

MOODY'S

INVESTORS SERVICE

CROSS-SECTOR RATING METHODOLOGY

Assigning Instrument Ratings for Insurers Methodology

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Analyst Contacts:

PARIS		+33.1.5330.1020
Benjamin Serra	+33.1.5330.1073	
<i>Senior Vice President</i>		
benjamin.serra@moody's.com		
LONDON		+44.20.7772.5454
Simon Ainsworth	+44.20.7772.5347	
<i>Associate Managing Director</i>		
simon.ainsworth@moody's.com		
Antonello Aquino	+44.20.7772.1582	
<i>Associate Managing Director</i>		
antonello.aquino@moody's.com		
NEW YORK		+1.212.553.1653
Sarah Hibler	+1.212.553.4912	
<i>Associate Managing Director</i>		
sarah.hibler@moody's.com		
Scott Robinson	+1.212.553.3746	
<i>Associate Managing Director</i>		
scott.robinson@moody's.com		
Marc Pinto, CFA	+1.212.553.4352	
<i>Managing Director - Financial Institutions</i>		
marc.pinto@moody's.com		

» contacts continued on the last page

This rating methodology replaces the *Assigning Instrument Ratings for Insurers* methodology published in May 2018. We have revised Exhibit 1 to include typical notching guidance for subordinate and surplus notes with no coupon skip and junior subordinate debt with no coupon skip. We have made technical updates to the model for insurers' high-trigger contingent capital securities (CoCos) by changing the approach for determining the probability of default associated with an insurer's financial strength rating and by changing the way we use the Moody's Idealized Cumulative Expected Default table to determine the probability of default thresholds associated with an alphanumeric model outcome.

Introduction

This cross-sector rating methodology explains our general approach for assigning ratings to instruments issued by insurers globally, once we have assigned their Insurance Financial Strength Rating (IFSR). It applies to the methodologies for rating life insurers, property and casualty insurers, reinsurers, financial guarantors, title insurers, trade credit insurers, mortgage insurers and US health insurance companies (collectively, insurance companies).¹ In general, the ratings for instruments issued by insurers are notched down from the IFSR depending on the instrument's priority of claim, structure, features and security, if any, and whether the issuing entity is an operating or a holding company. The legal and regulatory framework in a particular jurisdiction can also affect notching.

Relationship Between 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.² IFSRs are assigned to legal entities engaged in providing insurance.

In contrast, our long-term debt and preferred stock ratings are assigned to specific instruments of either a holding or operating company. The relationship between the IFSRs and instrument ratings depends on the legal and regulatory framework in a particular jurisdiction

¹ A link to a list of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section of this report.

² Please see *Rating Symbols and Definitions*. A link can be found in the "Moody's Related Publications" section of this report.

and the relative standing of policyholders and instrument holders in the event of insolvency, bankruptcy, reorganization or liquidation of the entity.

The relationship among the ratings for these different classes of creditors, including hybrid securities, is shown in Exhibit 1 and discussed in the following sections, with guidance about the typical degree of difference, expressed in number of rating notches, from the IFSR. These guidelines do not represent absolute rules, but rather general guidance in interpreting the relationship between IFSRs and instrument ratings whether the instrument is issued by an operating or holding company.

EXHIBIT 1

Typical Notching of Insurance Group Instruments⁽¹⁾

	No coupon skip	Cumulative optional coupon skip ⁽²⁾	Non-cumulative optional coupon skip ⁽²⁾	Cumulative mandatory coupon skip ⁽³⁾	Non-cumulative mandatory coupon skip ⁽³⁾ with ACSM ⁽⁴⁾	Non-cumulative mandatory coupon skip ⁽³⁾
Operating Company Senior Debt ⁽⁵⁾	IFSR -1	N/A ⁽⁷⁾	N/A	N/A	N/A	N/A
Holding Company Senior Debt ⁽⁶⁾	IFSR -3 or -2	N/A	N/A	N/A	N/A	N/A
Subordinated and Surplus Notes ⁽⁸⁾⁽⁹⁾	Senior - 1	Senior -1	Senior -1	N/A	N/A	N/A
Junior Subordinated Debt ⁽⁹⁾	Senior - 1	Senior -1	Senior -1	Senior -2	Senior -2	Senior -2
Preferred Securities ⁽⁹⁾	N/A	Senior -2	Senior -2	Senior -2	Senior -2	Senior -3

1. An insurance group can be either an insurance operating company or an insurance holding company.
 - a. For holding company senior debt, our standard notching is three notches below the principal operating companies' IFSR for simple group structures in regulatory regimes with operating-company-only regulation and two notches below the principal operating companies' IFSR in enhanced regulatory regimes with group regulation. A holding company may be rated higher or lower for various reasons, such as diverse cash flow sources, high double leverage or low cash balances. Where atypical notching occurs, it generally remains constant throughout the capital structure.
 - b. Securities issued by a holding company, but guaranteed by an operating company, are generally rated in line with operating-company-issued securities.
 - c. For non-investment-grade issuers, or those close to coupon deferral or insolvency, the notching between operating company and holding company may be wider, reflecting a loss given default analysis. However, when the IFSR is at a very low level (Caa range or below), notching of hybrids will likely be tighter, reflecting the limited number of notches on the rating scale below the already very low IFSR.
 - d. The information in the table does not apply directly to high-trigger contingent capital instruments. See the "Rating Insurance Hybrid Securities and Subordinated Debt" section for our approach to rating high-trigger contingent capital instruments.
2. The term "optional coupon skip" refers to a situation in which the company, at its discretion, can postpone the payment of a coupon without incurring a default. Instruments with mandatory weak triggers would be notched similarly to optional coupon skip instruments. Mandatory weak triggers include minimum regulatory capital ratios set at low levels.
3. Mandatory coupon skip refers to "meaningful" triggers, such as a net loss trigger. Our concept of a meaningful Mandatory Deferral Trigger is one that would be breached well in advance of a company-wide default or failure. The triggers are usually designed to be breached at or about the same time that ordinary dividends are suspended.
4. Alternative coupon settlement mechanism.
5. For an insurance operating company only. We may also assign issuer ratings, which are typically at the level of senior unsecured debt ratings. There are exceptions in certain regions and sectors. For example, for property and casualty (P&C) (re)insurers in some jurisdictions senior debt is pari passu with policyholder obligations, and the senior debt rating and issuer rating are at the same level as the IFSR. In these jurisdictions, all other instruments are notched from the level at which senior debt would have been rated if the exception did not exist. For US P&C insurers and reinsurers, senior debt issued by insurance operating companies is typically IFSR -2.
6. We may also assign issuer ratings, which are at the same level as senior unsecured debt ratings.
7. N/A indicates that the instrument characteristics described are not common among insurance groups. If an instrument with characteristics for which the notching is not described in this table were to be rated, we would apply the principles described here in arriving at a rating.
8. Surplus notes are issued by insurance operating companies.
9. The reference senior rating is determined based on the legal entity issuing the instrument. If the issuer is an operating company, the reference senior rating is the operating company senior debt. Conversely, if the issuer is a holding company, the reference senior rating is the holding company senior debt.

Source: Moody's Investors Service

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

Notching Between Operating Company IFSR and Operating Company Instrument Ratings

IFSRs are typically the highest credit ratings within an insurance enterprise. From an analytic perspective, the IFSR is the starting point for assigning all the other ratings of instruments issued by insurance operating companies, including their related holding companies and financing affiliates. We generally consider the IFSR to be the anchor rating, with the rating differential between it and other instrument ratings depending on the specifics of those instruments.

At the insurance operating company level, regulators generally accord policyholder obligations a preferred status in liquidation, above that of financial creditors, including debt and preferred stock obligations. As a result, we usually notch down (i.e., assign a lower rating to) other rated obligations of the operating company. In certain jurisdictions, the legal ranking of policyholder claims (or reinsurance claims) is *pari passu* with senior financial obligations, and the IFSR and senior debt ratings for the operating company are the same. However, in this case, it is likely that there will be wider notching (e.g., two downward notches instead of one) for the subordinated debt rating at the operating company entity because of the expected greater severity of loss for that creditor class compared with the policyholder and senior creditor classes. Exceptions to our standard notching practices include cases where there is atypical regulatory supervision as well as when we have greater clarity about the nature and likely impact of a default, which typically occurs when the senior debt rating nears the single B range. At these levels, we may widen or narrow notching given the expected shorter distance to default and a more granular view into what the capital structure of both the operating company and the holding company would be at default.

Notching Between Operating Company IFSR and Holding Company Instrument Ratings

Our approach to notching the ratings of insurance holding company instruments incorporates insurance regulation, which continues to evolve in many jurisdictions globally. Our approach varies depending on whether there is "solo only" regulation, which extends only to the operating company, or whether there is "solo and group" regulation, which extends to the operating and the holding company as a group. The implications of each type of regulation and its impact on expected loss for holding company instruments are compared in Exhibit 2.

EXHIBIT 2

Comparison of 'Solo Only' Regulation and 'Solo and Group' Regulation and Our Expectations Of Relative Loss for Holding Company Instruments

Without Group Regulation (Solo-Only Regulation)	With Group Regulation (Solo and Group Regulation)
Policyholder obligations take priority	Policyholder obligations take priority
Holding company is structurally subordinated	Holding company is structurally subordinated
Holding company is unregulated, and capital requirements apply to operating company only	Holding company is regulated as part of group, and capital requirements apply to operating company and to the consolidated group
Regulatory-driven incentive to hold capital at operating company rather than at holding company	Capital held at holding company can meet consolidated capital requirements
Significantly higher expected probability of default (PD) and loss given default (LGD) at holding company than at operating company	Higher expected PD and LGD at holding company, but expected PD at holding company with group regulation is closer to that of operating company than for holding companies without group regulation

Source: Moody's Investors Service

Holding Companies That Are Also Operating Companies

In addition to the distinctions we make between solo-only and solo and group regulation, we also consider whether the holding company has insurance operations. In certain jurisdictions, a single entity sometimes acts as both a holding company and an operating company. When this occurs, our notching approach considers the legal priority-of-claim framework as well as our expectation of how regulators may act in a time of stress. We also consider the strength, diversity and type of cash flows (e.g., dividends from operating company subsidiaries, and underwriting and investing cash flows from insurance operations carried out within the parent) available to the organization.

Notching Insurance Holding Company Ratings Subject to 'Solo-Only' Regulation

For simple group organizational structures³ domiciled in jurisdictions where solo-only regulation is in force, regulators typically place the highest priority for their supervisory activities on policyholder obligations at the operating company. Holding company creditor claims may not benefit from the regulatory oversight of an operating company and instead represent an equity investment in the regulated company that will be paid after all obligations of the operating company are met. There is also structural subordination of holding company creditors relative to operating company creditors.

Solo-only regulation generally incorporates the following features: regulators focus on operating companies with little or no regulation at the holding company level; capital requirements are imposed at the operating company level only; and there are generally strong regulatory capital flow restrictions from operating companies to holding companies. These features can lead to a regulatory-driven incentive for groups to hold resources at operating companies and not at unregulated holding companies.

We believe this regulatory approach will likely result in a higher probability of default (PD) for holding company creditors than for policyholders and operating company creditors, and considerably higher levels of loss given default (LGD). Higher expected loss is reflected in our standard notching guidance for insurance holding company senior debt, which is positioned at the IFSR minus three notches.

Impact of Holding Company Diversification and Liquidity

We may consider notching holding company debt down two notches from the IFSR, rather than three, if the holding company benefits from multiple sources of sizable (e.g., over a third of consolidated results) uncorrelated earnings and dividend cash flows. Diversification is typically thought of in terms of significant separate operations, for example, banking, life, and property and casualty (P&C), and earnings within a consolidated entity. Alternatively, geographic diversification could support narrower notching (i.e., a narrower ratings differential) between holding company and operating company debt, although for certain lines of business with correlation across regions this is less likely. However, if any of the analytic units⁴ already benefit from support (e.g., the life analytic unit's IFSR is lifted from its standalone credit profile due to its affiliation with a stronger banking or P&C analytic unit), narrower notching may not occur, to avoid double-counting support.

If a holding company benefits from significant sources of dividends from unregulated subsidiaries (which are not highly correlated with or derived from the regulated subsidiaries), notching between

³ Simple organizational structures are those operating predominantly in a single sector (e.g., property and casualty) in a single territory. Such groups may represent a single or small number of operating legal entities, or there may be multiple companies operating in the same territory, but they do not provide a material level of diversification.

⁴ 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 intercompany support arrangements exist, or there is a high degree of integration in the management, systems, distribution and operations of the group of companies.

holding company debt and the IFSR could also be compressed. The degree of compression varies, depending on the breadth and depth of the holding company's diverse sources of subsidiary cash flows. Typically, we expect to see over a third of consolidated earnings and cash flows derived from alternative sources before considering any diversification benefit in notching.

In certain cases, a holding company may consistently maintain significant amounts of unrestricted cash and high-quality liquid assets, which it could use in a time of financial stress to repay a substantial portion of its debt obligations outstanding. Typically, we expect such cash and securities to be sustained at over 75% of consolidated debt outstanding for an extended period before we consider compressed notching. In addition, the benefit would only be contemplated if the capitalization level of the operating company is appropriate relative to its rating level.

Notching Insurance Holding Company Ratings Subject to 'Solo and Group' Regulation

Insurance regulation continues to evolve in many jurisdictions globally. In particular, some of the more advanced regulatory systems include features such as:

- » ***Inclusion of the holding company within regulatory oversight*** Regulatory capital requirements apply to groups on a consolidated basis, including capital and risks at the holding company level, in addition to regulatory requirements at the operating company level.
- » ***Group-wide risk-assessment and risk-reporting requirements*** Regulators require groups to submit group-wide Own Risk and Solvency Assessments (ORSA), and regulators take an active interest in understanding all material transactions among group members and, in some cases, requiring approval for intra-group transactions (capital or risk transfer).

Why Solo and Group Regulation Can Lead to Narrower Notching

Holding Company Is Regulated in Addition to Operating Companies

In systems where there is solo and group regulation, regulators include holding company capital and risks in their assessment of group solvency and, as such, holding companies are clearly subject to regulatory oversight. Regulators and investors are in many cases as focused on group capital levels as they are on solo (operating company) capital levels, and most insurance groups consequently focus as much on their group capital position as on their operating company levels. Groups frequently use intra-group transactions (including transactions between the holding company and operating companies) to best deploy capital throughout the group. Regulators have appeared generally comfortable with such transactions, in part due to the focus on group as well as operating company capital adequacy, but also due to the focus on the assessment and management of risks on a group-wide basis, notably through the ORSA reports that groups submit and discuss with regulators.

Holding Company PD Is Likely Closer to Operating Company PD Under Group Regulation

In a solo and group regulatory system, holding company creditors remain structurally subordinated to policyholders and to the debt of operating companies, and policyholders still take priority. Thus, the overall level of loss and distribution of loss between operating company creditors and holding company creditors in a liquidation scenario is likely to be similar to what we would observe in a solo-only regulatory system.

However, increased group-level regulatory oversight and the increased deployment of excess capital at the holding company level likely reduces the probability of default at the holding company, all else being equal. First, group regulation increases the scope of regulation to the entire group such that

there is greater scrutiny of the group's overall risk-taking activities, including holding activities. Second, under solo and group regulation, a group has an incentive to hold capital at the holding company level, unlike under solo-only regulation, and is therefore more likely to have the financial resources at the holding company to withstand a scenario that primarily stresses the holding company rather than the operating company. Group regulation thus tends to improve the holding company's financial stability and generally increases our expectation that a holding company's PD will be tied closer to that of the group's operating companies.

Applying Notching to Insurance Holding Companies with Solo and Group Regulation

Instruments issued by insurance holding companies that are located in jurisdictions where solo and group regulation is legally in force and that are effectively supervised under these solo and group regulation principles may be rated at the IFSR minus two notches. This narrower notching relative to standard notching for instruments subject to solo-only regulation is considered when the two criteria listed above are present in the supervisory framework of the jurisdictions where the holding company operates: inclusion of the holding company within regulatory oversight, and group-wide risk-assessment and risk-reporting requirements.

For groups that operate in multiple jurisdictions, we consider narrower notching for the holding company if we expect that regulators for all material subsidiaries will take a similar, group-wide approach to regulation. If an individual regulator in a jurisdiction where the insurer has a material subsidiary takes a very conservative approach, capital might not flow freely through the group, so we might consider the standard notching for solo-only regulation more appropriate for the holding company. Supervisory colleges⁵ are an example of a mechanism that can enable effective supervision of the group's total business, as opposed to oversight focused only on the business directly under the host regulator's supervision.

EXHIBIT 3

Typical Notching Guidance for Senior Debt Relative to Operating Company IFSR

	Subject to 'Solo Only' Regulation	Subject to 'Solo and Group' Regulation
Holding Company Senior Debt Rating	IFSR -3	IFSR -2

Source: Moody's Investors Service

As a result, for groups with multiple operating entities, some within solo and group regulatory environments and some outside, we consider narrower notching if we believe that (1) the proportion of earnings and capital not subject to direct solo and group regulation is insignificant in the group context, or (2) even if such operations are significant, we believe that regulators will ensure that the holding company is likely to largely manage capital and risk as if the entire group were in a solo and group regulatory environment.

Diversified Group Structures

We narrow the notching between IFSRs and holding company senior debt ratings for groups judged to have significant line-of-business or geographic diversification. However, we do not give double credit to groups that are also domiciled in a jurisdiction where solo and group regulation is in force. This is because the main rationale underlying narrower notching in a solo and group regulatory system — i.e., greater fungibility of capital and risk that benefits holding company creditors — is already present in

⁵ Supervisory colleges are joint meetings of interested regulators and company officials intended to facilitate oversight of internationally active insurance companies at the group level. The meetings include detailed discussions about financial data, corporate governance and enterprise risk management functions. Source: National Association of Insurance Commissioners

our rationale for narrower notching of diversified groups. Diversification benefits are nonetheless captured in our assessments of IFSRs.

Rating Insurance Hybrid Securities and Subordinated Debt

Hybrid securities include specific types of debt or preferred stock that have certain features providing for variation in payments under the security (e.g., coupon skip or deferral) without triggering a default. This section provides a more detailed explanation of the features of these instruments and how the features affect the relative position of each instrument's ratings in line with the notching guidance provided in Exhibit 1.

Surplus Notes

Deeply Subordinated Status of Surplus Notes

Surplus notes are deeply subordinated debt issued by regulated insurance operating companies. They are explicitly subordinated to the insurer's policy claims and any other indebtedness. Because of their subordinated nature and the loss absorption provided to policyholders, surplus notes are typically treated and accounted for by the insurance regulators as statutory surplus and are included in the calculation of regulatory total adjusted capital used, for example, in the US National Association of Insurance Commissioners (NAIC) risk-based capital (RBC) framework. Issuance of surplus notes requires the approval of the insurance regulators of the jurisdiction in which the insurer is domiciled.

Surplus notes have historically been issued by mutual insurance operating companies as a means to raise capital and to provide them with additional financial flexibility given their inability to issue equity in the capital markets. They have also been issued by operating companies to a parent holding company, often as a tax-efficient way for the holding company to inject capital into a subsidiary and as an efficient way for the operating company to upstream cash to the holding company.

Our ratings of surplus notes reflect their deeply subordinated standing relative to policyholder obligations and indebtedness.

Principal and Interest Payments Need Regulatory Approval

Although surplus notes have scheduled interest and principal payments, insurance regulators must usually approve all payments. Approval by the insurance regulators is expected to be granted only if the financial condition of the insurer warrants the making of such payments. Nevertheless, the regulator has broad discretion to determine whether to allow payments. There are usually no specific financial guidelines or interpretations regarding the regulator's discretion to determine whether or not the insurer's financial condition warrants the payment of interest or principal.

The regulator's control over the payments on the surplus notes and their explicit subordination form the basis for the regulatory and accounting treatment of the notes as statutory surplus instead of as a debt obligation. This type of security presents some uncertainty and risk for the investor because of the regulatory approval requirement for interest and principal payments. If the state regulator does not give approval for payment of interest or principal, there is no event of default, and the note does not accelerate or become immediately payable. Rather, interest is usually accrued and payable if and when regulatory approval is subsequently obtained.

Junior Subordinated Debt

For insurance issuers, junior subordinated debt is rated at the same level as subordinated debt in the absence of meaningful triggers⁶ that, if breached, result in a variation of payment through mandatory coupon suspension. While we recognize the increased subordination of junior subordinated debt versus subordinated debt, we believe the increased subordination is not sufficient to increase the notching in the absence of triggers that we consider to be meaningful.

Historical evidence suggests that insurers tend not to suspend coupon payments of securities without meaningful triggers unless they are close to insolvency (i.e., no longer going concerns). This is driven by a variety of causes, including the likely lower levels of regulatory intervention with respect to insurers' hybrids, compared with the banking industry. Also, insurance companies typically have limited overall debt funding in relation to their insurance liabilities, which diminishes the effect of cash conservation in prevention of insolvency.

In addition, most insurance subordinated debt already includes a cumulative coupon-skip mechanism or non-cash cumulative skip mechanism through an alternative coupon settlement mechanism (ACSM).⁷ Therefore, we do not expect the presence of a coupon-skip mechanism in junior subordinated debt to materially affect the loss characteristics of this debt relative to other subordinated debt.

Preferred Securities

Ratings for preferred securities are not differentiated solely by cumulative versus non-cumulative coupon-skip mechanisms. Historical evidence suggests that insurers, like corporate issuers, tend not to suspend coupon payments unless they are close to insolvency (i.e., no longer going concerns), at which point the loss characteristics of non-cumulative and cumulative preferred securities are similar. Consequently, any incremental expected loss for non-cumulative securities does not necessarily translate into a full additional one-notch differential.

However, we do increase notching when a preferred security has a meaningful trigger which, if breached, results in coupon suspension on a non-cumulative basis. In this case, coupon suspension could happen in advance of insolvency when the insurer is a going concern, thereby increasing the security's loss potential and warranting an additional notch.

Likelihood of Government-Forced Coupon Suspension Is Low

Our insurance ratings do not typically anticipate government support. The historical record of insurers receiving direct government support is very limited. In terms of our ratings of hybrid securities, in the cases where government support has been provided, governments have not usually required coupon suspension as a condition for the receipt of aid. Indeed, there have been several examples where insurers have been excluded from the requirement to suspend coupons, when they have been part of a bank group that received aid, although in some cases this has been driven by the size of aid received or by their profitability, rather than by insurers being viewed differently.

⁶ We consider a trigger to be meaningful if, when breached, it results in the suspension of coupons and provides cash flow relief in a deteriorating financial situation. The triggers are designed to be breached at or about the same time that ordinary dividends are suspended.

⁷ Hybrids with an ACSM feature require the issuer to settle any accumulated coupons through the issuance of common stock or certain types of preferred securities. As such, they are cumulative in nature.

If there were circumstances in which coupon suspension were likely to be required by a government, we would incorporate that likelihood into our rating of the instrument. In cases where we consider loss highly likely, we typically move away from a notching approach and toward a quantitative estimation of expected losses using probabilistic scenario modeling (see below).

Additional Notch for Non-Cumulative Preferred Securities with Coupon Suspension Tied to the Breach of 'Meaningful' Triggers

The specific terms for triggers mandating coupon suspension upon a breach are quite varied. Some insurance groups have issued securities with triggers containing several elements addressing both net income and changes to balance sheet strength.

Examples of Triggers in Insurance Securities

For European insurers, some typical triggers require:

- An average IFRS net loss (i.e., post tax and post minority interest) over the previous four quarters; and
- Adjusted shareholders' equity and adjusted capital as of the latest reporting date 10% lower than the level of 24 months before, after adjusting for new share issuance.⁸

For US insurers, some typical triggers require:

- Covered insurance subsidiaries' most recent weighted average NAIC risk-based capital (RBC) ratio to be less than 175%; or
- Trailing four quarters consolidated net income amount for the period ended the quarter that is two quarters prior to the most recently completed quarter to be less than or equal to zero; and
- Adjusted shareholders' equity amount as of the most recently completed quarter and as of the end of the quarter that is two quarters before the most recently completed quarter to have declined by 10%⁹ or more compared with the adjusted shareholders' equity amount at the date that is 10 quarters prior to the most recently completed quarter.

For hybrids with an ACSM, if a coupon is skipped, the issuer is required to raise funds in a non-cash depletive way (such as selling new shares) to pay the coupon to investors. Under these structures, we do not expect a trigger breach for a going concern insurer to result in losses for investors.

Hybrids Issued by Insurers Forming Part of Banking or Bancassurance Groups Analyzed on a Case-by-Case Basis

We note that there are several banking or bancassurance groups that contain insurance entities with outstanding hybrids. In such cases, we take a case-by-case approach to analyzing the likely loss characteristics of the issued insurance hybrids given the insurer's connections to the group's banking operations.

⁸ Adjusted shareholders' equity is usually defined as shareholders' equity before minority interests as reflected in the consolidated balance sheet, minus foreign exchange translation adjustments and unrealized gains and losses (net) as reflected on the consolidated balance sheet. Adjusted capital is defined as adjusted shareholders' funds plus any mandatory convertible securities.

⁹ The 10% threshold can vary by issuer reflecting the inherent volatility in the lines of business underwritten. Typically, a 10% threshold is used for life insurers and a 20% threshold for P&C insurers.

Refinements to Hybrid Notching Approach When Risk of Payment Default Is High

Our standard notching practices for insurers are intended to recognize incremental expected loss rates, although they are usually applied in the context of low expected default rates (most insurers are rated in the investment-grade range for insurance financial strength). When a skipped coupon or principal write-down for hybrid capital is either imminent or highly likely, we employ a more refined approach to assign the hybrid rating.

In such cases, our approach is usually to estimate the instrument's expected loss by estimating the probability of payment interruption, factoring in the anticipated period of coupon non-payment, and the potential for an effective principal write-down through a distressed exchange and the severity of loss. The result of this analysis may be that the rating is lower than is suggested by our standard notching guidelines. In the event that a hybrid skips coupon payments which are subsequently resumed, we generally consider the use of normal notching guidelines only when the insurer's financial condition stabilizes and there is a high likelihood that the insurer is able to make coupon payments for an extended period.

Among financial institutions, there have been certain cases where outstanding hybrids have been subject to exchanges into other forms of debt or equity at a substantial discount to par. If we view the exchange as avoiding a bankruptcy filing or payment default, it is tantamount to a restructuring outside liquidation and we consider it a distressed exchange¹⁰ (and therefore a default) for rating purposes. If this situation arises, we will also typically use an expected loss approach, and the rating reflects our assessment of the potential for loss relative to par value. In these circumstances, all of an issuer's ratings would reflect its financial distress.

We Use the Hybrid Indicator (hyb) for Insurance Contingent Capital Securities

The hybrid indicator (hyb) is appended to all insurance hybrid and contractual contingent capital securities, which may or may not have coupon suspension mechanisms as a defining characteristic. Together with the indicator, the security ratings continue to be an expression of the expected loss associated with that particular security. It is based on our best information at the time regarding the various loss scenarios resulting from a structural analysis as well as an assessment of the insurer's credit fundamentals.

Contingent Capital Securities(CoCos)

CoCos are typically deeply subordinated securities, with or without coupon suspension mechanisms, that convert to equity or suffer a principal write-down either at the point of non-viability or failure (non-viability securities) or in advance of it (high-trigger securities).¹¹ The starting point for rating insurance CoCos is the insurer's IFSR, which incorporates our view of expected loss in the event of firm-wide failure.

The potential additional rating differential of a CoCo relative to an IFSR generally reflects that losses can occur outside of a firm-wide failure through conversion to equity or a write-down. For non-viability

¹⁰ Please see the "Moody's Related Publications" section of this report for a link to *Rating Symbols and Definitions*, which includes our definition of default and a discussion of long-term credit ratings for defaulted or impaired securities.

¹¹ The determination of a CoCo as a non-viability security or a high-trigger security is binary. If in our assessment the instrument is not a non-viability security, it is a high-trigger security for purposes of principal write-down or equity conversion.

securities, we determine the insurer's non-viability point based on each jurisdiction's regulatory framework, and use our existing analytical tools to rate the securities.¹²

High-Trigger Contingent Capital Securities

Upon the breach of a trigger typically set at a level well above the point of non-viability, high-trigger CoCos convert to equity or can face a full, partial, permanent or temporary principal write-down. The conversion/write-down features of these securities are designed to shore up the insurer's capitalization in order to avoid a firm-wide failure. Regardless of the form this security takes, it has multiple risks: the risk of having a junior debt/preferred equity claim should the insurer become non-viable and the risk of having losses imposed upon a coupon skip trigger breach well in advance of the point of non-viability.

For rating high-trigger CoCos, we use a model-based approach¹³ that captures the probability of a firm-wide failure event, the probability of a trigger-breach event, and loss severity if either or both of these events happen. The assigned high-trigger rating also incorporates analytical judgment based on case-specific characteristics and may be different from the model-indicated outcome. We capture the risk of coupon suspension, if applicable, in the notching for the related non-viability security, and we typically cap the high-trigger security rating at the level of the insurer's non-viability security rating.¹⁴

In simple terms, the incremental risk of a high-trigger security is the distance to trigger breach, which is captured through a model rather than a simple notching-based approach. Another important aspect of these securities, in addition to severity of loss upon trigger breach, is the incremental risk of the security's default relative to the probability of failure of the firm.

To capture both risks (firm-wide failure and the incremental risk associated with trigger breach), our model incorporates our view of the insurer's current financial strength as expressed through its IFSR, which is an indicator of firm-wide failure, and its last-reported capital ratio, generally adjusted for our forward-looking view of capital, to determine the probability of a trigger breach. The model uses the distance from the insurer's current capital ratio to the capital level set as the trigger for imposing losses on the security.¹⁵

The model generates an outcome taking the probability of a firm-wide failure and the probability of a trigger breach ahead of a firm-wide failure, then mapping to an alphanumeric on our rating scale, using the four-year idealized default table. For securities with a full principal write-down, we may deduct an additional notch unless the non-viability security rating cap applies.

We usually cap the high-trigger security rating at the level of the non-viability security rating. Since a high-trigger security rating incorporates the credit risk of its non-viability component *and* the credit risk associated with a pre-failure trigger breach, a high-trigger instrument rating cannot be above the non-viability security rating. The model-indicated outcome considers only the probability of a trigger breach and does not necessarily factor in the risk of the security's other features, such as non-cumulative coupon suspension. However, the rating of the relevant non-viability instrument, which

¹² In our notching framework, we treat traditional subordinated debt and preferred stock without equity conversion/principal write-down features the same as non-viability securities. A non-viability contingent capital security either converts to equity or is subject to a principal write-down at the point of non-viability and may or may not have a coupon suspension mechanism.

¹³ We may also use this model for all securities with coupon-skip features, when we see a meaningful potential for coupon skip outside of firm-wide failure. In these cases, we may run the model using the capital ratio associated with the coupon-skip trigger.

¹⁴ We use the notching guidance provided earlier in this methodology for non-viability securities. If the insurer does not have any rated non-viability securities, we would use this methodology to determine what the rating of that class of security would be if the insurer were to issue such a security (consistent with the form, e.g., subordinated debt, non-cumulative preferred and others, of the high-trigger security being issued).

¹⁵ In our approach, the distance to trigger breach is based on how the capital ratio is defined at the time of issuance.

acts as a cap, already captures the loss severity in the event of a firm-wide failure and the possibility of an impairment event through coupon suspension ahead of a firm-wide failure. Therefore, in assigning ratings to high-trigger securities, we are effectively rating to the greatest credit risk among a trigger breach, firm-wide failure and impairment associated with coupon suspension, in the case of a high-trigger security.

The assigned high-trigger rating incorporates analytical judgment based on case-specific characteristics, and the assigned rating may be different from the model-indicated outcome. Some of the other factors that we may consider in rating high-trigger securities are discussed below.

Other Considerations for Notching Contingent Capital Securities

We may consider specific security features that could prompt certain insurer actions. For example, an insurer may be more reluctant to allow a trigger breach if a security requires equity conversion at a low price (absent a contractual non-dilution option for existing shareholders) than if it has a full principal write-down. We may therefore consider the latter feature to have greater credit risk. Beyond the features of the specific security, we may also consider other circumstances of a particular insurer, such as its ability to issue new equity or take other remedial measures, including deleveraging or selling off business units, to address a capital problem and avoid a trigger breach. We may also consider how close an insurer is to breaching its capital buffers. While these factors also influence an insurer's IFSR, they could have a greater impact on the rating for junior securities.

High-Trigger CoCo Model

The following is a description of the model used in rating high-trigger CoCos. For all securities with coupon-skip features, we may use the high-trigger CoCo model to estimate the potential for a coupon skip. We may use this analysis, in combination with other quantitative tools and our view of the likely duration of any coupon skip, to inform our ratings of these securities.

Modeling the Probability of a High-Trigger Breach

For a high-trigger security issued by a specific insurer, a trigger breach event occurs if the insurer's solvency ratio falls below a point specified in the bond documentation. Hence, the probability of a trigger breach corresponds to the probability of the insurer's solvency ratio falling below this point. To estimate the probability of a trigger breach, we assume that the distribution of an insurer's future solvency ratios follows a normal distribution,¹⁶ which can be derived from two insurer-specific data inputs:

- » **The insurer's expected solvency ratio** is the mean of the distribution of forward solvency ratios. In the example presented in Exhibit 4, this is represented by the purple line (solvency of 150% SCR¹⁷). Since we assume a normal distribution, an insurer's solvency ratio has a 50% of chance of being on either side of this point. The mean will typically be the most recently reported solvency

¹⁶ Before deciding to use a normal distribution in the model, we considered a number of alternatives, each of which had its own limitations. Although using a normal distribution has some drawbacks, it does produce reasonable and consistent results. Although a normal distribution shows positive capital movements beyond the mean, they are irrelevant because the model assumes that all capital increases will be distributed in the form of dividends. We also assume that insurers will react to downward shocks by cutting compensation, reducing staff and reducing or eliminating common dividends and junior security payments. In the end, management's response to extreme upside and downside capital movements would likely result in a thinner-tailed normal distribution.

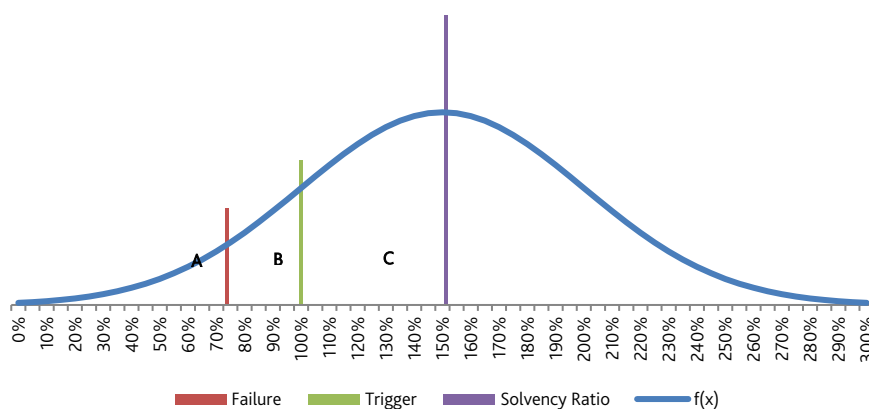
¹⁷ For purposes of this example, we have used the Solvency Capital Requirement ratio required of member nations of the European Union. This ratio would be replaced by the individual insurer's local solvency measure such as Switzerland's Swiss Solvency Test or the US NAIC's Risk-Based Capital ratio.

ratio, but it could be adjusted by our forward view of capital, particularly if we anticipate material changes.

- » **The insurer's IFSR**, reflecting the likelihood that the insurer will fail. We take the probability that the solvency ratio falls to a level such that the local regulator, per its local regulation, would exert meaningful influence over the insurer¹⁸ to represent the same probability captured in our rating. Using our Idealized Default Table, we determine the probability of failure associated with the insurer's IFSR¹⁹ and assign it to the region of the curve below this threshold (in Exhibit 4, this is area A).

EXHIBIT 4

Modeling Contingent Insurance Capital Securities



Source: Moody's Investors Service

Having calculated area A, we compute the distribution's volatility consistent with the already-determined mean and the probability of landing in area A. With the volatility and the mean, we draw the insurer-specific curve.

Once we have constructed the insurer's specific curve, we can identify the probability of the insurer's solvency ratio moving to any level, including the probability of landing in the area at or below the point specified in the bond documentation (in this case, 100% threshold, or the green line in Exhibit 4). The area under the curve to the left of that line, represented by the sum of area A and area B, represents the probability of the insurer's solvency ratio falling below 100%, which corresponds to the probability of a trigger breach.

¹⁸ While insurance regulation typically allows a ladder of intervention, we consider the point at which a regulator exerts meaningful influence over an insurer to be the closest proxy to the point at which policyholders may be forced to incur losses on insurance claims (losses defined as inclusive of delay in punctual payment of claims). This point varies by jurisdiction.

Jurisdiction	Point of Regulatory Intervention
European Union (Solvency II)	75% of SCR
Switzerland (Swiss Solvency Test)	80%
US (Risk-Based Capital)	75% of Company Action Level (CAL)

¹⁹ We consult the four-year horizon of the Idealized Cumulative Expected Default Table, which is described in *Rating Symbols and Definitions*, a link to which can be found in the "Moody's Related Publications" section of this report. More specifically, we use the probability of default (PD) associated with the rating that is one notch below the IFSR, reflecting our expectation of low loss severity of an IFSR relative to instrument ratings, which implies a relatively higher PD for an IFSR.

Mapping the Probability of a Trigger Breach to a Model-Indicated Outcome

Once we have assessed the probability of a trigger breach, we map to a model-indicated outcome using the four-year horizon of the Idealized Cumulative Expected Default Rates table.²⁰ The model-indicated outcome incorporates normal expected loss severity for a particular rating level, which we believe should generally capture the loss associated with conversion to equity or a partial or temporary principal write-down feature.²¹

Using the Symmetric Range Approach to Model CoCos' PD Benchmarks

In rating contingent capital securities of insurers in which a model is used to derive a probability of default, we select PD benchmarks referencing Moody's Idealized Cumulative Expected Default Rates table using the symmetric range approach. In this approach, as it applies to high-trigger CoCos, the lower bound of default consistent with a rating category is the midpoint (strictly, the geometric mean) between the idealized probability of default (PD) of the rating category and the idealized PD of the next higher rating category. The upper bound is analogously determined as the geometric mean between the idealized PD of the rating category and the idealized PD of the next lower rating category. Mathematically, the benchmark boundary is computed as an equal 50/50 weighting on a logarithmic scale. That is, the benchmark boundaries of the probability of default appropriate for evaluating rating category R are given by:

$$\begin{aligned} [1] \text{ Rating Lower Bound}_R &= \exp\{0.5 \cdot \log(\text{Idealized Probability of Default}_{R-1}) + 0.5 \cdot \log(\text{Idealized Probability of Default}_R)\} \end{aligned}$$

$$\begin{aligned} [2] \text{ Rating Upper Bound}_R &= \exp\{0.5 \cdot \log(\text{Idealized Probability of Default}_R) + 0.5 \cdot \log(\text{Idealized Probability of Default}_{R+1})\} \end{aligned}$$

Where:

Rating Lower Bound_R means the lowest idealized PD associated with rating R and the PD range of rating R is inclusive of the **Rating Lower Bound_R**;

Rating Upper Bound_R means the highest idealized PD associated with rating R and the PD range of rating R is exclusive of the **Rating Upper Bound_R**;

R-1 means the rating just above R ;

R+1 means the rating just below R .

The Rating Lower Bound for Aaa is 0% and the Rating Upper Bound for Ca is 100%. These are not derived using the formula.

Accessing the Model

The Insurance CoCo Model can be accessed on the insurance sector page at moodys.com. The model does not reflect all additional factors that we may take into consideration in determining the actual inputs to our rating analysis or the ratings we would assign to any particular securities.

²⁰ The Idealized Cumulative Expected Default Rates table is described in *Rating Symbols and Definitions*, a link to which can be found in the "Moody's Related Publications" section.

²¹ For insurers, the IFSR captures the expected loss in the event of an insurer-wide failure, but expected loss severity for insurers is below normal severity. As a result, the insurance CoCo model lowers the IFSR input by one rating notch to reflect normalized probability of default (e.g., if the IFSR is A2, the model lowers the input rating by one notch to A3).

Moody's Related Publications

Cross-sector credit rating methodologies are typically applied in tandem with sector credit rating methodologies, but in certain circumstances may be the basis for assigning credit ratings. A list 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](#).

» contacts continued from page 1

Report Number: 1300274

Analyst Contacts:**HONG KONG +852.3551.3077**

Sophia Lee +852.3758.1357

Associate Managing Director

sophia.lee@moodys.com

Sally Yim +852.3758.1450

Managing Director - Financial Institutions

yatmansally.yim@moodys.com

Authors

Benjamin Serra

Karen Berckmann

Laura Barrientos

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