MOODY'S INVESTORS SERVICE

RATING METHODOLOGY

Mortgage Insurers Methodology

This rating methodology replaces the *Mortgage Insurers* methodology published in November 2019. In this update, we have clarified the presentation of the scoring thresholds in the Summary of Relevant Metrics table in the discussion of the Operating Environment component. The updates do not change our methodological approach.

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Introduction

In this rating methodology, we explain our general approach to assessing credit risk for issuers in the mortgage insurance 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 mortgage insurers; (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 appendix, we describe how we use the scorecard.

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 mortgage insurers 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 Mortgage Insurance Companies

Our general approach to assessing the credit risk of the various obligations of mortgage insurance companies 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 mortgage insurers 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.

Business Profile	Financial Profile	Operating Environment
Factor 1: Market Position	Factor 3: Capital Adequacy	Insurance Systemic Risk Factor
Factor 2: Housing Market Attributes	Factor 4: Profitability	Insurance Market Development Factor
	Factor 5: Financial Flexibility	

Source: Moody's Investors Service

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.

In the following sections, we describe key factors underlying a mortgage insurer's business and financial profiles, 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 an insurer's standalone credit profile, what the relevant financial metrics are in analyzing these factors, including regional/supplemental metrics, and how we interpret those metrics.

The top score for each scorecard factor is capped at a rating level of Aa to reflect our view that mortgage insurers, with their monoline profile and the risk of exposure to potentially crippling losses due to the correlated nature of their insured exposures, have credit characteristics that are not compatible with the performance certainty implied by our highest rating levels. Ratings in the Aaa and Aa categories are not anticipated other than perhaps in situations where atypical governance, capital structures, contractual and/or structural support mechanisms (e.g., a guaranty from a highly rated parent, government or multilateral institution) exist that would mitigate the inherent fragilities of a monoline mortgage insurance business model.

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.

Given the inherent cyclicality of the mortgage 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 mortgage insurers worldwide, incorporating the business and 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.

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 factors represent 45% of the overall fixed scorecard weights, and the Financial Profile factors represent 55%; 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 calculates an unadjusted score for each factor, and analysts typically populate the scorecard with an adjusted score which can range from Aaa to C. The score is derived from the raw metrics (see Appendix 1) 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
Mortgage Insurers Rating Methodology Scorecard Factors and Weights

			Weight	Aa	A	Baa	Ba	B	Score	Adjusted Score
Business Profile			**45%**							
	Market Position		**20%**							
		Avg. NIW as a % of Total Industry NIW	5%							
		Prime Loan (% of RIF)	5%							
		Client Concentration	5%							
		Geographic Concentration	5%							
	Housing Market Attributes		**25%**							
		Demand for Mortgage Insurance	8.3%							
		Generic Loan Attributes	8.3%							
		Housing Conditions	8.3%							
Financial Profile			**55%**							
	Capital Adequacy		**30%**							
		Adjusted Risk-to-Capital Ratio	30%							
	Profitability		**15%**							
		Return on Capital (after-tax) – 5 yr avg	5%							
		Combined Ratio (SAP) – 5 yr avg	10%							
	Financial Flexibility		**10%**							
		Cash Flow Coverage – 5 yr avg	4%							
		Adjusted Financial Leverage	3%							
		Total Leverage	3%							
Operating Environment										
Aggregate Profile										

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.

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 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.[9] Our adjustments may incorporate non-public information.

Incorporating Scenario Analysis and Stress Testing for Mortgage Insurers

Developing a forward-looking assessment of an insurer's financial performance under an expected case and stress case is usually important to our assessment of financial strength. Our expectations of an insurer's results over the medium term reflect our opinion of current and projected market conditions. The nature of an insurer's operating and business profile, as well as its product offerings, mean that we may have differing levels of confidence in a particular expected case or stress case scenario.

In addition, our credit analysis includes an assessment of the downside risks faced by insurers and their creditors. Because challenging economic and financial events do occur, with potentially adverse effects on the financial and business profiles of mortgage insurers, we typically include an analysis of stress scenarios as a part of our analysis.

Stress analysis can take different forms. To assess the impact of stress on an insurer, we may employ a number of different approaches as each situation dictates, including assessing insurers' own capital models and performing ad hoc scenario analysis. Our ratings reflect an expected scenario but also take into consideration the impact of stress scenarios on a company's credit profile. We generally expect an insurer to be able to withstand moderate stress while maintaining a credit profile consistent with its assigned rating

[9] 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.

and that the application of a severe stress scenario would result in a credit profile deterioration of no more than a few notches below the assigned rating.

Discussion of the Scorecard Factors – Business Profile

Factor 1: Market Position

Why It Matters

Market Position captures an insurer's ability to develop and sustain competitive advantages in its chosen markets. The strength of a mortgage insurer's competitive position and prospects for growth may have a direct bearing on its future returns and ability to generate capital internally. In addition, a mortgage insurer with a strong market position and brand is better able to withstand prolonged downturns in the business environment and capitalize on new, potentially profitable opportunities that may develop in the future. Conversely, an insurer with a weak business franchise is more susceptible to financial stress. This is typically indicative of a company that has little pricing power and/or few customers, and which generates low or erratic core profitability, possibly leading management to enter unfamiliar businesses, take on new and unfamiliar risks, or leverage the company in order to boost returns.

The characteristics of a mortgage insurer's portfolio could impact its market position and are included in this factor. Portfolio characteristics may indicate which segments of the market are open to mortgage insurance and/or reflect management's overall risk appetite and underwriting discipline, as well as any material migration of credit quality trends within a mortgage insurer's insured portfolio.

Relevant Metrics

» Average New Insurance Written (NIW) as a % of Total Industry NIW: Average of last two years of new insurance written divided by total new insurance written for the mortgage insurance industry in a given country, including government-supported mortgage insurance[10] and adjusted for regional market size

» Prime Loan (% of Risk-in-Force): Primary prime loans divided by total risk-in-force (RIF)[11] where a prime loan is broadly defined as a fully documented residential mortgage loan,[12] underwritten in line with conservative debt service standards[13] and extended to a high-quality borrower[14]

» Client Concentration: Primary insurance-in-force from the top three mortgage lenders divided by total primary insurance-in-force in a given jurisdiction

» Geographic Concentration: Primary insurance-in-force for the top three states divided by total primary insurance-in-force in a given jurisdiction[15]

10 In the US, the Federal Housing Administration (FHA), a government agency, offers mortgage insurance. Greater government participation in the mortgage insurance market generally pressures the private US mortgage insurer's market position because it increases competition and government providers may offer insurance at a lower cost. Inclusion of government-supported mortgage insurance is intended to capture the competitive dynamics between private and government mortgage insurance.

11 For Australian companies, risk-in-force equals insurance-in-force because mortgage insurers typically insure 100% of the claim.

12 Typically, the borrower's income, assets and debt are verified by external third parties, and there is a full appraisal of the property collateralizing the loan.

13 Generally based on total debt service as a percentage of total income (in the US, the ratio is typically below 45%). In the US, prime loans typically refer to mortgage loans meeting the standard underwriting guidelines established by Fannie Mae and Freddie Mac, the government-sponsored entities, regardless of loan amount.

14 The classification of a high-quality borrower is based on conventions and the availability of credit data that varies by markets. In the US, a test of borrower credit quality is the FICO score, where one in excess of 680 indicates a high-quality borrower, although this may vary depending on the borrower's level of income, assets and other attributes. This category excludes borrowers with a prior history of credit impairment.

15 In countries with a smaller number of states or provinces, we typically consider concentration in the top one or two. For Australian companies, we use the top state.

Interpreting the Metrics

A mortgage insurer's share of new insurance written, inclusive of government-supported mortgage insurance, captures a company's market presence from a revenue perspective. We believe that an insurer's relative absolute size within a given insurance market is highly correlated with its market strength and franchise value because companies with a greater share of new insurance written tend to have more pricing power. Furthermore, greater market share may enhance a mortgage insurer's ability to exercise underwriting and pricing discipline. In a highly competitive industry, the share of new insurance written also indicates a firm's ability to generate top line revenues.

We recognize that, to some extent, this factor can be positively influenced by the insurer's decision to write higher-risk, higher-premium business, although such a strategy would also have a negative impact on other key credit aspects such as portfolio characteristics and possibly profitability. Nevertheless, in an industry with relatively commoditized products, sustained trends in the market share of new insurance written can be indicative of either an improving or deteriorating competitive position.

In addition, we believe it is important to consider a company's market position within the context of the market in which it operates. An insurer that has significant market share in a country with a relatively small mortgage insurance industry would likely be exposed to market share volatilities should the dynamics of the local industry change or new players enter the market. For this reason, we typically adjust the market position score down for players in smaller markets.

Insurers with high client concentrations are typically more exposed to significant decreases in business flows, or to lender idiosyncratic risks, than companies with a diversified set of clients. When a firm generates the bulk of its business from a small number of clients, a decrease in demand for the company's product from any one of those clients, for whatever reason, could have a negative impact on the firm's future business prospects. Furthermore, a company whose franchise is highly reliant on the revenues derived from a few large clients may have less negotiating leverage with regards to the terms of trade, particularly if its large clients have other alternatives.

Similarly, since the insured portfolio of a mortgage insurer is singularly exposed to the residential housing finance market, diversity in geographic exposure helps mitigate the effect of regional downturns and is an important factor in assessing the risk of the insured portfolio. We consider the percentage of insurance in-force-attributable to the top three states in the US. after considering each state's proportion of the national population. In countries with a smaller number of states or provinces, we typically consider concentration in the top one or two. For example, in Australia, we use the top state. In some cases, particularly where we are aware of notable local housing market developments, we also look to more granular regional trends.

We also evaluate an insurer's exposure to prime loans in its primary business, which tend to be an indication of franchise value, portfolio quality and stability through economic cycles.

EXHIBIT 2
Market Position Metrics

	Aa	A	Baa	Ba	≤B
Average NIW as a % of Total Industry NIW	x >22%	22% ≥ x > 14%	14% ≥ x > 6%	6% ≥ x > 2%	x ≤2%
Prime Loan (% of RIF)	x >95%	95% ≥ x > 90%	90% ≥ x > 80%	80% ≥ x > 70%	x ≤70%
Client Concentration	x <5%	5% ≤ x < 15%	15% ≤ x < 30%	30% ≤ x < 45%	x ≥45%
Geographic Concentration	x <15%	15% ≤ x < 30%	30% ≤ x < 40%	40% ≤ x < 50%	x ≥50%

Source: Moody's Investors Service

Factor 2: Housing Market Attributes

Why It Matters

Housing Market Attributes accounts for 25% of the overall scorecard score. With this factor, a mortgage insurer's individual business and financial characteristics are analyzed within the context of the broader housing market environment in which it operates. Regulatory framework, loan characteristics, housing market, and macroeconomic trends may all exert a meaningful influence on an insurer's credit profile in a given jurisdiction.

The three key components of our analysis are: 1) the demand for mortgage insurance; 2) generic mortgage loan attributes; and 3) the prevailing conditions in a given country's housing market. Furthermore, country-specific housing trends and developments, such as the long-term utilization of private mortgage insurance and the overall risk profile of the housing market can, over time, have as much of a bearing on an insurer's long-term viability as the intrinsic strength of its own operations.

Relevant Metrics and their Interpretation

Demand for Mortgage Insurance

This sub-factor addresses the significance of a country's mortgage insurance market to its housing sector and the overall economy. We evaluate the demand for mortgage insurance from a structural and long-term perspective. Scores for this sub-factor are generally higher for insurers in countries where there is strong demand for private mortgage insurance and a demonstrated history of the product's market acceptance, underpinned by strong regulatory support. Conversely, insurers in markets with a shorter history of mortgage insurance or with low and volatile private mortgage insurance penetration are likely to have scores of Ba or below.

The insurer's credit profile is influenced by the regulatory rules and practices within its market, as well as potential changes in regulation or taxation of its products that could affect an insurer's competitive position, or lead to a restructuring of segments of the industry. Regulatory rules, especially those concerning distressed insurers, and practices could also impact an insurer's default rate and loss given default.

An additional factor is the extent to which mortgage insurance is recognized as a benefit within the regimes of financial institution regulation. We believe that this recognition can significantly influence the sustainability and stability of mortgage insurance demand in certain markets. For example, in the US, the regulatory requirement for the government-sponsored entities (GSEs), Fannie Mae and Freddie Mac, to credit enhance loans with loan-to-value ratios (LTV) above a certain threshold is a key driver for mortgage insurance demand. Regulators in other markets typically recognize, to varying degrees, the benefits of mortgage insurance as credit enhancement.

Mortgage insurance markets around the world also differ significantly in their degree of development with respect to the range of product offerings, utilization, and the significance of mortgage insurance as a means of risk mitigation and asset protection. Typically, demand for mortgage insurance varies according to a variety of factors:

» **Regulatory environment.** This includes the requirement from insurance regulators that high LTV loans have mortgage insurance or bank regulatory capital rules that result in mortgage insurance providing capital-efficient credit enhancement.

» **Market presence.** In a handful of countries, mortgage insurance has been in existence for several decades and is ubiquitous; in others, it is a more recent development or has remained marginal.

» **Government involvement**. In a number of countries, government-sponsored mortgage insurers have a significant presence and may directly compete with private mortgage insurance.

» **Demand driven by other market activities.** Local securitization markets may provide impetus for greater usage of mortgage insurance.

Generic Mortgage Loan Attributes

We consider mortgage loan attributes to be a key factor in evaluating the overall credit quality of mortgage loans. The qualitative aspects of mortgage loans as well as insurers' origination and underwriting processes are fundamental to understanding the risks in a particular market and, consequently, mortgage insurers' susceptibility to deterioration in their asset quality and profitability metrics. The mortgage loan attributes sub-factor score is typically higher for insurers in countries with mortgage loans characterized by higher quality attributes (e.g., low LTV prime mortgages) and creditor-friendly legal terms (e.g., full recourse). Conversely, insurers in countries characterized by looser underwriting standards, weaker servicing practices and/or fundamental elements that, taken together, point to a structurally riskier housing sector, generally score Ba or below for this sub-factor.

Our evaluation of the general quality of mortgage loan origination focuses broadly on the following three elements. The list of components comprising each of the three broad categories is not exhaustive and other factors may be relevant in particular countries or during certain time periods.

» **Credit quality of a mortgage loan.** Borrower and loan characteristics may contribute to a loan's susceptibility to default and, taken across the mortgage market, to a build-up of systemic risk. Our analysis focuses on:

1. The LTV ratios prevalent in a market. We look at both the average LTV ratio and its distribution. Markets with material presence of high LTV origination, particularly where such loans are extended to borrowers with incremental risk characteristics, are typically vulnerable to the risk of widespread borrower defaults in an economic downturn. In some countries, mortgage insurers' portfolios may include a significant proportion of loans with high LTVs, for example in excess of 90%, raising further credit concerns. In addition to the LTV at origination, we also examine the change in LTV ratio over a loan's life. In markets characterized by amortizing loans and high rates of repayments, this ratio declines faster, reducing the likelihood of an adverse future shock.

2. Debt serviceability. In addition to LTV ratios, we also assess the debt serviceability of mortgages prevalent in a given jurisdiction.[16] Markets where households devote a large portion of their income to mortgage interest repayment are more likely to suffer a sharper increase in the default rate during an economic downturn than in markets where borrowers have a substantial serviceability buffer.

3. The proportion of loans extended to credit-impaired or low- or no-documentation borrowers. All things being equal, a higher percentage of sub-prime, non-conforming and low documentation loans, whether or not embedded in mortgage insurers' own portfolios, implies a riskier and less stable mortgage market overall.

» **Legal framework governing the mortgage market.** Here we focus on two main elements:

1. The legal terms and other factors affecting the credit quality of a generic mortgage loan in a given jurisdiction. We consider differences across markets in terms of the creditor-friendliness of the legal regime, foreclosure practices and consumer protection laws as well as the nature of recourse to the borrower. We also distinguish between full-recourse countries, where a borrower is personally liable

[16] Subject to data availability.

for all monies owed to the lender, and those where the liability is capped at the value of the house or limited in some way. For some mortgage loans, the interest payments are not tax deductible and, as a result, borrowers may be more inclined to pay down their loans faster, deleveraging and enhancing the quality of the loan.

2. Lender accountability. Lender accountability and the strength of consumer protection laws vary across markets. In certain jurisdictions, the legal framework places an obligation upon lenders to ensure loan applicants have the capacity to repay their loans and that lender practices are not unfair or misleading. Generally, strong consumer protection legislation tends to lead to reduced asset risk, thereby contributing to a less risky operating environment for mortgage insurers.

» **Underwriting and servicing quality.** This factor considers lender procedures and practices throughout the life of a loan. Robust underwriting standards are intended to minimize the riskiness of loans. Similarly, servicers have the ability to mitigate losses via active remedial steps taken once a loan gets into trouble. Among other elements, we evaluate the practices prevalent in a particular market relating to the choice of origination channel, property valuation, originators' and servicers' technology, data depth and accuracy, arrears management and loss mitigation strategies.

Housing Conditions

When considering the impact of broad macroeconomic and housing market trends on the credit quality of mortgage insurers, we examine the conditions prevalent in the housing market itself. Underpinning our analysis is an evaluation of the degree of vulnerability of a particular national or regional market to a sharp downturn.

A key component in our analysis is the extent to which house prices may have departed from values implied by market fundamentals. Exhibit 3 presents the quantitative measure forming the *initial* basis of our evaluation. Here, we capture the degree of "over-heating" of a housing market along two dimensions: (a) the market's deviation from long-run (typically 15-year) house-price-to-income trends in a given country;[17] and (b) short-run growth rates in nominal house prices, encapsulating the speed with which the market is departing from fundamentals (typically, the final metric would be estimated as a four-year average to avoid the volatility inherent in a shorter-term measure). An economy with house-price-to-income ratios materially higher than their long-term value, while at the same time undergoing rapid house price appreciation, is typically viewed as particularly risky.

We recognize the inherent difficulties in estimating the long-run "equilibrium" or "fair" value of the house-price-to-income ratio. This is particularly the case for countries that have undergone significant shifts in their institutional frameworks or policy settings, e.g., financial liberalization, changes in monetary policy, prolonged disinflation, relaxed borrowing constraints, or a combination of these drivers. In these circumstances, it can be difficult to discern whether shifting house-price-to-income ratios represent a shift in equilibrium or an overvaluation.

Continued house price increases tend to indicate that the effects of a one-off policy shift may have dissipated and instead indicate an increased risk of departure from fundamental factors. In order to catch such dynamics, we estimate the long-run value of the house-price-to-income ratio as a 15-year moving average. Equally, we include a variable capturing short-run growth rates in nominal house prices. To the extent house prices are stable, this variable serves to 'anchor' our overall metric, even when the house-price-to-income dimension indicates heightened risk.

[17] We expect the house-price-to-income ratio to diverge across countries due to varying housing market fundamentals, housing supply conditions and institutional frameworks. Consequently, we assess this ratio relative to historical trends in a given country, rather than across different countries.

We typically supplement the quantitative metric with a set of other quantitative and qualitative considerations. These include:

» The extent to which properties subject to mortgage insurance are representative of the overall market;

» The degree of leverage embedded in a housing system (measured as, for example, the household-debt-to-GDP ratio);

» Estimates of housing over- or under-supply, as well as any information on the responsiveness of housing supply to demand;

» The extent of speculative activity in the housing market (as indicated, for instance, by the growing incidence of investment loans);

» The growth of non-traditional loans such as low or no documentation, interest only and negative amortization rates;

» Rental vacancy rates and yields;

» Population growth; and

» Quality of the underwriting process (as described in the previous section).

» Variables we use to assess housing market conditions for RMBS transactions typically help us form and test a broad-based view for a given jurisdiction.

EXHIBIT 3
Housing Conditions

	House-Price-to-Income Ratio (percentage deviation away from mean)			
2-Year Nominal House Price Change	<25%	25-35%	35-45%	>45%
0-10%	Aa	A	Baa	Baa
10-20%	A	Baa	Baa	Ba
20-30%	Baa	Baa	Ba	B
>30%	Baa	Ba	B	B

Source: Moody's Investors Service

We place this analysis within the context of the macroeconomic trends prevalent in a given market. In line with most economic analyses of countries, we concentrate on measures of GDP, unemployment, credit growth, asset prices, and fiscal and monetary conditions. Typically, we look to internal economic forecasts, as well as those produced by Moody's Global Macro-Risk Scenarios, Moody's Economy.com, and other market participants, such as the IMF, the World Bank, and commercial and academic economists. Our focus is not only on Moody's central macroeconomic scenario, but also on stress or tail-end scenarios, which are particularly important for highly rated insurers that are expected to withstand significant stresses. We complement our economic assessment by considering the degree of diversification in the economy, as well as structural factors such as the strength of the financial system, long-run unemployment rates, and the government budgetary position that, collectively, typically point to long-term trends.

Given the sensitivity of mortgage market performance to economic conditions, the Housing Conditions score may be adjusted upward or downward, depending on our changing views about real estate market conditions beyond those captured in the proposed quantitative metric. We may consider evaluating this factor on a regional, rather than nationwide, basis where we believe the structure of housing markets differs significantly within a given country or where a mortgage insurer's portfolio is concentrated in a particular region. We also note that the Housing Conditions factor primarily applies to the most recent vintage's originations; the conditions under which earlier vintage insurance policies were originated are reflected in other scorecard metrics.

EXHIBIT 4

Metrics for Housing Market Attributes

	Aa	A	Baa	Ba	B
Demand for Mortgage Insurance	Strong regulatory incentives for mortgage insurance; >35% overall penetration rates[18]	Reasonably strong regulatory incentives for mortgage insurance; 20-35% overall penetration rates	Modest regulatory incentives for mortgage insurance; 10-20% overall penetration rates	Weak regulatory incentives for mortgage insurance; 5-10% overall penetration rates	Little regulatory incentives for mortgage insurance; <5% overall penetration rates
	Established market with multi-decade history and a high degree of cultural acceptance	Established market with a significant history and a high degree of cultural acceptance	Established market with ~10 years of history	Relatively new market or established market	New market
	No government-sponsored mortgage insurance providers	Low levels of competition from government-sponsored mortgage insurance providers	Moderate levels of competition from government-sponsored mortgage insurance providers	Material competition from government-sponsored mortgage insurance providers	High levels of competition from government-sponsored mortgage insurance providers
Generic Loan Attributes	None to low sub-prime and low-doc origination, in aggregate <10% of overall mortgage market; low average LTV ratios	Little sub-prime and low-doc origination, in aggregate 10-15% of overall mortgage market; low average LTV ratios	Moderate sub-prime and low-doc origination, in aggregate 15-25% of overall mortgage market; moderate average LTV ratios	Moderate sub-prime and low-doc origination, in aggregate 25-50% of overall mortgage market; moderate-to-high average LTV ratios	Moderate sub-prime and low-doc origination, in aggregate >50% of overall mortgage market; high average LTV ratios
	Strong legal framework characterized by full recourse lending and strong lender accountability	Strong legal framework characterized by full recourse lending and moderate lender accountability	Legal framework characterized by partial recourse lending and average lender accountability	Legal framework characterized by non-recourse lending and weak lender accountability	Legal framework characterized by non-recourse lending and poor lender accountability
	Strong underwriting and servicing practices	Good underwriting and servicing practices	Average underwriting and servicing practices	Weak underwriting and servicing practices with material departure from established principles	Poor underwriting and servicing practices
Housing Conditions	See Exhibit 3. The score is determined by the combination of a given market's house-price-to-income ratio relative to long-term average house price changes.				

Source: Moody's Investors Service

[18] Penetration rate refers to the ratio of the balance of insured loans to the aggregate balance of mortgage loans in a given market.

Discussion of the Scorecard Factors – Financial Profile

Factor 3: Capital Adequacy

Why It Matters

Our assessment of a mortgage insurer's creditworthiness includes an opinion about the company's economic capital and capital adequacy, including solvency. Economic capital is the cushion available to absorb unfavorable deviations in losses and operating results. Maintaining sufficient capital is critically important for a mortgage insurer, not only because insurance regulators require minimum capital levels so that the company can continue to operate, but also because its franchise value is highly dependent on investor perceptions of its claims-paying ability. Capital constraints can also negatively impact a company's ability to grow its business and execute its strategy.

Relevant Metric

» **Adjusted Risk-to-Capital Ratio:** Nominal risk-in-force for prime and non-prime mortgages[19] divided by total statutory capital. Non-prime mortgage loans (including pool exposure) are weighted by a factor of 4 to capture their greater risk relative to prime mortgage loans. The risk-to-capital ratio can be further adjusted in a given country to capture the differences in coverage types (e.g., 100% cover in Australia versus a much smaller percentage in the US) or portfolio characteristics (e.g., LTV distribution, performance) in order to improve the ratio's usefulness as a global measure of relative capital adequacy.

Interpreting the Metric

Regionally, we may supplement this ratio with other regulatory capital measures such as a solvency ratio.[20] We may also supplement our analysis with consideration of the insurer's own capital model and the underlying assumptions, if appropriate, or other capital models. We typically assess the distance to a regulatory capital breach, which could prevent an insurer from writing new business in the absence of a waiver.

We may adjust reported capital to capture estimation risk in the balance sheet. This includes adjustments for estimated deficiencies in reserves, haircuts applied to assets in the investment portfolio to account for credit and liquidity risks and other situations where assets or liabilities are not reported at economic value.

In certain cases, insurers operate as part of either a diversified insurance group or a broader financial services group, which is considered in the "Support from a Parent or Affiliate' section below, rather than as an adjustment to Capital Adequacy.

The standalone IFSR is capped at the adjusted capital adequacy score. This reflects our view that a mortgage insurer's financial strength is constrained by its capital adequacy, although a strong capital position could potentially mitigate modest weakness in other areas. However, the final IFSR could potentially be adjusted upward in instances where the mortgage insurer benefits from support for its parent or an affiliate with a stronger credit profile.

[19] Risk-in-force is the total amount of insurance coverage. In a country such as the US, where the mortgage insurer typically covers only a portion of the mortgage loan, risk-in-force equals the insurance-in-force (covering the total amount of the mortgage loan) times the insurance coverage, expressed as a percentage, provided under each policy.

[20] Regulatory risk-to-capital assessment is an important capital adequacy consideration. In certain jurisdictions, breaching regulatory capital thresholds may mean that the mortgage insurers cannot write new business. The insurance regulators in most regions have developed more refined measures of capital adequacy/solvency by evaluating the available capital relative to the risk exposures of the company. The level of sophistication of the risk-based capital regime, the scale on which it is measured, and its usefulness in our assessments, varies considerably among regulatory jurisdictions. In countries where such risk-based capital (RBC) measures yield results that we believe effectively capture capital relative to risk-in-force, we may use the local RBC metrics to supplement other measures of capital strength. For example, for insurers domiciled in Australia, we pay close attention to the Solvency Ratio derived by the Australian Prudential Regulation Authority (APRA).

EXHIBIT 5
Capital Adequacy Metric

	Aa	A	Baa	Ba	≤B
Adjusted Risk-to-Capital Ratio	x <12x	12x ≤ x < 15x	15x ≤ x < 25x	25x ≤ x < 35x	x ≥ 35x

Source: Moody's Investors Service

Factor 4: Profitability

Why It Matters

The quality and sustainability of a mortgage insurer's earnings capacity is a critical component of its creditworthiness. Earnings are a primary determinant of the insurer's ability to meet its policy and financial obligations, the main source of internal capital generation to ensure capital adequacy, and a key determinant of access to the capital markets on favorable terms. Profitability metrics indicate the extent to which the firm is run efficiently and is able to generate adequate returns. They are measures of the relative success of a firm and can be used to infer the stability of its strategy.

Relevant Metrics

» **Return on Capital (ROC) – 5-year average:** After-tax net income before non-controlling interest[21] as a % of average capital (financial debt + shareholders' equity[22] + non-controlling interest) (5-year average). We use financial reporting amounts based on local accounting principles when available, or regulatory financials prepared under Statutory Accounting Principles (SAP).

» **Combined Ratio (on a SAP basis) – 5-year average:** The sum of the loss ratio and expense ratio (5-year average). The loss ratio is loss and loss adjustment expense divided by net premiums earned. The expense ratio is underwriting expense divided by net premiums written.

Interpreting the Metrics

The ROC ratio is a good measure of how well a mortgage insurer is utilizing 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 to assess the level of borrowed funds (if any) required to generate the corresponding ROC, as well as the sustainability and volatility of the insurer's profits over time. A company's legal structure can also provide information about the likely use of debt and the insurer's ROC risk profile over time. For example, mutually-owned companies tend to be less focused on short-term profitability and are less reliant on debt than public companies.

In addition to the above scorecard factors, we typically consider other return 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 companies using higher amounts of leverage may exhibit more favorable ROE, since a smaller equity base tends to improve this measure, all else being equal. Return on revenue (ROR) can be another useful comparative measure of profitability, because it is less influenced by a company's financial leverage policy or its capital adequacy. The ROR metric over time is

[21] Non-controlling interest refers to minority-ownership interest in other business entities.
[22] Note that while many accounting regimes include non-controlling interest in shareholders' equity, Moody's does not.

generally a good indicator of an insurer's underwriting skill and pricing discipline relative to its peers while also capturing investment performance.

Net income can be influenced by non-recurring favorable/unfavorable items, most notably realized gains/losses. For analytic units with meaningful investment-related gains/losses, we may consider these ratios excluding such gains/losses. We also may analyze trends in operating margins as indicators of a firm's profitability prospects and operating efficiency. In this regard, the combined ratio provides useful insight into a firm's pricing strategy, underwriting quality and operating efficiency, particularly when there are significant and consistent deviations from industry averages.

We generally assess the profitability metrics using a 5-year average because operating results can be meaningfully influenced by non-recurring items. However, we also typically consider more recent trends in our analysis, particularly for newer firms that are in the process of building their operating infrastructures.

EXHIBIT 6

Calibration of Profitability Metrics

	Aa	A	Baa	Ba	≤B
Return on Capital (ROC) – 5yr avg	x >15%	15% ≥ x > 7.5%	7.5% ≥ x > 2.5%	2.5% ≥ x > 0%	x ≤0%
Combined Ratio (SAP) – 5yr avg	x <40%	40%≤ x <70%	70%≤ x <110%	110%≤ x <140%	x ≥140%

Source: Moody's Investors Service

Factor 5: Financial Flexibility

Why It Matters

It is important that a company not only fund its business growth via internal capital generation, but also demonstrates the ability to service its obligations without stress. Insurers benefit from having the capacity to raise capital externally for additional growth or acquisitions and to meet unexpected financial demands, whether those come from an unusually negative credit/market environment, earnings volatility, or other planned or unplanned capital needs. We consider a number of variables when evaluating the financial flexibility and ease of access to the capital markets of an insurance holding company, including earnings coverage, cash flow coverage, and financial leverage.

Relevant Metrics

» **Cash Flow Coverage:** Dividend capacity from subsidiaries divided by interest expense and preferred dividends (5-year average)

» **Adjusted Financial Leverage:** Adjusted debt divided by (adjusted debt and adjusted shareholders' equity)

» **Total Leverage:** Total debt divided by (total debt + shareholders' equity)

Interpreting the Metrics

Financial flexibility, in most cases, references the parent holding company, which is the entity within the group that typically issues debt and equity securities.[23] Attribution of an insurance group's consolidated financial leverage ratio to all entities in the group is based on our assumption that each subsidiary benefits from, as well as contributes to, the group's debt service coverage to a greater or lesser degree (in some

[23] See our cross-sector methodology for assigning instrument ratings for insurers for more information on the relationship between IFSRs and 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.

cases, subject to a local currency bond rating cap). We make adjustments for subsidiaries that are not core to the group, are unlikely to benefit from parent company debt or equity capital support, or, conversely, have some degree of autonomous financial flexibility.

We consider subsidiary standalone metrics on a case-by-case basis, where the subsidiary in question has demonstrated independent ability to access capital markets through debt or equity issuance. In some instances, such standalone metrics could be stronger than those of the overall group. Consequently, the subsidiary's coverage ratio, leverage metrics, and capital-raising ability are evaluated from a sustainability point-of-view and we expect a substantial track record in this regard.

Because there can be regulatory restrictions on dividend capacity from an operating company to its holding company, the ability to meet fixed charge obligations is assessed in the context of the insurer's actual ability to upstream cash to the holding company. The cash flow coverage ratio relates the recurring sources of cash to the holding company to its uses of cash. For cash sources, we typically include the maximum available dividends from regulated subsidiaries (without the need for regulatory approval and subject to maintaining capital adequacy at the operating company) and projected dividends from unregulated subsidiaries or investments. For cash uses, we generally include interest expense and preferred dividends of the holding company.

When analyzing the cash flow coverage ratio, we generally consider any differences that may exist between interest expense and the cash payments associated with interest. We also typically assess the inter-relationship between cash flow coverage and earnings coverage by considering (a) whether material earnings are generated in regions where dividend extraction is more difficult; (b) if the parent has meaningful and consistent sources of cash flow from unregulated entities; and (c) the relative levels of dividend capacity compared to earnings capacity. In instances where dividend capacity significantly exceeds earnings capacity, this may indicate that dividend capacity is unlikely to be replenished should a significant dividend be paid. When evaluating the cash flow coverage ratio in the context of a mortgage insurer's rating, we also consider whether there are significant amounts of unencumbered assets held at the holding company that can be sold to generate cash.

Another barometer of a mortgage insurer's debt capacity is its leverage. Financial leverage measures the amount of a company's capital base that is financed through borrowed money, typically short- and long-term debt and hybrid capital securities, which can be issued by an operating or holding company. Our adjusted financial leverage calculation considers all forms of debt (including surplus notes and hybrid securities – adjusted for Moody's Debt/Equity Continuum[24] – plus unfunded and underfunded pension obligations and operating leases, and uncollateralized letters of credit used to fund the company's operations as leverage.

Shareholders' equity in the adjusted financial leverage calculation includes accumulated other comprehensive income (AOCI) because we believe that reported equity and the impact of changes in AOCI, primarily from changes in value of investment securities, impact the markets' perception of insurers' ability to access capital markets at attractive funding costs. Consideration is also given to leverage metrics calculated using shareholders' equity without AOCI, especially during periods of volatile interest rate changes or where assets are reported at fair value but liabilities are reported at book value.

In addition to our standard adjustments to financial leverage and earnings coverage, additional adjustments to these metrics may sometimes be necessary for individual companies. For example, an adjustment may include adding back as debt an off-balance sheet obligation because we believe the company will support

[24] We believe that it is appropriate for our credit analysis to limit the amount of total equity credit that is derived from the issuance of hybrid securities within a capital structure. Please refer to our cross-sector rating methodology for hybrid equity credit. A link to an index of our sector and cross-sector credit rating methodologies can be found in the "Moody's Related Publications" section.

the debt obligation, if necessary, due to reputation or economic considerations. In contrast, match-funded or self-liquidating debt appearing on a company's balance sheet may be excluded from adjusted financial leverage and earnings/cash flow coverage metrics because the debt is analytically viewed as operating debt instead of financial debt.[25]

We also believe it is important to consider, in tandem with our adjusted financial leverage metric, the total debt profile of a group, on an unadjusted basis (apart from pension obligations and operating leases) and including operating debt. Although potentially match-funded, operating debt nevertheless involves external debt raises and needs to meet strict criteria to avoid being classified as financial leverage. The scoring ranges for the adjusted financial leverage and total leverage metrics are the same in order to highlight those groups most reliant on hybrids and operating debt.

Other considerations incorporated into our opinions around financial leverage may include, where applicable, a company's double leverage (i.e., investments in subsidiaries funded by parent company debt or a stacked ownership structure), historical trends, management's target level for leverage relative to its current position, and maturity profile, as well as the complexity of the capital structure itself.

Ready access to fresh capital is considered a credit positive for mortgage insurers 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 mortgage insurers' access to the capital markets – which can be limited by outsized financial leverage, low coverage, and poor execution of past capital markets transactions (or headline risk) – as important considerations.

We also may consider a company's back-up bank credit facilities, letter of credit arrangements and covenants embedded in borrowing arrangements. Strong back-up facilities with limited restrictive covenants serve to enhance financial flexibility for a company, particularly in times of stress.

EXHIBIT 7

Financial Flexibility Metrics

	Aa	A	Baa	Ba	≤B
Cash Flow Coverage – 5yr. avg.	x>6x	6x ≥ x >4x	4x ≥ x >2x	2x ≥ x >0x	x≤0x
Adjusted Financial Leverage	x<10%	10%≤ x <20%	20%≤ x <30%	30%≤ x <40%	x≥40%
Total Leverage	x<10%	10%≤ x <20%	20%≤ x <30%	30%≤ x <40%	x≥40%

Source: Moody's Investors Service

Operating Environment

Why It Matters

Although our analysis of insurers is focused predominantly on company-specific characteristics and on business and financial parameters in the context of an insurer's operations within 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

25 Please refer to our cross-sector methodology that discusses how we assess operating debt used by insurance companies. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

developments can, over time, 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[26] and country research. The remaining two components – pertaining to Insurance Market Development – assess the degree of development of the insurance sector in a given country.[27]

Insurance Systemic Risk

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

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

Susceptibility to Event Risk: We use our *published factor score for a 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.

<u>Insurance Market Development</u>

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

The better the operating environment, the less it impinges on the intrinsic strength of an insurer's credit profile. To the extent that the operating environment is considered more favorable than the insurer's own intrinsic credit profile, it is typically not be a material consideration in our 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. while a weaker assessment could potentially have a negative impact. Consequently, operating environments have only a neutral-to-negative impact on our ratings for insurers. Additionally, we believe that the weaker the operating

26 For more details on our sovereign rating 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.

27 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.

environment is, the greater influence it has on an insurer's overall credit profile because 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 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, and all other things being equal, 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 for 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 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.[28] We then convert these scores to numeric scores

[28] 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.

using the two Mapping Sovereign Rating Methodology Scoring tables below (Exhibits 8 and 9), 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.

EXHIBIT 8
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 mortgage insurers.

Source: Moody's Investors Service

EXHIBIT 9
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 and Insurance Density. Insurance Penetration is mapped to the global rating scale directly, as indicated in the table below. Insurance Density is assessed by country and measured or estimated on a worldwide percentile-rank basis, with premiums denominated in US dollars. The result is then also mapped to our global rating scale 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 percentile of each factor range.

EXHIBIT 10

Operating Environment Metrics*

Summary

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%-90%	60%-75%	45%-60%	30%-45%	15%-30%	<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 aggregate profile 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 aggregate profile 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 aggregate profile 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 Policies 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 may 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.

In the US, mortgage insurance companies are required to provide a substantial amount of detailed financial information to state regulators. This financial information is prepared under Statutory Accounting Principles (SAP), which are the accounting practices and procedures developed by the National Association of Insurance Commissioners (NAIC) and adopted by each state through its legislative or rule-making process. Financial information is also prepared under US General Accepted Accounting Principles (GAAP) for publicly traded companies and by some mutual funds. In Australia, financial statements are typically prepared in accordance with Australian Accounting Standards, based primarily on International Financial Reporting Standards (IFRS). Other countries may have somewhat different regulatory reporting standards.

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 market participants with 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.[29] 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 characteristics in analyzing these impacts. Insurers with high geographic diversification, low direct exposure to government debt and product characteristics 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 mortgage insurers, 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 a mortgage insurer can ultimately be affected by the relationship to its parent, a subsidiary, or affiliate companies through either explicit or implicit support.[30] 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.[31]

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 the mortgage insurer is to the overall enterprise business model, its size relative to the whole, its geographic proximity to the supporting entity, existence of shared regulatory oversight, full or partial ownership and its integration into the rest of the organization from a management, distribution, and operating perspective. Our assessment of support may also vary depending upon 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

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

30 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.

31 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.

economic rationale for doing so seems to be 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 is generally in the form of a capital maintenance agreement, minimum net worth agreement, reinsurance agreements or some type of direct guarantee. It can also take the form of management contracts, marketing arrangements, 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 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 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 insurer's 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 due 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 our 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 mortgage insurers scorecard, whereas support from a government owner is considered outside of the mortgage insurers scorecard.

Factoring in Support from Other-Than-Related Entities

Our ratings of mortgage insurers 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 mortgage insurance 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 the rating methodology for government-related issuers when evaluating the credit profile of the insurer.[32] (Please see the section Assigning Insurance Financial Strength and Instrument Ratings below).

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

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.

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

Mortgage insurers may be in a state of run-off for a wide range of reasons including financial stress and the effects of the resulting regulatory intervention (in some cases). This condition can prevent insurers from writing new business, and result in an inability to otherwise attract new business. Our assessment of firms in run-off typically starts with assessing the company's claims paying status and the reasons for its lack of new production.

Insurers 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 typically rated in the Caa or lower rating range based on our assessment of the ultimate loss on claims. Companies that are in run-off, but have ample claims paying resources and have demonstrated a willingness to pay such claims in a timely fashion are evaluated based on the strategic reason for the run-off, the related magnitude and stability of claims paying resources (including consideration of formal and informal parental and/or affiliate support) relative to claims and the likelihood of re-entry into the market. Companies that have decided, or are at risk of deciding, to exit the business typically have lower ratings absent mitigating factors (regulatory or otherwise), given the likely accelerated extraction of financial resources that have no means of being 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 in contracts such as funded and unfunded bank loans,[33] 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

33 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).

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 mortgage insurers. 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 the Adjusted Risk-to-Capital Ratio affect an issuer's liquidity.

Non-Mortgage Insurance Activities

Mortgage insurers' non-mortgage insurance activities, which can include financial guaranty-type insurance and investments in other consumer credit-related businesses, can affect their business operations. In general, such activities can introduce distinct financial, operational, reputational and liquidity risks to the mortgage insurers' core franchises and are typically included in our analysis. In forming a view of any non-mortgage insurance activity conducted by mortgage insurers, we consider how closely related the activity is to its business model, in terms of franchise, risk attributes and potential benefits.

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 mortgage insurers include the following:

» Whether the institution is set up and supported by a sponsor strong enough to provide it with sufficient operating and financial means to deliver on its strategy; or whether the start-up is a spin-off of existing established operations that will form a viable standalone legal entity

» Whether, via regulatory or other mechanisms, the entity has ongoing supervision and whether capital contributions are "locked" so that they cannot be easily be removed

» Whether the start-up's business model is part of a mainstream mortgage insurance business, or whether it includes marginal, untested, unusual or exotic business lines

» Whether the start-up's business opportunities are sufficiently ample in the context of the mortgage insurance industry structure

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.

Environmental Considerations

Standard private mortgage insurance policies do not cover environmental and natural disaster risks. However, mortgage insurers could experience higher default rates in geographic regions that are affected by catastrophic natural disasters that result in high unemployment rates and declining real estate values. This risk is generally mitigated by the broad geographic diversification 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.[34] 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.[35] For issuers that benefit from rating uplift from government ownership or other government support, we may assign a Baseline Credit Assessment.[36]

Global and National Scale Ratings

With the extension of credit ratings to a broader range of markets, our rating scales have evolved to provide comparability on both a globally and nationally consistent basis.

We have developed two rating scale conventions, namely Global Foreign and Local Currency Ratings (GFC and GLC Ratings) and National Scale Ratings (NSRs).[37] By convention, reference to an insurer's IFSR is understood to refer to the Local Currency IFSR on the global rating scale, unless otherwise specified. Foreign Currency IFSRs are the same as the Local Currency IFSRs, except where the Local Currency IFSR is above the country's Foreign Currency Bond Ceiling, in which case it will be the same as the Foreign Currency Bond Ceiling.

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.

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

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

36 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.

37 See our cross-sector methodology for mapping national scale ratings from global scale 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.

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.[38] 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.

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.

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

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 C are mapped to numeric values of 1 through 21, as follows:

Alphanumeric Categories	Numeric Value
Aaa	1
Aa1	2
Aa2	3
Aa3	4
A1	5
A2	6
A3	7
Baa1	8
Baa2	9
Baa3	10
Ba1	11
Ba2	12
Ba3	13
B1	14
B2	15
B3	16
Caa1	17
Caa2	18
Caa3	19
Ca	20
C	21

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 3 and 15 is established for each financial metric through linear interpolation. For example, an insurer with client concentration of 10% would map to a numeric score of 6, and fall within the A range for that metric. 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 to C 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.

	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 through C rating scale shown above. The result is oriented to the IFSR in the local or foreign currency, which is capped by the analyst-adjusted capital adequacy score. This scorecard-indicated outcome may be different from the final rating because it does not consider the analyst's input to the individual factors, or management and governance, special rating situations, and accounting policy and disclosures, as well as any 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 mortgage insurers, 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.

	Factor Weights	Metric Weights (relative to factor weights)
Business Profile		
Factor 1: Market Position	**20%**	
Average NIW as % of Total Industry NIW		5%
Prime Loan (% of RIF)		5%
Client Concentration		5%
Geographic Concentration		5%
Factor 2: Housing Market Attributes	**25%**	
Demand for Mortgage Insurance		8.3%
Generic Loan Attributes		8.3%
Housing Conditions		8.3%
Financial Profile		
Factor 3: Capital Adequacy	**30%**	
Adjusted Risk-to-Capital Ratio		30%
Factor 4: Profitability	**15%**	
Return on Capital (after-tax) – 5 yr avg		5%
Combined Ratio (SAP) – 5 yr avg		10%
Factor 5: Financial Flexibility	**10%**	
Cash Flow Coverage – 5 yr average		4%
Adjusted Financial Leverage		3%
Total Leverage		3%
Sub-total – 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 other analytic considerations, or other unique fundamentals of the company not appropriately captured or weighted by the scorecard. Furthermore, the standalone credit profile may be different from the actual rating due to affiliate support or sovereign considerations.

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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