emergence EBITDA might be over- or understated are listed below: Unusually high or low anchor recovery percentages compared with historical experience. Historical recoveries vary between sectors, but we would typically consider anchor recovery percentages for first-lien instruments of below 50% after capex adjustments to be unusual, unless explained by other company- or industry-specific factors, such as differences in fixed charges, multiples, or relative leverage, or priority claims such as pension obligations. Where a company's decline to emergence EBITDA differs substantially from that of its peers and this is not fully explained by other factors, such as differences in operating leverage, capital intensity, cyclicity, or revenue volatility. Anchor recovery percentages being low, despite high levels of asset coverage (that is, asset values we believe to be high relative to the company's leverage) or, conversely, high anchor recovery percentages where there is negligible asset coverage.

Revisions And Updates On June 4, 2018, we republished this guidance document to add the section titled "Guidance On Operational Adjustments" to provide more details about the circumstances under which we might apply analytical adjustments to first-lien debt instruments. On Nov. 22, 2019, we republished this guidance document to update the ranges in table 10 that we use to value independent power producers. The revised ranges reflect recent market trends and sales data. On Dec. 14, 2020, we republished this guidance document to update some of the cap rates in the "retail" sector of Table 15 and to update the reference to the newly published "CMBS Global Property Evaluation Methodology" guidance article on which we base Table 15. We also updated the "Related Criteria" and "Related Commentaries and Guidance" sections. On June 17, 2021, we republished this guidance document, in light of the phasing out of LIBOR, to update the list of leading benchmark interest rates that we may apply in our recovery analysis, as part of our prepetition interest rate assumptions.

Related Criteria Methodology For National And Regional Scale Credit Ratings, June 25, 2018 Recovery Rating Criteria For Speculative-Grade Corporate Issuers, Dec. 7, 2016 Methodology: Jurisdiction Ranking Assessments, Jan. 20, 2016 Issue Credit Rating Methodology For Nonbank Financial Institutions And Nonbank Financial Services Companies, Dec. 9, 2014 Corporate Methodology, Nov. 19, 2013 Methodology: Industry Risk, Nov. 19, 2013 Revised Assumptions For Assigning Recovery Ratings To The Debt Of Oil And Gas Exploration And Production Companies, Sept. 14, 2012 CMBS Global Property Evaluation Methodology, Sept. 5, 2012 Principles Of Credit Ratings, Feb. 16, 2011 Related Commentaries And Guidance Guidance: CMBS Global Property Evaluation Methodology, Mar. 13, 2019 Criteria And Guidance: Understanding The Difference, Dec. 15, 2017 Application Of CMBS Global Property Evaluation Methodology In U.S. And Canadian Transactions, Sept. 5, 2012