Overview of Methodology

Morningstar’s Credit Ratings ("Morningstar") credit rating process builds upon the knowledge of companies, industries, and financial markets that Morningstar has been accumulating for more than a decade. Morningstar’s credit rating methodology is forward-looking and based on fundamental company research including but not limited to our expectations of future cash flows.

Morningstar’s corporate credit rating methodology is both quantitative and qualitative. Four key components drive the Morningstar credit rating methodology and Credit Ratings Model:

1) Business Risk, which encompasses the proprietary Morningstar Economic Moat™ and Uncertainty assessment along with six other country and industry risk factors.
2) Morningstar Cash Flow Cushion™, a set of proprietary, forward-looking measures based on our analysts' forecasts of cash flows and financial obligations.
3) Morningstar Solvency Score™, a proprietary scoring system that incorporates a firm's leverage, liquidity, coverage ratios, and profitability.
4) Distance to Default, a quantitative model that rank-orders firms based on their likelihood of financial distress using market-based inputs.

A company’s scores in each area are factored into our final corporate credit rating. The consolidated corporate rating, or CCR, is our estimate of the consolidated corporation’s total economic capacity to meet all of its financial obligations as they come due and in accordance with their terms. The CCR assumes that all the resources of the consolidated corporation are available to meet those obligations, including the assets of its foreign subsidiaries, its shares in joint ventures, and investments in other entities. The CCR would be the rating of the ultimate parent’s senior unsecured debt assuming that is the only class of debt; that all debt is issued by the ultimate parent level and guaranteed by all subsidiaries; and all of the domestic and foreign assets of the corporation were available to service that debt.

Underlying this rating are a fundamentally focused methodology, a robust, standardized set of procedures, and core financial risk and valuation tools. The fundamental tools are as follows:

1) Morningstar’s cash flow model, which integrates income statement and balance sheet projections to produce five-year cash flow forecasts for scenario analysis.
2) Morningstar’s credit rating model, which combines the qualitative and quantitative risk measures of the four key components to produce a credit model rating, is the initial basis for the credit committee’s determination of the final credit rating. The credit rating model is a method for integrating credit analysts’ fundamental research in a consistent manner across industries to produce a credit model rating as a key input into the credit rating process.

3) A rigorous rating committee process through which the final rating is determined.

**Business Risk Evaluation**

There are two key elements that comprise our assessment of a firm’s business risk: economic moat analysis and uncertainty analysis.

**Morningstar Inc. Economic Moat™**

When it comes to company risk, our assessment of a firm’s economic moat is one of the most important factors. The concept of an economic moat plays a vital role in our qualitative assessment of a firm’s long-term cash generation potential and therefore in the determination of the final credit rating.

According to Morningstar, Inc.’s equity research methodology [see http://corporate.morningstar.com/US/ for access], the Morningstar Economic Moat™ is a term to describe the sustainability of a company’s future economic profits. Economic profit is defined as returns on invested capital over and above the estimate of a firm’s cost of capital, or weighted average cost of capital. Competitive forces in a free-market economy tend to chip away at firms that earn economic profits, because eventually competitors attracted to those profits will employ strategies to capture some of those excess returns. The primary differentiating factor among firms is how long they can hold competitors at bay. Only firms with economic moats—something inherent in their business model that rivals cannot easily replicate—can achieve excess returns for a prolonged period. Firms with moats also have a buffer against adverse events such as cyclical downturns or management mistakes. Many highly rated companies have economic moats. However, even companies with no moat can achieve investment-grade credit ratings through conservative capital structure and good stewardship of the business.

Morningstar, Inc. assigns one of three economic moat scores: none, narrow, or wide. There are two major requirements for a firm to earn a narrow or wide score: the prospect of earning above-average returns on capital and some competitive edge that prevents these returns from quickly eroding. To assess the sustainability of excess profits, Morningstar, Inc.’s equity research analysts perform ongoing assessments of what is called the Morningstar Moat Trend™. A firm’s moat trend is positive in cases where its competitive advantage is growing stronger, stable when changes to the moat over the next several years are not anticipated and negative when signs of deterioration are foreseen. A negative or positive trend does not necessarily signify that a moat will change, but that the company’s competitiveness is deteriorating or improving.
As part of the credit rating committee's determination of the final assigned corporate credit rating, the committee may adjust the published Morningstar Inc. Economic Moat™ score as part of its analysis of the sensitivity of the credit risk to potential changes in the economic moat.

Morningstar, Inc. Uncertainty Assessment
Morningstar, Inc.'s Uncertainty assessment represents our ability to forecast the enterprise value of a company, based on the characteristics of the business. Our framework classifies the uncertainty around company value into four simplified conceptual elements: range of sales, operating leverage, financial leverage, and contingent events. Some industries require special adjustments to this formula, but the basic framework remains the same: bounding the range of the value of the firm determined by long-term cash flows. From a debtholder's perspective, the Uncertainty assessment measures the stability and reliability of the “equity cushion” at the bottom of the capital structure.

As part of the credit rating committee's determination of the final assigned corporate credit rating, the committee may adjust the published Morningstar Inc. Uncertainty assessment as part of its analysis of the sensitivity of the credit risk to potential changes in the Uncertainty assessment.

Assessing Financial Risk
To evaluate financial risk, we score companies on the following three metrics:

Morningstar Cash Flow Cushion™
- Our proprietary Morningstar Cash Flow Cushion™ ratio gives us insight into whether a company can meet its capital obligations well into the future. We make adjustments to our forecasts of the firm's operating cash flow to derive its cash available for servicing its obligations and compare our forecasts for that cash with the company's future debt and debt-like obligations.

Morningstar Solvency Score™
We consider several ratios when assessing a firm's financial strength, including the amount of a company's debt and debt-like obligations relative to its assets, the firm's total obligations load compared with its cash flow over the next five years, and liquidity against near-term obligations. In addition to examining these ratios in past years, our analysts explicitly forecast the cash flows we think a company is likely to earn in the future and consider how these balance sheet ratios will change over time. In addition to industry-standard measures of profitability (such as profit margins and returns on equity), we focus on return on invested capital as a key metric when determining whether a company's profits will benefit debt and equity holders. At Morningstar, we have been focusing on returns on invested capital to evaluate companies for more than a decade, and we think it is particularly important to understand a firm's ability to generate adequate returns on capital in order to accurately assess its prospects for meeting debt obligations and other fixed obligations.

Distance to Default
Morningstar's quantitative distance to default measure ranks companies on the likelihood that they will tumble into financial distress. The measure is a model of the percentile of a firm's leverage (ratio of enterprise value to market value), the percentile of a firm's equity volatility relative to the rest of the
universe, and the interaction of these two percentiles. This is a proxy methodology for the common
definition of distance to default, which relies on option-based pricing models. The proxy has the benefit
of increased breadth of coverage, greater simplicity of calculation, and more predictive power.

**Modeling Cash Flows**

Analyzing current and past financial statements is important, but a company's ability to meet its debt
obligations can't be determined by gazing in the rearview mirror. That's why our credit analysts establish
a detailed projection of a company's future cash flows, resulting from our analysts' independent primary
research. Analysts make numerous detailed assumptions about items such as revenue, profit margins,
tax rates, changes in working capital accounts, capital spending, financing requirements, and potential
cash flow generation. These income-statement, balance-sheet, and cash flow assumptions are fed into
our standardized, proprietary discounted cash flow modeling templates. We use scenario analysis and a
variety of other analytical tools to augment this process. The vast majority of our covered firms are
forecast using a standard operating company model. But we have also developed specialized models for
determining credit ratings for banks and other depository financial institutions.

**Scenario Analysis**

A core part of our research process is to perform scenario analysis on each company we cover. Our
analysts typically present three model scenarios (base, upside and downside) to the rating committee,
stress-testing the model and examining the distribution of resulting cash flows and credit model ratings.
Such scenario analysis incorporates each analyst's assessment of both business and financial risk. The
rating committee typically considers additional scenarios during the meeting, adjusting individual rating
pillar scores to determine their impact on cash flow and the credit model score. As part of the credit-
rating review process, our credit analysts and credit rating committee pay particular attention to the
downside scenarios and the company's flexibility in meeting its financial obligations in such scenarios.

**Assigning the Final Corporate Credit Rating**

We use our assessment of a firm's Business Risk, Cash Flow Cushion™, Solvency Score™, and Distance to
Default to arrive at a preliminary quantitative "model" credit rating for the firm. Our process for assigning
final credit ratings is as follows:

1) We derive the preliminary model credit rating based on our proprietary credit rating methodology and
credit rating model.
2) The credit analyst presents the model-driven corporate credit rating to Morningstar's credit rating
committee. The analyst can recommend a higher or lower rating than the model-driven rating, but the
ultimate decision rests with the committee.
3) The credit committee has the discretion to accept or reject the analyst's recommendation and to
assign a rating that may be higher or lower than either the model rating or the analyst's
recommendation. All changes to credit ratings are approved by the credit rating committee.

The analyst monitors company and industry developments to determine if they are material to the credit
rating. If the credit analyst believes that the model-driven rating indicates that a change in the credit
rating may be warranted, or if the analyst has other information that may warrant a change in the credit rating, the analyst will present the changes to the rating committee.

We place considerable emphasis on using both qualitative and quantitative analysis to arrive at our credit ratings. We apply weightings to each factor we consider, placing sizable weight on some of the proprietary metrics we have honed over time, including economic moat. We rate firms on an industry standard scale. See Morningstar Credit Ratings Definitions and Other Related Opinions and Identifiers for details.

**Components of Our Credit Ratings Model**

The credit rating model for nonfinancial corporations is described below. For details of the credit-scoring model for banks, see the Bank Rating Methodology document. The process for rating banks is the same as for nonfinancial corporations except for the different credit scoring models used for those sectors and the substitution of a balance sheet stress test for the Cash Flow Cushion.

The following inputs to our credit rating model are provided by Morningstar, Inc.: Economic Moat, Uncertainty assessment and Distance to Default.

**Business Risk**

Two separate scores combine to form our 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 company: Country Risk 10%; Company Risk 90%

**Country Risk**

No matter how solid a company's finances, 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. For those companies that are domiciled outside the United States, or that have significant foreign operations, we incorporate an evaluation of country risk where appropriate. We assign each country a score of 1 to 25 (with 25 the highest) based on Morningstar's assessment of the cost of equity in foreign countries as well as potential credit implications from political instability, legal system, interest rates, inflation stability, robustness of the financial markets/strength of banking system, and credit history where relevant.

**Company Risk**

We score each company on eight company-specific risk factors. The emphasis here is on the inherent characteristics of the firm regardless of its current capital structure and financial strength (which we capture with other measures). Measures such as the economic moat and uncertainty rating also contain an inherent industry element. Some industries are more conducive to economic moats than others, and some industries have inherently higher levels of uncertainty about future cash flow.
Morningstar Economic Moat™

An essential part of our company analysis is the Morningstar Inc. Economic Moat™, which encapsulates our view of a company's competitive advantages and ability to earn excess returns on capital over time. We assign a score based on a company's economic moat rating, as determined by Morningstar's equity analysts. As part of the credit rating committee's determination of the final assigned corporate credit rating, the committee may make adjustments to the economic moat score or conduct an analysis regarding the sensitivity of the credit risk to potential changes in the economic moat.

<table>
<thead>
<tr>
<th>Moat</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide</td>
<td>10</td>
</tr>
<tr>
<td>Narrow</td>
<td>5</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
</tr>
</tbody>
</table>

Uncertainty

We assign a score based on a company's Uncertainty assessment, as determined by MCI's equity analysts. Morningstar Inc. equity analysts assign Uncertainty scores based on their estimation of the range of possible revenue, the company's operating leverage, and the company's financial leverage during the next three years. As part of the credit rating committee's determination of the final assigned corporate credit rating, the committee may make adjustments to the Uncertainty score or conduct an analysis regarding the sensitivity of the credit risk to potential changes in uncertainty.

We assign the scores as follows:

<table>
<thead>
<tr>
<th>Uncertainty</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>10</td>
</tr>
<tr>
<td>Medium</td>
<td>7.5</td>
</tr>
<tr>
<td>High</td>
<td>5</td>
</tr>
<tr>
<td>Very High</td>
<td>2.5</td>
</tr>
<tr>
<td>Extreme</td>
<td>1</td>
</tr>
</tbody>
</table>

Size

Smaller companies are inherently less stable, and more vulnerable to financial distress, than are larger firms. We assign companies a score based on revenue as follows:

<table>
<thead>
<tr>
<th>Annual Revenue</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than $25 billion</td>
<td>10</td>
</tr>
<tr>
<td>Between $13 billion and $25 billion</td>
<td>9</td>
</tr>
<tr>
<td>Between $7 billion and $13 billion</td>
<td>8</td>
</tr>
<tr>
<td>Between $4.5 billion and $7 billion</td>
<td>7</td>
</tr>
<tr>
<td>Between $3 billion and $4.5 billion</td>
<td>6</td>
</tr>
<tr>
<td>Between $1.8 billion and $3 billion</td>
<td>5</td>
</tr>
</tbody>
</table>
We occasionally make adjustments to the size score for special situations in which revenue is not the only relevant measure of size that provides a Cash Flow Cushion™. For example, a firm with a large top line but razor-thin margins could merit a lower score than its revenue alone would indicate. Alternatively, a small firm with large and stable margins may be the equivalent of, in terms of cash flow stability, a much larger firm with smaller or variable margins.

**Product and Customer Concentration**
An important factor in the stability of a company’s future revenue and profits is the diversification of both its product portfolio and its customer base. All else being equal, a company with a wide variety of products sold to a variety of end markets is less subject to economic or regulatory shocks than is a more narrowly focused company. Our analysts assign a concentration score to their companies on a scale of 1 to 5, with diversified firms scoring a 5, and companies with a single product or narrow base of customers scoring a 1.

**Management**
Our analysts assign each company we cover a management score of 1 to 5. The score captures our view of a company’s transparency, financial prudence, and management credibility. We place particular emphasis on how conservatively a management team is managing its balance sheet, its policies with regard to share buybacks and dividends, its tendency toward mergers and acquisitions activity, and other factors affecting bondholders. We also consider whether the firm does what it says it is going to do with respect to the balance sheet: Has it surprised bond holders (in a bad way) in the past? Is management willing to make hard choices (e.g., cut the dividend or dilute equity) in order to maintain its financial health?

Those firms for which our view of management is neutral receive a score of 3. Modestly positive or negative views result in a score of 4 or 2, respectively, while scores of 5 or 1 are reserved for extreme cases of good or bad creditor treatment.

**Dependence on Capital Markets**
Each company is scored on its need to access the capital markets over our five-year forecast horizon, using the Cash Flow Cushion™ model to estimate its need for external financing. Because capital markets are inherently unpredictable, a company whose survival depends on them is more at risk than a company that can ignore the whims of the market. If the company definitely must have access to capital markets during the next five years, it scores a 1. If it could easily continue to operate if all capital markets closed for five years, it scores a 5.
Cyclicality of Operations
The greater the economic sensitivity of a firm, the more likely it is to go bankrupt, all else being equal. Our analysts assess the cyclicality of each firm’s operations and assign a score to those companies on a scale of 1 to 5. An extremely cyclical firm such as an airline may receive a score of 1, while a stable utility may receive a score of 5.

Other Company Risk Factors
For factors that the analyst or credit rating committee think are not adequately captured within one of the other business risk metrics, we will occasionally make an entry into the other company risk factor score.

The Morningstar Cash Flow Cushion™
The Cash Flow Cushion™ ratio is a fundamental indicator of a firm’s future financial health and is a key component of the Morningstar credit rating. The measure reveals how many times over a company’s internal cash generation plus total excess liquid cash will cover its debt-like contractual commitments over the next five years. At its core, the Cash Flow Cushion™ acts as a predictor of financial distress, bringing to light potential refinancing, operational, and/or liquidity risk inherent to the firm.

Summing cash flows over the next five years implicitly assumes that financial markets are functioning, so that a solvent company has sufficient short-term flexibility to refinance a temporary liquidity shortfall (such as a large single maturity in excess of free cash flow or cash on hand) at its existing cost of capital. However, analysts also look at the yearly Cash Flow Cushion™ to test the vulnerability of the company to capital markets’ disruption in any single year of the forecast period.

The advantage of the Cash Flow Cushion™ ratio relative to other fundamental indicators of credit health is that the measure focuses on the future cash-generating performance of the firm via Morningstar’s proprietary cash flow model. By reclassifying fixed or contractual cash expenses as liabilities to reflect their debt-like characteristics, our analysts compare future projected free cash flows with debt-like cash commitments coming due in any particular year. The forward-looking nature of this metric allows the analyst to better anticipate changes in a firm’s financial health and pinpoint when and how often cash shortfalls are likely to occur. Here is the formulaic representation of the Cash Flow Cushion™ ratio used as a component of the Morningstar credit rating:

\[
\frac{\text{TotalLiquidCash}_{Yr0} + \sum_{Yr1}^{Yr5} \text{AdjustedFreeCashFlow}}{\sum_{Yr1}^{Yr5} \text{DebtlikeContractualCommitments}}
\]

The Cash Flow Cushion™ focuses on the timing of interest and principal payments (including the debt of joint ventures, if necessary) and considers other debt-like (off-balance-sheet) mandatory cash...
contractual commitments—including lease payments, pension/postretirement contributions, guarantees, legal contingent obligations, and so on, that if left unpaid, may ultimately lead to financial distress and/or bankruptcy. The sum of a firm’s total cash obligations and commitments during the next five years forms the denominator in the calculation of the firm’s Cash Flow Cushion™.

After assessing the firm’s debt profile and other cash needs, analysts then back out the cash components of expense items included in net income from continuing operations that resemble debt-like contractual cash commitments. This may include rent expense, pension expense, and other operating items, but not maturing debt or other items that were not initially in net income. For example, if a cash debt-like expense item is originally included in net income from continuing operations, analysts add the cash components of that item back to net income from continuing operations before including it in total cash obligations and commitments to avoid double counting. These adjusted items are then tax-effected to arrive at the firm’s adjusted net income from continuing operations.

Our analysts’ forecast of adjusted net income from continuing operations is then used to arrive at adjusted cash flow from operations. We also subtract out the dividends we expect a company to pay over the forecast period. Dividends are a discretionary cash outlay, but once they're paid, the money is unavailable to service or retire debt. Therefore, our typical assumption is to subtract forecast dividends to arrive at adjusted cash flow from operations.

The firm’s total capital expenditures, asset sales/dispositions, acquisitions, and cash flows related to investments in long-term operating assets are then subtracted from adjusted cash flow from operations in arriving at the analyst’s assessment of the company’s adjusted free cash flow.

**Morningstar Solvency Score™**

Any credit scoring system would be remiss to ignore a company’s current financial health as described by key financial ratios. In our effort to create a ratio-based metric, we employed binary logistic regression analysis to evaluate the predictive ability of several financial ratios commonly believed to be indicative of a company’s financial health. We refer to it as the Morningstar Solvency Score™.

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 the company finances its operations), and debt service capability (how much profit is earned per dollar of interest payments). The Solvency Score™ includes one ratio from each of these four categories.

Although our extensive testing was based on previously reported accounting values, Morningstar’s analysts continually forecast the very same accounting values for future time periods. No testing of our analysts’ forecasts has been possible because of data limitations, but it is reasonable to assume that using analyst estimates of future accounting values will yield more-predictive results than previously reported ratios. As a result, the Solvency Score™ uses some analyst estimates of future ratios.
Morningstar Solvency Score™

\[ 5 \times \sqrt{\frac{TL_o + CLO_o}{TA_o + CLO_o} \times \frac{IE_1 + 0.333 \times RE_1}{EBITDAR_1}} - (4 \times ROIC_1) - (1.5 \times QR_o) \]

Where

- \( TL_o \): Total Liabilities
- \( CLO_o \): Capital Lease Obligations
- \( TA_o \): Total Assets
- \( IE_1 \): Interest Expense
- \( RE_1 \): Rent Expense
- \( EBITDAR_1 \): Earnings Before Interest, Taxes, Depreciation, Amortization, and Rent
- \( ROIC_1 \): Return on Invested Capital
- \( QR_o \): Quick Ratio

And

\[ ROIC_1 = \frac{EBITDAR_1}{IC_o} \]

And

\[ IC_o = CA + NetPPE + NetGW + IA + LTOA + CLO - ExcessCash - AP - OtherCL - LTOL \]

Where

- \( CA \): Current Assets
- \( NetPPE \): Net Property, Plant, and Equipment
- \( NetGW \): Net Goodwill
- \( IA \): Intangible Assets
- \( LTOA \): Long-Term Operating Assets
- \( CLO \): Capital Lease Obligations
- \( ExcessCash \): Excess Cash
- \( AP \): Accounts Payable
- \( OtherCL \): Other Current Liabilities
- \( LTOL \): Long-Term Operating Liabilities

Part of the attractiveness of the Solvency Score™ is in its appeal to intuition. A practitioner of financial
analysis will recognize that each of the ratios included has its own ability to explain default risk. In addition, the weighting scheme and ratio interaction appeal to common sense. For instance, it is logical to assume that a declining interest coverage ratio would be highly predictive of default. Even healthy companies, however, can have odd years in which profits may suffer and interest coverage is poor. For this reason, we observed that a multiplicative combination of the interest coverage ratio and the capital structure ratio is more explanatory than either ratio individually or even a linear combination of the two. This is because interest coverage is not highly important for companies with healthy balance sheets (due to low debt levels, sufficient cash on hand to weather downturns, or both). However, we find that interest coverage tends to become a more important credit factor as a company's liabilities increase as a percentage of its total capital structure.

Once we have calculated a raw Solvency Score™, we rank it relative to all calculable U.S.-domiciled stocks, transforming the score into a decile ranking. An SS of 10 represents poor financial health while 1 represents strong financial health.

**Distance to Default**

The distance to default metric is a market-based measure of financial health. Both inputs, equity volatility and the EVMV ratio, are calculated using daily updated market data. This allows us to incorporate new information faster through the distance to default calculation compared with accounting-based measures of financial health. As a result, our credit rating can be more responsive to early signs of financial distress.

**Step 1:** Calculate annualized trailing 300-day equity total return volatility (EQVOL)

**Step 2:** Calculate current enterprise value/market cap ratio (EVMV)

**Step 3:** Transform EQVOL into a percentile (0, 1) by ranking it relative to all other stocks in the calculable universe (EQVOLP). One represents high equity volatility, 0 represents low equity volatility.

**Step 4:** Transform EVMV into a percentile (0, 1) by ranking it relative to all other stocks in the calculable universe (EVMVP). 1 represents high-leverage companies, 0 represents low leverage companies.

**Step 5:** Calculate new raw DTD = 1-(EQVOLP + EVMVP + EQVOLP*EVMVP)/3

**Step 6:** Transform new raw DTD into a decile (1, 10) by ranking it relative to all calculable U.S.-domiciled stocks. A DD of 10 represents poor financial health while 1 represents strong financial health.
Deriving the Model Rating

The four components of an issuer's numerical model credit score: The business risk, Morningstar Cash Flow Cushion™, Morningstar Solvency Score™, and distance to default are combined as shown in the equation below to determine the model credit score.

\[
\text{Credit Score} = (3.5 \times DD_p) + (3.5 \times SS_p) + (8 \times BR_p) + (\text{MAX}(DD_p, SS_p, BR_p) \times CC_p)
\]

Where

- \( DD_p \): Distance to Default Score
- \( SS_p \): Solvency Score™
- \( BR_p \): Business Risk Score
- \( CC_p \): Cash Flow Cushion Score

Our back-testing results suggest that the Morningstar Solvency Score™ 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 country, company, and industry risks have on a firm's overall credit health and ability to meet future obligations. The equation is constructed with the Morningstar Cash Flow Cushion™ having a coefficient dependent on the values of the other variables so as to place greater importance on the Cash Flow Cushion™ in levered scenarios. This construct is helpful because the Cash Flow Cushion™ should have the fewest false positives of any of the factors. However, the Cash Flow Cushion™ is also subject to analyst forecasts, which can contain modeling errors. In situations deemed "safe" by the DDD, SSD, and BRD, the Cash Flow Cushion™ will have less weight in order to minimize the effect any possible modeling errors. We expect the Cash Flow Cushion™ to have fewer false positives because it describes the true forecast cash inflows and outflows of a company. Since these cash flows represent the actual ability of a firm to repay its obligations, the Cash Flow Cushion™ should be the best absolute predictor of financial distress in our arsenal of scores.

The four pillars are transformed into decile ranking scores from 1 to 10 (10 being worst). For Business Risk, Cash Flow Cushion™, and Solvency Score™ the breakpoints used to assign the 1 through 10 scores are static and set to produce a relatively smooth distribution over historical business cycle data. For distance to default, we assign the scores on a relative basis versus the broad universe of companies for which we calculate the measure.

Because the breakpoints across the four metrics are relatively static, the scores are not relative measures. At any particular time, significantly more than 10% of companies could have the same score for any particular component.

Mapping Scores to Preliminary Credit Ratings

The credit score resulting from the credit score equation (above) is mapped to a corresponding model-driven credit rating. The credit analyst will present the model-driven issuer credit rating to Morningstar's credit rating committee and any other pertinent information to the committee. The credit rating committee will determine a final corporate credit rating as described above. If the rating committee is
also assigning ratings to individual bonds or classes of debt, it will determine the issuer rating of each obligor within the corporate family that issues debt, and the issue rating of each debt instrument or class of debt. See Methodology for Rating Parents, Subsidiaries, and Issues for details.

About Morningstar® Credit Research
Morningstar Credit Research provides independent, fundamental credit research differentiated by a consistent focus on sustainable competitive advantages.

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