04/28/2017 11:51 AM

To "methodology.commentary@ambest.com" <methodology.commentary@ambest.com>,

cc

Subject Comment Letter

Thank you for the opportunity to review and comment on A.M. Best's draft rating criteria – Evaluating Mortgage Insurance.

We applaud A.M. Best's effort in taking a leadership role for developing thoughtful capital methodologies and rating criteria for mortgage insurers and reinsurers participating in MI reinsurance and back-end GSE risk sharing programs.

We hope you find our comments constructive and we look forward to working with you and your team to further refine and finalize your rating criteria.

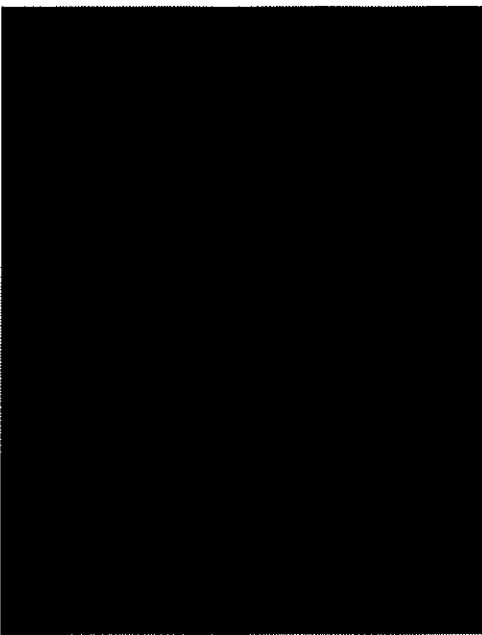Please let us know if you and your team would like to have a call to review and discuss our comments.

Best regards,

We appreciate the opportunity to preview and comment on A.M. Best's draft criteria procedure, "Evaluating Mortgage Insurance". Transparent and robust rating criteria for determining adequate capital levels for private mortgage insurance ("MI") and reinsurance companies will not only benefit policyholders and investors, but will also promote the sound functioning of the MI and back-end risk-sharing markets. We applaud your efforts in developing these criteria and for soliciting input from the industry. The proposed criteria provide a robust framework for evaluating financial strength ratings for MIs and reinsurers participating in MI reinsurance and the back-end risk sharing programs with Fannie Mae and Freddie Mac (the "GSEs"). Accordingly, we support the immediate adoption of these criteria, but would like to advocate a few important modifications noted in this letter.

A. Factor-based vs model-based analysis when evaluating capital charges for back-end risk sharing programs

We found A.M. Best's factor-based capital charge calculations for back-end risk sharing transactions to be very robust and thoughtful. The use of LTV ratios, credit scores, and maturity profiles to determine the BCAR capital charges, in our view, appropriately captures the risks associated with the reference pools for back-end risk share transactions. The factors are reasonably conservative proxies for projected ultimate losses in a severely stressful scenario, because they are based in large part on the GSE loan performance data for the 2007 vintage – one of the worst performing vintages in the recent crisis. The factor-based approach has the benefit of being transparent, stable and consistent. It is easy to implement and monitor, and the results can be clearly communicated, similar to the GSEs' risk-based capital framework in the financial requirements of the Private Mortgage Insurer Eligibility Requirements (the "PMIERs").

The draft criteria state that A.M. Best will generally use factor-based analysis on back-end risk sharing transactions for reinsurers with aggregate mortgage insurance exposures outstanding of less than $500 million or 10% of the shareholders' funds. Otherwise, A.M. Best will apply the model-based approach that utilizes loan level analysis for calculating capital charges. We would like A.M. Best to consider whether it is necessary to maintain dual capital methodologies by adopting both the factor-based and the loan-level model-based approaches. This is especially true because the A.M. Best capital

philosophy subjects the risk of individual balance sheet line items to covariance and other qualitative adjustments. Given the multiple layers of additional adjustments, developing two alternatives for one of the inputs to the model seems to add unnecessary complexity. It may be simpler and better to utilize a single, uniform, well-calibrated and tested factor-based approach to estimate capital charges for all back-end risk sharing transactions for every reinsurer in the industry.

A strong precedent for using a well-designed, transparent and consistent factor-based approach supported by robust empirical data for all insurers has been set by the GSEs' risk based capital framework under the PMIERs. The implementation of the GSEs' PMIERs capital framework has been efficient, in large part due to its transparency and stability. The private MIs have all developed effective surveillance protocols and financial metrics around PMIERs capital adequacy that are easy to implement and communicate. The GSEs have indicated that they will update the PMIERs capital framework as often as every two years as they continue to monitor the implementation and the robustness of PMIERs risk-based capital grids. Likewise, we believe that A.M. Best can roll out the factor-based approach to all reinsurers and then monitor the performance of this capital methodology to ensure that it remains consistent with fundamentals. If material changes are warranted, updates can be made and introduced to the industry as appropriate. Offering one uniform factor-based approach will lower the industry wide cost of implementing and monitoring a new A.M. Best capital standard for mortgage risk, promote transparency and consistency, and foster clarity in communication, thereby providing long-term benefit to reinsurers of all sizes.

If A.M. Best eventually decides to require reinsurers with larger mortgage risk exposure to adopt the loan-level, model-based analysis, we would urge A.M. Best to ensure consistent and equitable capital treatment across the factor-based and model-based approaches. We understand that A.M. Best may engineer factor-based capital levels to be less conservative than loan level model-based capital levels. Such an ordering would be inconsistent with both best practices and economic intuition. For example, in the US bank regulatory capital framework, small and less sophisticated banks need to determine capital for residential mortgages by mapping these exposures to the 50% risk weight requiring them to hold 4% capital for such exposures. On the other hand, sophisticated institutions, with regulatory approval, may use internal models in conjunction with the Internal Rating Based ("IRB") Approach. The latter can model risks and capital requirements more precisely and can reduce capital charges on residential mortgages down to 1% levels. Bank regulators acknowledge that banks adopting the IRB Approach have the skill sets and capabilities for modeling their risk and capital needs with a greater level of precision, hence allowing the IRB Approach to project lower capital levels than the Standardized Approach. Using the US bank regulatory analogy, it would be prudent for the factor-based approach to be more conservative than the model-based approaches, and not the other way around. This rank ordering is also consistent with economic intuition – the less accurately risk is modeled (such as via a factor-based approach), the greater the chances for model risk, and hence the greater the degree of conservativeness in the simpler construct (e.g. capital grids) in assessing capital. Conversely, the greater the precision in modeling risks, such as via a customized loan-level model, the

greater should be the comfort for all concerned that stress loss and capital estimates are accurate and hence a lesser need for added conservativeness.

In addition, if A.M. Best decides to maintain a dual approach, we suggest that, similar to bank regulators allowing sophisticated banks to use the IRB Approach, A.M. Best should allow a sophisticated MI or a reinsurer of mortgage credit risk to use their internal risk based or approved third party capital models. A.M. Best can validate the capital charge estimates from an internal model or approved third party model via benchmarking to the estimates from your factor-based analysis.

Finally, if A.M. Best does use separate factor and model based approaches, we believe the proposed criteria could benefit from clarification with respect to the risk composition of the $500 million threshold used to determine whether the factor-based or model-based approach is applicable. A reinsurer with $500 million risk exposure to the most senior tranches of back-end risk-sharing transactions clearly has less capital at risk than a reinsurer with $500 million risk exposure to the most junior tranches. In other words, the threshold limit should be adjusted and risk weighted by the type of tranches that make up the reinsurer's back-end risk sharing portfolio. Of course, the added complication of a threshold with the need for adjustment of risk composition could be avoided altogether if A.M. Best adopts a single factor based approach as we suggest above.

B. Premium calculation for back-end risk-sharing transactions

We appreciate the example that A.M. Best provided to demonstrate the calculation of stress losses within the factor-based framework; proper implementation of a capital framework is just as important as developing the framework itself. We support A.M. Best's decision to assess a 5% charge to the current limit as it is our view that minimum capital charges are a prudential defense against model risk inherent in highly complex structured transactions like those prevalent in the back-end risk sharing programs. Although, we recognize the need for a minimum capital / capital floors as a prudential check to mitigate the model risk associated with stress loss estimates for multi-tranche transactions, we believe applying the capital floor on a tranche by tranche basis errs too much on the side of conservativeness. Instead of assessing the 5% minimum capital charge to each tranche as currently proposed, we urge A.M. Best to assess the minimum capital charge across the entire portfolio, while allowing individual tranches profit and loss to net out across the tranches. A.M. Best has correctly acknowledged that premiums that can be projected with a high degree of confidence are a bona-fide source of funds that can be used to pay for projected stress losses. Our reasoning for this recommendation is that premiums collected from any tranche in a transaction, (whether impacted by stress losses or not), will be available to cover losses from that particular transaction as well as other transactions in the portfolio. Thus, since the focus of the exercise is to ascertain counterparty strength via capital adequacy assessments for the entity being rated, pooling together premiums and stress losses, from all transactions and all tranches, including those with zero projected stress loss, across the entire structured portfolio, subject to a minimum capital charge will provide a more accurate capital adequacy and therefore counterparty strength assessment.

An alternative to our suggestion of assessing the 5% minimum capital charge to the current aggregate limit of the entire portfolio is to set the minimum capital charge to 5% of the current limit of each transaction, which may contain one or multiple tranches. Doing so mitigates the drawback of overestimating the capital charge at the transaction level, as premiums from all tranches are pooled together to offset projected stress losses for the same transaction. Of course, this approach would still have the drawback of overestimating capital charges for the portfolio as a whole if projected stress losses are less than 5% of the limit of certain transactions and premiums attributable to such transactions are not applied to offset losses from other transactions in the same portfolio.

Finally, the proposed criteria state that in the stress scenarios selected, prepay speeds will be assumed to be zero to very low. As a result, the expected life of the insurance obligations is assumed to be near or equal to the maximum life of the transaction. While such assumptions may be appropriate for certain structures of back-end risk sharing transactions, they could lead to overestimation of premium credit for tranches such as the M-1 tranches of the Agency Credit Insurance Structure ("ACIS") program,

When confronting economic stress, monetary authorities will attempt to stimulate growth by instituting easy money policies such as cutting interest rates or deploying tools like the quantitative easing. Therefore, we recommend that A.M. Best apply a haircut to the expected life of more senior tranches, so as not to provide excessive premium credit for these tranches in the calculation of capital charges.

*   *   *

In conclusion, we once again applaud A.M. Best's efforts in developing the criteria. We are in broad agreement with your overall credit rating analysis of MI reinsurance and back-end risk sharing programs as embodied in the draft criteria. Our comments are meant to be constructive, and our suggested refinements are offered in the spirit of improving the framework without weakening the robustness of the targeted financial strength standard. We welcome the opportunity to have further discussions with you regarding our comments and suggestions in that regard.
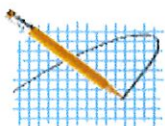
04/28/2017 02:22 PM

Methodology team,

Please find attached a document with our comments related to the "DRAFT: Evaluating Mortgage Insurance" rating criteria.

Feel free to reach out with any follow-up questions, clarifications or responses. We would be more than happy to discuss any of our comments.
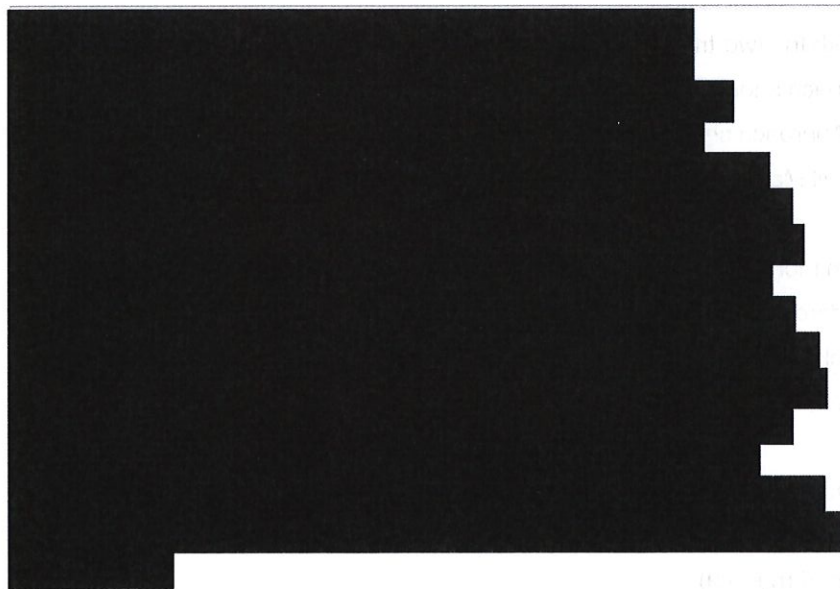
Overall

We agree that the current BCAR model does not adequately assess risk capital requirements for the mortgage credit risk sharing programs and appreciate A.M. Best's goal of addressing this topic in a quantitative manner within its BCAR model. ██████████████████████████████████ our response is broken down into a number of clarifying questions and a few specific comments, all focused on section E of the criteria ("E. Insurance-Based Risk Sharing"). ████████████████

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General Comment

We question the need for a two-track approach (Factor Based or Full Model dependent on materiality by company). We would note that the covariance mechanism within BCAR already captures the idea that increased concentration reduces diversification benefits. As an alternative, A.M. Best could have one single approach at an industry level for all outstanding GSE transactions, and then apply those stress test results to individual companies based on their treaty participations. This would be similar to as if A.M. Best were rating a corporate bond – with individual company capital requirements based on their portfolio construction. Another suggestion is to consider relying on rated entities to provide the results of their in-house modeling to A.M. Best (similar to property catastrophe PMLs provided in SRQ).

Specific Comments

1. If A.M. Best continues with the two-track approach, we believe that the Factor Based Approach and the Full Model Approach should be calibrated to approximately achieve the same result, and perhaps the Full Model Approach should produce lower capital requirements than the Factor Based Approach. The Full Model Approach will incorporate more detail and analytical rigor into the modeling of stress scenarios. Similar to the current Solvency II framework, we would expect capital requirements from more detailed, "partial internal" models to produce lower capital requirements than "standard modeling" approaches which are less rigorous. From our preliminary analysis it looks like the Full Model Approach can create higher capital requirements than the Factor based approach.

2. If A.M. Best continues with the two-track approach, we believe the following items should be further refined to either clarify intent or achieve consistency between the approaches:
   a. Pre-payment speed (page 9)
   b. Underlying loan characteristics – e.g. the UPB factors for high LTV loans in the factor based approach seems to be influenced by characteristics of loan issues in 2007 (other

than FICO and LTV) which no longer exist in the current loan pools, such as loans with low-documentation, investor properties and second liens

    c.   Premium haircut and time value adjustment (page 13)

3. Can A.M. Best clarify if section E of the methodology, starting on page 8, will only apply to what is referenced as "back-end" GSE exposure? ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ this exposure would not work well with the outlined methodology given each treaty has unique terms and structural considerations.

4. We believe the placement of the specific risk charge should be either (1) only added to the B1/B2 Investment Risk component or (2) split between the B1/B2 Investment Risk and B6 Premium Risk components of required capital – analogous to how A.M. Best split the B4 Credit Risk charge within the current BCAR framework. ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ ▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ Additionally, we believe there should be consistency where the required capital lies within the BCAR calculation▮▮▮▮▮▮▮▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

    a.   Also, if the risk charge remains within B6, can A.M. Best clarify how this new risk charge will impact the current diversification factor? Our view is this business provides a significant diversification benefit to a "traditional" P/C insurance portfolio.

5. We believe A.M. Best will need to back out the associated premiums and reserves from existing GSE business to avoid double counting of required capital. Can A.M. Best clarify how they will approach this adjustment within the methodology?

6. We understand that all current BCAR Required Capital components are calculated on a pre-tax basis, but we would note that as a U.S. tax payer this ascribes zero value to the risk mitigating benefit of taxes and should be reconsidered. Currently, tax-basis losses can be carried back two years and carried forward twenty years. The carry-back recovery is not subject to any going concern assumptions. In addition, U.S. GAAP requires companies to establish a valuation allowance if it is likely that a portion of the DTA will not be usable. Therefore the ultimate usability of the DTA has already been evaluated and as such should not be excluded from the capital analysis.
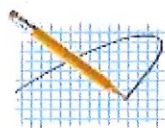
we would like to submit the following comments regarding AM Best draft on Evaluating Mortgage Insurance.

- It would be helpful if the criteria addressed how capital charges associated with treaty reinsurance transactions of Private Mortgage Insurers will be calculated? Rather than being limited to GSE transactions for reinsurers.
- There seems to be a disconnect between the factor based method and the modeling method: The factor based method is said to be calibrated to the 2008 credit crisis while the modeling method evaluates losses at the 1-in-250 return period. However, we would argue that it is generally accepted that the 2008 credit crisis has a return period well below the 1-in-250.
- The criteria is not very explicit regarding the premium offset and the adjustments that AM Best may make to such premium offsets. The criteria would benefit from more clarity and possibly a formulaic approach to the premium offset calculations.
- The SUL charges show a strong LTV-gradient (they increase rapidly as LTVs increase) which is to be expected for ground-up losses. However, has the fact that high-LTV pools of mortgages in the GSE transactions benefit from MI insurance been considered? Both capital market and reinsurance pricing levels indicate that these markets sees high- and low-LTV pools having similar risk profile (once the benefits of MI insurance have been factored in) as demonstrated by similar coupon spreads/reinsurance rates between high- and low-LTV transactions (where pools have similar credit score profiles). Yet the proposed methodology would entail significantly different capital charges between high- and low-LTV pools. Are reinsurers supposed to net out the MI coverage on high-LTV mortgages when such charges are applied to high-LTV pools?
- As proposed, the SUL charges apply to the current pool UPB distribution of original LTV and original credit score. While it may be argued that updated credit scores may not be readily available, updated LTV certainly are. In a rising house prices environment, it seems punitive not to take into account the lowering of the LTVs over time. Home price appreciation is one of the main driver of the de-risking of such mortgage pools over time (especially since it is compounding over time) and as such should be considered in the capital charge calculation. Conversely, in a decreasing house price environment, not reflecting updated LTV will underestimate ultimate losses.
- AM Best seasonality factors seem to reflect the generally accepted view that the peak risk period for mortgage defaults is between years 2 to 5 albeit in a somewhat muted fashion. However, the factor based method does not seem to provide any mechanism (other than a reduction in outstanding UPB) to account for the fact that the pool de-risks significantly over-time in a normal environment mainly due to home price appreciation. As an example, in

the recent history of GSE CRT transactions, significant ratings upgrades have occurred over time, yet the proposed capital charges would decrease much more slowly.

•	The proposed methodology would result in capital charges for GSE reinsurance transactions which are significantly higher than similar bond charges. As an example, consider a recent ACIS transaction at origination: the M3 (pre 1/1/2017, the M2 tranche post 1/1/2017) tranche (in excess of a 100 bps retention) typically would be a total loss at the 1-in-250 return period and with a rate on line of approximately 25% would result in a capital charge of 75%. Yet the corresponding STACR M3 bond (which covers the same risk as both are based on the same pool and have the same subordination) is typically rated B resulting in a 30% capital charge. Surely the difference cannot solely be attributed to the liquidity of the bond which would probably vanish in time of crisis.

Benjamin Walker
<Benjamin.Walker@aonbenfield.com>

05/02/2017 01:34 AM

To "methodology.commentary@ambest.com"
<methodology.commentary@ambest.com>

cc Patrick Matthews
<Patrick.Matthews@aonbenfield.com>
, Joe Monaghan
<joseph.monaghan@aonbenfield.com>

Subject Aon Response to A.M. Best's Mortgage Criteria

1 attachment

Aon Response to A.M. Best Mortgage Criteria - May 2017.pdf

To whom it may concern,

Attached please find Aon's response to A.M. Best's Evaluating Mortgage Insurance Criteria.

Please direct any questions to either Pat Matthews, Joe Monaghan, or Ben Walker. Our contact information is included on the final page of the attached.

Thank you,

Ben

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Aon Benfield

Response to A.M. Best's Evaluating Mortgage Insurance Criteria

May 1, 2017

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Introduction

Aon Benfield would like to thank A.M. Best for the opportunity to respond to their DRAFT criteria paper on Evaluating Mortgage Insurance. The focus of our comments and questions will be on the portion of the criteria dedicated to the assignment of required capital to support the Credit Risk Transfer (CRT) transactions between the Government Sponsored Enterprises (GSEs) Fannie Mae and Freddie Mac and participating insurers and reinsurers (insurers).

Aon Benfield has been an advisor and reinsurance broker for the GSEs in the CRT space since 2012 and has helped place over 90% of the almost $11B of CRT insurance limit purchased to date. Having worked closely with the GSEs and insurers to build the marketplace that currently supports the CRT space, we understand the importance of clarity in required capital treatment for this class of risk and applaud A.M. Best for taking an important first step.

A transparent and consistent capital standard that the industry can be held to is important for several reasons: first, it will allow current participants in the CRT transactions to confidently continue to participate knowing how A.M. Best will evaluate these transactions; second, it will give future participants certainty in how adding this risk to their balance sheet will affect their BCAR score. In the long term, a fair capital framework will allow the insurance community to participate in a new, diversifying class of business while maintaining a prudent capital buffer reflecting their multiline diversified balance sheets.

We believe there are several key areas that A.M. Best should further evaluate or provide additional clarity on in subsequent iterations of the mortgage criteria. Our main recommendations are summarized below:

1) The UPB factors in Exhibits E.1 and E.2 should be modified to reduce the differences between 60-80 LTV loans vs. above 80 LTV loans.
2) To the extent possible, A.M. Best should seek to consistent capital standards for GSE CRT transactions irrespective of whether an insurer accepts the risk in bond form or insurance form.
3) There should be a single, transparent approach to determining required capital for all participants in the GSE CRT transactions.
4) The data reporting requirements should be simplified given that there is publicly available data on these transactions.
5) Management's view of their GSE CRT exposures should be considered in determining the required capital charge for insurers with material mortgage exposure.

Factors for 60 to 80 Loan to Value (Low LTV) vs. Above 80 Loan to Value (High LTV) Transactions

Our recommendation is focused table E.1 on page 10 which applies to 30-year fixed rate mortgages comprising the vast majority of GSE CRT transactions.

In the appendix we outline our understanding of the factor-based approach and how stressed losses for GSE CRT transactions will be calculated. We have used that approach to calculate the 10-year cumulative stressed loss for each historical CRT transaction involving 30-year fixed rate mortgages and have summarized the average result by transaction year below:

Table 1: Average Cumulative Stressed Loss by Transaction Year

Transaction Year	Average Cumulative Stressed Loss		
	Low LTV Transactions	High LTV Transactions	Difference
2015	2.4%	3.6%	53%
2016	2.5%	3.8%	50%
2017	2.5%	3.8%	52%

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Table 1 shows that for recent transactions the average 10-year stressed loss rate for low LTV transactions is 2.5%. The corresponding high LTV stressed loss rate is 3.8%, which represents more than a 50% difference relative to low LTV transactions.

One would expect borrowers with LTVs greater than 80% to generally have a higher incidence of default. However, the presence of an inuring mortgage insurance benefit will act to reduce the potential magnitude of loss in the event of borrower default and the CRT transactions are designed so that insurers do not bear the risk that mortgage insurers will not pay their claims. The large differential between low and high LTV transactions in A.M. Best's proposed capital methodology is inconsistent with adjusted historical experience and is inconsistent with GSE reinsurance buying patterns.

First, we can look to the actual losses sustained from loans originated in 2007 to understand the stressed loss relativity between low and high LTV portfolios. Fannie Mae's Data Dynamics tool[1] can be used to adjust historical losses to reflect the current mix of underwriting characteristics across FICO, LTV, and risk layer attributes. This type of adjustment is necessary to account for the significant improvement in today's FICO and LTV distribution relative to the actual 2007 vintage portfolio. Additionally, current underwriting standards limit the number of risky characteristics a single borrower can have. This layering of risk is materially different across historical time periods and failing to adjust for this shift can lead to an overestimation of how today's loans might have performed through a housing downturn like the Great Recession.

Below is a summary of the 2007 vintage loss rate adjusted for the underwriting profile of the latest three Fannie Mae Credit Insurance Risk Transfer (CIRT) transactions on both a low and high LTV basis.

Table 2: Adjusted Loss Rate for 2007 Vintage by CIRT Transaction

CIRT Transaction	LTV	Adjusted 2007 Loss	CIRT Transaction	LTV	Adjusted 2007 Loss
2015-3	Low	2.3%	2015-4	High	2.4%
2016-1/2/3	Low	2.2%	2015-5	High	2.4%
2016-7/8	Low	2.3%	2016-4/5/6	High	2.3%
Average		2.3%			2.4%

The adjusted 2007 loss rates in Table 2 show that Fannie Mae's adjusted historical experience was very comparable between low and high LTV transactions.

Further, one can look to how the GSEs have purchased reinsurance protection to infer their view on how much risk is associated with high LTV portfolios vs. low LTV portfolios. Fannie Mae's CIRT program has consistently been 250 basis points of limit excess of a 50 basis point attachment. This has been the same regardless of whether the portfolio is comprised of high or low LTV loans. Freddie Mac has historically bought slightly more reinsurance protection on its high LTV portfolios vs. its low LTV portfolios. However, the recent differential has been closer to a 10% to 15% difference in credit enhancement. In both cases, the reinsurance purchase behaviors of both GSEs suggest that they believe that the risk between low and high LTV portfolios is more similar than A.M. Best's initial UPB factors indicate.

Consistent Treatment of GSE CRT between Premium Risk and Bond Risk Charge

Ideally, the GSE CRT capital charges should look very similar regardless of whether an insurer was writing insurance or purchasing a bond. In both cases the risk to the insurer's surplus is virtually identical. However, the proposed approach for calculating a premium risk charge will imply required capital that in most cases will exceed the charge for an equivalent risk if taken in bond form. The analysis included in the appendix of this document outlines our estimated capital charges by tranche for recent GSE CRT

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[1] http://www.fanniemae.com/portal/funding-the-market/credit-risk/credit-risk-data-dynamics.html

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transactions. The table below compares the pre-diversification charges between asset risk and premium risk.

Table 3: Pre-Diversification GSE CRT Risk Charges: Asset Risk vs. Premium Risk

	Low LTV			High LTV		
Layer	Factor-Based Net Premium Risk Charge	Current BCAR Net Asset Risk Charge	Stochastic BCAR Net Asset Risk Charge	Factor-Based Net Premium Risk Charge	Current BCAR Net Asset Risk Charge	Stochastic BCAR Net Asset Risk Charge
ACIS M1	5%	2%	4% to 6%	15%	2%	4% to 6%
ACIS M2	25%	4% to 5%	10% to 25%	60%	4% to 5%	10% to 25%
ACIS B1	85%	10%	40% to 50%	90%	10%	40% to 50%
CIRT	40%	5% to 10%	20% to 30%	70%	5% to 10%	20% to 30%

Calculation Notes:
Factor-Based Net Premium Risk Charges estimated in appendix (Tables 6 and 7)
Asset Risk Charges Estimated based on equivalent GSE CRT Bond Ratings
Stochastic BCAR Asset Risk Charges Estimated at 99.6th Percentile

Table 3 shows the potential pre-diversification premium risk charges are generally higher than both the current BCAR and proposed stochastic BCAR asset risk charges. The differences would grow larger after considering the effect of diversification and covariance adjustments on the asset risk vs. premium risk charges. It is our recommendation that A.M. Best seek to reduce the difference in capital charge between different executions of the same fundamental risk to insurer surplus.

Model-Based vs. Factor-Based Capital Charges

A.M Best states that for the factor-based approach, the 2007 vintage actual loss performance was a key consideration. For the model-based approach, A.M. Best will look to the 99.6[th] percentile as the basis for determining the capital charge. We assume that this is a materially more conservative threshold than a capital charge based on 2007 levels of loss, which we often see estimated to be closer to the 97th to 99th percentile.

By having a second, more conservative, tier of capital requirements, A.M. Best risks creating more uncertainty and less transparency into the overall estimation of required capital at a tail percentile that is very sensitive to specific model nuances.

We recommend that A.M. Best subject all companies to the same capital standards. The factor-based approach is calibrated to the worst mortgage loss experience witnessed in modern history and is based on a scenario resembling the Federal Reserve CCAR stress testing used for financial institutions. A.M. Best could run the model at annual valuations to ensure that the factor based approach continues to produce prudent capital charges relative to what a detailed modeling exercise would suggest, but should attempt to maintain the transparency of the factor-based approach to the extent possible.

Data Requirements

A.M. Best lists eight data items will be required for all companies to report, regardless of whether their CRT exposure was deemed material or immaterial to their balance sheet. Given that the information on GSE CRT transactions is largely publicly available, we suggest that A.M. Best maintain a master database on every transaction and simplify the reporting requirements of insurers so that they are not all reporting duplicate information.

Companies should only need to report the following information on CRT transactions:
1) Participation levels by deal / tranche
2) Copies of any reinsurance or retrocession agreements associated with GSE transactions
3) Estimated loss reserve associated with all GSE transactions

Insurers that have retrocessional agreements in place may need to help A.M. Best estimate the impact of such agreements on their capital charge, but for most traditional participants, and especially those with immaterial exposure, we believe the data requirements should be simplified.

Management View of GSE CRT Exposures and Other Models

As with all complex risks, the estimation of downside risk in tail scenarios is part science and part a form of art. In the case of natural catastrophes, insurers often employ multiple models to estimate their risk of loss and the company's view of tail risk is used as an input to A.M. Best's BCAR score. Insurers have invested time and resources into estimating and evaluating their downside risk for GSE CRT transactions. Not all models will align exactly with the results from the AD&Co model, but there is value in well thought out analysis using either models or adjusted historical data as another input into the rating process.

Consistent with the approach to catastrophe risk analysis, we believe that, if requested, A.M. Best should consider management's view of capital need as an additional input into the process of determining an insurer's GSE CRT required capital. Not all insurers will want or need to discuss their management view with A.M. Best but for those with material exposures it is worthwhile to consider their own estimates of downside risk in addition to A.M. Best's model view.

Additional Comments and Questions

1) We would suggest that A.M. Best take an additional step to promote transparency in the factor-based rating approach by publishing a list of their estimated capital charges by layer and transaction. This will give greater certainty to insurers that have not yet participated as to how the charges for this class of risk might work before they start participating in the program. This will also allow other market observers to clearly understand how A.M. Best capital for these transactions will work.

2) The DRAFT mortgage criteria does not mention how the premium risk diversification factor will be handled. It is our suggestion that A.M. Best explicitly incorporate the GSE CRT line of business into the calculation of the diversification factor. In the case of stochastic BCAR this could be done by adding a GSE CRT line of business with zero or minimal correlation with other property & casualty lines of business.

   We believe that adding a class of risk that is generally uncorrelated with traditional property & casualty lines of business should improve the B6 diversification factor and should reflect the multiline diversified nature of insurers taking GSE CRT risk.

3) In the analysis described in the appendix below we have made our best attempt to estimate future premium credit for GSE CRT transactions based on A.M. Best's stressed loss emergence pattern and the transaction cash flow rules. We have also made assumptions about how the capital charge will adjust as transactions season over time. However, in the criteria there is very little guidance as to how this would be done by A.M. Best in practice and it should be more clearly illustrated how A.M. Best intends to handle these calculations.

4) To the extent that an insurer is carrying reserves against losses that have not yet materialized, we recommend that the balance be removed from the B5 reserve risk charge and serve as an offset to required B6 premium risk capital.

5) Page 8 of A.M. Best's criteria distinguishes the GSE CRT transactions as back-end risk sharing. Starting in late 2016 both Freddie Mac and Fannie Mae began completing front-end risk sharing transactions. Will the front-end deals work the same way as the criteria outlines for back-end transactions?

6) Have A.M. Best determined how to charge an insurer for risk sharing transactions involving a mortgage insurer's portfolio?

Appendix: Illustrative GSE CRT Risk Charges using A.M. Best's Proposed Capital Framework

In support of our comments and suggestions above, we have estimated capital factors using A.M. Best's proposed factor-based approach. We based the analysis on representative 30-year fixed rate loans and ACIS and CIRT structures and pricing levels.

The first step of the calculation is to apply the distribution of a transaction's unpaid principal balance (UPB) at treaty inception to the UPB factors in Exhibit E.1. For a representative 60 to 80 loan to value (low LTV) transaction, we multiply the weighted average UPB factor from Exhibit E.1 by the initial seasonality factor of 100% from Exhibit E.3. This results in a Stressed Ultimate Loss (SUL) of 3.4%. Next, using exhibit E.4 for the 10-year loss distribution pattern, we can estimate the 10-year cumulative future stressed loss as 2.5% (=3.4% x 71.9% payment factor).

If that low LTV pool were to maintain a stable mix of FICO and LTV over time and run off at a 10% conditional prepayment rate (CPR) and at moderate loss rates, the stressed loss figures used in A.M. Best's calculation might look as follows by year:

Table 4: Illustrative Low LTV Factor-Based Cumulative Stress Loss for GSE CRT Transaction

Month	(1) Weighted Avg. UPB Factor	(2) Pool Seasonality Factor	(3) Pool Seasonality Factor	(4) Stressed Ultimate Loss	(5) Loss Distribution Pattern	(6) 10 Year Cumulative Future Loss	(7) Actual Loss	(8) Cumulative Stress Loss	(9) % of Inception
0	3.4%	100.0%	100.0%	3.4%	71.9%	2.5%	0.0%	2.5%	100.0%
12	3.4%	88.2%	105.0%	3.2%	71.7%	2.3%	0.0%	2.3%	93.8%
24	3.4%	77.7%	109.0%	2.9%	69.7%	2.0%	0.1%	2.1%	84.7%
36	3.4%	68.4%	108.0%	2.5%	62.9%	1.6%	0.1%	1.7%	68.4%
48	3.4%	60.1%	102.0%	2.1%	52.6%	1.1%	0.1%	1.2%	49.6%

Low LTV Factor-Based Approach Assuming Baseline Loss Scenario and 10% CPR

Calculation Notes:

(1) Weighted Average of UPB Factors from Exhibit E.1 based on 2017 transaction FICO / LTV distribution

(2) Proportion of original pool balance still outstanding at current time (assumes 10% CPR and baseline default rate)

(3) Seasonality Factor based on Exhibit E.3

(4) = (1) x (2) x (3)

(5) Based on loss distribution pattern from Exhibit E.4

(6) = (4) x (5)

(7) Actual loss emerged to date under baseline scenario (20 bps cumulative loss)

(8) = (6) + (7)

(9) = (8) / (8) at inception

Given projected cumulative stressed losses at any point in time, the gross premium risk capital charge before reflection of premium credit can be estimated by determining the proportion of the layer would be exhausted by the stressed losses. A.M. Best has not provided any guidance on how they will implement their premium credit calculation, but we used their stressed loss payment pattern and the cash flow rules for each transaction and layer to estimate at every point in time how much future premium might be collected. The difference between the gross capital charge and the premium credit is the net premium risk capital charge subject to a 5% minimum.

Aon Benfield

Table 5: Illustrative Low LTV Factor-Based Net B6 Charge by Layer and Program

	(1)	(2) Gross Premium Risk Capital Charge				(3) Estimated Premium Credit				(4) Net Premium Risk Capital Charge			
Month	Cum. Loss	ACIS B1	ACIS M2	ACIS M1	CIRT	ACIS B1	ACIS M2	ACIS M1	CIRT	ACIS B1	ACIS M2	ACIS M1	CIRT
0	2.5%	100%	66%	0%	79%	21%	24%	7%	27%	79%	42%	5%	52%
12	2.3%	100%	59%	0%	73%	17%	22%	6%	23%	83%	37%	5%	50%
24	2.1%	100%	49%	0%	64%	13%	21%	5%	20%	87%	28%	5%	44%
36	1.7%	100%	31%	0%	48%	13%	21%	2%	16%	87%	10%	5%	32%
48	1.2%	100%	10%	0%	29%	16%	20%	0%	13%	84%	5%	5%	16%
5 Yr Avg	2.0%	100%	43%	0%	59%	16%	21%	4%	20%	84%	24%	5%	39%

Calculation Notes:

(1) Cumulative Stressed Loss from Table 4 Column (8)

(2) Gross B6 Charge as a percent of limit based on proportion of layer exhausted by column (1) Cumulative Stressed Loss

(3) Estimated Premium Credit based on 2017 pricing levels and conditional future premium calculated using A.M. Best loss distribution pattern in Exhibit E.4

(4) Net B6 Charge = (2) minus (3)

In our illustrative analysis, we estimate that the ACIS B1 layer would have an average capital charge of 84% of limit written over the first five years of a transaction. Other layer capital charges in this example are 24%, 5%, and 39% for ACIS M2, ACIS M1, and CIRT respectively.

A.M. Best does not indicate how this charge will flow through the remainder of the BCAR calculation, but for this illustration we have assumed that the existing premium diversification factor will be applied to the GSE CRT capital charge and that the B6 capital will be subject to the traditional covariance adjustment. This means, as with other lines of business, that every company will have a different marginal required capital impact from the new proposed GSE CRT rules.

To estimate the net required capital after diversification and covariance adjustment, we created several representative company profiles that we classified as either being driven by the BCAR premium charge or the reserve charge. For companies where the B5 reserve charge is their largest risk category, we estimate that the post-diversification and covariance incremental required capital could range from 20% to 35% of the original net premium risk charge. For companies where the B6 premium charge is the largest risk category, we estimate that the post-diversification and covariance incremental required capital could range from 60% to 75% of the original GSE CRT capital charge. The resulting implied net capital charges after diversification and covariance are summarized below for both premium driven and reserve driven insurers. We've also calculated above 80 loan to value (high LTV) capital charges following the same methodology as outlined for the low LTV transaction.

Table 6: Estimated 5 Yr Avg Net Capital Charge by Company Type
Low LTV Transaction Factor Based Approach

Layer	Net B6 Risk Charge	Premium Driven Net Capital Charge	Reserve Driven Net Capital Charge
ACIS M1	5%	3% to 4%	1% to 2%
ACIS M2	25%	15% to 20%	5% to 10%
ACIS B1	85%	50% to 65%	15% to 30%
CIRT	40%	25% to 30%	10% to 15%

Table 7: Estimated 5 Yr Avg Net Capital Charge by Company Type
High LTV Transaction Factor Based Approach

Layer	Net B6 Risk Charge	Premium Driven Net Capital Charge	Reserve Driven Net Capital Charge
ACIS M1	15%	9% to 11%	3% to 5%
ACIS M2	60%	35% to 45%	10% to 20%
ACIS B1	90%	55% to 70%	20% to 35%
CIRT	70%	40% to 55%	15% to 25%

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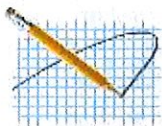
About Aon Benfield

Aon Benfield, a division of Aon plc (NYSE: AON), is the world's leading reinsurance intermediary and full-service capital advisor. We empower our clients to better understand, manage and transfer risk through innovative solutions and personalized access to all forms of global reinsurance capital across treaty, facultative and capital markets. As a trusted advocate, we deliver local reach to the world's markets, an unparalleled investment in innovative analytics, including catastrophe management, actuarial and rating agency advisory. Through our professionals' expertise and experience, we advise clients in making optimal capital choices that will empower results and improve operational effectiveness for their business. With more than 80 offices in 50 countries, our worldwide client base has access to the broadest portfolio of integrated capital solutions and services. To learn how Aon Benfield helps empower results, please visit aonbenfield.com.

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05/03/2017 01:39 PM

To <methodology.commentary@ambest.com>

cc

Subject Draft Criteria: Evaluating Mortgage Insurance

Having reviewed the criteria paper, there are several key issues we would like to highlight:

1. **Single Model Approach** – we are concerned that requiring the industry to use a single model to assess capital charges for mortgage business will create an anti-competitive market environment and potentially introduce systemic risk, should the assumptions within the model prove to be inaccurate. We are also concerned about the lack of transparency under this proposed methodology, given the opacity of the underlying model, and are concerned that unvetted changes to the model, made by the model vendor, will unilaterally drive and govern future capital charges for the business. We believe it would be more appropriate, and consistent with your previously established practice, to treat this risk similar to catastrophe risk wherein the (re)insurers provide A.M. Best their assessment of the risk exposure based on parameters set by A.M. Best.

2. **Inconsistent Application of Risk Charge** –
   - Size of Risk: It is our view that there needs to be consistency in the capital charge for the same risk regardless of who bears this risk. Having separate methods (factor vs model) to evaluate mortgage risk depending on the size of the exposure could be more punitive to larger insurers. Such an inconsistency is without basis. We agree that there should be differentiating approaches depending on the characteristics of the (re)insurance products and the underlying mortgage characteristics, as outlined in #3, but the capital charge method should not be based on the size of the exposure.
   - Form of Exposure: In addition, mortgage risk, whether it comes in the form of a bond investment or a (re)insurance product, should carry a comparable risk charge. In the current methodology, that does not appear to be the case.

3. **Lack of Differentiation Across MI Products** – it is not clear in the criteria paper if product structure and risk characteristics specific to each (re)insurance product are considered. For instance a primary Mortgage Insurer ("MI") carries the greatest risk, with first dollar and aggregate loss exposure uncapped. Reinsurers of MI's will generally impose caps on their exposure, whether the

(re)insurance product is done in the form of an excess of loss agreement or a quota share. And in cases of high Loan To Value ("LTV") transactions, (re)insurance provided to the Government Sponsored Enterprise's ("GSE") has the inuring benefit of the MI protection and does not bear the credit risk of collecting the MI – this risk stays with the GSE's. We believe these risk characteristics are important when assessing capital requirements, warranting different approaches to determining risk capital.

4.   **Lack of Diversification Credit** – under the current proposed methodology, the mortgage risk charge would be added to the B5 (Loss Reserves) and B6 (Premium) required capital, which would dilute the diversification credit provided by the BCAR formula. ███████████████████████ Mortgage risk is largely uncorrelated to the other lines of business████████████ and yet there does not appear to be any consideration for this in the proposed methodology. We believe that mortgage risk should be treated as a separate risk category (ie: B8) or given some other treatment to recognize its inherent diversifying effect ███████████████

5.   **Selection of the 99.6% Confidence Level** – ████████████████████████████ ████████████████████ the 99.6% confidence level "is generally more severe than losses in 2008 credit crisis". The concern that we have is that the integrity of extrapolating estimates out in the tail is always questionable and we believe a more realistic selection might be the 99.0% when developing risk based factors, as this would be more consistent with the treatment of catastrophe risk.

6.   **Estimated Impact of new Methodology** – similar to the rollout of the A.M. Best stochastic model, it is important to understand the estimated impact of this new capital charge in order to fully understand the new methodology. We encourage A.M. Best to engage with the industry in testing the proposed methodology in a pre-implementation phase. Such a test will allow a better understanding of the impact of the methodology and an avoidance of unintended consequences. ████████████████████████████

7.   **Consistent Model Application–** ████████████████████████████████ ████████████████████████████████████ we also appreciate the need for A.M. Best to develop a consistent and uniform risk assessment approach. In that regard, a factor based approach would be an alternative. Similar to the industry factors developed for the new stochastic model, A.M. Best should utilize standard factor tables that recognize the various forms of mortgage risk and their unique risk characteristics, including risk limiting product structures.

8.   **Factor Based Approach** - in reviewing the criteria around the factor based approach, we note the following issues:
* Need to distinguish GSE and Reinsurance MI from Primary MI, which is closer to the underlying risk
* The difference between high/low LTV's is too wide with high LTV's unrealistically punitive; it does not appear that credit is being given for the inuring MI
* The basis and application of the seasonality factors are unclear

In summary, ████████████ the methodology, as proposed, lacks sufficient transparency and will potentially create unduly punitive capital charges that could greatly reduce the appetite for the

insurance industry to take on mortgage risk. While we are fully in favor of a uniform and consistent approach to govern companies operating in the space, we view the draft proposal as negatively impacting the viability of mortgage risk transfer as a line of business and a potential impediment to building a healthy, sustainable market.

09/25/2017 06:57 PM

To "methodology.commentary@ambest.com"
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cc

Please see the ███████████ comment letter regarding the *Evaluating Mortgage Insurance* criteria document dated August 24, 2017.

September 25, 2017

A.M. Best Rating Services, Inc.
1 Ambest Road,
Oldwick, NJ 08858

Provided via email to: methodology.commentary@ambest.com

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██ We
are supportive of A.M. Best's efforts to incorporate mortgage insurance into its already established
Best's Credit Rating Methodology ("BCRM") framework and believe the creation of the $B5_m$ and $B6_m$
components is a prudent and thoughtful way to accomplish this objective.

Generally, we believe the most appropriate way to evaluate the financial strength of a mortgage
insurer is through a discounted future cash flow analysis in a stress scenario or set of stress
scenarios. Our understanding of the methodology and intent of the $B5_m$ and $B6_m$ components is
broadly aligned to this framework with the $B5_m$ component representing the stress discounted net
future cash flows of the mortgage insurance in force at the evaluation date and the $B6_m$ component
representing the stress discounted net future cash flows of new business to be written over the next
year, as proxied by the new insurance written over the prior year.

While we generally are supportive of the overall construction of the proposed framework for
evaluating the balance sheet strength of a mortgage insurer, we do have one significant comment on
the proposed framework as well as certain areas regarding ongoing model management where we
believe additional transparency would be beneficial to the final published mortgage insurance
evaluation methodology.

<u>Comment #1 – The Draft Criteria's proposed limitation of three years of premiums within the
discounted net cash flow calculations for the $B5_m$ and $B6_m$ components is inconsistent with the
terms and economic substance of our renewal premium policies.</u>

While we generally agree that discounted stress net cash flows are an appropriate evaluation
methodology, the proposed methodology excludes two significant sources of future cash flows: (1)
the cash inflow from premiums received in year four and beyond; and (2) the cash outflow
associated with operating expenses through the full evaluation period. ███████████████

████████████████████████████ While a more precise estimate is dependent on the make-up of
a mortgage insurers in force loans, premium rates and other factors, we estimate that the effective
haircut on monthly renewal premiums is approximately 50% in the AD&Co severe stress scenarios
that would be used to interpolate the 99.5% and 99.6% confidence levels. While this reduction in
future cash inflows is somewhat offset by not explicitly including future operating expenses, the
amount of future premium haircut in the Draft Criteria is significantly higher than the mortgage
insurance industry's historical expense ratio and effectively moves the stress test to beyond the
stated confidence levels.

In addition to the fundamental inconsistency with the actual future cash flows of mortgage insurance business, the approach in the Draft Criteria of limiting future premium to three years and omitting future operating expenses leads to certain inconsistencies and potential shortfalls that we believe are easily corrected.

- *Preferences single premium policies to monthly policies*: Under the Draft Criteria, non-refundable single premium policies would effectively be given 100% premium credit with no recognition of future expenses while renewal premium policies would receive only three years of premium credit, discounted to the evaluation date. This results in a lower relative capital requirement for single premium policies in the Draft Criteria, even though we believe AD&Co severe stress scenarios would reflect that single premium policies would be expected to perform worse relative to periodic premium policies (i.e. scenarios where voluntary prepayments are very low and insured loans persist for much longer than the expected average life).
- *Obscures any consideration of future operating expenses*: One potential rationale for limiting future premium is to implicitly reflect future operating expenses. We believe that there is value in the transparency provided by making assumptions explicit where possible and in this case, including all future premium as well as an explicit assumption for future operating expenses increases precision and transparency with no practical increase in computational complexity.
- *Does not reflect the dynamism of the AD&Co scenarios*: ███████████████████████ ████████████████ there is significant difference between the future renewal premium at the 50% confidence level compared to the future renewal premium at the 99.5% or 99.6% confidence levels. Limiting premium to three years serves to mute this difference coming from the AD&Co scenarios.
- *Potentially results in reinsurance impacts that are significantly inconsistent with the economic substance of the agreement*: The Draft Criteria would provide no net cash flow benefit to a reinsurance transaction with a ceding commission even though the ceding commission provided economic benefit to the mortgage insurer because the ceding commission is offset to an operating expense cash flow that is currently not being considered. Another example would be a reinsurance transaction that has significant ceded premium rate increases after year three, which under the Draft Criteria would be treated the same as a reinsurance transaction with a stable lifetime ceded premium rate.
- *Inconsistent with premium credit in the GSE Reinsurance Programs*: The Draft Criteria's treatment of future premium in the GSE Reinsurance Programs, giving premium credit over the full 10-year term of those agreements, is inconsistent with the three years of future premium allowed for mortgage insurers.

Recommended approach: Our recommended approach is to include future renewal premium and an explicit charge for operating expenses for any cash flow period being included in the analysis. Based on the Draft Criteria this would be 30 years. We recommend the estimate of future operating expenses for a mortgage insurers be determined by A.M. Best based on analysis of historical expense ratios for that mortgage insurer. Unearned premium reserves should be reduced by the same explicit future operating expense assumption before being included in available capital. We do not think that including taxes in the periodic net cash flows is necessary as the stress scenarios that are most relevant for evaluating balance sheet strength result in long-term operating losses and thus no cash taxes being paid.

Comment #2 – Regarding transparency for ongoing model management

The use of predictive modeling to assess capital adequacy for mortgage insurers presents some unique challenges relative to a more static grid-based alternative approach. Model builders continually strive to improve their models. This presents several challenges to manage over time. Some of the more important include how to assess and implement:

- Changes to the models' functional form or structure that result in the release of a new version
- Changes to parameters such as those in the HPI Localizer, transition tuning files or Rho used to calculate the Vasicek CDF
- Changes to the Vasicek scenarios themselves

Any one of the above could impact BCAR enough to change the rating of one or even all mortgage insurers. Specifying in the rule a minimum comment period of at least six months prior to any change in the AD&Co model that would materially change BCAR would be appropriate.

Relatedly, it will be important for A.M. Best to establish a process to communicate to rated companies the versions, setting, and parameterizations of all the components of the model that are being employed, provided that the companies have a license from the model provider to receive such information. This would remove the potential for confusion over which is the "official" version of these components.

Another consideration is the models' sensitivity to the initial conditions established by historical data. This may cause BCAR result to be volatile period over period just based on the most recent HPI print, for example. This is not necessarily a problem, but large, offsetting swings from quarter to quarter would be undesirable.

It should also be noted that AD&Co's twenty Vasicek scenarios and other default parameters were not developed with the objective of optimally representing the risk of a mortgage insurers book of business. We recommend a careful evaluation of this specification because reasonable alternatives show substantially different capital requirements.

In general the criteria appears to borrow heavily from criteria used for other P&C lines, but we feel this may not be the best starting point as the risks facing the MI industry are materially different from other lines.

In particular, because of the nature ███████████████ very little risk in ██ investment portfolio ██ is correlated with ██ liability risk. In fact many states prohibit Mortgage Guarantors from investing in risks like mortgages that are directly correlated with ██ liabilities. Also consider that only a small portion of ██ overall return is driven by investment returns (unlike other P&C lines of business). Thus, focusing on the correlation between investments and liabilities is a bit of a distraction in our opinion.

We feel the best framework to assess a Mortgage Guarantor is to use a sources and uses approach explicitly, by modeling out all the sources and uses of a Guarantor in detail. Since there are only 6 industry participants at this time, and by regulation █████ all monoline, the effort is not too extensive.

Modeling the sources and uses of each company explicitly would address some additional shortcomings of your approach that we see:

1. The disconnect between limited premium credit for monthlies versus full premium credit for UPR. While we appreciate the comment that monthly pay products may not generate a full lifetime of premium before regulatory action, the same can be said for UPR. Actual experience during the crisis ████████████████████████████████ shows that regulators viewed MIs in financial distress holistically – that is, when deciding whether to take regulatory action, they in fact did run sources and uses projections on these companies. Monthly premium and single premium products were treated equally. Limiting monthly premium credit for monthlies would create a disincentive to originating that product, as well as limit the penalty imposed on industry participants who might discount premiums on that product. In times of stress, well priced monthly premiums are a tremendous source of funds as witnessed by the actual experience of the three companies who failed during the crisis.

2. The expense load of an MI would be modeled directly in a sources and uses approach, versus ignored in your approach. ███████████████████████████████████████ Expenses in the MI industry are largely fixed, so an important consideration in assessing an MI is the extent to which the company has amortized those expenses.

3. The industry is increasingly reliant on reinsurance, which is best modeled explicitly, and can only be done in a sources and uses approach. ███████████████████████████
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4. "Time to failure", or the risk of regulatory action, is also best modeled explicitly through a sources and uses approach. Rather than assume monthly premium will be curtailed at an equal point in time for all firms, one could model more precisely the difference in when each firm is expected to fail (if at all).

Further, even under a sources and uses model, the reliance on a third party model seems a bit problematic. While the ADCO model may be a robust model that is used by many industry participants, it is a "black box" in that its outputs are unknown given any set of inputs. Our experience with other capital regimes is that stress scenarios are well defined in advance, and changed only periodically with a notice period given to the industry. Relying on a black box to generate stress scenarios runs the risk of creating a "whipsaw" effect where required capital varies greatly depending on the vagaries of the ADCO models. While using the models to inform stress scenarios is feasible, we feel a better approach would be to define stress scenarios explicitly.
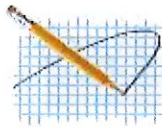
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09/26/2017 12:21 AM

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, Joe Monaghan
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Subject Aon Response to A.M. Best's Mortgage Criteria

1 attachment

Aon Response to A M Best Mortgage Criteria - September 2017.pdf

To whom it may concern,

Attached please find Aon's response to A.M. Best's Evaluating Mortgage Insurance Criteria dated August 24, 2017.

Please direct any questions to either Pat Matthews, Joe Monaghan, or Ben Walker. Our contact information is included on the final page of the attached.

Thank you,

Ben

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Response to A.M. Best's Evaluating Mortgage Insurance Criteria

September 25, 2017

AON

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Introduction

Aon Benfield would like to thank A.M. Best for the opportunity to respond to your second DRAFT criteria paper on Evaluating Mortgage Insurance. Many important changes have been made in the second iteration of the criteria paper and A.M. Best should be recognized for their considerable efforts and for considering and amending their approach based on the constructive feedback provided to date by all interested parties.

Aon Benfield has worked with mortgage insurers in the United States for over 20 years designing capital solutions that work under multiple regulatory and rating agency capital frameworks.

More recently, Aon Benfield has been an advisor and reinsurance broker for the GSEs in the CRT space and has helped place over 90% of the almost $12.5B of CRT insurance limit purchased to date. Having worked closely with the GSEs and insurers to build the marketplace that currently supports the CRT space, we understand the importance of clarity in required capital treatment for this class of risk and applaud A.M. Best for their efforts to clarify capital treatment for GSE CRT transactions within the Stochastic BCAR framework.

We believe there are several key areas that A.M. Best should further evaluate or provide additional clarity on in subsequent iterations of the mortgage criteria. Our main observations and recommendations are summarized below, separated by overall comments, comments on the primary mortgage insurance criteria, and comments on the GSE CRT and other mortgage reinsurance transactions criteria.

Overall Comments

1) A.M. Best's capital framework for mortgage risk appears to be heavily reliant on AD&Co's LoanKinetics modeling suite, including their view of future macroeconomics. We believe that A.M. Best should be open to alternative views of mortgage default risk and should be prepared in advance, preferably with documented procedures, to navigate inevitable future changes in the LoanKinetics framework.

Primary Mortgage Insurance Criteria Comments

1) Black box capital frameworks are challenging for rated entities to work under as it can be difficult to predict how their business decisions will affect their modeled net required capital. A.M. Best should strive to bring as much transparency to the modeling and the rating process as possible to offset some of the challenges of using a model that not all rated entities will license.

2) The "Balance Sheet Strength" portion of the criteria should be re-organized to sequentially address how the various elements of the net required capital formula for mortgage insurers will be evaluated as well as how adjusted surplus will be calculated. Ideally these descriptions should be supported by numerical illustrations.

3) A capital framework should strive to account for all potential future cash flows that affect mortgage insurer solvency. When a capital framework does not reflect true economics, it can create incentives for behaviors that are not fully aligned with pure rational economic decision making. A.M. Best should critically evaluate whether there are unintended behaviors that selective treatment of future cash flows may encourage.

4) By placing in-force business into B5 (reserve risk) and a year's prospective business into B6 (premium risk) in the proposed NRC formula, A.M. Best appears to be granting diversification benefit to a much larger extent than will likely exist in practice. A prospective year of business should be highly correlated with the in-force business and that correlation would be captured in the AD&Co credit loss modeling framework.

GSE CRT and Other Mortgage Reinsurance Transaction Criteria Comments

1) The criteria should clarify where the risk charge associated with in force GSE CRT and other mortgage reinsurance transactions will end up in the net required capital formula.

2) The criteria should clarify how the B5 and B6 charges for mortgage risk will be combined with the overall B5 and B6 charges for non-mortgage risk in the net required capital formula.

3) A.M. Best should promote transparency in their treatment of the GSE CRT transactions by publishing an annual list of capital charges by transaction and layer so that all current and prospective market participants can have certainty in understanding A.M. Best's capital requirements for these transactions.

Overall Comment #1: Reliance on AD&Co LoanKinetics Framework

As with all complex risks, the estimation of downside risk in tail scenarios is part science and part a form of art. In the case of natural catastrophes, insurers often employ multiple models and make proprietary adjustments to estimate their risk of loss and the company's own view of tail risk is used as an input to A.M. Best's BCAR score.

Insurers have invested time and resources into estimating and evaluating their downside risk for GSE CRT transactions. Mortgage insurers have done the same for their own business. Not all models will align exactly with the results from the AD&Co model, but there is value in well thought out analysis using either models or adjusted historical data as another input into the rating process.

Consistent with the approach to catastrophe risk analysis, we believe that, if requested, A.M. Best should consider management's view of capital need as an additional input into the process of determining an insurer's GSE CRT required capital. Not all insurers will want or need to discuss their management view with A.M. Best but for those with material exposures it is worthwhile to consider their own estimates of downside risk in addition to A.M. Best's model view.

In addition to considering alternative model views in certain circumstances, we also believe that A.M. Best should prepare themselves for, and ideally document, how they plan to evaluate and incorporate future changes to LoanKinetics in the overall ratings framework. Vendor models are updated frequently and without a strategy for incorporation A.M. Best may find that their rating framework is subject to material volatility in model estimates, especially in the tail of the credit distribution.

Primary MI Comment #1: Black Box Capital Framework

Black box capital frameworks are challenging for rated entities to work under as it can be difficult to predict how their business decisions will affect their modeled net required capital. Our assumption is that many of the mortgage insurers that may be rated do not license the AD&Co model for their own business purposes and therefore won't know exactly how their portfolio will model under A.M. Best's proposed approach.

We believe it might benefit all parties if A.M. Best would be willing to run the mortgage insurer capital adequacy calculation off cycle if requested by the entities that they rate. This will hopefully allow the rated entities gradually build an understanding of the model's behavior and will help to avoid end of year rating surprises.

Aon Benfield

Primary MI Comment #2: Clarity of Criteria's Intended Mechanics

We recommend the "Balance Sheet Strength" section be re-organized into clear sections such as reserve risk, premium risk and surplus adjustments to provide greater clarity of each component and the calculations behind them. As currently written, the B5 and B6 charges are described in several different places in a manner in which the BCAR impact is up to interpretation.

For example, page 6 describes the B5 charge and makes no mention of premium credit. On the same page the B6 charge is discussed as having a three-year premium credit. Page 9 states that "cash flows reflect three years of projected future premium" which seems to apply to both B5 and B6. Spreading these comments across multiple pages and sections can lead to confusion on the reader's part.

This section of the criteria would benefit from formulas specifying the calculations explicitly as well as numerical examples to solidify the intended results. An example of the BCAR summary would also be helpful to illustrate the various components of net required capital and adjusted surplus.

Primary MI Comment #3: Selective Treatment of Future Cash Flows

A.M. Best's estimation of B5 and B6 risk appear to be an approximation of a sources and uses of capital framework. However, by selectively giving credit for cash flows, A.M. Best runs the risk of creating unintended incentives within their framework. Below are just a few possible examples:

Pricing Adequacy of Business: To the extent that future premium credit is limited, there will be a muted capital differential between business priced to different levels of adequacy.

Non-refundable Single Premium Policies vs. Monthly Premium Policies: By giving full premium credit to unearned premium reserves on non-refundable policies A.M. Best is effectively charging different capital on one type of policy and may make those types of policies more attractive than the other.

Capital Benefit from Reinsurance: By ignoring gross premium beyond 3 years, it is assumed that A.M. Best will ignore ceded premiums beyond 3 years as well. This would benefit structures with low minimum rates early in a transaction and back loaded premiums in year 4 and beyond. This type of reinsurance may or may not be the optimal risk transfer structure from a pure economic perspective but it will look attractive from a ceded cost of BCAR capital perspective. Other reinsurance cash flows such as ceding commission don't appear to have a place in the framework and thus are ignored despite their benefit as an offset to future expenses.

Primary MI Comment #4: Diversification between B5 and B6

By placing in-force business into B5 (reserve risk) and a year's prospective business into B6 (premium risk) in the proposed NRC formula, A.M. Best appears to be granting diversification benefit to a much larger extent than will likely exist in practice. A prospective year of business should be highly correlated with the in-force business and that correlation would be captured in the AD&Co credit loss modeling framework.

GSE CRT Comment #1: Geography of GSE CRT Risk Charge

After our careful reading of the GSE CRT criteria section, it was unclear which risk bucket(s) the GSE CRT and other mortgage reinsurance transactions would be part of. Our impression is that all charges for both front-end and back-end transactions will go into B5 reserve risk with no exposure being placed in B6, but we would like clarification in the criteria.

Aon Benfield

GSE CRT Comment #2: Incorporation of Mortgage with non-Mortgage Capital

Page 23 states that A.M. Best assumes correlation of 10% between mortgage Net Loss and Loss Adjustment Expense Reserves Risk ($B5_m$) and non-life reserves risk associated with other lines of business.

Our interpretation is that there will be an overall B5 charge which will incorporate both the mortgage reserve risk charge ($B5_M$) and all other property & casualty lines reserve risk charge (which we'll call $B5_{P\&C}$) and that they will combine as follows:

$$B5_{Overall} = \sqrt{B5_M{}^2 + B5_{P\&C}{}^2 + 2*0.1* B5_M * B5_{P\&C}}$$

Assuming this interpretation is correct A.M. Best should specify this formula in the criteria.

GSE CRT Comment #3: Transparency in Capital Factors

We suggest that A.M. Best take an additional step to promote transparency in the factor-based rating approach by publishing a list of their estimated capital charges by layer and transaction. This will give greater certainty to insurers that have not yet participated as to how the charges for this class of risk might work before they start participating in the program. This will also allow other market observers to clearly understand how A.M. Best capital for these transactions will work.

Additional Comments and Questions

1) On page 9, A.M. Best makes its only reference to reinsurance for mortgage insurers by stating that "the discounted cumulative cash flows of the loan portfolio include the impact of reinsurance". Often these reinsurance treaties or Insurance Linked Notes can be very complicated to model in full detail. How does A.M. Best propose to handle this process? What will the information / data request look like?

2) How will A.M. Best handle premium credit on non-refundable policies in the B6 charge?

3) How often does A.M. Best intend to update the factors used to outline the GSE CRT capital requirements?

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September 29, 2017

A.M. Best and Company
1 Ambest Road
Oldwick, NJ 08858

We again applaud Best's efforts in designing a robust, countercyclical capital model grounded on observed historical data and leveraging ADCo's modelling framework. Bests' revised August criteria addressed many of the issues we raised in our comments on the March version. For example, we appreciated the significant amount of detail contained in the appendix of the August Version as well as the examples that illustrated the estimate of capital required for mortgage credit risk into an insurance group's Best Capital Adequacy Ratio (BCAR).

Below we summarize our observations on Best's revised criteria:

1) US Mortgage Insurance

    i.   Best's proposed criteria is highly reliant on ADCo,'s credit and macroeconomic models. In our view, this has several critical shortcomings:
- Transparency is integral to a robust capital framework. We believe it is primarily for this reason, that all other regulators/rating agencies in this space have published factor grids – similar to Best's proposal for GSE CRT exposures. In Best's proposed criteria it is unclear what capital charges will be applied to primary MI companies. Companies should have the ability to reliably calculate current capital needs and forecast likely future needs without licensing a third party vendor they may not already be using.

    ii.   We strongly encourage Best to publish capital "grids" for US Mortgage Insurance criteria.
- These grids can be informed by the ADCo modelling framework and other historical data – in a similar fashion to how best have formulated tables proposed for use in GSE CRT portfolios.
  - o The default frequency on HLTV GSE CRT deals on MI risk is the same. We believe that the SUL factors should be similar for this risk, controlling for the differences in stress severity profile.
- We believe that the grids should be fixed for a period of time. We acknowledge Best's desire for the capital charges to be dynamic based on the macro-economic environment. We therefore advocate that the grids should be revisited the earlier of every two years or when housing values deviate from fundamental values by a pre-determined percentage that Best views as appropriate.

    iii.   In our experience, the calculation of ceded capital is extremely important and deserves significant attention during the process of calculating capital needs.
- Capital can be ceded in the form of simple reinsurance quota-shares or more complex, highly structured capital markets transactions ████████████████████
- Relying on output from the ADCo model to project premiums and losses would require running each

population of loans under ceded reinsurance transactions through the ADCo model and further modeling of the output collateral cash-flows to arrive at ceded transaction cashflows. We believe using tables instead of the ADCo model to calculate gross cash flows will simplify the process significantly. Then, more time can be spent evaluating the key considerations of the ceded transactions – in particular, the timing of the stress loss relative to the run-down of the capital ceded.

iv. We recognize Best's concerns in restricting credit for future premium to three years. We believe a better alternative to this would be to limit it to a percentage of modelled future premium (although one could argue this is already picked up in ADCo's "Prepay" factor in Exhibit 2). This would prevent any unintended behaviors – i.e. promotion of reinsurance structures where premium is ceded in year 4+.

- We have concerns that the ADCo model may be underestimating premium income from primary MI policies. Premiums are a key claims paying resource for mortgage insurers in a stress scenario. ████

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v. The criteria discuss primarily loss and premium flows. Best should provide further clarity on the following:

- Best should clarify if "premium" is earned or received and "loss" is incurred or paid. In this context, Best should clarify the treatment of loss reserves and UPR in the available capital calculation.
- Many other "Sources and Uses" capital models include other "run-off" cashflows including expenses and investment income. Best should clarify the treatment of these items in its model.
- ████████████████ we understand that there is currently no benefit given from recoveries of tax payments. We believe the model should give credit for these flows as they are expected to be recovered during periods of stress, as was demonstrated by MI participants during the last crisis – this is particularly true for diversified multi line companies like Arch.

2) *GSE CRT*

i. We expressed concern that the proposal in the March Version to use a factor based approach to determine capital requirements for reinsurers with modest exposures related to the GSEs' Credit Risk Transfer (CRT) program could unfairly disadvantage more active participants in the CRT program. The March Version created the potential for two companies to receive different capital requirements for identical positions in the same CRT transaction. We support your decision to apply the factor based approach to all CRT exposures.

ii. We support your decision to create separate charges within BCAR for risks related to loss reserves and premiums from MI. Mortgage and P&C risks are independent. Furthermore, we believe the March Version would have resulted in lower marginal capital requirements for CRT transactions for insurance groups where premium risk represented a smaller portion of Net Required Capital within the BCAR calculation. We acknowledge that a sharp decline in home prices would likely have a negative impact on fixed income securities and equities; therefore, the covariance terms introduced in the August version seem appropriate.

a. The reference, on page 23, of a 10% covariance of P&C and MI reserve risk does not appear in the calculation of Net Required Capital on page 5 – Best should clarify the treatment of MI reserve risk.

b. There is no discussion on capital charges for future business in the GSE CRT section but there is in the MI section. What is Best's rationale for including new business in MI but not GSE CRT?

iii. On page 13, the description of how Best arrived at the factors references the 2007 experience but does not

reference the ADCo model. Best should clarify how the charges were evaluated for the different confidence intervals.

iv. We believe Best could take a further step in the spirit of transparency by annually publishing its calculation of capital needs for each transaction/tranche.

v. In our opinion, the SUL rates in the August Version are more appropriate than the March Version.

    a. It is unclear whether the SUL rates in the matrix for mortgages with terms less or equal to 20 years reflect the benefit of primary MI.

        i. For mortgages with a term greater than 20 years and an LTV between 85% and 90%, SUL rates in the August Version are generally lower than SUL rates in the March version. We believe this reduction in SUL rates reflects the recognition of the benefit of primary MI. We do not see a similar reduction in the August Version for SUL rates for mortgages with a term less than or equal to 20 years.

    b. We compared Freddie Mac's losses after MI recoveries on the 2007 vintage with the SUL rates in Exhibit E.1 of the March Version and Exhibit C.3 (99% confidence level) of the August Version.

	All Mortgages	LTV 70% - 85%
Freddie Mac Losses / Unpaid Balance (UPB)	3.94%	4.67%
August Version SUL Rates	4.18%	5.02%
March Version SUL Rates	4.32%	4.97%

    c. We recommend lowering the SUL rates for mortgages with LTVs between 70% and 85%. This change would make the SUL rates at the 99% confidence level more consistent with Freddie Mac's actual experience on the 2007 vintage.

    d. We support with your decision to divide mortgages with LTVs greater than 90% into three groups for purposes of estimating SUL rates.

We appreciate the time and effort you have devoted to developing thoughtful, comprehensive criteria for evaluating mortgage insurers. We are available at your convenience to discuss our observations.

Sincerely,

01/05/2018 11:20 AM

To "methodology.commentary@ambest.com" <methodology.commentary@ambest.com>

cc

Subject

Summary:

We appreciate A.M. Best's continued development and willingness to respond to comments. The comments in below deals solely with the GSE Reinsurance treatment.

Our comments are broken down into 3 sections:

1.   The use of additional underwriting characteristics beyond LTV and FICO at the onset of transactions

    o   Specifically the use of Cashout, DTI, Investor and Lender Paid Mortgage Insurance multipliers and a re-estimation of the LTV / FICO grid.

2.   Enhancement of the seasoning factors to capture changes in home prices and delinquencies

    o   The use of bifurcated seasoning factors to differentiate between performing and non-performing loans.

    o   Inclusion of the updated LTV if provided by the GSE and if not provided then the use of PMIERs seasoning factors.

3.   Minor Clarifications

1. Underwriting Details:

The current framework captures the two major risk categories (FICO/LTV) well. However, it does not take into account additional major drivers of risk such as: Purpose of the mortgage, Occupancy, Debt-to-Income, and Mortgage Insurance Type.

We therefore propose that the framework include similar multipliers for these risk categories as done in the PMIERs framework. The multipliers for Lender Paid Mortgage Insurance (LPMI) are the inverse of the multipliers listed in the PMIERs document. This is because LPMI is non-cancellable and therefore poses a greater risk to Mortgage Insurers, but reinsurers in the GSE transactions would benefit from this increased protection.

Characteristic	Multiplier
Cashout Refinance	1.500
DTI > 50%	1.750
Investor Mortgage	1.750
Lender Paid MI with OLTV > 90%	0.909
Lender Paid MI with OLTV <= 90%	0.741

Using these multipliers would necessitate that the Stress Underwriting Loss (SUL) be calculated at the loan level, similar to the PMIERs framework.

Below are three examples for mortgages with different characteristics (all fixed-30 year loans)

Mortgage Characteristics	Balance	FICO Group	LTV Group	Cashout	DTI >50%	Investor	LPMI	Unadjusted SUL (99%)
Mortgage #1	$ 235,000	740-780	90-95	No	No	No	No	3.53%
Mortgage #2	$ 225,000	780+	80-85	Yes	No	No	No	2.54%
Mortgage #3	$ 176,000	740-780	85-90	No	No	No	Yes	3.73%

The unadjusted SUL is the current lookup value from the FICO / LTV Matrix (as seen in the table below)

SUL VaR 99	<620	[620-660)	[660-700)	[700-740)	[740-780)	>=780
<=60	4.48%	2.62%	1.52%	0.96%	0.50%	0.24%
(60-65]	6.44%	4.94%	3.25%	2.21%	1.12%	0.48%
(65-70]	8.00%	6.70%	4.71%	3.39%	1.87%	0.87%
(70-75]	9.29%	8.06%	5.96%	4.52%	2.71%	1.39%
(75-80]	10.44%	9.18%	7.06%	5.59%	3.63%	2.06%
(80-85]	10.14%	9.04%	7.16%	5.89%	4.10%	2.54%
(85-90]	8.36%	7.56%	6.04%	5.10%	3.73%	2.49%
(90-95]	7.77%	7.07%	5.49%	4.67%	3.53%	2.51%
(95-97]	9.40%	8.85%	6.65%	5.77%	4.53%	3.51%
97+	12.47%	11.93%	8.28%	6.96%	5.37%	4.37%

The below table shows the multipliers each loan would have. The total multiplier is the product of all individual multipliers.

Multipliers	Cashout	DTI	Investor	LPMI	Total Multiplier	Adjusted SUL (99%)
Mortgage #1	1	1	1	1	1	3.53%
Mortgage #2	1.5	1	1	1	1.5	3.81%
Mortgage #3	1	1	1	0.741	0.741	2.76%

Below are the Unadjusted SUL and Adjusted SULs for the 3 loan portfolio and two actual ACIS portfolios. The change in SUL on high LTV pools would be muted due to the offsetting effect of the LPMI multiplier. However, the below 80 LTV transaction see a sharp increase due to no offsetting multipliers. A re-estimation of the FICO / LTV group will be required.

	Unadjusted SUL (99%)	Adjusted SUL (99%)
3 Loan Portfolio	3.24%	3.42%
ACIS 2015-10	4.00%	3.88%
ACIS 2017-7	3.44%	4.19%

We believe the re-estimation would be a worthwhile endeavor as this framework would capture differences in portfolios that have much higher cashout/investor ratios than other pools. Additionally it would capture a stacking of risk-factors that is currently not observed in the market, such as cashout investor loans.

2. Seasoning Factors:

The current proposed seasoning factors (seen in the table below) seems designed to assume a negative home prices development since origination, combined with loans advancing into delinquency.

Seasoning Vectors		
Year	maturity > 20	Maturity <=20
0	100%	100%
1	105%	108%
2	109%	115%
3	108%	110%
4	102%	95%
5	94%	78%
6	86%	62%
7	78%	48%
8	70%	36%
9	62%	27%
10	55%	21%
11	48%	15%

However, portfolios originated since 2012 have experienced significant home price appreciation and very limited delinquencies leading to much lower risk than the seasoning vectors project. We therefore

propose an alternative method to calculate the seasoning effect. The method is bifurcated for performing (current) and non-performing (delinquent) loans.

Performing Loans

- If the loan is less than 1 year old (since origination, not deal inception) then the factor is 100%
- If the loan is more than 1 year old
  1. and the GSE provides updated LTVs then use the updated LTV in the FICO/LTV Matrix
     - This is the preferred method as it would allow for both positive/negative adjustments depending on the home price development.
  2. If updated LTVs are not provided then use the PMIERs seasoning factors (in the table below)

Seasoning Weights for Loans Aged 25 Months or More

Loan Age[1]	Weight
25 through 36 months	88%
More than 36 months through 48 months	81%
More than 48 months through 60 months	78%
More than 60 months	73%

[1] Loan Age is calculated as the number of whole months between the origination date and the reporting date. [1]

Home Prices are a major driver of performance as a positive home price environment allows for foreclosure alternatives (without loss) and lower severities in case of losses. The chart below shows the total default by vintage. 2004 and 2005 experienced approximately 1/3 and 2/3 of the total defaults, respectively compared to 2006/2007. The underlying portfolios were not materially different, but the home price appreciation experienced prior to the downturn was.
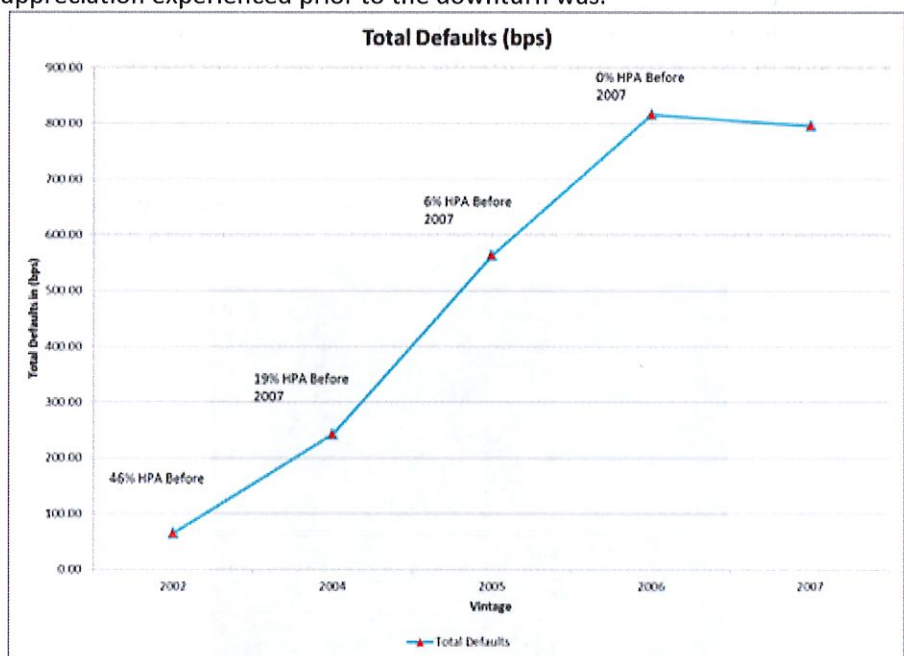
The GSE Reinsurance deals issued in and before 2015 have currently experienced an estimated 20+% increase in home prices. This would align them with the 2004 vintage and imply that their ultimate stress loss should be about 1/3 of the originally projected stress loss. These transactions would currently

receive a seasoning factor ranging from 102-109%, which is extremely punitive and not supported by historical data.

The GSE's updated view of LTV serves as a very reliable proxy for the current value as the GSE's would not have an incentive to overinflate the home price increase, since it is in their best interest insurers/reinsurers keep adequate capital for the risk.

The PMIERs framework was designed for Primary Mortgage Insurers and the seasoning factors primarily accounts for only lower incidents of defaults, but not any improvements in severity since Mortgage Insurers generally pay 100% of the Risk-In-Force when a claim is filed. However, for the GSE reinsurance deal there could also be improvements in severity. Therefore the PMIERs seasoning factors are a conservative estimate of the improvement in performance due to seasoning.

Non-Performing Loans
Currently non-performing loans do not receive any special treatment, as it is captured in the seasoning factors. However, we believe it is better to explicitly calculate stress loses for non-performing loans. This removes the necessity to make assumptions about the level of delinquencies in the seasoning factors. We propose a simple lookup table based on the loans delinquency status and historical stress severities:

Status	Probability of Default (%)	Severity (%)	SUL (%)
Modified-Current	20%	35%	7.0%
D30	25%	35%	8.8%
D60	40%	35%	14.0%
D90	55%	35%	19.3%
D120	70%	35%	24.5%
D150	85%	35%	29.8%
D180+	100%	35%	35.0%

The average severity during the financial crisis ranged from 30-40% depending on the LTV level of the deal. In the table above we use the midpoint of those observed values.

Bifurcating the treatment removes an unintended consequence in the current framework, in which an a portfolio of all delinquent loans would have the same capital requirement as a portfolio of all performing loans, even though the loss expectations would be very different for the two.

3. Minor Clarifications
Amortization Factor for Premium:
    Based on the example on page 45 of the proposal the initial premium credit starts by using 97.73% as the factor for the first year. Would 100% ever be used? When a deal is brand new one would expect full premium credit.
Deal/Loan Age:
    Currently, the deal age is calculated based on the formation of the reference pool. There can be significant time between origination and formation plus additional time until inception of the deal. We therefore propose a treatment based on time since loan origination, where the age of the deal is the UPB weighted average loan age.

[1] Source: http://www.freddiemac.com/singlefamily/pdf/PMIERs.pdf
[2] Based on Freddie Mac's Single Family Loan Level Data Set (LTV 60-80, FICO >600, DTI <50, No HARP)

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01/08/2018 06:46 PM

Please see the attachment ███████████████ regarding the *Evaluating Mortgage Insurance* criteria document dated December 1, 2017.

Thank you for your consideration and please let us know if you have any questions or would like to discuss anything from our comment letter.

[REDACTED]

Re: Comments on *Evaluating Mortgage Insurance* dated December 1, 2017

[REDACTED]

In several respects the revised Draft Criteria represents a step towards a more comprehensive and robust capital framework. Specifically, the inclusion of future renewal premium for all periods where cash flows are evaluated and the explicit inclusion of future operating expenses, which also applies to unearned premium reserves. Additionally, the expanded discussion regarding the treatment of reinsurance in the assessment of periodic cash flows provides much more clarity in how reinsurance will be reflected in the proposed framework.

While we remain supportive of the overall construction of the proposed framework for evaluating the balance sheet strength of a mortgage insurer, we do have comments on certain components of the revised framework that were not in the prior iteration and would like to reemphasize our prior points regarding ongoing model management where we believe additional transparency would be beneficial to the final published mortgage insurance evaluation methodology.

<u>Comment #1 – The Draft Criteria's proposed specification and location of $B5_{fm}$ results in onerous capital requirements that are not consistent with the standards set for other P&C insurers.</u>

The revised Draft Criteria moves the capital charge associated with future business from B6 to a new $B5_{fm}$. The new $B5_{fm}$ is added to $B5_{cm}$ and contributes dollar for dollar to the overall B5 for a mortgage insurer (assuming a $B5_{nm}$ of zero). We viewed the prior approach of including future business within the B6 component as a thoughtful way to create what functioned as a risk-based growth charge where if the most recent vintage was outsized either in terms of volume or risk relative to the existing book, it would require disproportionally more capital in the Net Required Capital computation (for a mortgage insurer where B5 is likely to be large relative to other components, as B6 moves towards B5 in dollar terms, the total required capital rises at a rising rate). This methodology served as an MI-specific, risk-based counterpart to traditional P&C premium growth charges in the standard formula.

Although the performance of a vintage is correlated to adjacent vintages, the proposed approach of simply adding another year to the current in force mortgage insurance is overly punitive to companies where the in force book is not growing rapidly. Simply adding the capital charge associated with the next 12 months of new business to the existing in force business does not

reflect the fact that even in the most severe stress scenarios, loans that exist at the evaluation date will run-off as new loans are added such that the simple sum of the current business and some measure of future business will never be realized. As a numerical illustration, suppose a mortgage insurer had $40 billion of risk in force at the evaluation date and had written coverage on $10 billion of that risk in force in the most recent 12 months. Under the proposed methodology as we understand it, a mortgage insurer would be required to hold capital for the equivalent of $50 billion of risk in force even though at no point would the mortgage insurer ever have $50 billion of risk in force. Said another way, if the goal of the framework is to forecast the capital needs of new business into the future, the framework must also recognize the cancellation of existing loans during the forecast period and the unlocking of the capital associated with those loans.

In addition to overall comment above, there are several other reasons the proposed specification of B5$_{fm}$ is overly punitive and should be reevaluated.

- *Does not recognize any temporal diversification across book years* - Under the Draft Criteria, the B5$_{fm}$ would have the same capital charge as the most recent 12 months of new insurance written. The underlying assumption is that all business written in the next 12 months will experience the same home price path and interest rate environment as the business from the prior 12 months experiences from the evaluation date. In a severe stress scenario, business written after the start of that severe stress does not experience the full home price depreciation or interest rate environment changes but only a truncated portion of the stress. This may not be meaningful for insurance written in January, but it is certainly material for insurance written in the second half of a year, or more than 6 months after the severe stress has started. This will reduce expected losses on future business relative to the expected losses on in force business.
- *Assumes the same volume of new business writings even in a severe stress environment* – By using the prior 12 months as proxy for the next 12 months, the underlying assumption is that the same volume of business will be written the following year even though it is also assumed that a severe stress begins at the start of that year. ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ in periods of severe stress, overall mortgage originations decline and government mortgage insurance programs gain market share with both factors serving to reduce the potential market for mortgage insurers. Other macroeconomic stress forecasts such as those from Moody's Economy.com also show mortgage originations down meaningfully in a severe stress scenario. The effect of the Draft Criteria as currently specified is to require capital for more than 12 months of future insurance writings as a mortgage insurance company would not be able to write an amount of business equal to its prior 12 months over the next 12 months in a severe stress environment due to aggregate market volume constraints.
- *Lack of clarification on growth factor* – The revised Draft Criteria refers to a Growth Factor based on an increase in exposure generically. It is not clear how exposure is intended to be represented (NIW, risk in force, stress losses, capital required, etc.). For a company that requires a growth factor, that factor is then multiplied by the modeled cash flows, which are already overly punitive owing to the points above, to compute B5$_{fm}$ which exacerbates the punitive specification of the Draft Criteria.

Comment #2 – The Draft Criteria's inclusion of a 'premium uncertainty' factor does not reflect the terms of our renewal premium policies.

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<u>Comment #3 – The proposed 25% expense ratio is a useful starting point for the mortgage insurance industry but the framework should allow for refinement based on individual company circumstances.</u>

We are supportive of the explicit inclusion of future operating expenses via the introduction of expense offsets to future premium. We are also supportive of applying the same charge to non-refundable unearned premium reserves. While 25% may be a useful baseline for industry purposes, the criteria could be enhanced to allow discretion to deviate from the baseline expense ratio if the circumstances warrant, both in the case of a company that has not demonstrated an ability to achieve a 25% expense ratio or a company that has consistently demonstrated an ability to operate meaningfully below the 25% baseline expense ratio. In both cases the evaluation of capital adequacy would benefit from the flexibility to apply an alternative expense ratio.

<u>Comment #4 – Reiterating our prior comments regarding transparency for ongoing model management</u>

Specifically, we look forward to additional transparency in how A.M. Best will handle AD&Co model updates and the publishing of the appropriate AD&Co model, version, and parameter set to use when computing Net Discounted Loss within B5.

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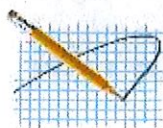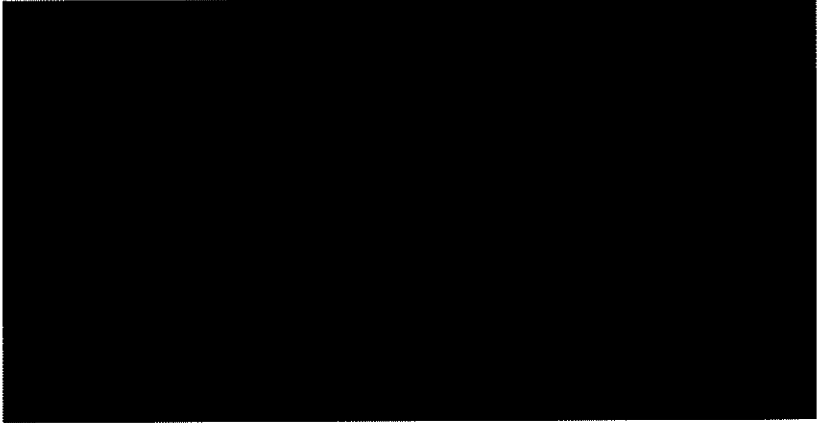
To "methodology.commentary@ambest.com"
<methodology.commentary@ambest.com>

cc

Subject

We appreciate the opportunity to comment on the criteria and would be happy to discuss our comments.

Dear Sirs:

Re: Credit Risk Methodology for Mortgage Insurance (MI)

We again applaud Best's efforts in designing a robust, countercyclical capital model grounded on observed historical data and leveraging Andrew Davidson & Co's Loan Kinetics software. We believe the December Version represents a solid foundation for both evaluating primary mortgage insurers' claims paying ability and determining capital requirements for mortgage credit risk assumed by reinsurers. We have two recommendations that we would like you to consider incorporating in the final version of the criteria.

A. Improve Transparency for Capital Charges for Primary U.S. Mortgage Insurance (MI)

Best's proposed criteria is highly reliant on Loan Kinetics. In our view, this has several critical shortcomings. Transparency is integral to a robust capital framework. We believe it is primarily for this reason, that all other regulators/rating agencies in this space have published factor grids – similar to Best's proposal for GSE CRT exposures. In Best's proposed criteria it is unclear what capital charges will be applied to primary MI companies. Companies should have the ability to reliably calculate current capital needs and forecast likely future needs without licensing a third party vendor they may not already be using.

We strongly encourage Best to publish capital requirement "grids" for primary US MI. These grids can be informed by Loan Kinetics and other data – in a similar fashion to how Best has formulated tables proposed for assessing GSE CRT portfolios. Best can leverage the grids it published for GSE CRT deals to develop grids for primary MI. High LTV GSE CRT deals reference the same or similar loans as the mortgages insured during the deals origination period. Therefore, it is reasonable to assume that

the default frequency for High LTV GSE CRT deals should be very similar to the default frequency for a pool of insured loans that were originated during the same time period.

Risk transferred by mortgage insurers to reinsurers and the capital markets is an important claims paying resource and should be incorporated into Best Capital Adequacy Ratio (BCAR). Estimating the benefit of these risk transfers is difficult under the current system, which involves requesting loan level data from mortgage insurers, processing the data in Loan Kinetics and providing summarized output to mortgage insurers.

If Best decide against this approach then we suggest Best should significantly increase the modelled output provided to companies. At a minimum we suggest the provision of the following:

- Modelled future stress loss and premium <u>by underwriting year</u> gross of reinsurance

- Modelled future stress loss and premium ceded for <u>each separate reinsurance transaction.</u>

B. <u>Create a Level Playing Field for Property & Casualty Reinsurers</u>

Throughout the development of your criteria for MI, we have emphasized the need to create a level playing field among all (re)insurers regardless of the level of their participation in GSE CRT transactions or the distribution of their premiums from lines of business other than MI. We think the December Version, like its predecessors, would likely result in greater marginal capital requirements for companies that primarily (re)insure casualty risks. Your criteria includes the capital charge for MI in the loss reserve risk factor (B5).

Since there is no data or a priori reasoning to support correlation between MI and either P&C loss reserve risk or P&C premium risk, we recommend creating a separate risk charge for MI, which we've labeled, "B9" in the below formula. We studied 20 years of statutory data by line of business. Our analysis of calendar year loss ratios showed that the correlation between MI and P&C was -11%. Furthermore, we examined loss ratios by line of business and determined that only credit insurance and financial guaranty exhibited material correlation with MI. We propose using the below formula for BCAR because it ensures that all P&C companies will have the same marginal capital requirement for a given B9 charge.

$$(B1^2 + B2^2 + B3^2 + (B1n + B2n) * B9 + (0.5B4)^2 + (0.5B4 + B5)^2 + B6^2 + B8^2 + B9^2)^{\wedge}0.5 + B7$$

We appreciate the time and effort you have devoted to developing thoughtful, comprehensive criteria for evaluating mortgage insurers. We are available at your convenience to discuss our observations.

Aon Benfield

Response to A.M. Best's Evaluating Mortgage Insurance Criteria

January 8, 2018

AON
Empower Results®

Aon Benfield

Introduction

Aon Benfield would like to thank A.M. Best for the opportunity to respond to your third DRAFT criteria paper on Evaluating Mortgage Insurance. Many important changes have been made since the second iteration of the criteria paper and A.M. Best should be recognized for their considerable efforts and for considering and amending their approach based on the constructive feedback provided to date by all interested parties.

Aon Benfield has worked with mortgage insurers in the United States for over 20 years designing capital solutions that work under multiple regulatory and rating agency capital frameworks.

More recently, Aon Benfield has been an advisor and reinsurance broker for the GSEs in the CRT space and has helped place almost 90% of the over $13.5B of CRT insurance limit purchased to date. Having worked closely with the GSEs and insurers to build the marketplace that currently supports the CRT space, we understand the importance of clarity in required capital treatment for this class of risk and applaud A.M. Best for their efforts to clarify capital treatment for GSE CRT transactions within the Stochastic BCAR framework.

We believe there are several key areas that A.M. Best should further evaluate or provide additional clarity on in subsequent iterations of the mortgage criteria. Our main observations and recommendations are summarized concisely below. We would be glad to follow up in more detail with A.M. Best on any of these items if desired.

Overall Comments

1) A.M. Best's capital framework for mortgage risk appears to be heavily reliant on AD&Co's LoanKinetics modeling suite, including their view of future macroeconomics. We believe that A.M. Best should be open to alternative views of mortgage default risk if provided by rated entity management and should be prepared in advance, preferably with documented procedures, to navigate inevitable future changes in the LoanKinetics framework.

2) As is currently stands, it is difficult for reviewers of the criteria to understand how A.M. Best has implemented AD&Co's framework for determining cashflows at specific stressed percentiles of the loss distribution. The parameterization of this distribution is perhaps the most sensitive assumption affecting both mortgage insurer and GSE CRT required capital. Additional disclosure regarding how A.M. Best has parameterized the Vasicek distribution would improve the transparency of the criteria.

Primary Mortgage Insurance Criteria Comments

1) The A.M. Best rating analyst should have the discretion to adjust the 25% reduction in Periodic Premium Credit and unearned premium reserves associated with non-refundable single premium if the rated entity is able to support an alternative, company specific, expense assumption.

2) The purpose of the Premium Uncertainty charge should be clarified. If A.M. Best's concern is with accidentally counting premium after a company may already be insolvent they could use the monthly cash flows in a sources and uses type framework to avoid over counting. If they are rather concerned with the uncertainty associated with estimating 30 years of future cash flows, then that should be clarified and the charge should perhaps be renamed as a model uncertainty charge rather than a premium uncertainty charge.

3) The determination of B5 future mortgage required capital should allow for analyst discretion and should be based on input from each mortgage insurer on their expected future volumes as an alternative to last year's exposure plus a growth charge.

4) The inclusion of a year's worth of future mortgage exposure in the B5 charge at 100% correlation is a conservative view of what an additional year of exposure might require for capital in a stressed environment. Although highly correlated to the current mortgage exposures, the future mortgage exposures should benefit from some amount of temporal diversification as they will likely experience somewhat different macroeconomics than the current mortgage exposures. The overall amount of diversification will depend on the magnitude and shape of the stressed scenario used.

GSE CRT and Other Mortgage Reinsurance Transaction Criteria Comments

1) A.M. Best should promote transparency in their treatment of the GSE CRT transactions by publishing an annual list of capital charges by transaction and layer so that all current and prospective market participants can have certainty in understanding A.M. Best's capital requirements for these transactions.

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About Aon Benfield

Aon Benfield, a division of Aon plc (NYSE: AON), is the world's leading reinsurance intermediary and full-service capital advisor. We empower our clients to better understand, manage and transfer risk through innovative solutions and personalized access to all forms of global reinsurance capital across treaty, facultative and capital markets. As a trusted advocate, we deliver local reach to the world's markets, an unparalleled investment in innovative analytics, including catastrophe management, actuarial and rating agency advisory. Through our professionals' expertise and experience, we advise clients in making optimal capital choices that will empower results and improve operational effectiveness for their business. With more than 80 offices in 50 countries, our worldwide client base has access to the broadest portfolio of integrated capital solutions and services. To learn how Aon Benfield helps empower results, please visit aonbenfield.com.

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