



Global REIT (Real Estate Investment Trust) Issuer Credit Rating Methodology

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Overview of Methodology

Morningstar's global issuer credit rating methodology for REITs is driven by four key components:

1. Our **Business Risk Score** encompasses various measures of a REIT's business risk, as well as Morningstar's proprietary Economic Moat™ and Uncertainty Ratings.
2. Our **Asset-Adjusted Cash Flow Cushion Score** is an evaluation of a REIT's ability to cover debt and interest obligations with cash, future free cash flows, and incremental borrowing capacity.
3. Our **REIT Solvency Score** is a predictor of default based on a REIT's liquidity profile, leverage, coverage, and profitability.
4. Our **Distance to Default Score** is a quantitative model that estimates the probability of a REIT falling into financial distress based on the market value and volatility of its assets.

Underlying our credit ratings for REITs is a fundamentally focused methodology, a robust, standardized set of procedures, and core financial risk and valuation tools used by Morningstar's securities analysts. Based on other qualitative and quantitative factors (e.g. positive/negative trends in various metrics, upcoming corporate actions, etc.), analysts and the credit rating committee will also discuss, and potentially adjust, our model's recommended score appropriately. All of our credit ratings are reviewed and approved by the credit rating committee.

I. Business Risk Score

The **Business Risk Score** for REITs is similar to the scoring system used for nonfinancial companies. However, we place substantial emphasis on REIT-specific considerations within each of the underlying rating factors contributing to this score.

Two separate component scores converge to form our final Business Risk Score: Country Risk and Company Risk. Once we assign these two component scores, we weight them as follows to determine the overall Business Risk score for each REIT

Country Risk: 10%
Company Risk: 90%

Country Risk

No matter how solid a REIT's balance sheet, if it operates in an unstable political or economic environment, it deserves a lower credit rating than a similar firm operating under more benign conditions. We capture our

assessment of this consideration by assigning each REIT a score between 1 and 25 (25 being best) for this measure.

Company Risk

Size (1-10 points)

We believe that firm size is relevant in assessing credit quality, as larger REITs tend to have greater financial flexibility to sell non-core properties and focus resources on better-performing assets. Due to the sizeable levels of EBITDA relative to a REIT's revenue, we use EBITDA as a measuring stick for the group to better compare REITs to the rest of our credit coverage universe. The following breakpoints are set such that a REIT will receive the same size score as the average nonfinancial firm with similar EBITDA levels:

- 1 point: EBITDA less than \$46 million
- 2 points: EBITDA between \$46 million and \$115 million
- 3 points: EBITDA between \$115 million and \$230 million
- 4 points: EBITDA between \$230 million and \$414 million
- 5 points: EBITDA between \$414 million and \$690 million
- 6 points: EBITDA between \$690 million and \$1.04 billion
- 7 points: EBITDA between \$1.04 billion and \$1.61 billion
- 8 points: EBITDA between \$1.61 billion and \$2.99 billion
- 9 points: EBITDA between \$2.99 billion and \$5.75 billion
- 10 points: EBITDA greater than \$5.75 billion

Economic Moat (1-10 points)

An essential part of our company analysis is the Economic Moat rating, which encapsulates our view of a company's competitive advantages and ability to earn excess returns on capital. Since the bulk of a REIT's revenue must come from rent, it stands to reason that a REIT's moat is derived from our assessment of its ability to impose steady, ever-increasing rents on its tenants. Moreover, these rents have to be in excess of the rate of inflation; otherwise, investor returns aren't keeping pace with the debasement of the dollar.

Each property type generates rent differently, so our assessment of moats may vary. For property types that are dependent upon short-term leases, such as apartments, hotels, and storage, geographic location and property quality are the main determinants. In addition to property location and quality, for property types that engage in long-dated tenant leases, such as healthcare, office, and retail, a well-underwritten lease with contractual rent increases or profit sharing agreements is as important. In our view, these sources of long-term rent growth--location and lease terms-- are examples of the network effect and high switching costs, respectively. Economies of scale do not readily determine rent levels, so we assign that less value as a moat source. With respect to intangibles, legal and accounting intangibles don't mean much in the real estate sector, but competitive intangibles, such as management skills, are paramount. Indeed, dependence on management is a reason we hesitate to assign a wide moat in the REIT sector. Relative to most other industries, REITs operate with higher leverage and lower liquidity, which means a credit crunch can destroy

an ill-prepared REIT. Moreover, tenants of all stripes gain negotiating power over landlords when real estate cycles trough. Skilled management is needed to head off the balance sheet and revenue risks inherent in operating as a REIT.

Our moat rating translates to the following scores:

- 1 point: No Moat
- 5 points: Narrow Moat
- 10 points: Wide Moat

Uncertainty Rating (1-10 points)

We place considerable emphasis on assessing the stability of a REIT's cash flows, the structure of its leases (long vs. short-term), the quality of its properties/assets, the financial health of its tenants, the use and transparency of joint-ventures, as well as the risk associated with its development and acquisition pipeline. We assign a score based on a REIT's Equity Uncertainty Rating, as determined by our analysts:

- 1 point: Extreme Uncertainty
- 2.5 points: Very High Uncertainty
- 5 points: High Uncertainty
- 7.5 points: Medium Uncertainty
- 10 points: Low Uncertainty

Product/Customer Concentration (1-5 points)

In our assessment of concentration risk, we consider on a case-by-case basis, a REIT's tenant and geographic diversification. Whether geography or tenant risk takes precedence largely depends upon property type. Generally speaking, a portfolio which relies on just one or two metropolitan areas for the majority of rent or net operating income (NOI) would be considered less diverse, and would score relatively worse. We would draw a similar conclusion with regard to a landlord that relied upon one or two tenants for the majority of rent or NOI. In contrast, a landlord which has diversity across multiple geographic locales and bears less than 30% exposure to its top five tenants and 10% to its largest tenant, would score well.

For example, in Equity Residential's case, we assign it four points out five, since its 133,000 apartments are spread across 18 states and Washington, DC. In contrast, we assign Senior Housing Properties Trust one point out of five, since it relies on a single tenant for around half of annualized rents. Across our coverage, apartment, storage, and retail landlords generally scored higher than office, hotel, and healthcare landlords on this metric.

Stewardship Grade (1-5 points)

Our analysts assign each REIT we cover a Morningstar Equity Stewardship Grade of A through F. The Stewardship Grade captures our view of a company's transparency, board independence, incentives and

ownership, and investor friendliness. Analysts may then adjust the Morningstar Equity Stewardship Grade to account for debtholders' interests.

- 1 point: Very Poor Stewardship (~F)
- 2 points: Poor Stewardship (~D)
- 3 points: Fair Stewardship (~C)
- 4 points: Good Stewardship (~B)
- 5 points: Excellent Stewardship (~A)

Dependence on Capital Markets (1-5 points)

REITs are capital intensive businesses and their ability to retain excess cash is extremely limited by mandatory dividends that amount to 90% of taxable income. Due to constraints on retaining excess cash, almost all acquisition and development growth is financed through external sources – selling shares or increasing balance sheet leverage. As such, all REITs in our universe receive a score of 1 or 2 for this measure, with the final assessment based on a qualitative assessment of the firm's debt maturity profile and growth plans. We also capture the constraints put on a REIT's ability to retain excess cash and its dependence on capital markets via material cash dividend outflows within our Asset-Adjusted Cash Flow Cushion, an emphasis we feel is appropriate.

- 1 point: Highly dependent on capital markets
- 2 points: Less dependent on capital markets
- 3 points: N/A
- 4 points: N/A
- 5 points: N/A

Cyclicality of Operations (1-5 points)

In assessing REITs' cyclicality of operations, we evaluate each REIT's historical performance during poor economic environments and how we think it will perform during similar economic periods in the future. Generally, we expect the average REIT to suffer slight declines in same-store net operating income (a measure of internal growth) during poor economic times, and this is our baseline for assessing cyclicality. REITs that have a track record of experiencing internal growth in difficult economic environments are viewed more favorably, and REITs with larger than mid-single-digit declines in same-store net operating income during difficult times are viewed less favorably.

- 1 point: REITs with double-digit contraction in same-store NOI (or rents in the case of hotels)
- 2 points: REITs with mid-single-digit to double-digit contraction in same-store NOI
- 3 points: REITs with slight contraction in same-store NOI
- 4 points: REITs with increases in same-store NOI
- 5 points: N/A

For example, in Host Hotels' case, we assign it one point because its revenue per available room fell by over 20% peak to trough, and we would expect it to perform similarly in future cycles. In contrast, we assign Vornado four points because it exhibited consistent internal growth through the most recent downturn, a resilience we expect to continue under future adverse economic scenarios.

II. Asset-Adjusted Cash Flow Cushion

We make a few modifications to the Cash Flow Cushion™ used to rate nonfinancial firms in assessing the default risks of REITs. (Please view our nonfinancial issuer credit rating methodology for more information on the Cash Flow Cushion™.) By considering the value of a REIT's property portfolio (gross property, plant, and equipment), we estimate the collateral available for a lender to lend against, either explicitly using secured debt or implicitly through unsecured debt and associated covenants. Through assumptions, including approximations of market values for a REIT's property portfolio and acceptable loan-to-value ratios, we assess a REIT's incremental borrowing capacity to address asset-supported refinancing prospects for upcoming debt maturities or other liquidity concerns. Depending on our assessment of the market value of property assets and the relationship between a REIT's secured and unsecured debt balances, the asset adjustment captures the incremental mortgage capacity of a REIT to better gauge a REIT's liquidity or refinancing risk. For example, aggressive assumptions such as high asset values and loan-to-value ratios will create a larger borrowing base, increasing the likelihood that the asset adjustment will offset future debt maturities or other liquidity concerns, thereby increasing the Cash Flow Cushion™.

We use the following loan-to-value ratios for each property type:

Hotels: 45%
Self-storage: 55%
Apartments: 60%
Offices: 55% to 62%
Healthcare: 55%
Retail: 50% to 60%

We assume, therefore, that a retail REIT with no unsecured debt at a 50% loan-to-value ratio would be able to acquire mortgage financing equal to 50% of its estimated market value of properties. If the REIT's mortgage debt were less than 50% of our estimate of its properties' value, the REIT would receive a net benefit in the Cash Flow Cushion™, as we assume that the REIT could--if needed--leverage up to a 50% loan-to-value ratio.

For each dollar in unsecured debt that a REIT has outstanding, its estimated market value of leveragable assets (against which we apply its loan-to-value ratio) decreases by \$1.50. (A common covenant related to REITs' unsecured debt requires that the REIT maintain an unencumbered asset base equal to 150% of the face value of its unsecured debt.)

Consider the case of Realty Income, below. Recently, Realty Income had a book value of properties (i.e., Total Book Value of Potentially Leverageable Assets) of \$3.871 billion. We estimated its market value of properties (i.e. Total Adjusted Value of Potentially Leverageable Assets) to be \$4.858 billion, or 125% (i.e., Premium/Discount Applied to Book Value of Assets) of its properties' carrying value. We estimated the acceptable loan-to-value ratio on its estimated \$4.858 billion market value of properties to be 24% (i.e., Acceptable Loan-to-Value Ratio) in 2010. To get to 24%, we assumed a 50% loan-to-value ratio for asset-level mortgage debt and considered Realty Income's outstanding unsecured debt of \$1.655 billion. Although this \$1.655 billion is technically unsecured it nonetheless limits Realty Income's ability to incur mortgage debt. We assume that Realty Income needs to keep unencumbered assets amounting to 150% of its outstanding unsecured debt, which implies that \$2.483 billion (i.e., 150% times \$1.655 billion) of Realty Income's properties were already spoken for by its unsecured borrowing. So, we applied the estimated 50% loan-to-value assumption for asset-level mortgage debt to \$2.375 billion (i.e., \$4.858 minus \$2.483), which is the estimated value of properties that were not already spoken for by unsecured borrowing. Specifically, 50% times \$2.375 billion implies that Realty Income could incur up to \$1.188 billion (i.e., Total Potential Financing Capacity, less Total Debt) in mortgage debt, considering its estimated market value of properties, an assumed 50% loan-to-value ratio for mortgages, and its \$1.655 billion level of outstanding unsecured debt. By dividing \$1.188 by \$4.858, we get 24% as an Acceptable Loan-to-Value Ratio on its Total Adjusted Value of Potentially Leverageable Assets. This \$1.188 billion is the incremental potential borrowing capacity we assumed for Realty Income in our Asset-Adjusted Cash Flow Cushion™ analysis:

CASH FLOW CUSHION ASSET ADJUSTMENTS					
	2010	2011	2012	2013	2014
Total Book Value of Potentially Leverageable Assets	3,871	4,124	4,127	4,131	4,134
Premium/Discount Applied to Book Value of Assets	125%	125%	125%	125%	125%
Total Adjusted Value of Potentially Leverageable Assets	4,858	5,176	5,180	5,183	5,187
Acceptable Loan-to-Value Ratio	24%	22%	22%	22%	22%
Total Debt	1,655	1,905	1,905	1,905	1,905
Unsecured Debt	(1,655)	(1,905)	(1,905)	(1,905)	(1,905)
Mortgage Debt	0	0	0	0	0
Total Potential Financing Capacity, less Total Debt	1,188	1,160	1,161	1,163	1,165
Asset-adjusted Potential Borrowings or (Repayment)	-	-	-	100	-
Remaining Potential Borrowing Capacity	1,188	1,160	1,161	1,063	1,065

III. REIT Solvency Score

Any issuer credit rating system would be remiss to ignore a REIT's current financial health as represented by some key financial ratios. In our process to arrive at the Solvency Score for nonfinancial firms, we used binary logistic regression analysis to evaluate the predictive ability of several financial ratios commonly believed to be indicative of a company's financial health.

Financial ratios can describe four main facets of a company's financial health: liquidity (a company's ability to meet short term cash outflows), profitability (a company's ability to generate profit per unit of input), capital structure (how does the company finance its operations?), and interest coverage (how much of profit is used up by interest payments). The Morningstar Solvency Score for nonfinancial firms includes one ratio from each of these four categories.

Based on the significant backtesting performed in developing our Solvency Score for nonfinancial firms, we used these four categories – liquidity, capital structure, interest coverage, and profitability -- as the starting point for the derivation of our REIT Solvency Score. Morningstar analysts then identified the most informative REIT-specific ratio to assign to each category. The corresponding weights attached to each ratio were then set to improve the final REIT Solvency Score's predictive ability regarding REIT default risk, based on our historical backtesting of the sector. As with our Solvency Score for nonfinancial firms, the components of the REIT Solvency Score should not be evaluated in isolation, but instead, combined and weighted to arrive at a more complete view of REIT credit quality.

Liquidity (~50 weighting)

$$\frac{\text{EBITDA}(\text{yr1}) + \text{EBITDA}(\text{yr2}) + \text{Available Revolver Capacity}}{\text{Debt Maturity}(\text{yr1}) + \text{Debt Maturity}(\text{yr2})}$$

A full assessment of liquidity and refinancing risk is captured within our Asset-Adjusted Cash Flow Cushion, which provides a full analysis of a REIT's cash inflows and outflows as well as an assessment of incremental borrowing capacity to meet future financial obligations. Because this in-depth sources and uses of cash analysis is already captured within our rating framework for REITs in the Asset-Adjusted Cash Flow Cushion, we did not attempt to replicate the features of the Asset-Adjusted Cash Flow Cushion™ in arriving at our liquidity ratio for REITs. Instead, we view our liquidity ratio as a ranking mechanism to gauge a REIT's future earnings power and available revolver capacity to pay down near-term debt maturities, absent any outflows related to capital expenditures, which can temporarily be limited during times of stress. Used in conjunction with the other three ratios, the liquidity measure enhances the effectiveness of the REIT Solvency Score in differentiating between REITs with poor credit quality that eventually defaulted from those that remained in good health, based on our historical backtesting. EBITDA is applied in the calculation of the liquidity measure to increase comparability of a REIT's earnings power across different accounting regimes.

Capital Structure (~22.5% weighting)

$$\frac{\text{Net Debt}(\text{yr1})}{\text{EBITDA}(\text{yr1})}$$

We employ this traditional industry measure of leverage in our analysis of REITs.

Interest Coverage (~22.5% weighting)

$$\frac{\text{EBITDA}(\text{yr1})}{\text{InterestExpense}(\text{yr1})}$$

We assess the ability of a REIT to cover interest with EBITDA.

Profitability (~5% weighting)

$$\frac{\text{Earnings before interest}(\text{yr1})}{\text{Invested Capital}(\text{yr1})}$$

We employ ROIC, the same measure we use to assess profitability for nonfinancial firms, as the ranking mechanism to assess a REIT's earnings power relative to the amount of capital put in place.

IV. Distance to Default Score

Merton describes the rationale and methodology for structural models of default. Suffice it to say that the underlying premise in such models is that default occurs when the market value of the firm's assets falls below a certain level of the firm's liabilities or "default barrier". Since the market value of the firm's assets cannot be observed, a modified European call option for dividend paying stocks was used to establish a relationship between the market value of the firm's assets, its volatility, and the firm's market value of shareholders' equity.

As long as the firm's market value of assets is less than the book value of its liabilities, the market value of shareholders' equity is zero, and firm's assets are claimed by bondholders. On the other hand, if the market value of the firm's assets exceeds the firm's liabilities, assumed to be equivalent to the notional principal of a risk free zero-coupon bond, shareholders receive the residual value, while their payoff increases linearly with the firm's market value of its assets. The calculation employed in the distance to default measure for REITs is identical to that used for nonfinancial firms, and the breakpoints used to determine the relative score for each REIT is based on a set of dynamic breakpoints determined by our nonfinancial universe.

Recommended Credit Ratings

A REIT's Business Risk, Asset-Adjusted Cash Flow Cushion Score, REIT Solvency Score, and Distance to Default scores are combined as shown in the equation below:

$$\text{CreditScore} = (3.5 \times DD) + (3.5 \times SS) + (8 \times BR) + (\text{MAX}(DD, SS, BR) \times ACC)$$

Where:

DD = Distance to Default Score

SS = Solvency Score™

BR = Business Risk Score

ACC = Asset-Adjusted Cash Flow Cushion Score™

Our backtesting results suggest that Solvency Score™ (and by extension, its REIT-specific variant) and Distance to Default score have enhanced predictive ability when combined in equal weights. Business Risk holds greater weight than these quantitative measures, given the significant influence that company and industry risks have on a REIT's overall credit health and ability to meet future obligations. The equation is constructed with the Asset-Adjusted Cash Flow Cushion™ having a coefficient dependent on the values of the other variables because it will place greater importance on the Asset-Adjusted Cash Flow Cushion™ in levered scenarios. This construct is helpful because the Asset-Adjusted Cash Flow Cushion™ should have the fewest false positives of any of the main elements. However, the Asset-Adjusted Cash Flow Cushion™ is also subject to analyst forecasts, which can contain modeling errors. In situations deemed "safe" by the DD, SS, and BR, the Asset-Adjusted Cash Flow Cushion™ will have less weight in order to minimize the effect any possible modeling errors. We expect the Asset-Adjusted Cash Flow Cushion™ to have fewer false positives because it describes the forecasted cash inflows and outflows coupled with an assessment of incremental borrowing capacity for a REIT. Since this analysis represents the actual ability of a REIT to repay or refinance its obligations, the Asset-Adjusted Cash Flow Cushion™ should be the best absolute predictor of financial distress in our arsenal of scores.

The four underlying pillars are transformed into scores from 1 to 10 (10 being worst) based on breakpoints calculated with historical distributions of each data point, except for the Distance to Default measure where we employ dynamic breakpoints:

Credit Rating [Score]	Description
AAA [16-23]	Extremely low default risk. Issuers rated AAA typically operate wide moat, low uncertainty businesses and can easily cover all outstanding maturities with cash on hand and one year's worth of free cash flow.
AA [23-61]	Very low default risk. Issuers rated AA tend to be wide or narrow moat companies with low to medium uncertainty and a Morningstar Cash Flow Cushion™ that affords a very wide margin of safety against adverse developments.
A [61-96]	Low default risk. Issuers rated A typically include wide or narrow moat companies with medium to high uncertainty and a Morningstar Cash Flow Cushion™ that affords a wide margin of safety against adverse developments.
BBB [96-142]	Moderate default risk. Issuers rated BBB typically include narrow or no moat companies with medium to very high uncertainty and a Morningstar Cash Flow Cushion™ that affords a modest margin of safety against deteriorating business conditions.
BB [142-174]	Above average default risk. Issuers rated BB typically include no moat companies with high to very high uncertainty and a Morningstar Cash Flow Cushion™ that affords a minimal margin of safety against deteriorating business conditions.
B [174-199]	High default risk. Issuers rated B typically include no moat companies with very high uncertainty and a Morningstar Cash Flow Cushion™ that indicates significant dependence on favorable business conditions.
CCC	Currently very high default risk. Issuers rated CCC typically include no moat companies with very high uncertainty and a Morningstar Cash Flow Cushion™ that indicates significant dependence on favorable business conditions to avoid default or significant capital restructuring.
CC	Currently extreme default risk. Issuers rated CC typically include no moat companies with very high or extreme uncertainty and a Morningstar Cash Flow Cushion™ that indicates extreme dependence on favorable business conditions to avoid default or significant capital restructuring.
C	Imminent payment default. Morningstar's C rating captures issuers that we believe will encounter default in the very near term, including those firms that have entered into a grace period following a skipped payment of an obligation.
D	In Default. Morningstar reserves a D rating for companies that have defaulted in fact or have declared bankruptcy.

Based on relevant firm-specific conditions (including an assessment of the timing to potential default), the credit rating committee will make an assessment of whether a REIT should receive a final alpha score below

B-, if the model-driven score suggested a lower grade. All of our ratings are reviewed and approved by the credit rating committee.