MOODY'S
INVESTORS SERVICE

RATING METHODOLOGY

Financial Guarantors Methodology

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This rating methodology replaces the *Financial Guarantors* methodology published in May 2018. In this update, we have revised our scoring scales for Insurance Systemic Risk to align them with the scoring scales introduced in the November 2019 update to our rating methodology for sovereigns. We have also clarified that we may assign Baseline Credit Assessments to financial guarantors that are government-related issuers.

Table of Contents:

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Introduction

In this rating methodology, we explain our general approach to assessing credit risk for issuers in the financial guarantor industry globally, including the qualitative and quantitative factors that are likely to affect rating outcomes in this sector.

We discuss the scorecard used for this sector. The scorecard[1] is a relatively simple reference tool that can be used in most cases to approximate credit profiles in this sector and to explain, in summary form, many of the factors that are generally most important in assigning ratings to companies in this sector. The scorecard factors may be evaluated using historical or forward-looking data or both.

We also discuss other rating considerations, which are factors that may be important for ratings but are not included in the scorecard, usually because they can be meaningful for differentiating credit profiles, but only in some cases. In addition, some of the methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.[2] Furthermore, since ratings are forward-looking, we often incorporate directional views of risks and mitigants in a qualitative way.

As a result, the scorecard-indicated outcome is not expected to match the actual rating for each company.

Our presentation of this rating methodology proceeds with (i) the scope of this methodology; (ii) our general framework for rating financial guarantors; (iii) a discussion of the scorecard factors; (iv) other scorecard considerations; (v) assessing support; (vi) other rating considerations; (vii) assigning entity-level and instrument ratings; (viii) methodology assumptions; and (ix) limitations.

In the appendices, we describe (i) how we use the scorecard; and (ii) rating families for the purpose of the capital adequacy stress scenario.

1 In our methodologies and research, the terms "scorecard" and "grid" are used interchangeably.

2 A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Scope of This Methodology

Long-term Insurance Financial Strength Ratings (IFSRs[3]) for financial guarantors are assigned at the legal entity level to insurance operating companies.

In addition to long-term IFSRs, we may assign short-term IFSRs[4] to provide institutional investors and financial intermediaries with opinions about an insurance company's ability to pay punctually its short-term senior policyholder claims and obligations. We use the same prime rating symbols for these ratings that we use for other short-term instruments and obligations.[5]

Other ratings that may be assigned within the group (e.g., senior unsecured debt issued by the insurer or its parent company) are typically determined in relationship to the IFSRs of the group's main subsidiaries.[6]

Our General Framework for Rating Financial Guarantors

Our general approach to assessing the credit risk of the various obligations of financial guarantors is based on an assessment of the financial strength of the main operating units within that organization. This methodology is, therefore, intended primarily to explain our approach to assigning IFSRs to operating insurers. Specifically, the methodology describes our general approach to assigning a financial strength rating of a standalone entity before consideration of support. We also describe how we incorporate affiliate[7] support to move from the standalone credit profile to the assignment of the IFSR.[8]

In rating financial guarantors on a standalone basis, we focus on qualitative and quantitative characteristics in relation to the company's business and financial profile, as well as on the operating environment in which it conducts its business. Regulatory, accounting and product characteristics can vary widely from country to country, as can a country's insurance operating environment, and our rating approach considers these differences.

In the following sections, we describe the key factors underlying a financial guarantor's business and financial profile, as well as factors that affect its operating environment. We explain our general approach for scoring each scorecard factor and show the weights used in the scorecard. We also provide a rationale for why these scorecard components are meaningful for a financial guarantor's standalone credit profile, what the relevant financial metrics are in analyzing these factors, including regional/supplemental metrics, and how we interpret those metrics. Overall country risk and characteristics of the local insurance operating environment also play an important role in our rating analysis, as do other factors, such as management governance and accounting policy and disclosures.

3 IFSRs are opinions of the ability of insurance companies to pay punctually senior policyholder obligations and claims and also reflect the expected financial loss suffered in the event of default. Please refer to *Rating Symbols and Definitions* for more details; a link can be found in the "Moody's Related Publications" section.

4 Please refer to our methodology that discusses global short-term ratings. A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

5 Please refer to *Rating Symbols and Definitions* for more details; a link can be found in the "Moody's Related Publications" section.

6 Please see our cross-sector methodology that discusses how we assign instrument ratings for insurers. A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

7 "Affiliate" includes parents, cooperative groups and significant investors.

8 The standalone credit profile is an opinion of an insurer's standalone intrinsic strength, absent any extraordinary support from an affiliate or government. An analytic unit generally comprises all the operating companies with common analytic and credit characteristics operating in a single country or geographic region. An analytic unit could include a group of companies operating outside of a single geographic region if significant inter-company support arrangements exist, or if there is a high degree of integration in the management, systems, distribution and operations of the group of companies.

Given the inherent cyclicality of the financial guarantor industry, a company's financial profile may be somewhat stronger than the scorecard-indicated outcome during cyclical peaks and somewhat weaker during cyclical troughs

We employ the same analytic approach to evaluating financial guarantors worldwide, incorporating the business, financial profile and operating environment dimensions discussed in this methodology. However, each of the various regions has its own market nuances that reflect the local political, social and economic climates. These include the regulatory environment, governance and capital structures, taxation, accounting rules and public reporting requirements, and laws and the litigation environment. If these regional factors are not already captured in the Operating Environment component, we may incorporate them qualitatively into our analysis.

Some financial guarantor groups consist of subsidiaries operating in more than one geographic region. Where this is the case, we typically consider the largest and most significant units of the group (in terms of revenues and earnings, capital, assets other key metrics), and, where relevant, apply the quantitative metrics in the methodology to this group of key subsidiaries to arrive at weighted average ratios. In some instances, this group of key subsidiaries may be less than 100% of the analytic unit. Also, in some instances, more than one group of subsidiaries, called analytic units, exist within a financial guarantor group. Each analytic unit is typically analyzed separately.

Our ratings are forward-looking and reflect our expectations for future financial and operating performance. However, historical results are helpful in understanding patterns and trends of a company's performance as well as for peer comparisons. Many of the financial ratios are calculated based on a five-year average. However, the factors in the scorecard can be assessed using various time periods. For example, rating committees may find it analytically useful to examine both historical and expected future performance for individual periods or periods of several years or more.

Scorecard Framework

This methodology includes a scorecard, which is used in our analysis and reflects our opinion and judgment on each of the broad factors within the rating methodology. Information we use in the scorecard may include proprietary, non-public data. Business Profile factor represents 25% of the overall fixed scorecard weight, and the Financial Profile factors represent 75%; however, weights shown for each factor in the scorecard represent an approximation of their importance for rating decisions, and actual importance may vary substantially. The Operating Environment component, described in more detail later in this report, has a variable weight depending on the assigned score.

The scorecard-indicated outcome calculates an unadjusted score for each factor, and analysts typically populate the scorecard with an adjusted score, which can range from Aaa to Caa2 with half-notch increments from Aaa to B3 (see Exhibit 12 in Appendix 1). The score is derived from the raw metrics, and the adjusted score is based on analytical judgment. The scorecard also factors in the operating environment.

To arrive at the standalone credit profile for the analytic unit, we may assess the company's management, governance and risk management, accounting policy and disclosures, sovereign and regulatory environment as well as any special rating situations. To move from the standalone credit profile to the rating, we consider any explicit or implicit support from affiliates, as well as other rating considerations. Scorecard factors and weights can be found below.

EXHIBIT 1

Financial Guarantors Rating Methodology Scorecard Factors and Weights[9]

	Sub-factor Weight	Aa	A	Baa	Ba	B	Caa and Lower	Score	Adjusted Score
Business Profile									
Market Environment and Product Strategy (25%)									
Industry Environment	12.5%								
Market Position & Product Strategy	12.5%								
Financial Profile									
Portfolio Characteristics & Capital Adequacy (40%)									
Risk-Adjusted Capital Coverage	40%								
Profitability (20%)									
Underwriting Margin (5 yr average)	7.5%								
Return on Capital (5 yr average)	7.5%								
Sharpe Ratio of ROC (5 yr)	5.0%								
Financial Flexibility (15%)									
Financial Policy	7.5%								
Ease of Access to Capital	7.5%								
Operating Environment									
Preliminary Standalone Acting									

Source: Moody's Investors Service

Notching Factors and Support Considerations:

» Management, Governance and Risk Management

» Accounting Policy and Disclosures

» Sovereign and Regulatory Environment

» Standalone Credit Profile

» Nature and Terms of Explicit Support

» Nature and Terms of Implicit Support

» Scorecard-Indicated Outcome

Standard Adjustments in the Analysis of Financial Statements

The financial statements we use in our analysis generally have a consistent basis of accounting depending upon the region (e.g., Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS)). Different accounting conventions can affect – sometimes materially – comparisons among companies operating in different jurisdictions. Accordingly, we make standard and non-standard adjustments, as described below. The qualitative analysis that we employ may also consider accounting system differences, including when we do not have sufficient information to make specific adjustments. To the extent that other accounting conventions are used by a company, we may also use that data for a more direct comparison to global peers.

9 See Appendix 1 for sub-factor weight detail.

All of the quantitative credit metrics incorporate our standard adjustments to income statement, cash flow statement and balance sheet amounts for items such as underfunded pension obligations and operating leases. We may also make other analytical adjustments that are specific to a particular company.

For an explanation of our standard adjustments, please see the cross-sector methodology that describes our financial statement adjustments in the analysis of financial institutions. A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

In addition to the standard adjustments we may also make non-standard adjustments to financial statements for other matters to better reflect underlying economics and improve comparability among peers. For example, we may adjust financial statements in order to reflect estimates or assumptions that we believe better reflect an issuer's sustainable forward-looking credit profile. We may also make non-standard adjustments where local GAAP or the interpretation of IFRS in a particular country or region differs from the norm in an area that would affect our analysis.[10] Our adjustments may incorporate non-public information.

Discussion of the Scorecard Factors – Business Profile

Factor 1: Market Environment and Product Strategy

The assessment of demand for financial guaranty insurance and the quality of risk written are important elements of our analysis, because these factors influence a guarantor's ability to develop and sustain competitive advantages in its chosen markets. They also have a direct bearing on the predictability of future returns and the ability to generate capital internally, while justifying, from the perspective of shareholders, a high level of capitalization.

As prevailing market conditions materially influence business prospects, we analyze the factors affecting demand for financial guaranty insurance and the competitive dynamics within the industry. Demand for financial guaranty insurance is generally influenced by the amount of savings that an issuer can obtain through the use of insurance relative to the interest expense of uninsured debt issuance. Here, a number of underlying factors come into play, including the absolute level of interest rates, issuers' credit spreads and liquidity premiums and the market's valuation of the financial guaranty protection a particular guarantor offers. Since the main value proposition of the financial guaranty product is the certainty of timely payment of principal and interest on long-term securities, investors are highly confidence-sensitive, with deterioration of the issuer's credit profile potentially resulting in severely impaired new business opportunities.

The market environment for financial guaranty insurance can also be affected by competitive pressures that could complement or negate the underlying demand drivers. For example, a large guarantor operating in a mature and intensely competitive environment is not necessarily better positioned than a medium-sized guarantor in a growing, less competitive market.

In addition to the opportunities and pressures presented by the operating environment, a guarantor's chosen product segments can influence its risk profile and creditworthiness. We believe that a guarantor's market standing, as captured in our product strategy assessment, is most clearly reflected in its ability to enhance the market value of widely held, high-quality assets for which the value ascribed to the enhancement is clear. The credit enhancement of private, often bespoke, transactions, on the other hand, is a weaker indicator of market standing, given that enhancements could be driven by the regulatory or accounting treatment of an insured transaction, irrespective of the guarantor's market standing.

10 See our cross-sector rating methodology on financial statement adjustments in the analysis of financial institutions for a discussion of our adjustments. A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

Relevant Metric: Industry Environment

Industry-level assessment based on market size, growth potential and the demand for and acceptance of financial guaranty insurance.

The industry environment metric, as shown in Exhibit 2, considers the size, stability and growth potential of a given market regardless of a guarantor's position in that market. The industry environment is a key factor in the acceptance of insurance as a credit enhancement product relative to other credit enhancement products or issuance without the benefit of credit enhancement.

We consider the size of the industry, measured as aggregate industry-wide present-value of premiums written (PVP),[11] to be an indicator of the acceptance of financial guaranty insurance. PVP (including member surplus contributions for mutuals) captures both the volume of new business written and the premium rate guarantors are able to charge. The industry's size also determines the size of exposures it can tolerate within reasonable single-risk limits. Insufficient scale would limit its relevance to larger-volume issuers and therefore the industry's potential to generate meaningful profits over the long term.

The industry size factor has been broadly calibrated against other lines of specialty insurance such as title insurance, mortgage insurance and surety bonding to position financial guarantors within the broader insurance industry. In calibrating the industry size factor, we consider the fact that financial guaranty insurance is typically underwritten on the expectation of very low losses, in contrast to most other lines of insurance that anticipate higher losses and therefore tend to charge higher premium rates. The calibration of this factor reflects our view of the financial guaranty sector as a niche sector.

In addition to absolute size of the industry, we consider barriers to entry, the size of the guarantors' available market and their penetration of that market. However, a focus on market penetration as the primary measure of industry condition could lead to counterintuitive conclusions in a case where guarantors attain high penetration levels, in an insurable market that is small relative to other specialty lines of insurance.

Growth is a key industry indicator; for purposes of this methodology, growth is also measured in terms of PVP. We consider moderate growth to be positive for the industry, but consider a growth rate that is too high, or a rate that is moderate in a shrinking industry, to be credit negative. A very high growth rate could indicate a mismatch between pricing and risk, or a drift into higher-risk or more-complex products. Similarly, a consistent decline in PVP could be indicative of a change in the perceived value of financial guaranty insurance. In addition, we consider the dynamics of the guarantors' target market (e.g., growth or contraction in total US muni issuance) in our assessment of growth or contraction in PVP.

EXHIBIT 2

Industry Environment

	3 Yr Avg Growth 5% to 15%	3 Yr Avg Growth - 2.5% to 5%	3 Yr Avg Growth >15% or <-2.5%
Present Value Premium Written > $2 billion	Very Favorable (Aa)	Favorable (A)	Fair (Baa)
Present Value Premium Written > $500 million	Favorable (A)	Favorable (A)	Fair (Baa)
Present Value Premium Written > $200 million	Favorable (A)	Fair (Baa)	Challenging (Ba)
Present Value Premium Written up to $200 million	Fair (Baa)	Challenging (Ba)	Very Challenging (B)

Source: Moody's Investors Service

11 PVP is a non-GAAP measure of premium production in a particular period. PVP is more easily comparable to premiums written for other P&C lines of insurance because it includes the present value of installment premiums that would otherwise not be fully reflected in the year written. There is some divergence in the discount rate guarantors use in calculating the PVP, but we do not believe this to have a material effect on our assessment of the size of the industry.

Relevant Metric: Market Position and Product Strategy

An issuer-level assessment based on a guarantor's position in its market and the risk profile of its product mix.

We believe that a guarantor's market position, as measured by its annual PVP compared to peers, influences its ability to write insurance on higher-quality transactions and on favorable terms. In addition to market position, a guarantor's product strategy has a significant bearing on its credit profile. In particular, we believe that the credit enhancement of simple, high-quality and widely held securities reflects a stronger credit profile than the enhancement of securities lacking one or two of these characteristics. We therefore classify a guarantor into one of four broad categories based on the characteristics of its insured portfolio, and we assess product strategy based on a guarantor's mix of new business volume and existing exposures.

EXHIBIT 3

Market Position and Product Strategy

	Guarantor's product mix is essentially composed of granular exposures to low-risk, non-structured securities widely held by retail investors.	Significant portion of the guarantor's product mix composed of granular exposures to low-risk, non-structured securities widely held by retail investors. Secondary exposures might include plain-vanilla structured-finance securities and modest exposure to higher-risk or complex securities, typically held by institutional investors.	Primary focus is on less granular exposures to more complex and possibly higher-risk securities that tend to be held by institutional investors; modest exposure to or acceptance by retail investors.	Primary focus is on complex, bespoke or higher-risk credits held by institutional investors. Portfolio exposures tend to be lumpy as opposed to granular and relatively homogenous.
> 25% of Industry PVP	Very Strong (Aa)	Strong (A)	Moderate (Baa)	Weak (Ba)
5% to 25% of Industry PVP	Strong (A)	Moderate (Baa)	Weak (Ba)	Very Weak (B)
< 5% of Industry PVP	Moderate (Baa)	Weak (Ba)	Very Weak (B)	Very Weak (B)

Source: Moody's Investors Service

Discussion of the Scorecard Factors – Financial Profile

Factor 2: Portfolio Characteristics and Capital Adequacy

Point-in-time capital adequacy measures are useful indicators of a financial guarantor's ability to fund its growth, remain in business and pay claims. The stronger its capital resources, the more confidence the guarantor inspires among potential customers and the more creditworthy it tends to be. Maintaining adequate capital adequacy is also critically important for a financial guarantor because insurance regulators require minimum capital levels or ratios for the company to continue to operate.

The global financial crisis that reached its peak in 2008-09 demonstrated that evaluating the capital adequacy of financial institutions, even using sophisticated modeling tools, is a difficult undertaking. The process is also made challenging by the changing credit and macroeconomic trends that could, in turn, change the incentives for the various stakeholders.

Relevant Metric: Risk-Adjusted Capital Coverage

The idealized rating level-equivalent[12] at which claim paying resources are sufficient to cover tail loss (i.e., a risk adjusted capital ratio of at least 1) and provide for adequate resilience to a defined stress test.

12 Assuming a 100% loss given default.

We measure or estimate risk adjusted capital coverage as claims-paying resources (defined as equity capital,[13] loss reserves, unearned premium reserves and 75% of the present value of installment premiums) divided by 90% of the sum of the fundamental and structured capital charges (described below) at a given rating level. We evaluate guarantors' contingent capital facilities case by case for inclusion as claim paying resources, typically based on an assessment of their terms and conditions. We perform a similar assessment for the stressed risk adjusted capital coverage, based on claims-paying resources and insured portfolio capital charge after the application of the most severe of one of three pre-defined Risk Concentration Stress Tests.

An A3 capital adequacy score means that a guarantor has claims paying resources that we estimate are barely sufficient to cover stressed losses at a confidence level consistent with the idealized default probability of an A3 corporate bond.

The aggregate capital charge for insured portfolios is the sum of the fundamental and structured capital charges. The formula for estimating the capital charge for fundamental credits incorporates the rating distribution of such portfolio, with a surcharge for sector, geographic and large single-risk concentrations. We use a simpler formula for structured exposure, given guarantors' highly idiosyncratic risks and the declining impact we believe these exposures will have over time for most guarantors, as in-force risks amortize and new business production focuses on public sector risks.

We lower the aggregate capital charge by 10% to reflect some evidence of better than average performance of insured versus uninsured debt in situations of distress. We believe these differences stem from a range of factors such as differences in issuer behavior, the nature and intensity of surveillance, the presence or absence of control rights and the horizon for resolution of problem credits when a financial guarantor provides insurance versus when it does not. However, a guarantor's ability to benefit from these factors depends, to a great extent, on its own financial strength and market position. A weak guarantor is less likely to have the operational and financial wherewithal or strategic leverage to extract higher recoveries in distressed situations or to intervene to proactively avert distress or default.

EXHIBIT 4

Components of Fundamental Capital Charge Calculation*

<table>
<tr><th></th><th colspan="4">Capital Charge Calculation to Achieve Specified Rating Level</th></tr>
<tr><th></th><th>Ba</th><th>Baa</th><th>A</th><th>Aa</th></tr>
<tr><td>(a) Base loss:</td><td colspan="4"></td></tr>
<tr><td>Aaa %NPO x</td><td colspan="4">0.01%</td></tr>
<tr><td>Aa %NPO x</td><td colspan="4">0.30%</td></tr>
<tr><td>A %NPO x</td><td colspan="4">1.25%</td></tr>
<tr><td>Baa %NPO x</td><td colspan="4">3.5%</td></tr>
<tr><td>Ba & B %NPO x</td><td colspan="4">14%</td></tr>
<tr><td>Caa and lower %NPO X</td><td colspan="4">95%</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>Loss Adjustment Factor:</td><td colspan="4">0.4</td></tr>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>Base loss =</td><td colspan="4">PV Loss Adj. Factor x $\sum_{Aaa}^{Caa}$(NPO% x loss factor)</td></tr>
<tr><td>(b) Base loss surcharge:</td><td colspan="4"></td></tr>
</table>

[13] For financial guarantors reporting under US statutory accounting, equity capital is defined as the policyholders' surplus + contingency reserves.

EXHIBIT 4
Components of Fundamental Capital Charge Calculation*

	Capital Charge Calculation to Achieve Specified Rating Level			
	Ba	Baa	A	Aa
Ln (base loss calculated in [a]) x	(0.003)	0.019	0.031	0.038
(c) Surcharge for single-obligor concentration:				
Ln (top 10 single risks %) x	(0.001)	(0.005)	(0.010)	(0.014)
(d) Surcharge for sector concentration:				
Ln (sector concentration score) x	0.010	0.001	(0.015)	(0.034)
(e) Surcharge for geographic concentration:				
Ln (geographic concentration score) x	NA	(0.006)	(0.011)	(0.014)
(f) Constant:	0.931	0.922	0.860	0.775

* Rating distribution as reported by the company; company disclosed surveillance categories are used to estimate below investment-grade distribution. The sector and geographic concentration scores are derived using the Herfindahl Index: the sum of the square of the proportion of each sector or geography -- US state and other countries -- to total exposure. For purposes of consistency and comparability, company disclosed sectors are mapped to one of the following standardized sectors for calculation of the Herfindahl Index score for sector concentration: general obligation, lease and tax-backed, municipal utilities, transportation, higher education, healthcare, housing, other US public finance, investor-owned utilities, non-US regulated utilities, sovereign and sub-sovereign, and other non-US public finance. For purposes of the calculation, we assume that further general obligation exposures are equally exposed to state and local general obligations.

Source: Moody's Investors Service

We calculate the fundamental capital charge using the following formula:

$$\textit{Net par outstanding (NPO) x } e^{(\ln(a)x(b+c+d+e+f))}$$

The exhibit describes the components (a, b, c, d, e, f) of the capital charge formula.

Exhibit 5 lists the charge, by broad rating category, to be applied to structured exposures at different confidence levels.

EXHIBIT 5
Structured Finance Capital Charge by Broad Rating Category

	Capital Charge Calculation to Achieve Specified Rating Level			
Rating of Insured Exposures	Ba	Baa	A	Aa
Aaa	0.05%	0.1%	0.26%	1.48%
Aa	0.16%	0.4%	0.97%	2.55%
A	0.64%	1.09%	2.05%	4.22%
Baa	1.75%	2.49%	3.97%	6.97%
Ba and B	6.89%	7.68%	10.33%	15.39%
Caa and lower	40%	40.87%	42.7%	44.6%

Source: Moody's Investors Service

We calculate the structured finance capital charge using the following formula:

NPO x weighted average capital charge[14]

Capital Charge on Fundamental Exposures

We developed the fundamental exposures capital charge to be broadly consistent with the results from the modeling losses for a diversified pool of mostly US municipal fundamental credits. When a financial guarantor's portfolio composition, including the maturity profile of insured obligations, deviates significantly from that profile, we generally make an additional judgment with regard to interpreting the results and may introduce supplemental approaches.

Capital Charge on Structured Finance Exposures

Our approach to calculating or estimating the capital charge for structured exposures recognizes the fact that the structured portfolios of the guarantors frequently have dominant idiosyncratic features as portfolios are predominantly in run-off. The capital charge is based on our view of the performance of structured exposures and the extent to which higher-than-expected correlation between structured credits would cause tail losses to exceed those estimated for fundamental exposures.

Risk Concentration Stress Test

The granularity of exposures in a guarantor's portfolio is a meaningful contributor to the risk inherent in a particular portfolio, with higher granularity being associated with lower risk. Our capital charge metric for fundamental credits incorporates an element of single-obligor concentration; however, large concentrated exposures could expose guarantors to substantial capital volatility if such exposures were to default. To reflect such risk in our capital adequacy estimates, we apply a risk concentration stress test that assumes that related credits, or rating families, default at a set aggregate severity. A rating family is defined as those issuers with shared revenues or economic base, and shared governance or administration.[15]

For this stress scenario analysis, we have identified three typical risk concentration types that are often present in a guarantor's portfolio and have set an assumed default scenario loss for each: (1) largest investment-grade family, with a stress loss of 35%, (2) largest below-investment-grade family, with a stress loss of 45%; and (3) largest originator/seller-servicer exposure, with a stress loss of 20%. We then compute a stressed capital adequacy score that reflects the pre-tax reduction of capital of the largest loss. We then set the unadjusted capital adequacy score at a level such that the occurrence of the worst identified stress test would not result in a capital adequacy score more than three rating notches lower than the capital adequacy score otherwise indicated.

Other Considerations for Portfolio Characteristics and Capital Adequacy

If the pre-defined measures of capital adequacy do not adequately capture rapid and significant changes in insured portfolio credit trends, or other relevant factors, such as prospective capital management strategies or the use of reinsurance or recapitalization, we may adjust the portfolio characteristics and capital adequacy score (up or down) to better reflect the insurer's overall profile.

We may use scenario testing to measure or estimate the impact of potential future credit deterioration or the impact of losses on large or correlated exposures. The relative contribution of the outcome of the scenario analysis to the adjusted capital adequacy score would depend on the likelihood of the event and potential loss impact. We do not generally weight the results of such analysis heavily under normal

14 Weighted average capital charge corresponding to the rating level that it is tested against (i.e., Baa, A, Aaa).

15 For example, the family of a US state or territory might include the general obligation bonds, and obligations issued by the state's water, power, highway, pension or economic development authorities, and the family of a city might include its general obligations bonds, board of education or transit authority. Please see Appendix 2.

economic conditions, but in the case of severe economic or market conditions, scenario analysis may dominate the overall capital adequacy assessment.

The primary measure of capitalization we use in our analysis of capital adequacy is a guarantor's claims-paying resources. However, in certain situations, including situations of severe stress, consideration of a guarantor's exposure relative to its regulatory capital and minimum regulatory capital requirements is more important in our analysis. We consider claims-paying resources to be the full amount of capital and other resources available for the ultimate payment of policyholder claims. However, claims-paying resources include certain elements, specifically unearned premium reserve and the present value of installment premiums, that are not considered capital for regulatory purposes until they are actually earned.

Primary guarantors have traditionally used reinsurance to augment their capital bases and increase their capacity to insure large single-risk exposures. The extent of the reliance on reinsurance is an important credit consideration. Although reinsurance can mitigate losses by reducing a guarantor's exposure to large single risks, excessive reliance on reinsurance can also result in material counterparty risk. Our capital coverage approach to assessing capital adequacy presumes a modest level of reinsurance reliance, and thus we generally reflect a significant deviation from that business profile in the adjusted capital adequacy score.

A financial guarantor's adjusted capital adequacy score may incorporate additional considerations, quantitative and qualitative, such as the company's own capital adequacy evaluation, results of point-in-time analysis (for example, Moody's CDOROM® modeling), and specific characteristics or sensitivities of an insurer's portfolio that may not be appropriately captured in the point-in-time quantitative analysis.

Factor 3: Profitability

The quality and predictability of a guarantor's earnings stream are significant components of its creditworthiness because they provide key information about the relative success and therefore stability of its targeted strategy. Also, retained earnings tend to be the primary source of capital accretion, and strong profitability provides justification, to shareholders, for maintaining high levels of retained capital.

In evaluating profitability, we consider both the absolute level of earnings and the stability of earnings over time. Earnings potential is largely a function of a firm's strategy and market environment, as we discussed in the previous section. Earnings stability is influenced by the strength of the franchise and the profile of risks insured.

Income trends in the financial guaranty segment are generally stable, but exposure to tail events such as those that emerged in the 2008-09 financial crisis, which could meaningfully erode capitalization and market position, is a significant concern. Because the frequency of such events is unpredictable, higher absolute returns are needed to compensate for the uncertainty.

The other consequence of an insured, long-duration portfolio is that profitability trends for the legacy portfolio tend to overwhelm performance metrics related to recent production. Therefore, assessing short-term profitability trends separately is usually very important. Writing new business that is meaningfully more or less profitable compared to peers or the insurer's track record could signal a shift in underwriting strategy or market position, or spur shareholders to seek to de-capitalize the insurer. For example, an extended period of low volume or low profitability business could lead the firm to pursue an aggressive stock buyback or even a runoff of the business, which could have adverse consequences for policyholders.

Relevant Metric: Underwriting Margin

Underwriting profit margin for net premiums earned (5 yr average).

The underwriting margin, which is the quotient of underwriting gain or (loss) divided by net premiums earned, focuses on profitability from underwriting activity. The numerator, underwriting gain/(loss) incorporates net premiums earned minus loss and loss adjustment expense and underwriting expense.

EXHIBIT 6

Underwriting Margin (5 yr average)

Aa	A	Baa	Ba	B	Caa and Lower
>50%	50% ≥ x > 30%	30% ≥ x > 10%	10% ≥ x > (5%)	(5%) ≥ x > (20%)	<= (20%)

Source: Moody's Investors Service

Relevant Metric: Return on Capital (ROC, 5 yr. average)

Average return the company generates from its capital resources.

We calculate or estimate net income before non-controlling interest expense as a percentage of average financial debt plus shareholders' equity[16] plus non-controlling interest (five-year average).

In general, companies with higher scores for this sub-factor tend to have higher profitability as measured by ROC, and earnings tend to be less volatile than for companies with lower scores for this sub-factor.

The ROC ratio is a good measure of how well the insurer is using its capital funds. ROC also equalizes any benefits to earnings from leverage, because the ratio considers both debt and equity in its denominator. For this reason, ROC is viewed in concert with a company's financial leverage, since this indicates the level of borrowed funds (if any) required to generate the corresponding ROC, as well as the sustainability and volatility of profits over time. Knowing a company's legal structure can also provide clarity about likely use of debt and ROC risk profile over time. For example, mutual companies may be less focused on short-term profitability and tend to use debt less than public companies do. In assessing this sub-factor, we consider a mutual company's lower ROC expectations, given that policyholders are the shareholders.

These metrics serve as inputs to our rating scorecard, but we may also consider other relevant measures. For example, return on equity (ROE) is also a good measure of profitability and may provide insights into the impact of shareholder pressure on management to generate sufficient returns on capital. It is important to consider ROE in concert with both a company's financial leverage and organizational/legal structure. The relationship to financial leverage is important because the ROE of companies using more leverage could be higher, as a smaller equity base tends to improve this measure. Return on revenue (ROR), or a less standard measure such as return on insured portfolio, can be a useful comparative measure of profitability as well, since it is less influenced by a company's financial leverage policy. The ROR metric, over time, is generally a good indicator of an insurer's underwriting skill and pricing discipline compared to peers and also captures investment performance.

The long duration of financial guaranty insurance contracts results in premiums being earned over an extended period of time and has a muting effect on the sensitivity of earnings to shifts in new business production. To more accurately assess a guarantor's earnings potential, we consider indicators of new business production, such as present value of gross premiums written, as well as gross par written in parallel with our assessment of earnings.

16 Note that while many accounting regimes include non-controlling interest in shareholders' equity, Moody's does not.

We also consider that net income can be meaningfully influenced by non-recurring favorable or unfavorable items, most notably realized gains/losses. For analytic units with meaningful investment-related gains/losses, we also consider these ratios excluding such gains/losses.

EXHIBIT 7

Return on Capital (5 yr. average)

Aa	A	Baa	Ba	B	Caa and lower
>10%	10% ≥ x > 5%	5% ≥ x > 0%	0% ≥ x > (5%)	(5%) ≥ x > (15%)	<= (15%)

Source: Moody's Investors Service

Relevant Metric: Sharpe Ratio of Return on Capital (5 yr. average)

Volatility in the company's return on capital.

The Sharpe ratio is the mean of the company's annual return on capital (5-year average) divided by the standard deviation of return on capital (five-year period).

The Sharpe ratio gauges the volatility in a company's reported returns relative to average profitability and helps us form an opinion about the predictability and sustainability of a company's earnings. The ratio considers net income, since a company's capital generation is driven by its net income, although capital gains/losses and taxes can be somewhat volatile and unpredictable or at other times used to reduce underlying operational volatility.

This ratio is of limited value when the numerator is zero or negative, in which case the sub-factor is scored with a numeric value of 17 (please see Appendix 1 for a table that maps alphanumeric and numeric scores). A distinct limitation of this ratio is that exposure to tail events could either dominate the Sharpe ratio when such events take place during the look-back period or be masked by relatively benign conditions, as they did prior to the 2008-09 financial crisis. Analyst-adjusted scores generally reflect our consideration of such events. The volatility metric is most useful in comparing companies' earnings volatility and in identifying trends affecting business mix.

EXHIBIT 8

Sharpe Ratio of Return on Capital (5 yr. average)

Aa	A	Baa	Ba	B	Caa and lower
>300%	300% ≥ x > 200%	200% ≥ x > 100%	100% ≥ x > 50%	50% ≥ x > 0%	n/a

Source: Moody's Investors Service

Factor 4: Financial Flexibility

Funding business growth via internal capital generation is a critical factor that also demonstrates a guarantor's ability to service its obligations without stress. Financially strong insurers benefit from having the capacity to raise capital externally for additional growth or acquisitions and to meet unexpected financial demands, whether from an unusually negative credit/market environment, earnings volatility or other planned or unplanned capital needs.

In general, lower risk insurers tend to have less leverage. However, the absence of debt is not necessarily a meaningful credit factor, because the ability to raise debt is likely to be adversely affected by the confidence-sensitive nature of the financial guarantor's business.

As such, although we take traditional leverage metrics into account in our analysis, we consider them less predictive of a guarantor's willingness and ability to raise capital under pressure, and focus more on management's willingness and ability to prioritize interests of policy and debt holders over those of equity holders.

Because of the heightened confidence-sensitivity of the financial guaranty business model, our measures of financial flexibility also focus more on assessing a guarantor's ability to access capital markets during times of stress.

Although not included in the scorecard metrics, our broader analysis includes quantitative measures of leverage[17] as well as estimates of cash flow coverage that reflect constraints on dividends out of regulated companies.

Relevant Metric: Financial Policy

Our assessment of management and board tolerance for financial risk

Management and board tolerance for financial risk is a key rating determinant, as it directly affects debt levels, credit quality and the risk of adverse changes in financing and capital structures.

Our assessment of financial policies reflects our opinion of the tolerance of an insurer's governing board and management for financial risk and the future direction for the insurer's capital structure. Considerations include an insurer's public commitments in this area, its track record for adhering to commitments, aspects of financial policy inherent in the guarantor's chosen legal structure and our views on the ability of the insurer to achieve its targets.

Financial risk tolerance serves as a guidepost to investment and capital allocation. Management at insurers with higher scores for this sub-factor typically demonstrate their commitment to maintaining a strong credit profile, and an expectation that management will be committed to sustaining an improved credit profile is often necessary to support an upgrade. Although we expect credit metrics to fluctuate over time, as guarantors respond to strategic opportunities or experience negative credit/market events, we look for evidence that management is committed to returning credit metrics to levels consistent with the guarantor's rating level.

We assess an issuer's desired capital structure or targeted credit profile and examine its historical actions and adherence to its commitments. We look at management's operating performance and use of cash flow through different phases of economic cycles. Also of interest is how management responds to key events in, for example, the credit market and liquidity environment, as well as legal actions, competitive challenges and regulatory pressures.

Finally, we consider a company's and its owners' past record of balancing shareholder returns and debt holders' interests. A track record of favoring shareholder returns at the expense of debt holders is likely to be viewed negatively in scoring this factor.

17 Financial leverage: Adjusted debt (financial debt (including preferred stock) + Moody's pension, hybrid and operating lease adjustments) divided by (adjusted debt + shareholders' equity).

EXHIBIT 9

Financial Policy

Very Strong (Aa)	Strong (A)	Moderate (Baa)	Limited (Ba)	Very limited (B)
Credit metrics that we expect will be maintained at very strong levels. Very conservative financial policies with no financially transforming events anticipated. Investor base generally very supportive of a creditor-friendly policy.	Credit metrics that we expect will be maintained at strong levels. Conservative financial policies with no expectation of share buybacks or other returns of capital to shareholders that would have deleterious effect on creditors. Investor base generally supportive of a creditor--friendly or balanced financial policy.	Financial policies that we expect will be balanced between stockholders and creditors, with the potential for rating migration following any significant return of capital to shareholders. Public commitment to metrics consistent with investment grade. Investor base generally supportive of a balanced financial policy.	History of any material returns to shareholders or debt-funded acquisitions that are clearly favorable to shareholders. Investor base that could be more supportive of a shareholder friendly financial policy.	Financial policies that leave very modest financial cushion for debt holders. Very focused on shareholder returns.

Source: Moody's Investors Service

Relevant Metric: Ease of Access to Capital

Our assessment of a company's ability to access capital markets on reasonable terms, in a cost-effective manner

We recognize the importance of a company's ability to maintain capital market confidence. Ready access to fresh capital is a credit positive for guarantors in the event of a material unexpected event, to fund an acquisition or simply to expand internal growth plans. The inability to cost-effectively access the capital markets at all or on attractive terms can significantly impair a company's financial flexibility. As a result, we view financial guarantors' access to the capital markets – which can be limited by outsized financial leverage, low coverage, poor execution of past capital markets transactions or headline risk – as an important credit consideration.

In assessing a guarantor's access to the capital markets, we consider evidence of past capital market activity, including the consistency with which a particular guarantor is able to raise capital when needed and the terms of such capital raises. We also consider market-based metrics such as credit spreads,[18] insured debt trading levels or market-to-book ratios, together with operational factors such as the current public securities registration, to determine whether a guarantor remains in a position to raise debt or equity capital. Although a mutual insurer may not be able to access capital markets in the same way as a public company, we consider its ability to raise capital through surplus notes and the propensity for further capital support from its surplus noteholders. The financial strength of a guarantor's parent entity, if it has one, is a key factor in our assessment of this sub-factor. A guarantor with a highly rated parent that views the guarantor as strategically important to its broader business may benefit from implicit or even explicit parental support for its capital market activities.

[18] CDS spreads are often a less meaningful indicator for the market's perception of credit risk for financial guarantors than is the case for many other sectors, because of the high demand for protection on guarantors, given the large notional amount of insured par outstanding.

EXHIBIT 10

Ease of Access to Capital

Very Strong (Aa)	Strong (A)	Moderate (Baa)	Limited (Ba)	Very limited (B)
Public company with established and consistent access to capital markets, evidenced as follows: » Recent debt or equity issuance » Stock price consistently above book value » CDS spreads indicative of high investment grade credit profile » Leverage and debt service coverage levels support access to debt finance	Public company or mutual with demonstrated recent access to capital markets, evidenced as follows: » Recent debt or equity issuance » Stock price at or above book value » CDS spreads indicative of investment grade credit profile » Leverage and debt service coverage levels support access to debt finance	Public company or mutual with demonstrated access to capital markets, evidenced as follows: » Issue of debt or equity capital in the past, but no recent access to capital markets » Stock price at or at least not meaningfully below book value » CDS spreads indicative of low investment grade credit profile » Leverage and debt service coverage levels support access to debt finance Or a private company that is a strategically important subsidiary of a strong group	Public company or mutual with limited access to capital markets, evidenced as follows: » No recent access to capital markets or access on unfavorable terms » Stock price consistently below book value » CDS spreads indicative of below-investment-grade credit profile » Leverage and debt service coverage levels do not support access to debt finance on favorable terms Or private company that is not a strategically important subsidiary of a strong group	Very limited access to capital markets, evidenced as follows: » No recent access to capital markets, or access on unfavorable terms » Stock price significantly below book value » CDS spreads indicative of deep speculative grade credit profile » Leverage and debt service coverage levels do not support access to debt finance

Source: Moody's Investors Service

Operating Environment

Although our analysis of insurers focuses predominantly on company-specific characteristics and on business and financial parameters in the context of an insurer's operations in its industry sector, an important component of our analysis – particularly in developing markets – is the extent to which external conditions can exert a meaningful influence on insurers' credit profiles.

The Operating Environment serves to capture relevant economic, social, judicial, institutional and general business conditions in a particular country as regards the insurance sector. Country-specific trends and developments can have as much of a bearing on insurers' long-term viability as the intrinsic strength of their own operations. Considerations can include the trajectory of economic development relative to other countries, major social or political developments and the degree of utilization, recognition and acceptance of insurance as a legitimate vehicle for asset accumulation and wealth-protection.

Relevant Metrics

The Operating Environment incorporates scores for multiple factors in two categories – Insurance Systemic Risk and Insurance Market Development – by country, based on the country in which an insurer operates. For insurers that have meaningful operations in multiple countries or jurisdictions, we consider a blended approach to evaluating the overall Operating Environment score.

Three of the five country-specific components of the Operating Environment score that pertain to Insurance Systemic Risk are based on macro-level indicators from our sovereign rating methodology[19] and country research. The remaining two components – pertaining to Insurance Market Development – address the degree of development of the insurance sector in a given country.[20]

Insurance Systemic Risk

Economic Strength: We use our *published factor score for the sovereign's Economic Strength*.

Institutions and Governance Strength: We use our *published factor score for the sovereign's Institutions and Governance Strength*.

Susceptibility to Event Risk: We use our *published factor score for the sovereign's Susceptibility to Event Risk.*

In each case, the broad alpha or alphanumeric sovereign factor score is mapped to a numeric as described below.

Insurance Market Development

Insurance Penetration (%): *Total (life and non-life) industry-wide insurance premiums (excluding cross-border business) as a percentage of GDP*. Insurance penetration addresses the significance of a country's insurance market in the national economy.

Insurance Density (percentile rank): *Percentile rank, worldwide, of total (life and non-life) industry-wide insurance premiums (excluding cross-border business) per capita*. Insurance density assesses the extent of utilization of insurance protection in a given country.

Interpreting the Operating Environment Metrics

In our view, the better the operating environment, the less it impinges on the intrinsic strength of an insurer's credit profile. To the extent the operating environment is considered more favorable than the insurer's own intrinsic credit profile, it is typically not a material consideration in the rating analysis.

Furthermore, operating environments at the A or higher rating level are considered to be sufficiently strong so as to be neutral with respect to insurers' credit profiles, and are therefore not considered Consequently, operating environments have only a neutral to negative impact on our ratings for insurers. Additionally, in our view, the weaker the operating environment, the greater influence it has on an insurer's overall credit profile, as the structural strength of the insurance industry and contractual agreements increasingly come into question.

Insurance Systemic Risk

Economic Strength: The intrinsic strength of an economy provides critical indications of a sovereign's resilience to external shocks. A sovereign's ability to generate sufficient revenue to service debt over the medium term relies on sustained economic growth and prosperity, i.e., wealth.

Institutions and Governance Strength: The strength of institutions and governance are important determinants of a sovereign's creditworthiness because they influence the predictability and stability of the legal and regulatory environment. Institutions and governance provide a strong indication of a government's

[19] For more details on our sovereign ratings methodology, a link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

[20] We generally assess the degree of development of the insurance sector in a given country from indicators such as those published annually by Swiss Re Sigma, or through equivalent data otherwise captured by Moody's.

willingness to repay its debt. They influence the sovereign's capacity and willingness to formulate and implement economic, fiscal and monetary policies that support growth, socioeconomic stability and fiscal sustainability, which in turn protect the interests of creditors over the long term.

Susceptibility to Event Risk: Susceptibility to sudden, extreme events that could severely impact a country's economy or its institutions, or strain public finances is an important indicator of a sovereign's creditworthiness. Event risks are varied and typically include domestic political and geopolitical risks, government liquidity risk, banking sector risk and external vulnerability risk. We believe that such events could have significant negative implications for financial institutions such as insurance companies.

Insurance Market Development

Insurance Penetration and Density: Insurance markets around the world vary significantly in their degree of development with respect to the range of product offerings, utilization and the significance of insurance as a means of risk mitigation and asset protection. Whereas Insurance Penetration considers the importance of the industry sector relative to the overall national economy, Insurance Density considers its importance relative to the population base of a country, thereby providing a helpful demographic perspective.

Taken together, these two measures offer a more balanced perspective than either one taken in isolation. Broadly speaking, the higher the penetration and density levels, the more highly developed the insurance market, including the scopes of coverage provided, and the greater the perceived utility of the product. We also note that the particularities of different countries' insurance market structure and insurance accounting can significantly influence their penetration and density levels. Nevertheless, we believe that insurance penetration and density provide a meaningful basis of macro-level differentiation among countries with respect to the utilization and development of insurance.

Calculating the Operating Environment Score

The Operating Environment score is derived by the combining the scores for Insurance Systemic Risk, composed of Economic Strength (25%), Institutions and Governance Strength (50%) and Susceptibility to Event Risk (25%) with Insurance Market Development, composed of Insurance Penetration (50%) and Insurance Density (50%).

For Insurance Systemic Risk, we start with the published factor scores for the sovereign's Economic Strength and Institutions and Governance Strength, which are expressed on an alphanumeric scale, and Susceptibility to Event Risk, which is expressed on a broad alpha scale.[21] We then convert these scores to numeric scores using the two Mapping Sovereign Rating Methodology Scoring tables below (Exhibits 11 and 12), and we combine them according to the weights described in the prior paragraph. Specifically, the numeric equivalent score for each sovereign methodology factor assigned score is multiplied by its weight, with the results then summed to produce a numeric Insurance Systemic Risk factor score.

[21] Broad alpha scores ranging from Aa to Caa are mapped at the midpoint of the associated alphanumeric scores; e.g., for an Aa broad alpha score, we would use Aa2, which maps to a numeric equivalent of 1.71 using the exhibit for Mapping Sovereign Rating Methodology Scoring for Susceptibility to Event Risk.

EXHIBIT 11

Mapping Sovereign Rating Methodology Scoring for Economic Strength and Institutions and Governance Strength*

Economic Strength and Institutions and Governance Strength	Numeric Equivalent
aaa, aa1	2.00
aa2, aa3	1.71
a1	1.43
a2	1.14
a3	0.86
baa1	0.57
baa2	0.29
baa3	0.00
ba1, ba2	-0.29
ba3	-0.57
b1	-0.86
b2	-1.14
b3	-1.43
caa1, caa2	-1.71
caa3, ca	-2.00

* The effect of this mapping is to compress the alphanumeric sovereign factor scores and convert them to a numeric score for use in the scorecard for Financial Guarantors.

Source: Moody's Investors Service

EXHIBIT 12

Mapping Sovereign Rating Methodology Scoring for Susceptibility to Event Risk

Susceptibility to Event Risk	Numeric Equivalent
aaa	2.00
aa	1.71
a	1.43
baa	0.57
ba	0.00
b	-0.86
caa	-1.71
ca	-2.00

Source: Moody's Investors Service

The Insurance Systemic Risk score is then mapped back to an alphanumeric score as shown in the table below.

The Insurance Market Development factor is based on a simple averaging of separate indicators for Insurance Penetration (total premiums – life and non-life – as a percentage of GDP) and insurance density (total premiums – life and non-life – per capita). We map Insurance Market Penetration to the global rating scale directly as indicated in the table below. Insurance Density is assessed by country, and then measured or estimated on a worldwide percentile-rank basis, with premiums denominated in US dollars. We calculate the Insurance Market Development factor using three-year averages. We then map these results to our global rating scale as shown in the table below.

Modifiers (1, 2, 3) for broad alpha categories from Aa to Caa are produced by interpolating the numerical result to the upper, middle and lower tercile of each factor range, as indicated in the following table.

EXHIBIT 13

Summary of Relevant Metrics:

Indicator	Factor Weights	Sub-factor Weights	Aaa	Aa	A	Baa	Ba	B	Caa
Insurance systemic risk	2/3		2.0	2.0-1.0	1.0-0.5	0.5-0	0-(0.5)	(0.5)-(1.0)	<(1.0)
Insurance market development	1/3								
Insurance penetration (% GDP)		50%	>=6.5%	5.5%-6.5%	4.5%-5.5%	3.5%-4.5%	2.5%-3.5%	1.5%-2.5%	<1.5%
Insurance density (percentile rank)		50%	>=90%	75%-89%	60%-74%	45%-59%	30%-44%	15%-29%	<15%

* An indicator's alphanumeric scoring bands are based on an equal-width partition of the corresponding broad alpha scoring band for the indicator.

Source: Moody's Investors Service

Having calculated the Insurance Systemic Risk and Insurance Market Development indicators, and mapping each to our global rating scale, these two factors are, in turn, mapped to Aaa to Caa3 (1-19; please see the first table in Appendix 1, which shows alphanumeric and numeric equivalents). The final Operating Environment score is then determined by averaging these numeric scores with a 2/3 weight for Insurance Systemic Risk and a 1/3 weight for Insurance Market Development, and then mapping the result (rounded to the nearest whole number between 1 and 19) to Aaa to Caa3, using the first table in Appendix 1. Absent extraordinary systemic (e.g., economic, social, institutional, political, and judicial) or market development considerations that may not be adequately reflected in these metrics, we generally expect to apply the Operating Environment result without further modification.

Other Scorecard Considerations in Determining the Standalone Credit Profile: Notching Factors

Management, Governance and Risk Management

We evaluate an insurer's management, governance, and risk management processes as part of our credit assessment. However, an insurer's management, governance, and risk management only affect the scorecard-indicated outcome to the extent we believe they are not reflected in the Preliminary Standalone Outcome score derived from the Business Profile, Financial Profile and Operating Environment discussed above. Notching for these factors has typically been limited. That said, in some instances, further assessment of management, governance or risk management may lead to upward or downward notching. Considerations in this factor include:

» Key person risk. A high dependence on a single executive or group of executives can pose increased risks, because the loss of a single person could adversely affect the insurer's future fundamentals. For example, an insurer whose corporate customers closely associate the chief executive with the institution itself could suffer loss of business, earnings and ultimately reduced capital if the chief executive were to leave, absent adequate succession planning.

» Strategy and management. A radical departure in strategy, a shake-up in management, or an untested team can all herald sudden change that increases the uncertainty about risk profile. An aggressive growth plan can also signal an elevated risk appetite, while clear weaknesses in risk management can increase exposure to adverse developments. Any concerns regarding the rigor of Board or management oversight may also be considered here.

» Dividend policy. An aggressive dividend policy may imply reduced financial flexibility. Management teams are often slow to reduce established dividend levels out of concern over negative signaling and adverse share price impact. (The same can be said of share buybacks, although to a lesser extent, as the timing and certainty of execution of even announced buyback programs leave greater management discretion).

» Compensation policy. Similarly, an aggressive compensation policy, for example, widespread use of high bonus payments relative to salaries, and skewed towards cash, may encourage short-term risk-taking behavior to the detriment of bondholders.

We may reduce our Preliminary Standalone Outcome score if we judge that any of these factors has a material bearing on the insurer's overall risk profile. Typically, this would be one notch but could be more if we perceive multiple and/or more deep-seated and serious issues. We may also adjust our Preliminary Standalone Outcome score upwards, for example where we perceive sustained exemplary stewardship over time, or exceptional risk management and controls, with a tangible impact on the insurer's risk profile.

Accounting Policy and Disclosures

Relevant and timely financial information is a critical part of any financial analysis. Many insurers prepare financial information under generally accepted accounting principles either developed by their home country or based on international standards. Financial information is also generally prepared on a regulatory basis of accounting that could be different from generally accepted accounting principles. The presence of a strong government/independent body for financial standards is considered a positive factor when evaluating an accounting regime.

Disclosure of financial information varies widely on a global basis and within regions. In certain locations, regulatory bodies provide access to financial information, although the depth of that information also varies. Some companies have chosen to provide easy access to their own financial data, which we view favorably.

The consistent application of financial information is a fundamental presumption of financial analysis. When evaluating accounting principles, we consider how well financial reporting mirrors economic reality. Where we believe the economics of a transaction are not consistent with financial reporting, we may make analytic adjustments to metrics derived from financial statements to facilitate our analysis..

Sovereign and Regulatory Environment

Deterioration in sovereign credit quality can directly affect the credit standing of insurers domiciled within the sovereign, and, more generally, tends to be associated with macroeconomic and financial market trends that are unfavorable for all.[22] Issuers in the same sovereign environment are exposed to some degree to the transmission of shocks across sectors in the economy and the domestic banking system. In addition, they are subject to defensive sovereign actions that can include austerity measures, changes in tax or regulatory policies, and interference during a crisis. Given this linkage, sovereign credit quality can constrain the IFSR of an insurer.

Our cross-sector methodology that discusses how sovereign credit quality can affect other ratings describes how we consider the insurer's geographic diversification, direct exposure to government debt and product

[22] See our methodology that discusses how sovereign credit quality can affect other ratings. A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

characteristics in analyzing these impacts. Insurers with high geographic diversification, low direct exposure to government debt and product characteristics that are less sensitive to sovereign risks can have an IFSR above the sovereign rating, but generally no more than two notches above.

Moving from the Standalone Credit Profile to the IFSR — Assessing Support

While the above factors are critical in order to determine the standalone credit profile of financial guarantors, the analytic consideration of support - explicit or implicit - from a parent company or affiliate is necessary to determine the IFSR, which can be higher than the company's standalone credit profile. It is important to note that a well-capitalized, profitable insurance operating company with a highly leveraged parent or a weak affiliate often has a lower IFSR than it would have were it a free-standing company, because of the pressure those factors can place on its earnings and capital.

Support from a Parent Company or Affiliate

The credit rating of an insurer can ultimately be affected by its relationship to its parent, a subsidiary or affiliate companies through either explicit or implicit support.[23] We incorporate support from a parent company or affiliate into the rating by narrowing the spread (expressed in number of rating notches) between the standalone credit profile of the entity/security and the rating of the entity providing the support.[24]

Ultimately, our assessment of the extent to which the affiliation benefits the rating is based on a number of variables, including the supporting company's level of commitment to the country or region of the affiliate, brand-name sharing, our assessment of how important this entity is to the overall enterprise business model, its size relative to the whole, its geographic proximity to the supporting entity, the existence of shared regulatory oversight, full or partial ownership, and its integration with the rest of the organization from a management, distribution and operating perspective, as well as our view of the company's ability and willingness to support that entity. Support is evaluated incorporating an assessment of past actions of the provider of support, current public statements of support and our assessment of the outlook for future support.

Our judgment of how the prospective supporting entity is likely to behave in the future is strongly influenced by our assessment of its prospective economic motivations. Accordingly, strong public statements of support would not be a persuasive reason to raise the rating of a weaker subsidiary if a sound economic rationale for doing so seems lacking. Although support may provide uplift to a company's rating, it may not necessarily raise it to the same level as that of the supporting entity.

While, in most instances, support is incrementally positive, there are instances where group affiliation may constrain the rating of an entity/security relative to its standalone level. For example, if the insurer is affiliated with weak or highly leveraged entities, such associations usually, in turn, weaken the insurer. Capital often flows from stronger to weaker companies within a controlled group and frequently before regulatory action can occur.

Explicit support is usually intended to transfer the credit of the supporting entity to the supported affiliate or obligation. Explicit support generally takes the form of a capital maintenance agreement, minimum net

23 For additional discussion of our rating guidance related to support, see our cross-sector rating methodology on rating non-guaranteed subsidiaries, which includes credit considerations for assigning subsidiary ratings in the absence of legally binding parental support. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section. In addition, affiliate companies generally refer to companies outside of the analytic unit being rated.

24 When this occurs, our research typically describes the relationship between the analytic unit and the supporting organization and provides a discussion of the standalone credit profile of the analytic unit.

worth agreement or some type of direct guarantee. It can also take the form of management contracts, marketing arrangements, reinsurance agreements or tax-sharing agreements.

In analyzing explicit support, we consider the specific legal nature and enforceability of the support, as well as its possible termination. Explicit support, depending on its structure, can achieve credit transference quality and bring the affiliate's rating up to that of the supporting entity. However, we also make an assessment as to whether the extension of this support (as well as with implicit support) will weaken the credit profile of the parent or affiliate.

Where support is present, the IFSR typically receives one or two notches of uplift from the standalone credit profile. Although rare, three or more notches of uplift is possible, although typically only when strong explicit support is provided. In addition, uplift such that the supported entity's rating is equal to the supporter's rating is rare without meaningful explicit support. This can be the case even where the company's management states that the subsidiary is core to its ongoing strategy and operation, primarily owing to the risks that the supporter may change its strategy or the supporter's regulator may constrain support in times of stress, particularly if support is to be provided outside of their own jurisdiction.

Where the owner-supporter is a government, and we are using this methodology to assign a BCA to incorporate support we use our methodology that discusses government-related issuers and the joint default analysis approach described therein. For clarity, support from a non-government owner is incorporated using the support portion of the financial guarantors scorecard, whereas support from a government owner is considered outside of the financial guarantors scorecard.

Factoring in Support from Other-Than-Related Entities

Our ratings of financial guarantors do not typically reflect an expectation of government support. Based on our observations, we believe government support would neither be widely offered nor sufficiently reliable nor predictable to be routinely incorporated into our financial guarantor ratings. In the limited cases where such support is received, we consider its credit implications on a case-by-case basis. If we believe government support is long term in nature, or if the insurer is directly owned by the government, we may apply our rating methodology for government-related issuers[25] when evaluating the credit profile of the insurer. (Please see the Assigning Insurance Financial Strength and Instrument Ratings section).

If the insurer is part of a bancassurance group, and there is clear evidence that failure of the insurer would have negative implications on the creditworthiness of banking operations, the likelihood of support by the government may increase. However, we expect such support to be rarely applied and focused on limiting any damage to the bank franchise.

Other Rating Considerations

Ratings may include additional factors that are not in the scorecard, usually because they may have a meaningful effect in differentiating credit quality, but only in some cases. Such factors include financial controls and the quality of financial reporting; the quality and experience of management; environmental and social considerations; exposure to uncertain licensing regimes; and possible government interference in some countries. Regulatory, litigation, liquidity, technology and reputational risk as well as changes to consumer and business spending patterns, competitor strategies and macroeconomic trends also affect ratings.

[25] A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

Following are some examples of additional considerations that may be reflected in our ratings and that may cause ratings to be different from scorecard-indicated outcomes.

Special Rating Situations

Rating Run-off Companies

Financial guarantors that become weakened, for example during a financial crisis, can enter a state of run-off for a wide range of reasons, including financial stress and regulatory intervention, an inability to attract new business, dissatisfaction with risk-adjusted returns of new production or a desire to unwind their operations.

In assessing firms in run-off, we consider the guarantor's claims-paying status and the reasons for its lack of new production. Our assessments of guarantors that are not paying claims when due or that are settling such claims at a discount or through a mix of cash and debt (often subordinated notes) are likely to be based on our assessment of the ultimate loss on claims. Companies that are in run-off but currently have ample claims-paying resources and have demonstrated a willingness to pay such claims in a timely fashion are assessed based on the strategic reason for the run-off, the magnitude and stability of claims-paying resources (including consideration of formal and informal support) relative to actual claims and the likelihood of re-entry into the market. Guarantors that have decided, or are at risk of deciding, to exit the business are assessed somewhat more conservatively absent mitigating factors (regulatory or otherwise), given the increased incentives for accelerated extraction of financial resources that would not be rebuilt over time.

Other Special Situations

In a few, very special – and typically adverse – situations, a single rating factor or sub-factor may be so important to a company's financial health and solvency that it overrides all of the others, despite its nominal weighting in the scorecard. This would typically occur in highly adverse situations, where a company's solvency or liquidity is at stake. Examples of this would include the breach of local capital-solvency or risk-based capital thresholds that precede regulatory intervention, or concerns of a looming liquidity crisis – e.g., a material holding company debt maturity with a highly uncertain source of repayment.

If a rated entity has cliff-like rating triggers,[26] its susceptibility to events may be exacerbated.

Special Rating Situations often deal with information that is not necessarily captured by point-in-time ratios, or annual/quarterly regulatory or reporting requirements. For this reason, we may stress critical solvency ratios and liquidity needs to identify potentially severe pressure points, and the resultant scenario may be considered in an additional view of the scorecard.

Liquidity

Liquidity is a consideration that can be critical to ratings, because weak liquidity magnifies other risks faced by financial guarantors. However, in many circumstances, it may not have a substantial impact in discriminating between two issuers with a similarly strong credit profile, where one has a good liquidity position while the other has an extremely good liquidity position. We typically form an opinion on likely near-term liquidity requirements from the perspective of both sources and uses of cash, and we may also consider how the stress scenarios used in assessing Risk-Adjusted Capital Coverage affect an issuer's liquidity.

[26] Rating triggers are typically used in credit agreements covering funded bank loans and unfunded credit lines (providing back-stop liquidity) and in bond indentures and reinsurance contracts. Creditors often use rating triggers in an attempt to protect themselves in the event of credit deterioration. A rating trigger typically provides creditors with certain rights in the event that a borrower's credit ratings change to predetermined levels. These rights run the gamut from step-ups in loan pricing (not very risky) to events of default that would enable the creditor to "put" or accelerate the debt (very risky).

Financial Controls

We rely on the accuracy of audited financial statements to assign and monitor ratings in this sector. The quality of financial statements may be influenced by internal controls, including the proper tone at the top, centralized operations, and consistency in accounting policies and procedures. Auditors' comments in financial reports and unusual financial statement restatements or delays in regulatory filings may indicate weaknesses in internal controls.

Additional Metrics

The metrics included in the scorecard are those that are generally most important in assigning ratings to companies in this industry; however, we may use additional metrics to inform our analysis of specific companies. These additional metrics may be important to our forward view of metrics that are in the scorecard or other rating factors.

Financial Institutions with Limited Financial History

Most rated insurers have many years of financial history and lengthy operating track records that generally act as the basis for our forward-looking credit analysis. Insurers with limited financial history may undergo rapid evolution initially, before developing readily distinguishable and stable operating characteristics. Financial institutions are highly confidence-sensitive. A demonstrable track record can be instrumental in building customer and market trust, which creates franchise value and supports the institution's performance during a down cycle.

The franchise value of start-up insurers is usually weak, and most tend to lack product depth, market share, operating experience as an institution (rather than as a collection of individuals) and a record of resilience through a full credit cycle. Their systems, policies and procedures tend to be less robust than those of established insurers.

For start-ups that lack a financial history of at least several years and in cases of a material transformation in an insurer's business, such that its financial history does not provide a good indication of future results (collectively, insurers with limited financial history), existing financial history provides less insight into the future credit profile. In these cases, our baseline projections may reflect more-conservative expectations than management's projections. In addition, we are likely to make downward adjustments to several factors in our scorecard in order to reflect the considerable uncertainty around our baseline expectations of future operations and financial profile. To the extent these risks and uncertainties are not fully captured in the scorecard, they may be reflected in an assigned IFSR that is lower than the scorecard-indicated outcome.

Insurers with limited financial history may benefit from external support. When material, we incorporate that support into our ratings. In assessing the level of expected support, we generally consider whether the company's status as a start-up could affect the willingness of the support provider to step in should support be needed. For a highly publicized start-up subsidiary of a parent with a solid credit profile, we may expect a high level of support. Certain parent companies and affiliates, conversely, could be less willing to provide support if the reputational and financial risks attached to failure of an early-stage business venture were lower than for subsidiaries with long track records and entrenched businesses in their home markets. We generally expect that governmental support for start-ups, typically small players in the early years of operations that are not systemically important, to be low. Exceptions could include government-owned start-ups and start-up insurers of long-term strategic importance to government policy initiatives.

Important considerations for rating start-up financial guarantors include the following:

» The industry's current economic climate

- The reasonableness and ultimate expected viability of its business plan and financial projections, including any uncertainty surrounding the company's ability to establish a viable financial guaranty franchise over the medium term and the key risks it faces during the ramp-up period
- The competence and cohesiveness of the senior management team
- The suitability of the firm's initial operating infrastructure and its capacity to meet the needs of a growing business
- The firm's ability to withstand stress scenarios
- The financial guarantor's capital wherewithal and the objectives of the investor base
- The strategic options of the firm and the potential effect on its credit profile if its initial strategy fails

Environmental Considerations

Financial guarantors have exposure to US municipal issuers (including municipal revenue enterprises) that could be affected by regulation, environmental events and natural disasters. For financial guarantors, this risk is typically mitigated by their portfolio diversification. Our review of business and financial risk typically includes reviews of geographic and sector concentrations within insured portfolios.

Social Issues

For issuers in this sector, we also consider social issues that could materially affect the likelihood of default and severity of loss, for example through adverse impacts on business reputation, brand strength and employee relations.

Assigning Insurance Financial Strength and Instrument Ratings

IFSRs are opinions of the ability of insurance companies to pay punctually senior policyholder obligations and claims and also reflect the expected financial loss suffered in the event of default.[27] IFSRs are assigned to legal entities.

In contrast, our long-term debt and preferred stock ratings are assigned to specific instruments issued by either a holding or operating company. The relationship between IFSRs and instrument ratings depends on the legal and regulatory framework in a particular jurisdiction and the relative standing of policyholders and instrument holders in the event of insolvency, bankruptcy, reorganization or liquidation of the entity. The relationship between the ratings for these different classes of creditors is discussed in our cross-sector methodology providing guidance on assigning ratings to instruments issued by insurers.[28] For issuers that benefit from rating uplift from government ownership or other government support, we may assign a Baseline Credit Assessment.[29]

27 Please refer to *Rating Symbols and Definitions* for more details; a link can be found in the "Moody's Related Publications" section.

28 A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

29 For an explanation of the Baseline Credit Assessment, please refer to Rating Symbols and Definitions and to our cross-sector methodology for government-related issuers. A link to an index of our sector and cross-sector methodologies and a link to Rating Symbols and Definitions can be found in the "Moody's Related Publications" section.

Assumptions

Key rating assumptions that apply in this sector include our view that sovereign credit risk is strongly correlated with that of other domestic issuers, that legal priority of claim affects average recovery on different classes of debt sufficiently to generally warrant differences in ratings for different debt classes of the same issuer, and the assumption that access to liquidity is a strong driver of credit risk.

Our forward-looking opinions are based on assumptions that may prove, in hindsight, to have been incorrect. Reasons for this could include unanticipated changes in any of the following: the macroeconomic environment, general financial market conditions, industry competition, disruptive technology, or regulatory and legal actions.

Limitations

In the preceding sections, we have discussed the scorecard factors, many of the other rating considerations that may be important in assigning ratings, and certain key assumptions. In this section, we discuss limitations that pertain to the scorecard and to the overall rating methodology.

Limitations of the Scorecard

There are various reasons why scorecard-indicated outcomes may not map closely to actual ratings.

The scorecard in this rating methodology is a relatively simple tool focused on indicators for relative credit strength. Credit loss and recovery considerations, which are typically more important as an issuer gets closer to default, may not be fully captured in the scorecard. The scorecard is also limited by its upper and lower bounds, causing scorecard-indicated outcomes to be less likely to align with ratings for issuers at the upper and lower ends of the rating scale.

The weights for each sub-factor and factor in the scorecard represent an approximation of their importance for rating decisions across the sector, but the actual importance of a particular factor may vary substantially based on an individual company's circumstances.

Factors that are outside the scorecard, including those discussed above in the "Other Rating Considerations" section, may be important for ratings, and their relative importance may also vary from company to company. In addition, certain broad methodological considerations described in one or more cross-sector rating methodologies may be relevant to ratings in this sector.[30] Examples of such considerations include the following: how sovereign credit quality affects non-sovereign issuers, the assessment of credit support from other entities, the relative ranking of different classes of debt and hybrid securities, and the assignment of short-term ratings.

We may use the scorecard over various historical or forward-looking time periods. Furthermore, in our ratings we often incorporate directional views of risks and mitigants in a qualitative way.

[30] A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

General Limitations of the Methodology

This methodology document does not include an exhaustive description of all factors that we may consider in assigning ratings in this sector. Companies in the sector may face new risks or new combinations of risks, and they may develop new strategies to mitigate risk. We seek to incorporate all material credit considerations in ratings and to take the most forward-looking perspective that visibility into these risks and mitigants permits.

Ratings reflect our expectations for an issuer's future performance; however, as the forward horizon lengthens, uncertainty increases and the utility of precise estimates, as scorecard inputs or in other rating considerations, typically diminishes. In any case, predicting the future is subject to substantial uncertainty.

Appendix 1: Using the Scorecard

This appendix describes how we use the scorecard to arrive at an alphanumeric scorecard-indicated outcome.

Alphanumeric categories from Aaa to Caa3 are mapped to numeric values of 1 through 19 as follows:

EXHIBIT 14

Alphanumeric Categories	Numeric Value
Aaa	x < 2
Aa1	2 ≤ x < 3
Aa2	3 ≤ x < 4
Aa3	4 ≤ x < 5
A1	5 ≤ x < 6
A2	6 ≤ x < 7
A3	7 ≤ x < 8
Baa1	8 ≤ x < 9
Baa2	9 ≤ x < 10
Baa3	10 ≤ x < 11
Ba1	11 ≤ x < 12
Ba2	12 ≤ x < 13
Ba3	13 ≤ x < 14
B1	14 ≤ x < 15
B2	15 ≤ x < 16
B3	16 ≤ x < 17
Caa1	17 ≤ x < 18
Caa2	18 ≤ x < 19
Caa3	x ≥ 19

Source: Moody's Investors Service

Qualitative sub-factors are scored on a broad alpha scale based on the scoring descriptions (with an equivalent numeric score based on the midpoint of that alpha category), and these sub-factor scores are combined to produce an alphanumeric factor score. A numeric value for each score is mapped from the table above. A numeric value between 2 and 17 is established for each financial metric through linear interpolation. Taking, for example, the scoring ranges for the Profitability factor, a company with return on capital of 6% would map to a numeric score of 7.4, and fall within the A range for that metric, and a company with return on capital of 1% (mapping to a 10.4 numeric score) would fall within the Baa range. The weightings per the table below are then applied to arrive at an overall numeric value for each scorecard factor. The numeric value by scorecard factor is mapped back to the Aaa through Caa3 scale shown above.

Each scorecard factor is assessed and then weighted according to its importance within our rating approach for the industry. The Operating Environment score, to the extent it corresponds to a broad alpha category of Baa or below, is accorded a weight as shown in the following table. These weights apply regardless of the modifier (1, 2 or 3). The operating environment's weight is variable and increases toward the lower end of the rating scale for scores at the Baa level or below. Importantly, the Operating Environment component is reflected in an insurer's credit profile only to the extent that it exerts a downward influence.

EXHIBIT 15

	Aaa	Aa	A	Baa	Ba	B	Caa
Operating Environment Weights	N/A	N/A	N/A	20%	40%	60%	80%

Source: Moody's Investors Service

Once the weighted average result (based on the company-specific business and financial factors) is calculated, it is multiplied by one minus the Operating Environment weight, and then added to the result of the Operating Environment weight multiplied by the numeric value associated with the Operating Environment component. Using those weightings, a weighted average is calculated, which is then mapped back to the Aaa to Caa3 scale shown above. The result is oriented to the IFSR in the local or foreign currency. This scorecard-indicated outcome may be different from the final rating because it does not consider the analyst's input on the individual factors, or management and governance, special rating situations, and accounting policy and disclosures, or implicit/explicit support.

The weightings shown below are our assessment of the typical relative importance of the company-specific factors and sub-factors and of the Operating Environment for financial guarantors, but in assigning ratings, individual factors or sub-factors may have greater or lesser weight, depending on the specific characteristics of the insurer. The metrics are primarily calculated based on public information. Non-public financial data or public financial data modified due to accounting and reporting formats in other than US GAAP or IFRS may also be used.

EXHIBIT 16

	Factor Weights	Metric Weights (relative to factor weights)
Business Profile		
Factor 1: Market Environment and Product Strategy	**25%**	
Industry Environment		12.5%
Market Position & Product Strategy		12.5%
Financial Profile		
Factor 2: Portfolio Characteristics & Capital Adequacy	**40%**	
Risk-Adjusted Capital Coverage		40%
Factor 3: Profitability	**20%**	
Underwriting Margin (5 yr average)		7.5%
Return on Capital (5 yr average)		7.5%
Sharpe Ratio of ROC (5 yr)		5.0%
Factor 4: Financial Flexibility	**15%**	
Financial Policy		7.5%
Ease of Access to Capital		7.5%
Subtotal – company-specific factors	100%	
Operating Environment	**Variable (see above)**	

Source: Moody's Investors Service

Differences between the scorecard-indicated outcome and the standalone credit profile may exist due to analytic judgment regarding the weighting of the factors, the importance of the other analytic considerations, or other unique fundamentals of the company not appropriately captured or weighted by this scorecard. Furthermore, the standalone credit profile may be different from the actual rating due to affiliate support or sovereign considerations.

Appendix 2: Rating Families for the Purpose of Capital Adequacy Stress Scenario

A rating family is defined as issuers with shared revenues and/or economic base, and shared governance or administration. Below are illustrations of certain types of state and local entities that could be included in rating families in the municipal sector.

EXHIBIT 17

Rating Family 1	Rating Family 2	Rating Family 3	Rating Family 4
State of ABC General Obligation (GO)	Commonwealth of DEF GO	City of GHI GO	City of JKL GO
ABC Economic Development Authority State Pension Obligation	DEF Electric Power Authority	City of GHI Board of Education/ Schools	City of JKL Transitional Finance Authority
ABC Development Authority Lease/ Bonds	DEF Highway and Transport Authority		City of JKL Municipal Water Finance Authority
ABC State Preservation Trust,	DEF Government Development Bank GO		
	DEF Municipal Finance Authority		
	DEF Public Finance Corporation		
	DEF Public Buildings Authority		

Source: Moody's Investors Service

Moody's Related Publications

Credit ratings are primarily determined by sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. An index of sector and cross-sector credit rating methodologies can be found here.

For data summarizing the historical robustness and predictive power of credit ratings, please click here.

For further information, please refer to *Rating Symbols and Definitions*, which is available here.

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