

Article Title: Criteria | Insurance | General: Methodology: Mortgage Insurer Capital Adequacy Data: (EDITOR'S NOTE: —On Jan. 28, 2022, we republished this criteria article to make nonmaterial changes. See the "Revisions And Updates" section for details.)

1. To analyze capital adequacy in the mortgage insurance (MI) sector, S&P; Global Ratings uses its MI model together with "Insurers Rating Methodology" (IRM), published July 1, 2019, and the related guidance article (see "Related Criteria"). Regional considerations—including market structural features of the mortgage sector, such as legal considerations, borrower recourse, and funding—influence mortgage performance and, therefore, our view of a mortgage insurer's capitalization. We utilize a globally consistent approach in evaluating capital adequacy, while incorporating regional considerations including analysis embodied in our regional residential mortgage-backed securities (RMBS) criteria. As with general insurers, we express our opinion of a mortgage insurer's capitalization in terms of adjusted capital compared to target levels of risk-adjusted capitalization.

2. The capital adequacy outcome from the model is the starting point for judging capital adequacy. As in the IRM and the IRM-related guidance article, qualitative and quantitative assessments refine our view of a mortgage insurer's capital position. Through these two steps, we believe we can assess risks that are unique to a company while enhancing comparability among companies.

3. Given the monoline nature of the mortgage insurance operating companies in our typical experience, the model seeks to determine the amount of capital necessary to cover losses at varying stress levels emanating from risks in the companies' covered mortgage loan portfolio. These risks are evaluated in conjunction with the disparate risks from invested assets, quality of capital, reinsurance protection, and with other qualitative factors under a run-off scenario.

4. Considerations related to available capital for purposes of evaluating capital adequacy of mortgage insurers, as listed in paragraph 22 of this article, partially supersede the section "Description Of TAC And ECA Adjustments" and Table 1 of "Refined Methodology And Assumptions For Analyzing Insurer Capital Adequacy Using The Risk-Based Insurance Capital Model," published June 7, 2010 (the insurance capital adequacy criteria).

5. The criteria constitute specific methodologies and assumptions under "Principles Of Credit Ratings," published Feb. 16, 2011.

6. For definitions of key terms and acronyms used in this article, please see the Glossary.

SCOPE OF THE CRITERIA

7. The criteria apply to all global-scale foreign and local currency, long-term issuer credit, financial strength, and financial enhancement ratings on mortgage insurers and insurers or insurance groups for which mortgage insurance is a material part of the business. The methodology section of this article describes factors that we use for the U.S. and Australia MI markets. For other markets, we apply "Principles Of Credit Ratings," published Feb. 16, 2011, where our views are informed by the markets we believe to provide the most relevant experience and risk characteristics.

SUMMARY OF THE CRITERIA

8. The criteria are an integral, quantitative tool in analyzing the capital adequacy of MI companies worldwide. Regional considerations—such as market structural features, legal regime, borrower recourse, and funding—generally play a role in determining mortgage performance and, by extension, have a bearing on the capitalization of a mortgage insurer. We take a globally consistent approach in evaluating capital adequacy, while incorporating regional considerations, including analysis embodied in our regional RMBS criteria. Our assessment of a mortgage insurer's capitalization is expressed in terms of adjusted capital being either redundant or deficient compared to target levels of risk-adjusted capitalization, similar to our existing presentation for insurance capital adequacy models.

9. The capital model results are applied within the broader context of the IRM.

10. This paragraph has been deleted.

11. This paragraph has been deleted.

METHODOLOGY Capital Adequacy: Overall Approach

12. S&P; Global Ratings' MI capital model is the cornerstone of our capital analysis for mortgage insurers. The MI capital model is a 10-year risk-adjusted run-off profit and loss statement projection (wherein we assume no new business writings) using projections for revenue, expense, asset, and liability categories under different stress scenarios. The methodology factors in the expected lifetime credit losses under various economic scenarios, the timing for loss development and claims payments under a stressed environment, and the revenue generation capacity over that period, because significant revenue continues to be generated from investment income and in case of U.S. MI companies, from recurring premiums on non-defaulted loans. We use a projection period of 10 years, which encompasses considerations related to a prolonged recession as well as that of the long-tail nature of loss development, especially under a stressed environment. We use a common framework for our globally

rated mortgage insurers while providing appropriate flexibility to reflect specific regional market features, primarily by applying loss factors specific to RMBS performance within the respective market. Our model assumptions (including loss factors, default curve, and prepayment speeds) are informed by empirical observations, sector considerations, loans underlying RMBS, and portfolio performance data released by Freddie Mac/Fannie Mae (the GSEs) in 2013 and 2014. 13. S&P; Global Ratings considers a mortgage insurer adequately capitalized at a particular stress level if sources of capital exceed losses incurred and operating expenses over the projection period. We supplement this view by measuring the level of capital available throughout the projection period. In certain cases, available capital may deplete completely, before recovering as premiums continue to be collected (as applicable), indicating weakness at a given stress level. We incorporate this in our forward-looking view of the insurer's capitalization and could assign a lower score on capital adequacy. 14. We assess capital adequacy by applying Table 8 of the IRM and the sector-specific guidance for the MI sector as detailed in "Guidance: Insurers Rating Methodology." While the capital model provides a static view of the reported exposure by applying "Capital and earnings" and "Risk exposure" of the IRM, we incorporate our prospective view of earnings, new exposure, roll-off of the existing exposure, and defaults as per the prevailing and expected macroeconomic variables, and company-specific considerations. 15. The estimate of the credit risk of an insured loan portfolio, which is the primary source of risk for a mortgage insurer, is of utmost importance given the monoline nature of business. As a result of the housing downturn and financial crisis of 2008-2009, the U.S. MI sector saw significant downward ratings migration, while the impact on Canadian and Australian entities was significantly less. Our preexisting U.S. capital model charges were based on MI performance from the late 1980s/early 1990s, when risk layering and affordability products were not as prevalent as we've seen in the mid-2000s. In Australia and Canada, despite less of an impact from the housing markets and financial crisis, we have observed a significant run-up in consumer leverage and housing prices due to fiscal and monetary policies adopted to address economic weakness post-financial crisis and historically low interest rates. This, in our view, increases the risk in the housing market and borrowers' vulnerability to economic shocks. We use a common capital model framework that enhances consistency with our regional RMBS criteria to reflect the inherent risk within a given MI portfolio, including better accounting for risk layering (see Glossary for definition). 16. Our RMBS criteria approach is based on decomposing and evaluating risk emanating from individual loan risk characteristics (how the credit risk profile changes due to changes in, for example, the loan-to-value, borrower credit, type of loan product, etc.), thereby more effectively capturing risk layering (i.e. a buildup of risk elements) within insured loans. In a given country, the expected losses on an insured mortgage loan portfolio are also dependent on the structural aspects of the housing, mortgage, and lending markets. Therefore, leveraging off our regional RMBS criteria allows us to refine the charges to appropriately reflect that particular country's specific characteristics. In countries where the MI sector is limited or where we have not published specific RMBS criteria, we utilize our capital model for existing markets as a proxy, and adjust our view based on qualitative factors geared to assess the applicability of the risk charges. Qualitative factors we typically consider include a comparison of economic factors, structural features of the mortgage sector, type of mortgage loan products available, lending mechanisms and performance of mortgage and housing sectors with those of markets specifically covered by the capital model, along with the availability and quality of the mortgage portfolio data. We incorporate this qualitative view by adjusting the capitalization assessment for the overstatement or understatement of material risks as indicated in capital and earnings in the IRM. 17. In addition to capturing the credit risk of the MI portfolio, we apply the same asset risk charges defined under our capital adequacy criteria for insurers "Refined Methodology And Assumptions For Analyzing Insurer Capital Adequacy Using The Risk-Based Insurance Capital Model," published June 7, 2010. Our risk view of the MI portfolio and investment portfolio, timing of losses, and risk mitigation aspects from reinsurance programs are integrated through the final step of financial projections, assuming no new business. 18. Chart 1 depicts the various components of the capital model. In essence, the model integrates MI portfolio credit and asset risk with the timing of defaults and revenues considering the nature of MI and its vulnerability to stressed economic environments. Analyzing A Dynamic Portfolio 19. A mortgage insurer's exposure to mortgage credit risk is dynamic--a portfolio spans multiple years and it changes as new business is written and existing exposure rolls-off. This

contrasts with RMBS transactions, where once the structure is finalized, the collateral, capital support, and loss coverage levels (in the form of overcollateralization, cash account, excess spreads, etc.) are typically fixed at the outset. Accordingly, the approach to evaluating MI capital needs to factor in recurring premiums, persistency, and seasoning. Therefore, we assess portfolio credit risk on the current loan exposure as of the reported date and calculate capital requirements by estimating default risk based on original loan risk characteristics (including original combined LTV, etc.) adjusted for seasoning along with the estimate of potential loss severity given the current outstanding amount and housing valuations. 20. U.S. mortgage insurers receive updated information on their portfolio exposure, given that a significant proportion of business is based on monthly pay (or other periodic payment) premiums provided by servicers. Outside of the U.S., this may not always be the case. For example, Australia and Canada are generally single-premium markets (that is, the policy premium is paid upfront), and the lenders do not usually inform mortgage insurers of prepayments and refinancings. Therefore, the portfolio exposure in markets with single premium payment models may be somewhat overstated. To compensate for this, we may adjust exposure to past vintages. For Australia, we may utilize the prepayment information from our RMBS surveillance. Based on where any particular vintage is in terms of seasoning, prepayment assumptions for each year past the origination are applied to estimate mortgage insurers' residual exposure to that particular vintage. Portfolio stratification 21. In addition to the company-specific financials and investment portfolio composition, we analyze mortgage loan portfolio data (the format of which is laid out in Appendix A). In essence, we capture the salient MI portfolio risk characteristics by stratifying the insured portfolios into groups of insured exposure (insurance in force, or IIF) sharing common risk characteristics, or "risk groups." This process, in our view, balances the amount of portfolio data required with the necessary granularity to effectively capture risk. Each risk group can be uniquely defined as a combination of values for selected risk factors (or risk group determinants) at the time of origination (see table 1). Each risk group is then assessed for credit risk (loss costs) at various stress levels using criteria detailed under Insured Portfolio Credit Risk. Aggregating the credit risk of all risk groups gives a measure of mortgage portfolio risk. Table 1 Risk Characteristics And Risk Group Determinants For U.S. And Australia RISK CHARACTERISTICS (AT ORIGINATION) U.S. AUSTRALIA PARAGRAPHS NOTES Vintage ¶ ¶ 62-63 Seasoning credit. Dynamic factor computed on last reported period Loan-to-value ¶ ¶ 35-37 Loans grouped in bands of LTV at origination Borrower credit score ¶ ¶ N/A 35-37 FICO score; loans grouped in bands of credit score at origination Borrower employment N/A ¶ 40-43 Salaried, self-employed, etc. Additional factors are also used--past credit events (paragraph 42) and first-time homebuyers (paragraph 43) Product type ¶ 46-52 First lien, second lien Loan type ¶ 46-52 Fixed rate, variable, ARM, balloon, etc. Documentation type ¶ 53-54 Property type ¶ 55 Occupancy ¶ 44-45 Primary residence, investment, second home Loan purpose ¶ 56-57 Debt ratios ¶ 58-60 Debt-to-income ratio, net surplus ratio, debt service ratio Amortization term ¶ 61 Delinquency status ¶ 64-66 DF assumption for delinquent loans ¶--Risk characteristic used for computing default frequency (DF). ¶--Risk group determinant. N/A--Not applicable. Capital available 22. To assess total available capital (TAC), we apply "Refined Methodology And Assumptions For Analyzing Insurer Capital Adequacy Using The Risk-Based Insurance Capital Model," published June 7, 2010, with the following MI-specific considerations. Given the accounting treatment of MI reserves (reserves are only set for delinquent loans), that the recurring premium income from the residual run-off portfolio, investment income, and amortization of deferred acquisition costs (DAC) will be covered in the run-off projections, and the contingent nature of deferred tax assets, we: Do not write-off DAC; Remove time value of money considerations for loss reserves and unearned premium reserves (UPR); and Give credit for tax loss carry backs and carry forwards to account for taxes paid that may be recaptured and credits that may be applied as permitted by the applicable tax code based on our modeled results (we do not otherwise give credit for net operating loss carry forwards in the balance sheet). 23. Our analysis is intended to be indifferent to the method of accounting reporting; therefore, we may make adjustments to account for contingency reserves and other balance sheet account items, where necessary, to either include or exclude these from our view of capital. Insured Portfolio Credit Risk 24. We assess the portfolio credit risk as the expected lifetime loss costs (LC) for a given stress level, based on the weighted average default frequency (DF) and loss severity (LS). For a given

portfolio exposure, we calculate DF as an estimate of a proportion of IIF that will proceed to ultimate claims. Loss severity is an estimate of loss given default as a proportion of IIF. (In the U.S., risk-in-force [RIF] is a widely used measure of risk exposure, which is basically the product of MI insurance coverage and IIF.) The product of DF and LS provides an estimate of expected loss costs at a given stress level. 25. The DF and LS are computed on an individual risk group basis and then aggregated at the portfolio level. The macroeconomic stresses are built into the various assumptions used for DF and LS. For example, 'Extremely Strong'/'AAA' capital adequacy is associated with extreme macroeconomic stress levels--on par with the Great Depression of the 1930s. The scenarios associated with the lower scores are successively less stressful. Capital adequacy assessments aim at indicating sufficiency of available capital and other revenue sources for the company to withstand the associated level of macroeconomic stress without defaulting (although the assessment may weaken on a given MI as economic stresses increase). 26. We incorporate various risk characteristics and risk charges developed by the RMBS criteria, adjusted appropriately, in the computation of DF and LS. Using RMBS criteria allows us to enhance the sensitivity of our analysis to key risk attributes such as LTV, borrower credit quality, product types, etc. This enhances the predictive capabilities of the model and its ability to address changes in product and underwriting characteristics and in risk layering. Default frequency 27. Similar to our RMBS criteria, we use an archetypical pool of prime loans as the starting point for our analysis. This pool consists of a minimum of 250 consolidated mortgage loans with all of the following characteristics: The loans are performing and not delinquent; The loan-to-value ratio is 75%; The loans are to prime borrowers--for the U.S., a 725 FICO score; for Australia, borrowers are salaried (pay-as-you-go) employees with clear credit histories (credit checks were obtained, and borrowers are not first-time buyers); The loans are secured by a single-family detached primary residence; The loans are for home purchase; Full underwriting has been performed; The loans have full documentation--borrowers' income (affordability), employment, and asset have been fully verified; The loans are fully amortizing; The loans have 30-year maturities; The loans are predominant product types in the market--fixed-rate mortgage (FRM) loans in the U.S., and standard discretionary variable rate (SVR) loans in Australia; The loans are first-lien mortgages and have no simultaneous second liens; and The loans are secured by properties that are geographically well-diversified within the country. 28. Assuming a risk group consists entirely of an archetypical pool (referred to as an archetypical risk group) with the characteristics defined in the previous paragraph, Table 2 lists our estimate of the frequency of serious defaults (generally, a 90-day delinquency) we expect at various stress levels. Table 2 Default Frequency Assumption For Archetypical Pool By Stress Level

STRESS LEVEL	AAA	AA	A	BBB	BB	B	U.S.
Archetypical risk group default frequency (% of IIF)	15.0	10.2	6.4	3.6	2.6	1.7	
Australia	10.0	7.5	5.0	3.2	2.1	1.1	29.

29. Loan characteristics that differ from an archetypical risk group either increase or decrease the base default risk. For example, we expect a risk group with a CLTV of 50% to have a lower default risk, whereas borrowers with a 600 FICO score would have a higher default risk. Our criteria capture the change in risk in the form of risk adjustment factors for each relevant parameter. A risk factor of 1.0 denotes no change relative to the archetypical risk group, whereas a risk factor of less than or greater than 1.0 denotes a decrease or increase in relative risk, respectively. The cumulative adjustment factor, which is the product of all such risk adjustment factors, multiplied by the region-specific base DF for 'AAA' and 'B' stress levels (see table 3) yields the estimated DFs for the risk group. The DFs for intermediate stress levels ('AA' through 'BB') are based on an interpolation between the DFs for 'AAA' and 'B' (see "DF Calculation For Intermediate Stress Levels" in Appendix B). The level of credit risk influences that DF assessment--for example, higher relative risk tends to compress DF for intermediate stress levels toward 'AAA'. 30. Consider a risk group with the following characteristics: CLTV = 90%, FICO = 675, adjustable rate mortgage (ARM), bought for investment purposes. Table 3 lists the risk factor relevant for each listed parameter. The base DF of an U.S. archetypical risk group at the 'AAA' stress level is 15%; therefore, the DF for the risk group under consideration is estimated to be 71.5%. Table 3 Example Of DF Estimate For U.S. Mortgages

PARAMETER	VALUE	ADJUSTMENT FACTOR
DEFAULT FREQUENCY (AAA)--U.S.		BASE DF (AAA) X CUMULATIVE ADJUSTMENT FACTOR = (15% X 4.77) = 71.5%
Cure activity credit	=f(AAA stress level, CLTV, FICO, occupancy)	0.86 (=1.02 x 0.84 x 1.05)
LTV/FICO	90%/675	1.78
Loan type	ARM	1.25
Occupancy	Investment	2.50
Cumulative adjustment factor	(product of individual adjustment	

factors) 4.77 31. We use the risk characteristics listed in Table 1 to calculate DF. 32. Estimating ultimate paid claims. We adjust the base DF assumption for an archetypical pool to take into consideration the cure activity that happens past what we consider to be a serious default in RMBS criteria, generally assumed to be a 90+-day delinquency. While we consider the timing aspects of defaults and loss recognition, the focus is on ultimate claims and claims-paying resources. There is a strong incentive for mortgage insurers to cure defaults to minimize losses. To estimate the ultimate default rate, we assume as a proxy a 180+ day default and provide for additional consideration. Tables 4-6 provide the adjustment factors for projecting ultimate claims based on various risk characteristics. 33. We view the 180+ day delinquency performance as an appropriate proxy for the point beyond which a mortgage insurer will have significantly diminished returns on cure activity, though we have recognized some credit for cure activity in late stage delinquencies above our modeled results in our adjustment factors. Although the industry has witnessed cures at 180+ days, the efficacy of such cures would be diminished (with higher re-default rates), even more so at the higher stress levels. Given the granularity of data available in the U.S., we utilize the U.S. RMBS loans that carry MI coverage to calibrate our regression models to create adjustment factors by stress level, original combined LTV, original FICO, and occupancy ("original" refers to an assessment at the time of the mortgage origination; see tables 4, 5, and 6). We use regression models to project 90+ and 180+ day delinquencies on a relative basis using various macroeconomic stresses. Our regression analyses, along with additional analysis of the roll-over of defaulted loans, suggest the default frequency can be credited by 11%-29% depending on the combination of stress level, CLTV, FICO, and occupancy to reflect cure activity that ultimately diminishes expected loss costs. (Table 4 illustrates how the adjustment factors are included in cure activity.) 34. We extend the assumptions of the previous paragraph to Australian mortgage insurers. We use the U.S. factors related to a FICO score of 725 as a proxy for an Australian borrower with a clean credit history, and we use factors related to a FICO score of 550 as a proxy for an Australian borrower with one or more adverse credit events. Further, in the case of second/investment properties for Australian mortgages, we use the adjustment factor for second homes for U.S. mortgages. Table 4 Cure Activity--Adjustment Factors By Original CLTV And FICO Score

ORIGINAL FICO	ORIGINAL CLTV >700	>650-<=700	>550-<=650	>500-<=550	<=500
<=50	0.77	0.77	0.76	0.75	0.74
<=60	0.79	0.78	0.77	0.76	0.76
<=70	0.80	0.79	0.78	0.77	0.78
<=75	0.80	0.79	0.78	0.79	0.79
<=80	0.81	0.80	0.79	0.79	0.79
<=85	0.81	0.80	0.79	0.79	0.80
<=90	0.81	0.80	0.80	0.80	0.80
<=95	0.81	0.81	0.80	0.80	0.82
>95	0.81	0.81	0.80	0.81	0.83

Table 5 Cure Activity--Adjustment Factors By Occupancy (X) Primary 1.00 Second 1.02 Investment 1.05 Table 6 Cure Activity--Adjustment Factors By Stress Level (X) AAA 1.02 B 0.96 35. Combined loan-to-value and borrower credit quality. We consider original CLTV and borrower credit quality as two of the most important determinants of credit risk. We consider that the joint effect of original CLTV and original borrower credit score is not simply the product of two independent effects, and that the interaction of these two variables can have a significant impact on the default frequency of loans (see chart 3). 36. We use CLTV to fully account for the risk emanating from multiple liens, whether insured or not. To the extent that the insurer knows that additional first/second liens exist at the time of origination, those should be included in the reported CLTV. If any of the liens is a home equity line of credit (HELOC), we use the fully drawn balance in the calculations. Further, if the mortgage premium amount is capitalized (i.e., the premium amount paid upfront is borrowed and attached to the loan/property), it will be included in the calculation of CLTV as well. 37. For the U.S., our risk adjustment factors for CLTV and FICO score range from 0.70x to more than 4.0x (for 100% CLTV and higher). (See chart 3 and Appendix B for a table of risk adjustment factors for the U.S.) For Australia, risk adjustment factors are based on CLTV using the following equation and can range from 0.45x to more than 4.0x (see chart 4). Chart 4 38. In regions where borrower credit scores (e.g. FICO) are not available, we rely on other measures to gauge the borrower's credit quality, including the type of employment, credit history, and whether the buyer is a first-time homebuyer. In such cases, the adjustment to the base DF is the product of the risk adjustment factors applicable to CLTV and of the other parameters we utilize to assess borrower credit quality, instead of an adjustment for joint impact of CLTV and FICO--as is the case for U.S. portfolios. 39. In Australia, a credit provider is not allowed to disclose the satisfactory credit performance of a borrower to a credit-reporting agency. Therefore, the information available is confined to adverse credit

history, defaulting accounts, court judgments, or bankruptcies, which we use to inform our assessment of the borrower's credit quality. In addition, we rely on the employment status of the borrower, including the type of employment and duration as well as the number of prior adverse credit events. We also ascribe additional consideration for first-time buyers. Table 7 provides an example comparing adjustment factors for U.S. and Australia loans based on CLTV and borrower credit quality. Table 7

Selected Adjustment Factors For Loan-To-Value Ratio And Borrower Credit Quality U.S. AUSTRALIA

ORIGINAL FICO	PAY-AS-YOU-GO/SALARIED EMPLOYEE	ORIGINAL CLTV	500	625	725	850									
CLEAR CREDIT	>=1	CREDIT EVENT	50	2.20	1.17	0.70	0.70	0.52	1.43	60	2.38	1.27	0.71	0.70	0.62
1.71	75	3.11	1.67	1.00	0.70	1.00	2.75	90	4.22	2.26	1.40	0.70	2.27	6.24	100
4.71	2.52	1.52	0.70	4.51	12.40	40									

40. For regions where credit scores are not available, we use employment type (in the absence of credit scores) to help evaluate the sources of income and the likely stability of that income, which informs our adjustment factors for assessing borrower risk. In our view, salaried employees (whether full- or part-time pay-as-you-go employee) offer greater certainty in determining continuing income potential, as they have regular and known working hours as opposed to casual employees, who typically do not have specific or defined working hours and who generally have reduced benefits and entitlements. Self-employed borrowers tend to be more susceptible to business risk as the economy deteriorates; in these situations, the cash flow of self-employed borrowers is typically affected more quickly and directly than salaried employees'. Given that small business failures tend to occur most frequently in the early years of operation, we adjust our factors based on the tenor of self-employed borrowers (see table 8 for adjustment factors for various employment types). 41. For Australian self-employed borrowers, we adjust the factors further for loans taken out with no documentation. Further, where tenor information is unavailable, we use 2.0x, 2.0x, and 2.5x adjustment factors for full-, low-, and no-documentation types, respectively. These selections are the second highest factors for the given documentation type. Table 8 Employment Type Adjustment Factors For Australian Borrowers (X)

EMPLOYMENT TYPE	ADJUSTMENT FACTOR	Salaried (full/part-time)	1.00	Retired/Pension	1.50
Commission-based	2.00	Other	3.50	SELF-EMPLOYED DOCUMENTATION TYPE	TENOR OF OPERATIONS (YEARS)
FULL/LOW DOCUMENTATION	>= 0 to <1	3.0	3.2	>= 1 to <2	2.0
2.5	>= 2 to <3	1.5	2.0	>= 3 to <5	1.2
1.5	>= 5	1.0	1.0	42. Credit events.	For Australia, we

apply an additional adjustment factor of 2.75x for loans extended to borrowers for which no credit check has been performed or for borrowers with an impaired credit history, as noted by one or more credit events within the past five years, to reflect the higher likelihood of default. 43. First-time buyer. For Australian loans extended to first-time borrowers with no credit history, we consider a 1.10x adjustment factor until a payment history of at least 18 months has been established. This reflects our view that first-time homebuyers are more likely to default due to the lack of a home loan payment history. Absent specific information from a mortgage insurer or considerations that would lead us to conclude otherwise, we generally assume that 10% of the portfolio was originated over the past two years for first-time buyers. This adjustment factor is applied on a portfolio basis. 44. Occupancy. During periods of economic stress, borrowers are more likely to default on a mortgage secured by a second home or an investment property, than on a mortgage for their primary residence. Hence, we typically differentiate between mortgages backed by properties that borrowers occupy as their primary residence and properties that are vacation homes or are bought for investment purposes. 45. In case of the U.S., we have observed that the occupancy risk rises significantly as the CLTV increases; therefore, we have incorporated the joint-effect of occupancy (differentiated by primary, second, or investment property) and CLTV (continuous function) in our factor adjustments. However, in the case of Australia, the second home and investment property loans perform more favorably than those in the U.S., which we believe reflects market and structural differences. Therefore, for Australia, we don't differentiate between loans for second homes or investor properties or by CLTV and apply a common factor of 1.1x. Table 9 U.S.: Selected Adjustment Factors For Occupancy And Original CLTV (X)

OCCUPANCY/ORIGINAL CLTV (%)	60	80	90	95	Primary home	0.50	1.00	1.30	2.50	Second home	0.65
1.30	1.80	3.30	Investor property	0.90	1.90	2.50	4.60	46. Loan type.	Product characteristics, such as interest rates and loan term, contribute to our view of default risk. The product features may be specific to a particular market; however, variable or adjustable interest rates or loans with balloon payments typically have a higher risk of default than fully amortizing fixed interest-rate products. In certain		

markets, where variable interest rates are the norm, such products are included in the definition of an archetypical pool for that particular region, which is then reflected in our assumption for base DF. In keeping with other risk attributes, we incorporate the analysis from our regional RMBS criteria to inform our adjustments related to specific product types in those markets.

47. Adjustable rate mortgages (ARMs) are loans with interest rates that vary over time as market interest rates change. The borrower benefits from lower initial payments and lower future payments if interest rates decline after the loan closes. When rates rise, however, the borrower's ability to repay the loan may be impaired as the payment on the loan increases. Hybrid ARMs, which are variations that blend features from fixed-rate mortgages and ARMs, can carry additional risks. With such products, the rate on the loan is fixed for the initial period, often at a low "teaser" rate, and then converts to a fully indexed ARM at the initial reset date. The five-/one-year (5/1) and 2/1 ARMs (see Glossary) are the most prevalent among ARM loans originated in the U.S. Interest rate shock represents a fundamental risk, given that once the fixed-rate period is over the borrower is subject to what may be a significantly different (and in many cases, a much higher) payment schedule. Our factors for ARMs vary significantly depending on the length of time of the fixed-rate period, with a 2/1 ARM 1.65x more likely to default than a fixed-rate loan, versus a 10/1 ARM being only 1.1x more likely. For Australia, in the case of loans with teaser rates, we apply an adjustment factor of 1.2x.

Table 10 Adjustment Factors By Loan Type (Non-Interest-Only Loans)

DESCRIPTION	FACTOR (X)
FRM	1.00
ARM; Growing Equity Mortgage (GEM)	1.25
2/1 or 2/6 months ARM	1.65
3/1 or 3/6 months ARM; 3/27 Two Step; Graduated Payment Mortgage (GPM); Buy-Down	1.50
5/1 or 5/6 months ARM; 5/25 Two Step	1.30
7/1 or 7/6 months ARM; 7/23 Two Step	1.20
10/1 or 10/26 months ARM; 10/20 Two Step	1.10

48. We use an adjustment factor of 3.0x for a negatively amortizing loan, whereas the adjustment factors for balloon loans vary from 1.25x to 3.5x based on the term of the balloon loan and original CLTV (see table 11). A balloon loan is a loan that amortizes according to a specified term but whose total unpaid principal balance is due at a point prior to when the loan fully amortizes (see Glossary).

Table 11 Adjustment Factors For Balloon Loans (X)

LOAN TERM (YEARS)	ORIGINAL LTV	FACTOR (X)
<5	<=50%	2.00
5-7	<=50%	1.70
7-10	<=50%	1.50
10-15	<=50%	1.25
15-20	<=50%	1.25
20-25	<=50%	1.25
25-30	<=50%	1.25
30-35	<=50%	1.25
35-40	<=50%	1.25
40-45	<=50%	1.25
45-50	<=50%	1.25
50-55	<=50%	1.25
55-60	<=50%	1.25
60-65	<=50%	1.25
65-70	<=50%	1.25
70-75	<=50%	1.25
75-80	<=50%	1.25
80-85	<=50%	1.25
85-90	<=50%	1.25
90-95	<=50%	1.25
95-100	<=50%	1.25

49. Interest-only (IO) loans represent additional risk due to the lack of amortization (principal pay-down) over the loan term, or due to the payment shock that may occur when an IO loan reverts to a normal amortizing schedule for the remainder of its term. To capture the increased risk, we ascribe an additional adjustment factor, which varies depending on the degree of payment shock and the observed behavior of such products in their respective markets (see paragraphs 50 and 51 for U.S. and Australia, respectively).

50. In the U.S., we apply an adjustment factor of 1.7x for fixed-rate mortgage (FRM) loans and 1.55x for ARM loans, regardless of the term of the IO period. Even though the adjustment is lower for ARM loans, the combined effect of the adjustment factors for ARM and IO loans is higher than that of FRM IO loans. For example, the adjustment factor for an IO ARM loan is $1.55x \times 1.25x = 1.94x$ compared to 1.7x for an IO FRM loan.

51. In Australia, our adjustment factors for IO loans vary based on the length of the IO term relative to the amortizing term (after reverting to blended principal and interest [PI] payments). In general, the longer the IO term, the higher the risk of payment shock (see table 12).

Table 12 Adjustment Factors For Australian IO Loans

IO term (years)	Adjustment factor
<=5	1.10x
5 to <=10	1.25x
10 to <=15	1.50x
15 to <=20	1.75x
20 to <=25	2.00x

PI term (years)

PI term (years)	Adjustment factor
<3	1.75x
3 to <5	1.50x
5 to <10	1.25x
10 to <15	1.10x
15 to <30	1.00x

IO--interest only. PI--principal and interest.

52. In Australia, certain product features provide for options to redraw or obtain further advances under the mortgage loan, which could increase the LTV as additional funds are drawn. Such products are prevalent in the Australian market and can be a material portion of an MI's exposure. To reflect the increased risk from products with such optionality within the MI's portfolio, we apply a factor of 1.1x at the portfolio level. Further analytical judgment can be applied based on the capacity for further advances relative to the original LTV of such loans and industry practices, and proportion of such products within the MI's portfolio.

53. Documentation type. The verification of a borrower's income, employment, and assets is, in our view, predictive of loan performance. Loans originated in 2006-2007 in the U.S. with low or no verification of income, assets, or employment have been among the worst performing. Therefore, we capture the risk in relation to the level of due diligence performed at

origination. Our adjustment varies from 1.0x–5.0x for the various documentation types, depending on the degree of income and employment verification, and regional variations. Differences in documentation standards across various countries arise from the differences in the products being offered. In Australia, for example, low- or no-documentation loans are generally offered to self-employed borrowers, and are generally related to the income verification standards. By contrast, in the U.S., such products are offered to a broader borrower-base and reduced documentation standards pertain to employment and asset verification as well. We apply the highest risk factor adjustment to no income/no employment verification loans, followed by verbal or stated income verification, whereas fully documented verification of income, employment, and assets is viewed as neutral to the default risk. (Table 13 summarizes the documentation types and risk factors for the U.S. and Australia.)

Table 13 Adjustment Factors For Documentation Type (X)

DOCUMENTATION TYPE	U.S.	AUSTRALIA
Notes 10	1.00	1.00
U.S.--24 months or more of income verification with employment and asset verification.		
Australia--Full verification of income with employment verification.	20	1.30
U.S.--Less than 24 months of income verification with employment and asset verification.		
Australia--1-3 additional items of evidence of income along with declaration of affordability and with employment verification.	30	1.90
U.S.--Stated income and stated asset information with employment verification (SISA); or stated income with employment and asset verification (SIVA).		
Australia--Only declaration of affordability or no supporting evidence of income with employment verification.	40	2.75
U.S.--No income and no employment information with asset verification (NIV); or no income information with employment and asset verification (no ratio).	50	5.00
U.S.--No income and no asset information with employment verification (NINA); or no income, no employment, and no asset information (no documentation).		
N/A--not applicable.	54	

54. While we view documentation verification as a good predictor of default at the time of origination for performing loans (see paragraphs 64-66 for our treatment of nonperforming loans), we reduce the impact attributable to documentation verification as the loan seasons, with no risk factor attributable after year six (see formula below and table 14).

Table 14 Adjustment Factors For Documentation By Loan Seasoning

LOAN SEASONING (YEARS)	<= 1	>1-<=2	>2-<=3	>3-<=4	>4-<=5	>5-<=6	>= 6
Adjustment factor (x)	1.00	0.85	0.80	0.55	0.35	0.15	0

55. **Property type.** We consider single-family residences, the base assumption in our archetypical loan, as having the lowest risk. Loans originated for condominiums, co-operatives, and two-family properties could be somewhat more risky, and we assess these based on regional considerations. For the U.S., we apply a 1.2x risk adjustment factor, whereas for Australia and for high-density condominiums only, we apply adjustment factors of 1.25x or 1.5x based on whether the property is a primary residence or a second/investor property. Other property types, including multi-unit housing and mixed-use properties, are assessed at a 2.0x risk factor (see table 15 for the adjustment factors).

Table 15 Risk Adjustment Factors For Property Type (X)

PROPERTY TYPE	U.S.	AUSTRALIA
Residential property: single-family residence--detached, semi-detached, townhouse, planned unit development	1.00	1.00
Residential property: strata title flats*, apartments, units	N/A	1.00
Condominiums, cooperative, two-family residence	1.20	N/A
High-density apartments or condominiums (primary/investment property)	1.20	1.25/1.50
Others	2.00	2.00
N/A--Not applicable.		

*Strata title flats allow for subordination of the property on title.

56. **Loan purpose.** The purpose of a loan has a bearing on the default risk, in our view. Generally, we consider that a loan for the purchase of a house has the lowest default risk; slightly higher on that scale is the refinance loan, which is geared to take advantage of more favorable credit conditions to replace the existing loan with one with a lower interest rate or a shorter maturity or for debt-consolidation purposes. In comparison, a loan that is used to borrow against built-up equity (cash-out) carries the highest default risk. During periods of declining interest rates and strong credit markets, refinance loans tend to outperform purchase or cash-out loans, but this behavior does not hold during adverse economic periods.

57. As with some of the other factors, regional considerations primarily related to underwriting practices have a bearing on performance of refinance loans. We expect lower differentiation in performance if full underwriting is performed. This is generally the case in Australia, where we discern a less appreciable difference for loan purposes than in the U.S., where delegated underwriting of loans has been more prevalent. Hence, we apply smaller penalties to cover risks related to refinance loans for debt consolidation and cash-out. (See table 16 for the adjustment factors.)

Table 16 Risk Adjustment Factors For Loan Purpose (X)

LOAN PURPOSE	U.S.	AUSTRALIA
Purchase	1.00	1.00
Refinance		

(rate/term) 1.10 1.00 Refinance with debt consolidation N/A 1.10 Refinance with home equity/cash take-out 1.50 1.20

58. Borrower's ability to pay--debt ratios. A borrower's ability to pay is an important metric in analyzing default risk. How we measure the ability to pay varies, but the fundamental principle remains the same--to measure the leverage or debt service ratios to better ascertain the borrower's ability to make continuing payments. As leverage increases or service ratios deteriorate, default risk increases. When such information is not available on a loan-level basis, we review the policies and practices of a mortgage insurer and apply an appropriate adjustment factor to the entire portfolio. For products with variable interest rates (rates indexed to a benchmark interest rate index), our assessment could take into consideration the level of cushion included in the analysis for any increase in interest rates. 59. In the U.S., the debt-to-total-income (DTI) ratio has typically been a part of mortgage loan underwriting. For DTI ratios below 25%, we apply a 0.80x adjustment. For DTI ratios that are greater than 25% but less than 60%, our factor is a continuous function, set to equal 1.0x at 36% and reach 1.8x at a 60% DTI and higher (see table 28 in Appendix B). We apply a weighted average DTI within a risk group to adjust default risk. 60. We generally use a factor of 1x at the portfolio level for Australia. This factor could vary between 0.95x-1.15x, however, based on our view of the insurer's underwriting practices pertaining to the assessment of the quality and consistency of the repayment capacity assessment of borrowers. Any adjustment to this factor will be based on our assessment of whether the underwriting practices are of greater or lesser quality, which would ultimately affect loss exposures. Generally, the net surplus ratio (NSR) is used to assess the borrower's capacity to service loans. This measure includes sources of income, expenses (including living expenses and commitments outside of loan servicing), and the interest rate buffer to account for interest rate volatility where variable-rate products are the benchmark (i.e., Australia). The level of the interest rate cushion and the range of the NSR ratio will be considered while adjusting this factor--the higher the better for both metrics (see also table 27 in Appendix B for guidelines). 61. Amortization term. Historically, the risk of default varies according to a mortgage loan's original amortization term. We use a continuous function to adjust the default risk. The adjustment can vary from 0.4x-1.2x based on the weighted average amortization within a risk group (see chart 5 and table 26). For example, for a weighted average original amortization term of 15 years or less, default risk will be adjusted down by a factor of 0.4x, whereas the default risk will be adjusted up by 1.2x if the term is 40 years or more. The upward adjustment is intended to capture the additional risk in affordability products. In markets where the amortization term for standard mortgages is not 30 years, our factors will move accordingly, as risks assessed against those would already be included in our assumption for base DF. Chart 5

62. Seasoning. Under our framework, we infer performance behavior from the loan and borrower characteristics at origination. Also, more recent vintages will generally be more sensitive to changes in macroeconomic factors. By contrast, for older vintages, we believe the effects of seasoning and the establishment of performance trends generally provide a basis for the borrowers' ability to withstand market deterioration. To reflect the decreasing likelihood of default over time, we reduce the archetypical default frequency for loans with more than five years of seasoning (see table 17 for our adjustment factors for seasoning credit on various loan types). The loan types included in the archetypical pool definition--FRM loans for the U.S. and standard variable-rate loans for Australia--get the most favorable treatment. For all types of ARM loans (including IO loans), we attribute lower seasoning factors, generally in the range of 0.875x-0.763x; whereas for balloon loans of 15 years, we use a consistent factor of 0.875x. For other loans, we provide no seasoning benefit, except for Australia, where a seasoning benefit may accrue for loans once the nonamortizing period is over. 63. We apply the seasoning credit based on the approximate age of the vintages due to the limitations of portfolio data. For example, there will be no distinction made for loans originated earlier in a year for a given vintage compared with loans originated in latter half of the same year, given that all the loans for a given vintage are only identified by the year of origination. Table 17

Risk Adjustment Factors For Seasoning Credit (X)

SEASONING YEARS	>=5-<6 YEARS	>=6-<7 YEARS	>=7-<8 YEARS	>=8-<9 YEARS	>9 YEARS
FRM (including IO loans)--U.S., variable rate--Australia	0.750	0.700	0.650	0.600	0.525
ARM type loans, GEM, GPM (including IO loans)--U.S.	0.875	0.850	0.825	0.800	0.763
Balloon 15 years	0.875	0.875	0.875	0.875	0.875
Others	1.000	1.000	1.000	1.000	1.000

64. Delinquencies. The preceding sections assume the loans included in the risk group are performing. However, once a loan is delinquent, it typically has a higher probability of going

to claim. Therefore, to calculate the DF of a delinquent loan at various stress levels, we use the stage of the delinquency. The roll-rate assumptions (the probability of progressing to ultimate claims over the lifetime of the loan) are informed by empirical observations, including default rates observed for various vintages from data released by FreddieMac/FannieMae as well as for loans underlying RMBS. The roll-rate assumptions do not discriminate by risk characteristics. However, in certain cases--especially at high stress levels, where there is a high degree of risk layering--our estimated DF can be higher than what is suggested by the roll-rates assumptions. In such cases, we take the higher of the two (see table 18 for default frequency assumptions for delinquent loans based on roll-rate assumptions to ultimate claims). 65. The following equation expresses the calculation of DF for delinquent loans: Table 18

Default Frequency Assumptions For Delinquent Loans ROLL RATE TO ULTIMATE CLAIMS (%)																														
STRESS LEVELS					31-60 DAYS PAST DUE					61-90 DAYS PAST DUE					91-120 DAYS PAST DUE															
					121-180 DAYS PAST DUE					181-270 DAYS PAST DUE					>270 DAYS PAST DUE															
AAA	60	85	90	95	100	AA	55	77.5	85	92.5	95	100	A	50	70	80	90	92.5	97.5	BBB	43.5	63.5	75	85	90	95	BB	35.5	51.5	62.5
72.5	80	90	B	27.5	40	50	60	70	85	66.																				

66. The impact from delinquencies would not be material in a benign macroeconomic environment because default rates would be a small percentage of the portfolio. But in a stressed environment, when delinquencies are high, the DF assumptions would contribute substantially to the aggregate DF, and more so at higher stress levels. This approach provides a consistent view of the impact of delinquencies across different companies. Loss severity 67. The loss given default, or loss severity, for a given stress level is a function of the loss in property value, which includes the market value decline (MVD), costs associated with foreclosing the property, the loss of value over the foreclosure/defaulting period, and the mortgage insurer's obligations under the insurance policy. The coverage afforded by the terms and conditions of the insurance policy can vary by region. For example, in the U.S., the mortgage insurer's loss exposure is determined by a pre-defined percentage of the outstanding loan amount, accrued interest, and certain additional eligible expenses. In Australia, mortgage insurers generally provide coverage for the entire loan, accrued interest, and other associated costs. Therefore, our loss severity calculations take into account the prevalent insurance coverage and other regional factors such as foreclosure timelines, maintenance costs, and property taxes. However, we use the same assumption for MVD across regions. (See table 21 for a loss severity calculation example.) 68. Because our projections run for 10 years, normal amortization of the mortgage reduces losses as equity builds. For the most part, the benefit of these would generally accrue more for mortgage insurers outside of the U.S. that are fully exposed to the losses incurred on defaulted loans. 69. Market value decline. The level of recoveries after default depends on the severity of the MVD the property suffers. We use progressively increasing MVD assumptions to capture the higher levels of stress a mortgage insurer should be able to withstand at higher stress levels. The assumptions reflect declines in the underlying property's average value from the portfolio reporting date to the estimated time of loan default. This value will generally be the average estimated original property value for newly originated vintages, and the average estimated original property value adjusted for house price movements based on changes in the house-price index for seasoned vintages. This adjustment is necessary because of the existence of multiple vintages, whereby underlying property values reflect valuations as of the origination date. Therefore, before we apply MVD assumptions, we adjust the property values for changes in valuation since the loan origination. Given the size of the portfolio on average, we use a national average house-price index compounded over the period since loan origination. 70. The index we use for the U.S. is the S&P; Case-Shiller national index and for Australia the residential property price index for eight capital cities published by the Australian Bureau of Statistics. In rare cases, where the portfolio distribution or property appraisal process warrants further differentiation in assumptions, we may adjust the MVD further. 71. We apply an MVD assumption of 15% at the 'B' stress level, as opposed to the 30% generally assumed by our RMBS criteria. This is because the latter generally incorporates significant consideration of a distressed sale of the property, which is typical in real estate owned (REO) properties. By contrast, in view of the diversity and size of a typical MI portfolio, we consider that not all defaulted properties go through the foreclosure/REO process, and a variety of loss mitigation strategies could result in lower average losses (e.g. short sales, owner-led sale, etc.). In addition, MI policy provisions typically preclude situations, such as normal "wear and tear" evident in the property or where

a clean title is not otherwise possible, but these costs would be borne within an RMBS structure. We maintain the 45% MVD assumption in the RMBS criteria for 'AAA' stress levels, given the extreme environment associated with that stress level, with assumptions for the 'AA' to 'BB' stress levels interpolated. In addition, using the IRM, our prospective view of capitalization will be informed by our near-term view of macroeconomic factors, which could add to assumptions built into the various stress levels. Table 19 Market Value Decline Assumptions AAA AA A BBB BB B Market value decline (%) 45 41 37 31 23 15 72. Additional costs. We incorporate additional costs related to the period preceding foreclosure, as well as those related to the foreclosure itself. These include legal costs and fees; title and appraisal fees; expense associated with preserving the property; taxes; and insurance. Some of these costs are fixed, while others vary as a percentage of the loan balance or property value and such costs vary by region. We assume general and administrative costs of 15% of net premiums earned in the first period of the runoff, declining to 5% within five years and remaining constant thereafter. As well, we assume a static 3% loss adjustment cost throughout the run-off period. Table 20 Typical Estimate Of Foreclosure Costs And Timelines U.S. AUSTRALIA Length of liquidation period for variable costs (interest, taxes, insurance, etc.) (years) 2.0-2.5 1.2 Fixed charges (in national currency) 6,608 5,000 Variable brokerage and selling costs (% of property value) 5 5 73. Generally, the assumptions for foreclosure costs and timelines vary by state. Since we do not capture state information as part of the detailed portfolio data, we use weighted average costs and other underlying assumptions using average geographic distribution observed over a period within that particular country. Table 21 Example Of Loss Severity At 'AAA' Stress Level* U.S. AUSTRALIA Property valuation a 250,000 250,000 Loan to value (LTV) b 75% 75% Loan amount c = a x b 187,500 187,500 Interest rate d 5% 5% Accrued interest e = c x d x accrual_period 22,500 11,250 Variable brokerage and selling costs f 5% 5% Other fixed and variable costs g 20,268 5,000 MI coverage h 25% N/A Market value decline i 45% 45% Recovery on property j = a x (1-i) x (1 - f) 130,625 130,625 MI loss severity (% of loan amount) min(k, l)/c 31% 39% Losses based on asset recovery k = (c + e + g) - j 99,643 73,125 Losses based on MI coverage (U.S. only) l = (c + e + g) x h 57,567 N/A *For illustration purposes only, actual assumptions may vary. Accrued interest calculated on assumed period of 2.4 years for U.S. and 1.2 years for Australia assuming no change in mortgage interest rates. N/A--Not applicable. Geographic concentration 74. The assumption underlying the loan portfolio credit risk is that the exposure is geographically diversified in line with the historical origination trends or population distribution. As the geographic concentration of properties securing the underlying mortgages increases, the overall default risk generally increases because a localized economic downturn would have a greater impact on a concentrated pool than it would on a diversified pool of loans. While we do not apply any quantitative adjustments, our view of capitalization could suffer if there is significant geographic concentration in the portfolio. In these cases, we may adjust the capital and earnings assessment down (see the IRM) or, in particularly pronounced circumstances, 'negative' or override our view of the capitalization explicitly. Asset Risk 75. We utilize credit and market risk factors from our insurance capital adequacy criteria for bonds, preferred shares, and equities (which capture both U.S. statutory and GAAP/IFRS charges). For stress levels below 'BBB', we utilize the approximate thresholds defined in the capital and earnings section of the IRM to estimate the asset risk charge. For example, to estimate the charge at the 'BB' stress level, we apply a 25% haircut of the 'BBB' asset risk charge and for a 'B' stress level, a 50% haircut. Financial Projections 76. Our financial projections analyze mortgage insurers' claims paying-ability, taking into account their stressed losses, available capital, and additional revenue sources. This brings together our estimated loan losses (based on an evaluation of portfolio credit risk), asset risk charges, and other components. We make additional assumptions, primarily relating to the roll-off of the portfolio credit risk and spread of losses, as well as paid claims' timing, as described below. Revenue 77. Sources of revenue include premiums earned and investment income. 78. Premiums earned. The recognition of premiums earned is differentiated between single-premium business and recurring business. 79. Recurring premium for each year is typically estimated as the product of average annual premium rate for recurring business, the proportion of recurring business, and the outstanding IIF that is performing. The outstanding loan amount is estimated using the prepayment assumptions defined in Table 22. 80. Single-premium business is earned based on the estimated default curve on the principle of matching revenue with

costs. Higher-than-expected delinquencies/loss costs tend to amortize the unearned premium reserve at a higher rate as well. 81. Investment yield rate projection. We use the 10-year government bond yield as the average investment yield over the projection period. This is consistent with the assumption we use in our insurance capital adequacy criteria. Default curve (loss costs curve) 82. In a non-stressed environment, for a newly originated vintage, default rates typically rise in the initial years, with losses peaking in years 3-4, before gradually declining. The majority of defaults are realized by year 5-6. However, we believe the losses during the recent U.S. mortgage downturn strongly suggest that default rates jump for all vintages in a stressed environment, irrespective of their age, and that the mortgage portfolio can continue to experience losses over a longer period, especially amid a prolonged recession and/or tepid recovery. Therefore, for all stress levels, we use the same default curve across the various vintages. Chart 6 shows the default curve that we use to spread defaults over a period of 10 years, with a paid claims lag of up to two years. Chart 6 Prepayment speeds 83. We use voluntary prepayment (non-claims termination) assumptions to adjust for loans that refinance or pay-off during the course of the portfolio's life. Prepayments are dependent on borrowers' financial capacity as well as their ability to refinance in the current economic environment and interest rates. In a declining rate environment, prepayment speeds are typically significantly elevated. In a stress environment, a more likely scenario is that the interest rates go down as monetary policy loosens, pushing the conditional prepayment rate (CPR) up. Therefore, based on the observed and modeled behavior, we use constant lifetime prepayment-rate assumptions as voluntary CPRs across all rating levels and for all vintages (see table 22). However, we maintain monotonically declining CPRs as the stress level increases to recognize the constrained options for refinance as stress levels increase. 84. Lower prepayment assumptions are favorable from a revenue standpoint, insofar as they extend the time mortgage insurers continue to receive monthly premiums. However, these assumptions also inherently mean continued risk exposure against which default assumptions are applied. On balance, the greater risk resides with overestimating prepayment speeds and underestimating the risk exposure. As such, we believe it appropriate to incorporate relatively lower prepayment speed assumptions for higher stress environments. Table 22 Conditional Prepayment Rate Assumptions For Projecting Portfolio Roll-Over And Revenues

STRESS LEVEL	VOLUNTARY	CONDITIONAL	PREPAYMENT RATE (%)
AAA	8	AA	10
A	12	BBB	14
BB	17	B	20

Reported loss reserves 85. For claim reserves held against loans that are delinquent at the start of the projection, we assume that these are paid out 50% in the first projection year and 50% in the second projection year under all stress levels. This is consistent with the assumed paid claims lag of up to two years for new defaults (see paragraph 82). This payout period is somewhat slower than the typical periods observed during non-stressed environments, but is consistent with our observation that payouts take meaningfully longer during stressed periods due to greater amounts of time spent on claims investigations and documentation. Reinsurance 86. Reinsurance is factored into our analysis through adjustments to premiums and losses based on the reinsurance protection available. The losses ceded are haircut based on the counterparty credit risk charge, as defined in our insurance capital adequacy criteria. APPENDIX A: PORTFOLIO INFORMATION REQUIREMENTS (U.S. AND AUSTRALIA) 87. The following tables provide details on the required portfolio information and related parameters and layout (see tables 23 and 24). We expect to receive the portfolio information with the indicated fields laid out in successive columns and each risk group presented in a single row. We expect the information to be segregated by year for the last 10 years. For example, for reporting period as of Dec. 31, 2013, risk groups for vintages 2004-2013 with loans originated prior to 2004 should be reported along with 2004 vintage risk groups. 88. The file layout provides general guidelines to help maintain a certain level of granularity we view as necessary for our analysis. However, this doesn't preclude us from requesting more granular data if we think additional information is required to support our analysis in certain cases. This may entail changing the way data is captured; for example, reducing the LTV band, using additional risk group determinants, or introducing new parameters. 89. Table 23 and Table 24 are for the U.S. and the Australian markets, respectively. The fields marked with an asterisk are the risk group determinants. The combination of these unique values will determine a unique risk group. For example, all loans originated in 2013 that are first-lien loans with original LTV ratios between 90%-95%, origination FICO scores of 675-725, property used as a primary residence, full documentation, single-family residence, and fixed-rate mortgage define one risk group. In other

words, the corresponding vector identifies a risk group uniquely. All other fields capture details on loans grouped together on the basis of shared characteristics defined by the risk group. 90. The same logic holds for other regions, though parameters can differ slightly based on input data optimization and overall relevance of the parameter. Table 23 U.S. MI Portfolio Input Data Requirements SERIAL NO. FIELD NAME DESCRIPTION/NOTES 1 Risk Group Id Unique risk group identification. 2* Vintage Year Year in which loans were originated. Only report last 10 years, with data for loans older than 10 years aggregated. For example, for reporting period as of Dec. 31, 2013, report vintages 2004–2013 with loans originated prior to 2004 reported along with 2004 vintage risk groups. 3* Product Type F--First lien S--Second lien 4* Original Combined LTV Band <=70 >70 - <=80 >80 - <=85 >85 - <=90 >90 - <=95 >95 - <=100 >100 5 Original Combined LTV--WA >= 1.0 and <= 150.0 For any single loan, original combined LTV reflects the original outstanding amount for all liens. In case of a single lien, this is equivalent to the original LTV. Weighted average (WA) is calculated based on current loan amount outstanding of all the loans included within a risk group. 6* Original FICO Band <=575 >575 - <=625 >625 - <=675 >675 - <=725 >725-<=775 >775 7 Original FICO--WA Weighted average original FICO of loans based on current loan amount outstanding of all the loans included within a risk group. 8* Occupancy P--Primary S--Second I--Investor 9* Documentation Type 10--Full documentation (24 months or more of income verification with employment and asset verification) 20--Reduced documentation (less than 24 months of income verification with employment and asset verification) 30--Stated documentation (stated income and stated asset information with employment verification [SISA]; or stated income with employment and asset verification [SIVA]) 40--No income and no employment information with asset verification (NIV); or no income information with employment and asset verification (no ratio) 50--No income and no asset information with employment verification (NINA); or no income, no employment, and no asset information (no doc). Loans not categorized above. 10* Property Type SFR--single-family residence, PUD--planned unit development CND--condominium, cooperative, two-family OTH--All other properties not categorized above 11* Loan Type FRM--Fixed-rate mortgage ARM--Adjustable-rate mortgage BAL--Balloon loans Further differentiation for ARM and balloon loans in additional columns below for a given risk group 12 Sub_Loan_Type_1_Pct >=0 and <= 100.0. For loan type ARM or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_6_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = ARM, then regular ARM loans and growing equity mortgage (GEM) loans; If Loan_Type = BAL, then 15 years balloon (>=15 years) 13 Sub_Loan_Type_2_Pct >=0 and <= 100.0. For loan type ARM or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_6_Pct should add to 100. Within a risk group, percentage of total current loan balance of ARM 2/1 or 2/6 months loans 14 Sub_Loan_Type_3_Pct >=0 and <= 100.0. For loan type ARM or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_6_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = ARM, then ARM 3/1 or 3/6 months loans, graduated payment mortgage (GPM) and buy-down loans; If Loan_Type = BAL, then balloon loans <5 years 15 Sub_Loan_Type_4_Pct >=0 and <= 100. For loan type ARM or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_6_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = ARM, then ARM 5/1 or 5/6 months; If Loan_Type = BAL, then five-year balloon loans 16 Sub_Loan_Type_5_Pct >=0 and <= 100.0. For loan type ARM or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_6_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = ARM, then ARM 7/1 or 7/6 months; If Loan_Type = BAL, then seven-year balloon loans 17 Sub_Loan_Type_6_Pct >=0 and <= 100.0. For loan type ARM or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_6_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = ARM, then ARM 10/1 or 10/6 months; If Loan_Type = BAL, then 10-year balloon loans 18 Total Debt-To-Income Ratio--WA >=24 Weighted average debt-to-income (DTI) ratio based on current loan amount outstanding of all the loans included within a risk group. For missing DTIs, use 40 as default value. For loans with DTI less than 25, use 24. 19 Original Amortization Term--WA >=15 and <= 50.0 Weighted average original amortization term (in years) based on current loan amount outstanding of all the loans included within a risk group. For individual loans, use 15 years if amortization term is less than 15 years. 20 Channel Non-Flow Pct >=0

and <= 100.0 Percentage of non-flow business based on current loan amount outstanding of all the loans included within a risk group. 21 IO_Pct >=0 and <= 100.0 Percentage of interest-only loans based on current loan amount outstanding of all the loans included within a risk group. 22 Negam_Pct >=0 and <= 100.0 Percentage of loans with negative amortization based on current loan amount outstanding of all the loans included within a risk group. 23 Loan Purpose_Rate_Term_Refi_Pct >=0 and <= 100.0 Percentage of rate/term refinance based on current loan amount outstanding of all the loans included within a risk group. This field and the next are used for capturing loan purpose information. 100 - Rate/term refinance - cash-out refinance = purchase or construction to permanent 24 Loan Purpose_Cash_Refi_Pct >=0 and <= 100.0 Percentage of cash/equity takeout based on current loan amount outstanding of all the loans included within a risk group. This field and the next are used for capturing loan purpose information. 100 - Rate/term refinance - cash-out refinance = purchase or construction to permanent 25 Interest Rate--WA >= 1.0 and <= 25.0 Weighted average current interest rate based on current loan amount outstanding of all the loans included within a risk group. 26 Current Loan Balance--Total Total current outstanding loan balance of loans included within a risk group. 27 Current Loan Balance Split Loans--Total N/A if no split loans in the risk group/portfolio. Total current outstanding loan balance over all first liens (in case of split loans) of loans included within a risk group. 28 Combined Original Loan Balance--Total Total loan balance at origination over all liens for all loans outstanding and included within a risk group. This value corresponds to original combined LTV reported above. Combined means of all liens irrespective of whether included in the insured pool. In absence of any other liens, this is simply original loan balance. (Along with original combined LTV required for estimating average house price of loans reported within this risk group.) 29 Risk-In-Force Total Current risk-in-force in US\$. 30 MI Coverage Pct--WA >= 1.0 and <= 100.0 Weighted average MI coverage percentage as defined in the terms and conditions of the insurance policy. 31 Non-Performing Pct >=0 and <= 100.0 Proportion of nonperforming mortgages based on current loan amount outstanding of all the loans included within a risk group. 32 Total Original Loan Count Total original loan count within a risk group at origination. 33 Total Current Loan Count Number of loans included in a risk group. Total performing loan count = Total current loan count - total delinquent loan count 34 Delq_Cnt_30 Delinquent loan count--31-60 days past due 35 Delq_Cnt_60 Delinquent loan count--61-90 days past due 36 Delq_Cnt_90 Delinquent loan count--91-120 days past due 37 Delq_Cnt_120 Delinquent loan count--121-180 days past due 38 Delq_Cnt_180 Delinquent loan count--181-270 days past due 39 Delq_Cnt_270 Delinquent loan count-- >270 days past due or higher 40 Delq_Cnt_FF Loans in the process of foreclosure, liquidation, short-sale, REO, or claims received. 41 Total Ever Paid Claim Count For a given risk group, total loan count since origination where claims have been paid out. Also include loans where claims weren't paid, but loans were subject to foreclosure proceedings/loss mitigation workout just prior to getting off-book, i.e. any loan that was not performing when it went off the books. 91. For Australia, if a mortgage insurer doesn't have current information on its exposure, the input data should reflect the data as of origination date. Table 24 Australia MI Portfolio Input Data Requirements

SERIAL NO.	FIELD NAME	DESCRIPTION/NOTES
1	Risk Group Id	Unique risk group identification.
2*	Vintage Year	Year in which loans were originated. Only report last 10 years, with data for loans older than 10 years aggregated. For example, for reporting period as of Dec. 31, 2013, report vintages 2004-2013 with loans originated prior to 2004 reported along with 2004 vintage risk groups.
3*	Product Type	F--First lien S--Second lien
4*	Original Combined LTV Band	<=60 >60 - <=70 >70-<=80 >80 - <=85 >85 - <=90 >90 - <=95 >95 - <=100 >100
5	Original Combined LTV--WA	>= 1.0 and <= 150.0 For any single loan, original combined LTV reflects the original outstanding amount for all liens. In case of a single lien, this is equivalent to original LTV. Weighted average is calculated based on current loan amount outstanding of all the loans included within a risk group.
6*	Borrower EMPLOYMENT TYPE	SALARIED--pay-as-you-go (full-/part-time) PENSION--retired/on pension COMMISSION--commission-based SELF-EMPLD--self-employed OTHER
7*	Occupancy	P--Primary S--Second I--Investor
8*	Documentation Type	10--Full verification of income with employment verification 20--One to three additional items of evidence of income along with declaration of affordability and with employment verification 30--Only declaration of affordability and/or no supporting evidence of income with employment verification
9*	Property Type	SFR: Residential property--detached, semi-detached, townhouses, strata title flats, apartments, and units
CND:		

High-density condominium OTH: All other properties not categorized above 10* Loan Type--Interest Type VAR--Variable rate FXD--Fixed-rate period TSR--Teaser/honeymoon rate 11* Loan Type--Repayment Method PI--full amortization (principal and interest blended payments) IO/PI--interest only (with principal amortization term after an IO term) BAL--balloon loans 12 Sub_Loan_Type_1_Pct >=0 and <= 100.0. For loan type-repayment method I/O or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_5_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = IO/PI, then IO term <=5 years; If Loan_Type = BAL, then <5 year Balloon 13 Sub_Loan_Type_2_Pct >=0 and <= 100.0. For loan type-repayment method I/O or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_5_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = IO/PI, then IO term >5-<=10 years; If Loan_Type = BAL, then >=5-7 year Balloon 14 Sub_Loan_Type_3_Pct >=0 and <= 100.0. For loan type-repayment method I/O or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_5_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = IO/PI, then IO term >10-<=15 years; If Loan_Type = BAL, then >=7-10 year Balloon 15 Sub_Loan_Type_4_Pct >=0 and <= 100.0. For loan type-repayment method I/O or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_5_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = IO/PI, then IO term >15-<=20 years; If Loan_Type = BAL, then >=10-15 year Balloon 16 Sub_Loan_Type_5_Pct >=0 and <= 100.0. For loan type-repayment method I/O or BAL, the sum of fields Sub_Loan_Type_1_Pct to Sub_Loan_Type_5_Pct should add to 100. Within a risk group, percentage of total current loan balance of: If Loan_Type = IO/PI, then IO term >20-<=25 years; If Loan_Type = BAL, then >=15 year Balloon 17 PI Term Post IO Term--WA >=0 and <=50 Loan Type: IO/PI loans only, weighted average PI term (in years) post IO term based on current loan amount outstanding of all the loans included within a risk group. Loan Type <> IO/PI, -9999 or blank 18 Self-Employed Tenor of Operations--WA Weighted average years of business in operation at origination based on current loan amount outstanding of all the loans included within a risk group. For individual loans, cap at five years before taking weighted average. 19 Credit Event_Pct >=0 - <=100.0 Percentage of loans that have one or more credit events at origination based on current loan amount outstanding of all the loans included within a risk group. 20 Original Amort. Term--WA >=15 and <= 50.0 For individual loans, use 15 years if amortization term is less than 15 years. 21 Channel Non-Flow Pct >=0 and <= 100.0 Weighted average original amortization term (in years) based on current loan amount outstanding of all the loans included within a risk group. Percentage of non-flow business based on current loan amount outstanding of all the loans included within a risk group. 22 Negam_Pct >=0 and <= 100.0 Percentage of loans with negative amortization based on current loan amount outstanding of all the loans included within a risk group. 23 Loan Purpose_Refi_Debt_Pct >=0 and <= 100.0 Percentage of refinance for debt consolidation based on current loan amount outstanding of all the loans included within a risk group. This field and the next are used for capturing Loan Purpose information. 100 - Refinance Debt Consolidation - Cash-Out Refinance = Purchase + Rate/Term Refinance 24 Loan Purpose_Refi_CashOut_Pct >=0 and <= 100.0 Percentage of cash/equity takeout based on current loan amount outstanding of all the loans included within a risk group. This field and the one above are used for capturing Loan Purpose Information. 100 - Refinance Debt Consolidation - Cash-Out Refinance = Purchase + Rate/Term Refinance 25 Interest Rate--WA >= 1.0 and <= 25.0 Weighted average current interest rate based on current loan amount outstanding of all the loans included within a risk group. 26 Current Loan Balance--Total Total current outstanding loan balance of loans reported within risk group. If current information is not available, report original loan balance of loans reported in the risk group for the current period. 27 Current Loan Balance Split Loans--Total N/A if no split loans in the risk group/portfolio. Total current outstanding loan balance over all first liens (in case of split loans) of loans reported within this risk group. 28 Combined Original Loan Balance--Total Total loan balance at origination over all liens for all loans outstanding and included within a risk group. This value corresponds to original combined LTV reported above. Combined means of all liens irrespective of whether included in the insured pool. In absence of any other liens, this is simply original loan balance. (Along with original combined LTV required for estimating average house price of loans reported within this risk group.) 29 Non-Performing Pct >=0 and <= 100.0 Proportion of nonperforming mortgages based on current loan amount outstanding of all

the loans included within a risk group. 30 Total Original Loan Count Total original loan count within a risk group at origination. 31 Total Current Loan Count Number of loans included in a risk group. Total performing loan count = Total current loan count - total delinquent loan count 32 Delq_Cnt_30 Delinquent Loan Count - 31-60 days past due 33 Delq_Cnt_60 Delinquent Loan Count – 61-90 days past due 34 Delq_Cnt_90 Delinquent Loan Count – 91-120 days past due 35 Delq_Cnt_120 Delinquent Loan Count – 121-180 days past due 36 Delq_Cnt_180 Delinquent Loan Count – 181-270 days past due 37 Delq_Cnt_270 Delinquent Loan Count - > 270 days past due or higher 38 Delq_Cnt_FF Loans in the process of foreclosure, liquidation, short-sale, REO, or claims received. 39 Total Ever Paid Claim Count For a given risk group, total loan count since origination where claims have been paid out. Also include loans where claims weren't paid, but loans were subject to foreclosure proceedings/loss mitigation workout just prior to getting off-book, i.e. any loan that was not performing when it went off the books. \$For weighted average and percentages, use original loan amount if current loan balance is unavailable. APPENDIX B: RISK ADJUSTMENT FACTORS AND DEFAULT FREQUENCY FOR INTERMEDIATE STRESS LEVELS DF Calculation For Intermediate Stress Levels 92. The base DF for stress levels 'AA' to 'BB' is dependent on the outcome of DF at 'B', which is derived from the following equation and table. Table 25 Weights For Calculating Default Frequency (DF) For Intermediate Stress Levels Based On DF For 'B' (X) U.S. AUSTRALIA DF(B) AA A BBB BB AA A BBB BB <=1.9% 0.36 0.64 0.86 0.93 0.28 0.56 0.76 0.89 1.9%< DF(B)<=2.94% 0.30 0.55 0.70 0.85 0.24 0.52 0.73 0.87 2.94%< DF(B)<=4.06% 0.25 0.40 0.60 0.80 0.20 0.48 0.69 0.84 >4.06% 0.20 0.40 0.60 0.80 0.16 0.42 0.64 0.81 Original Amortization Term Risk Adjustment Factors Table 26 Risk Adjustment Factors For Original Amortization Term ORIGINAL AMORTIZATION TERM (YEARS) RISK FACTOR (X) <=15 0.40 16 0.46 17 0.52 18 0.58 19 0.64 20 0.70 21 0.73 22 0.76 23 0.79 24 0.82 25 0.85 26 0.88 27 0.91 28 0.94 29 0.97 30 1.00 31 1.02 32 1.04 33 1.06 34 1.08 35 1.10 36 1.12 37 1.14 38 1.16 39 1.18 >=40 1.20 Australia: Guidelines For Risk Adjustment Factors For Level Of Interest Rate And Net Surplus Ratio Buffer Table 27 Guidelines For Assessing Risk Adjustment Factors For Level Of Interest Rate And Net Surplus Ratio Buffer (X) NET SURPLUS RATIO INTEREST-RATE BUFFER =1.00X >1.00X-1.05X >1.05X-1.10X >1.10X-1.15X >1.15X-1.20X >1.20X-1.25X >1.25X 0% 1.15x 1.15x 1.15x 1.15x 1.10x 1.05x 1.00x >0% - 0.5% 1.15x 1.15x 1.15x 1.10x 1.05x 1.00x 0.95x >0.5% - 1.0% 1.15x 1.15x 1.10x 1.05x 1.00x 0.95x 0.95x >1.0% - 1.5% 1.15x 1.10x 1.05x 1.00x 0.95x 0.95x >1.5% - 2.0% 1.10x 1.05x 1.00x 0.95x 0.95x 0.95x 0.95x 2.0% + 1.05x 1.00x 0.95x 0.95x 0.95x 0.95x U.S.--Debt-To-Income Ratio Risk Adjustment Factors Table 28 Factors For Debt-To-Income Ratio (U.S.) DEBT TO INCOME (DTI) RISK FACTOR <25 0.8 >=25 - <=36 1 - (36 - DTI) * 0.0166667 >36 - < 60 1 + (DTI - 36) * 0.0333333 >=60 1.8 U.S.--Original CLTV And Occupancy Risk Adjustment Factors Table 29 U.S. Original Combined Loan-To-Value (CLTV) Ratio And Occupancy Risk Adjustment Factors tio ORIGINAL CLTV PRIMARY RESIDENCE (X) SECOND HOME (X) INVESTOR PROPERTY (X) <=60 0.50 0.65 0.90 61 0.53 0.68 0.95 62 0.55 0.72 1.00 63 0.58 0.75 1.05 64 0.60 0.78 1.10 65 0.63 0.81 1.15 66 0.65 0.85 1.20 67 0.68 0.88 1.25 68 0.70 0.91 1.30 69 0.73 0.94 1.35 70 0.75 0.98 1.40 71 0.80 1.01 1.45 72 0.85 1.04 1.50 73 0.90 1.07 1.55 74 0.95 1.11 1.60 75 1.00 1.14 1.65 76 1.00 1.17 1.70 77 1.00 1.20 1.75 78 1.00 1.24 1.80 79 1.00 1.27 1.85 80 1.00 1.30 1.90 81 1.03 1.35 1.96 82 1.06 1.40 2.02 83 1.09 1.45 2.08 84 1.12 1.50 2.14 85 1.15 1.55 2.20 86 1.18 1.60 2.26 87 1.21 1.65 2.32 88 1.24 1.70 2.38 89 1.27 1.75 2.44 90 1.30 1.80 2.50 91 1.54 2.10 2.92 92 1.78 2.40 3.34 93 2.02 2.70 3.76 94 2.26 3.00 4.18 95 2.50 3.30 4.60 96 2.74 3.60 5.02 97 2.98 3.90 5.44 98 3.22 4.20 5.86 99 3.46 4.50 6.28 100 3.70 4.80 6.70 101 3.94 5.10 7.12 102 4.18 5.40 7.54 103 4.42 5.70 7.96 104 4.66 6.00 8.38 105 4.90 6.30 8.80 106 5.14 6.60 9.22 107 5.38 6.90 9.64 108 5.62 7.20 10.06 109 5.86 7.50 10.48 110 6.10 7.80 10.90 111 6.34 8.10 11.32 112 6.58 8.40 11.74 113 6.82 8.70 12.16 114 7.06 9.00 12.58 115 7.30 9.30 13.00 116 7.54 9.60 13.42 117 7.78 9.90 13.84 118 8.02 10.20 14.26 119 8.26 10.50 14.68 120 8.50 10.80 15.10 U.S.--Original CLTV And FICO Risk Adjustment Factors Table 30 CLTV And FICO Risk Adjustment Factors (U.S.) (X) ORIGINAL CLTV <=500 505 510 515 520 525 530 535 540 545 550 555 <=40 2.04 1.94 1.86 1.78 1.70 1.64 1.58 1.52 1.47 1.42 1.38 1.34 41 2.05 1.96 1.87 1.79 1.72 1.65 1.59 1.53 1.48 1.43 1.39 1.35 42 2.07 1.97 1.88 1.80 1.73 1.66 1.60 1.54 1.49 1.44 1.40 1.36 43 2.09 1.99 1.90 1.82 1.74 1.67 1.61 1.55 1.50 1.46 1.41 1.37 44 2.10 2.00 1.91 1.83 1.76 1.69 1.62 1.57 1.51 1.47 1.42 1.38 45 2.12 2.02 1.93 1.85 1.77 1.70 1.64 1.58 1.53 1.48 1.43 1.40 46 2.13 2.03 1.94 1.86 1.78 1.71 1.65 1.59 1.54 1.49 1.45 1.41 47 2.15 2.05 1.96 1.87 1.79 1.72 1.65 1.59 1.53 1.48 1.43 1.40 48 2.16 2.06 1.97 1.88 1.80 1.73 1.66 1.60 1.54 1.49 1.44 1.40 49 2.17 2.07 1.98 1.89 1.81 1.74 1.67 1.61 1.55 1.50 1.46 1.41 50 2.18 2.08 1.99 1.90 1.82 1.75 1.68 1.62 1.56 1.51 1.47 1.42 51 2.19 2.09 2.00 1.91 1.83 1.76 1.69 1.62 1.57 1.51 1.47 1.42 52 2.20 2.10 2.01 1.92 1.84 1.77 1.70 1.64 1.58 1.53 1.48 1.43 53 2.21 2.11 2.02 1.93 1.85 1.78 1.71 1.65 1.59 1.54 1.49 1.45 54 2.22 2.12 2.03 1.94 1.86 1.79 1.72 1.66 1.60 1.54 1.49 1.45 55 2.23 2.13 2.04 1.95 1.87 1.80 1.73 1.67 1.61 1.55 1.50 1.46 56 2.24 2.14 2.05 1.96 1.88 1.81 1.74 1.68 1.62 1.56 1.51 1.47 57 2.25 2.15 2.06 1.97 1.89 1.82 1.75 1.69 1.63 1.57 1.52 1.48 58 2.26 2.16 2.07 1.98 1.90 1.83 1.76 1.70 1.64 1.58 1.53 1.48 59 2.27 2.17 2.08 1.99 1.91 1.84 1.77 1.71 1.65 1.59 1.54 1.49 60 2.28 2.18 2.09 2.00 1.92 1.85 1.78 1.72 1.66 1.60 1.54 1.49 61 2.2

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2.04 1.95 1.87 1.79 1.73 1.67 1.61 1.56 1.51 1.47 53 2.25 2.15 2.05 1.96 1.88 1.81 1.74 1.68 1.62 1.57
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1.58 62 2.41 2.30 2.20 2.10 2.02 1.94 1.87 1.80 1.74 1.68 1.64 1.59 63 2.43 2.32 2.21 2.12 2.03 1.95
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1.74 1.69 1.64 67 2.51 2.39 2.28 2.19 2.10 2.01 1.94 1.87 1.81 1.75 1.70 1.65 68 2.53 2.41 2.30 2.20
2.11 2.03 1.95 1.88 1.82 1.76 1.71 1.67 69 2.55 2.43 2.32 2.22 2.13 2.05 1.97 1.90 1.84 1.78 1.73 1.68
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2.77 2.64 2.53 2.42 2.32 2.23 2.14 2.07 2.00 1.94 1.88 1.83 73 2.88 2.75 2.62 2.51 2.41 2.31 2.23 2.15
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2.71 2.60 2.50 2.41 2.32 2.24 2.17 2.11 2.05 76 3.24 3.09 2.95 2.82 2.71 2.60 2.50 2.41 2.33 2.26 2.19
2.13 77 3.37 3.21 3.07 2.93 2.81 2.70 2.60 2.51 2.43 2.35 2.28 2.22 78 3.50 3.34 3.19 3.05 2.93 2.81
2.71 2.61 2.52 2.44 2.37 2.31 79 3.64 3.47 3.32 3.17 3.04 2.92 2.81 2.72 2.62 2.54 2.47 2.40 80 3.79
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3.01 2.91 2.82 2.74 2.66 87 4.09 3.90 3.72 3.56 3.42 3.28 3.16 3.05 2.95 2.85 2.77 2.69 88 4.13 3.94
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ORIGINAL CLTV <=500 505 510 515 520 525 530 535 540 545 550 555 101 4.76 4.54 4.34 4.15 3.98
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0.96 0.94 0.91 GLOSSARY Appraised value An opinion of the value of a property at a given time,
based on the location, improvements, etc. of the property, and surroundings. Adjustable rate mortgage
(ARM) A mortgage loan with an interest rate that adjusts at a specified interval based on a specific
index. A form of ARM loan is a hybrid ARM loan, the interest rate of which is fixed for a specified period,
and then adjusts at specified intervals (usually every six or 12 months) for the remainder of the loan's
life. Examples include: 2/1 ARM: Adjustable-rate mortgage with an initial fixed-rate period of 24 months;
3/1 ARM: Adjustable-rate mortgage with an initial fixed-rate period of 36 months; 5/1 ARM:
Adjustable-rate mortgage with an initial fixed-rate period of 60 months; 7/1 ARM: Adjustable-rate
mortgage with an initial fixed-rate period of 84 months; and 10/1 ARM: Adjustable-rate mortgage with
an initial fixed-rate period of 120 months. Balloon loan (BAL) A balloon loan amortizes according to a
specified term but its total unpaid principal balance is due at a point prior to when the loan fully
amortizes. For example: Five-year balloon: The final payment of the loan is due on the fifth anniversary

after origination; Seven-year balloon: The final payment of the loan is due on the seventh anniversary after origination; 10-year balloon: The final payment of the loan is due on the 10th anniversary after origination; and 15-year balloon: The final payment of the loan is due on the 15th anniversary after origination. Beacon score Beacon scores are credit scores generated by the Equifax Credit Bureau to rank an individual's creditworthiness. Combined loan-to-value (CLTV) Combined loan-to-value ratios are used by lenders to assess the total loan amount, when more than one mortgage loans are used against a property. CLTV is calculated as the sum of amounts under all loans/liens as a percentage of the lesser of appraised property value or sale price. See also loan-to-value ratio (LTV/LVR). Cures Loan that was in default but either became current or terminated without a claim payment. Default frequency (DF) Default frequency is an estimate of proportion of insurance-in-force (IIF) that will proceed to ultimate claims. Delinquency status Delinquency status refers to the amount of days (30, 60, or 90) that the borrower is contractually past due on scheduled payments. Documentation type Broad categories that capture the level of verification performed on the borrower's income (affordability), employment, or assets in various combinations. Debt to income (DTI) The total monthly liabilities of the borrower, including the debt on the subject property, divided by the total monthly income of the borrower and co-borrower. Fannie Mae--Federal National Mortgage Association A government-sponsored enterprise (GSE) in the U.S. that purchases and guarantees mortgages that meet its funding criteria. The GSEs expand the flow of mortgage money by creating a secondary mortgage market. FICO score A consumer credit score developed by Fair, Isaac and Co. that is a numerical summary of the relative likelihood that an individual will pay back a loan. The FICO score is derived using a statistical method of assessing repayment risk based on the borrower's credit history as reported to the three major credit repositories: Experian, TransUnion, and Equifax. Freddie Mac--Federal Home Loan Mortgage Corp. A government-sponsored enterprise (GSE) in the U.S. that purchases and guarantees mortgages sold in the secondary market in the form of mortgage-backed securities (MBS). It provides liquidity, stability, and affordability to the U.S. housing market. House Price Index (HPI) An index measuring the price changes of residential housing from period to period. Insurance-in-force (IIF) Insurance-in-force is the total face amount of loans insured by a mortgage insurance company that is currently in-force. Loan-to-value (LTV/LVR) ratio The ratio of the mortgage loan amount to the lesser of the property's appraised value or sale price. Loan term Loan terms are the amount of time defined by the lender for the buyer to repay the mortgage in full. At maturity, the mortgage is usually fully amortized. Most conventional loans have terms of 30 or 15 years. Loan type Loan types refer to the specification of a loan including the loan term, requirements, and amortization. Loss cost (LC) Loss cost is the product of the default frequency at a rating level multiplied by the loss severity at the same rating level. Loss given default/loss severity (LS) Loss severity is an estimate of loss given default presented as a proportion of IIF. In the U.S., risk-in-force (RIF) is widely used as a measure of risk exposure, which is basically a product of MI coverage and IIF. Market value decline (MVD) A decline in the underlying property's average value from the time the capital model is run to the estimated time of loan default. Mortgage insurance (MI) Mortgage insurance is an insurance policy that protects mortgage lenders from borrower defaults. The MI policy coverage can be purchased for a percentage of the loan value and covered costs or for the full amount. In the U.S., MI policy coverage on a loan is typically provided within a range of 20%-35% while in Canada and Australia MI covers 100% of the eligible claims. Negative amortization loan A mortgage loan whose principal balance will increase over time due to the addition of unpaid interest amounts to the outstanding principal balance of the loan. The unpaid interest amount results from the borrower's monthly payment being insufficient to cover accrued interest due. Occupancy Occupancy refers to the status and use of a property. Properties can fall into one of three occupancy statuses: primary, secondary, or investor. Prepayment An early loan or debt repayment before the actual due date. Prepayment can be done for the entire loan balance or part of the loan balance. Property type Classification for properties. Property type can be single-family residence, condominiums, etc. Recurring premium A mortgage insurance policy wherein the borrower pays the mortgage insurance premium on an agreed frequency, which is generally monthly. Risk-in-force (RIF) Risk-in-force is the product of the insurance-in-force and MI coverage percentage. RIF represents the insured exposure of U.S. mortgage insurers. Risk layering Risk layering (layering of risks) in the case of mortgages generally refers to the existence of multiple

loan or borrower characteristics that individually are indicative of higher risk in and of themselves but taken together increase the inherent risk of the mortgage quite significantly. Risk layering is generally observed in subprime loans. For example, a loan on a second property with an LTV of 100%, with no documentation, and advanced to a borrower with a low FICO score of say 600.

RMBS Residential mortgage-backed securities: A mortgage-backed security whose cash flows come from securitized residential mortgages.

Seasoning The length of time since the loan or debt has been originated.

Single premium A mortgage insurance policy wherein the borrower/insured pays the entire mortgage insurance premium at policy inception. Single-premium policies are common in Canada and Australia and proliferated in the U.S. as well over the past few years.

Teaser rate An introductory interest rate below the ongoing market rate on an adjustable-/variable-rate mortgage (ARM).

Unearned premium reserve (UPR) The unearned premium reserve represents the amount of premium that has yet to be recognized under insurance contracts currently in force.

Ultimate paid claims Total claims paid by the mortgage insurer to the loan originator or mortgage lender.

REVISIONS AND UPDATES This article was originally published on March 2, 2015. The criteria became effective as of the publishing date. Changes introduced after original publication: Following our periodic review completed on March 15, 2016, we updated the contact information, updated criteria references, and deleted paragraph 11, which was related to the initial publication of our criteria and no longer relevant. We also corrected two typographical errors in paragraphs 59 and 61 of the article. The previous reference to table 26 in paragraph 59 was corrected to state table 28. The previous reference to table 28 in paragraph 59 was corrected to state table 26. Following our periodic review completed on March 8, 2017, we deleted the reference to our expectation of incorporating Canadian mortgage insurance markets into the scope of the criteria once new criteria are published for Canadian RMBS, as the proposal was archived and no new criteria were published. We also updated contact information. Following our periodic review completed on March 6, 2018, we updated criteria references in paragraph 10 and the "Related Criteria And Research" section. We also deleted text relating to the initial publication of the criteria, which had previously been moved to the "Revisions And Updates" section and was no longer relevant. On July 1, 2019, we republished this criteria article to make nonmaterial changes in connection with the publication of "Insurers Rating Methodology." Specifically, we i) updated criteria references throughout the article; ii) deleted outdated text from paragraph 4 and deleted paragraph 10; iii) made minor changes and clarifications to paragraphs 16, 74, and 86 to align these criteria with the IRM and ensure consistent terminology within the article; and iv) updated the "Related Criteria" section. In all cases, we made these changes to aid transparency. We also updated the contact information. On Feb. 18, 2021, we republished this criteria article to make nonmaterial changes to update the contact list. On Jan. 28, 2022, we republished this criteria article to make nonmaterial changes to update the contact list.

RELATED CRITERIA AND RESEARCH Related Criteria Group Rating Methodology, July 1, 2019 Insurers Rating Methodology, July 1, 2019 Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017 Ratings Above The Sovereign: Corporate And Government Ratings--Methodology And Assumptions, Nov. 19, 2013 Criteria For Assigning 'CCC+', 'CCC', 'CCC-', And 'CC' Ratings, Oct. 1, 2012 Australian RMBS Rating Methodology And Assumptions, Sept. 1, 2011 Principles Of Credit Ratings, Feb. 16, 2011 Refined Methodology And Assumptions For Analyzing Insurer Capital Adequacy Using The Risk-Based Insurance Capital Model, June 7, 2010