

## Milliman Response FHFA Proposal Capital Framework

### Treatment of Credit Risk Transfer Securities and Reinsurance

#### Introduction

FHFA is the regulator of Freddie Mac and Fannie Mae (together, “the Enterprises”). In September 2008, FHFA placed the Enterprises into conservatorship due to mounting actual and forecast credit losses, and the Enterprises have been in conservatorship since then. FHFA published a proposed capital rule for the Enterprises in advance of recapitalizing and releasing the Enterprises from conservatorship in 2020 (the “ECRF”). On September 15<sup>th</sup>, FHFA released a notice of proposed rulemaking (“NPR”) to amend the ECRF. The amendment proposes two critical changes: 1) to adjust the calculation of the prescribed leverage buffer amount and 2) adjustments to credit risk transfer securitization framework.

In the NPR, FHFA requests comment on 8 specific topics related to the amendment. This document provides Milliman’s response to these questions.

Note, Milliman provided a response to the notice of proposed rulemaking for the ECRF, and we are encouraged to see several of the comments provided by Milliman and other respondents have been taken into consideration in issuing the proposed amendments.

#### Response to FHFA questions

The sections below are Milliman’s responses to the specific questions asked in the proposed rule. The responses are ordered as they appear in the proposed rule.

*Question 1: What approach that relies only on non-proprietary data or indices should FHFA consider to mitigate the pro-cyclicality of the credit risk capital requirements for multifamily mortgage exposures?*

In general, the transformation from procyclical capital regulation to a countercyclical approach requires financial institutions to hold higher capital amounts during periods of economic prosperity and therefore dampen excessive risk-taking during periods of growth. A countercyclical structure also facilitates responsive capital positions that could absorb future increased losses while spurring lending during periods of economic stress.

The ECRF includes a risk-based scheme to adjust capital requirements based on various aspects of guaranteed multifamily mortgages such as underwriting factors (e.g. original loan term and original loan size) as well as dynamic factors (e.g. current loan status and updated debt service coverage ratio); however, it does not include a countercyclical component. It is important to note the single-family framework does include a countercyclical component where the amount of capital varies based on home price deviation from long-term trends.

For multifamily mortgages, FHFA does not maintain a multifamily home price index like the single-family home price index<sup>1</sup>. Such an index would be difficult to create and maintain given the lower number of transactions, greater number of differences between multifamily properties, and other considerations.

An often-cited measure to evaluate multifamily valuations that could be used for countercyclical purposes is the Cap Rate<sup>2</sup>. The Cap Rate is defined as the ratio of the first year Net Operating Income (NOI) of a

<sup>1</sup> <https://www.fhfa.gov/DataTools/Downloads/Pages/House-Price-Index.aspx>

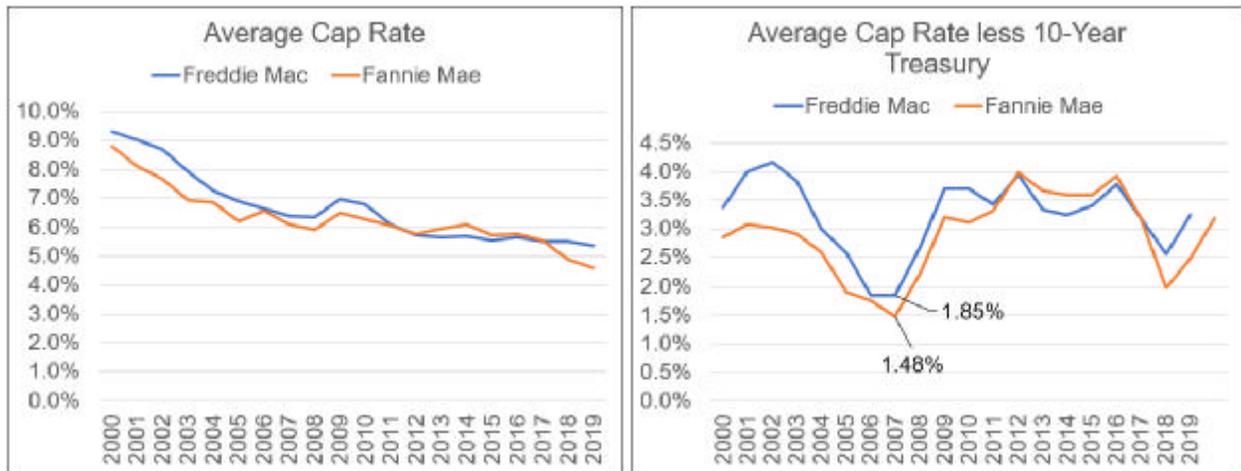
<sup>2</sup> [https://mf.freddie.mac.com/docs/mf\\_property\\_valuations.pdf](https://mf.freddie.mac.com/docs/mf_property_valuations.pdf)

property to the Property Value. When taken at origination, the Cap Rate can be interpreted as the expected first year income yield. As real estate, and particularly commercial real estate, is often one component of a diversified institutional investment portfolio, Cap Rates tend to fluctuate with market dynamics. During periods of strong price appreciation in the commercial market, property prices increase and, all else equal, Cap Rates decline. Cap Rates are reported by certain private market institutions and often segmented between Multifamily, Office, Industrial, and Retail.

Cap Rates cannot be used directly as a countercyclical component for a capital framework; instead, Cap Rates need to be adjusted for changes in a benchmark interest rate. It is common in the industry to view Cap Rates net of the current 10-year treasury rate. Cap Rates, like other fixed income, are often thought of in terms of the spread to the benchmark rate. Therefore, one measure for a countercyclical capital model could be the average Cap Rate on Freddie Mac and Fannie Mae multifamily mortgages less the 10-year treasury rate. The lower the value, the greater the capital requirement.

Figure 1 visualizes historical cap rates using multifamily data published by Freddie Mac and Fannie Mae<sup>3,4</sup> for origination years 2000 through 2019. The chart of the left shows a general decline in Cap Rates from 2000 through 2019. The chart on the right, which adjusts for changes in the 10-year Treasury Rate shows a decline in Cap Rates from the early 2000's through 2006 and 2007, a period of excessive credit availability and growth in both single and multifamily mortgages, followed by a sharp increase in Cap Rates through 2017. From 2017 through 2019, Cap Rates declined but have subsequently rebounded to higher levels.

**Figure 1: Historical Cap Rates and Cap Rate spread to Treasury**



<sup>3</sup> <https://mf.freddie.com/investors/data.html>

<sup>4</sup> <https://capitalmarkets.fanniemae.com/credit-risk-transfer/multifamily-credit-risk-transfer/multifamily-loan-performance-data>

The benefits of using Cap Rates in a countercyclical framework include:

1. The data is readily available from Freddie Mac and Fannie Mae and reflective of their own exposures
2. The Cap Rate is a generally accepted statistic for Multifamily valuations
3. The value is set at origination and would be static for a given mortgage. This feature limits procyclicality common in dynamic factors

Further work would be required to calibrate the use of Cap Rates as a countercyclical measure for multifamily mortgages.

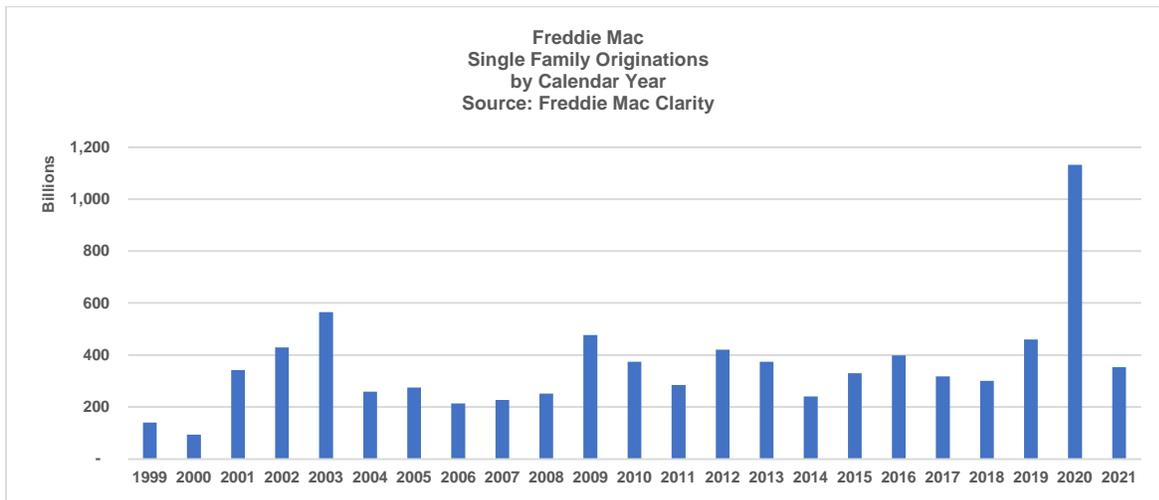
*Question 2 and Question 3: Is the proposed PLBA appropriately formulated? What adjustments, if any, would you recommend? Is the PLBA necessary for the ERCF's leverage framework to be considered a credible backstop to the risk-based capital requirements and PCCBA?*

While the results of the proposed framework result in a lower PLBA (approximately 3.0%) compared to the ECRF (4.0%), our analysis indicates the level of the minimum requirement is still conservative relative to the historical losses experienced by Freddie Mac and Fannie Mae's single-family guaranty business (the largest exposure). Given the PLBA is lower than the risk-based approach and the risk-based approach does not treat future guarantee fees as a claim paying resource, the PLBA is not necessary to be considered a credible backstop.

The proposed amendment replaces the fixed PLBA, which was equal to 1.5 percent of an Enterprise's adjusted total assets, with a dynamic PLBA equal to 50 percent of the Enterprise's stability capital buffer. The prior rule resulted in a minimum capital requirement equal to fixed amount of 4% of total adjusted assets. Given the GSE's important role in the housing market and service as a countercyclical source of mortgage credit, the PLBA resulted in a large increase in required capital in recent years. Figure 1 provides a visual of origination volume for Freddie Mac from 1999 through March 31, 2021 using data from Clarity<sup>5</sup> and highlights the significant amount of mortgage origination volume for 2020. Given the high credit quality of this origination cohort, the proposed amendment indicates the PLBA was higher than the risk-based assessment and would encourage Freddie Mac and Fannie Mae to increase their investments in higher yielding (and higher risk) assets to achieve a greater return on regulatory capital.

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<sup>5</sup> <https://clarity.freddiemac.com/>

**Figure 1: Freddie Mac Single Family Originations**

The proposed approach relies upon the stability capital buffer to create a dynamic estimate of the PLBA. The stability capital buffer, and therefore the PLBA, is estimated as a function of Freddie Mac and Fannie Mae’s market share. The greater the market share, the greater the PLBA. The reasoning provided for this dynamic is essentially larger entities should be required to hold more capital, all else equal, because the impact of a large failure could have a larger impact on the housing market relative to the failure of a smaller entity. We note the PLBA is not a risk-based measure and does not take into consideration any risk mitigation or capital management strategies utilized by Freddie Mac or Fannie Mae.

To evaluate an appropriate level of the PLBA, we evaluated historical realized losses on Freddie Mac’s guarantee business from 2007 through 2012 and compared this amount to an assumed PLBA of 3.0% (which would presumably be lower than the risk-based approach at the time). Using data from Freddie Mac’s Clarity, Table 1 provides a summary of the outstanding mortgages guaranteed by Freddie Mac and annual losses experienced on guaranteed single-family loans from calendar year 2007 through 2012.

**Table 1: Freddie Mac Single-Family Guaranteed Loans and Realized Losses from 2007 through 2012 as Reported in Freddie Mac Clarity<sup>6</sup>**

Calendar Year	Approximate Outstanding UPB on Guaranteed Mortgages (\$ Billion)	Realized Losses (\$ Billion)	Cumulative Realized Losses (\$ Billion)	3% of Starting UPB (\$ Billion)
2007	1,269	0.5	0.5	38.0
2008	1,289	1.4	1.9	
2009	1,496	3.1	5.1	
2010	1,530	4.8	9.9	
2011	1,415	5.1	15.0	
2012	1,400	4.5	19.6	

<sup>6</sup> Includes data from both the “standard” and “non-standard” datasets

Realized losses in 2007 were relatively small although the mortgage market started to show signs of stress in 2007. This is because mortgage defaults take time to transition from current to delinquent and ultimately to a loss for the guarantor. Realized losses started to increase in 2008 and continuing through 2012, after which losses started to decline. During this six-year period, cumulative realized losses on the single-family guaranteed portfolio totaled \$19.6 billion. If Freddie Mac held capital equal to 3% of guaranteed mortgages (a proxy for total adjusted assets for this exposure), the starting level of capital would have been \$38 billion. This compares to realized cumulative losses through 2012 of \$19.6 billion, leaving \$18.4 billion of margin for future losses. Therefore, a 3% capital level would have been sufficient to cover paid losses through 2012.

This simplified calculation ignores many actual market-related aspects that would impact Freddie Mac including loss reserves, changes in the market value of assets, and others. Additionally, the outstanding UPB on guaranteed mortgages is not equivalent to total adjusted assets. A more detailed evaluation would require significantly more data, analysis, and time to complete. However, evaluating this approximation for the level of the minimum capital level against a historical severe stress period is beneficial in providing a benchmark for the level of the proposed capital floor. Based on the above results, the PLBA results in excess capital during the most stressful historical period for Freddie Mac, and it is a conservative floor. It could also be argued the capital floor should require more capital relative to historical losses to account for future uncertainty as well as leave some level of capital to operate as a going concern.

However, neither the PLBA nor the ECRF take into consideration future guarantee fees when evaluating capital requirements. In 2019, the average guarantee fee was 56 basis points; this compares to an average guarantee fee of 22 basis points in 2007. Of the 56 basis points, we can approximate the amount of the guaranty fee for credit losses and capital. We assume operating expenses of 15 basis points, estimated from Fannie Mae and Freddie Mac's annual reports, and deduct 10 basis points for the Temporary Payroll Tax Cut Continuation Act of 2011. This results in an allowance of 31 basis points for credit losses and capital. Applying 31 basis points against historical outstanding UPB for each year in Table 1 would have contributed an additional \$26 billion in claim paying resources for Freddie Mac, increasing claim paying resources by approximately 70% to \$64 billion (38+26).

The PLBA, and ECRF framework, does not consider future guarantee fees as a source of capital although they are contractually required for the active guarantee business and payable for the life of the mortgages. If guarantee fees are higher, all else equal, economic capital (i.e., the capital required to coverage unexpected losses) would be lower. Conversely, if guarantee fees are lower, all else equal, economic capital would need to be higher as there is less guarantee income to cover expected and unexpected losses.

Table 2 provides a summary of modeled losses and guarantee fees (net of expenses and payroll tax) for single-family acquisitions from Freddie Mac and Fannie Mae in August 2021 using data extracted from Milliman M-PIRe. Milliman M-PIRe includes a module to estimate cash flows from the perspective of a guarantor. Loans with missing data required to run the models have been removed. The original UPB on the loans totaled \$177 billion from approximately 620,000 mortgages. The table shows expected future guaranty premium and losses under a baseline scenario and a stress scenario, where home prices decline by an average of 30% nationally. The results are presented under alternative guarantee fee rates, net of expenses and payroll tax, ranging from 11 basis points to 41 basis points.

**Table 2: Estimated Guarantee Fee and Losses for Freddie Mac and Fannie Single-Family Guaranteed Loans in August 2021**

Assumed Guarantee Fee Net of Expenses and Payroll Tax	Baseline Scenario			Stress Scenario 30% National Home Price Decline		
	Lifetime Guarantee Fee Income (% of Original UPB)	Lifetime Loss (% of Original UPB)	Lifetime Net Cash Flow (Guarantee Fee – Loss)	Lifetime Guarantee Fees (% of Original UPB)	Lifetime Loss (% of Original UPB)	Lifetime Net Cash Flow (Guarantee Fee – Loss)
11 basis points	0.80%	0.24%	0.57%	0.72%	2.40%	-1.68%
21 basis points	1.53%	0.24%	1.29%	1.37%	2.40%	-1.03%
31 basis points	2.26%	0.24%	2.02%	2.02%	2.40%	-0.38%
41 basis points	2.99%	0.24%	2.75%	2.67%	2.40%	0.27%

Table 2 demonstrates that the amount of capital required to cover stress losses decreases as the guarantee fee increases. The level of the guarantee fee has a direct relationship to the capital required. For example, with an average guarantee fee, net of expenses, of 41 basis points, the expected guarantee fee income generates enough fees to cover stress losses after a 30% national decline in home prices. With an average guarantee fee, net of expenses, of 11 basis points, the expected guarantee fee income is not sufficient to cover stress losses and would require 1.68% of capital to cover guaranteed losses. Note, Table 2 is not a complete analysis to evaluate the level of capital required to cover the guarantee business as it is performed on a single month of originations and does not take into consideration line of business (e.g., multifamily), temporal diversification, the benefits of CRT or asset risk for Freddie Mac and Fannie Mae.

Notwithstanding the above caveats, the above analysis indicates the PLBA is not required to serve as a credible backstop to the risk-based capital framework. This is demonstrated because 1) stress losses on a new month of originations (i.e., no seasoning or diversification benefit) are lower than the capital required by the ECRF (i.e., at least 3.0%) and 2) future guarantee fee provides a significant source of claim paying resources, which are not considered as a source of capital in the framework.

*Question 4: In light of the proposed changes to the PLBA and the CRT securitization framework, is the prudential risk-weight floor of 20 percent on single family and multifamily mortgage exposures appropriately calibrated? What adjustments, if any, would you recommend?*

Milliman has assisted many regulatory agencies in developing capital frameworks for a variety of exposures, including mortgage guaranty insurance. While due diligence and robust analysis is always performed to develop such a framework, there exists a desire to include a minimum level of capital or risk-weight floor for conservatism.

In our experience the process for setting a risk-weight floor is iterative in nature and is evaluated by testing alternative risk-weight floors to determine how often a regulated entity is estimated to “fail” given historical or modeled losses and starting capital levels. A risk-weight floor is then calibrated to a pre-determined “failure” rate. This type of process is transparent and supported by analytics demonstrating the proposed floor is sufficient, but not excessive, to withstand stress losses.

In addition to assessing the failure rate given a risk-weight floor, risk-weight floors should also be evaluated for their impact on the ability of the GSE's to develop guarantee fees commensurate with the assumed risk. Too high of a floor limits the ability of Freddie Mac and Fannie Mae to offer risk-based pricing as it requires them to hold capital against loans that have very low probabilities of loss. This generally results in a higher level of capital for the entire portfolio, and it requires them to allocate capital to low-risk loans. Therefore, the guarantee fee on low-risk loans will be too high relative to the economic risk, and the guarantee fee on high-risk loan will be too low relative to the economic risk. This is known as cross-subsidization in the industry.

Finally, the risk-weight floor should only be required infrequently, and there should be a general understanding of what types of risks might require the floor to be in effect. The ECRF and proposed amendment calibrates the risk-weight floor by setting the floor equal to the minimum risk-weight for real estate exposures as proposed by Basel III, an international capital framework for banking institutions. This assumption is not reflective of the risks guaranteed by Freddie Mac or Fannie Mae and is not calibrated to their historical experience.

We note the initial proposal for the ECRF stated that as of September 30, 2019 the average risk-weight for single family mortgages was 26% (calculated with a 15% risk-weight floor). It is likely this value is lower now given the significant home price appreciation observed in 2020 and 2021 and the associated impact home price appreciation has on MTMLTV. Therefore, the 20% risk-weight floor is likely a large contributor to the risk-based capital requirement and many of the loans guaranteed by Freddie Mac and Fannie Mae are subject to the 20% floor.

Based on the above, we do not think the 20% risk-weight is appropriately calibrated. We suggest FHFA conduct an exercise like the one proposed in this response to calibrate a risk-weight floor based on pre-determined criteria such as a failure rate given certain economic conditions or historical experience.

*Question 5: Is the 5 percent prudential floor on the risk-weight for a retained CRT exposure appropriately calibrated? What adjustment, if any, would you recommend?*

In our prior submission to the 2020 ECRF proposal we recommended the following adjustments to the capital framework:

1. Remove the 10% risk-weight for senior retained tranches, and
2. Remove the 10% overall effectiveness adjustment.

We are pleased to see the overall effectiveness adjustment has been removed, and the 10% risk-weight has been reduced. With respect to the prudential risk-weight floor, we acknowledge the desire to maintain a risk-weight for senior retained tranches. As described by FHFA in the proposed amendment:

- *“FHFA ... continues to believe that an Enterprise does retain some credit risk on its CRT and that the risk should be appropriately capitalized. FHFA believes that a 5 percent CRT risk-weight floor will enhance the safety and soundness of the Enterprises by increasing the incentives to undertake risk transfer activities while continuing to capitalize retained CRT tranches against structure, model, unforeseen, and other risks.”*

FHFA does not provide details on the calibration of the 5% minimum risk-weight or describe alternative values considered, so it is difficult to evaluate if the minimum risk-weight is appropriately calibrated. Therefore, we evaluate the capital framework under various levels of a minimum risk-weight to independently calibrate an appropriate minimum risk-weight floor. To evaluate the impact of reducing the risk-weight floor for retained tranches from 10% to an appropriate level, we first modified FHFA's Enterprise Capital CRT Tool<sup>7</sup> to be applied against CAS 2020-R02, ACIS & STACR 2021-DNA1, ACIS & STACR 2021-HQA1. Specifically, we incorporated the appropriate attachment points, expected losses using estimates from Milliman M-PIRe, and made assumptions for the collateral risk-weights and counterparty exposure<sup>8</sup>. Using this model, we evaluated the capital credit across various CRT structures and modifications to the proposed amendments. Each transaction was evaluated at issuance.

Table 3 provides a walkthrough of the proposed amendments for each transaction by incrementally adding in significant features of the capital rule. The percentages in the table are the required capital divided by the aggregate UPB of the reference pool.

**Table 3: Required capital waterfall with a 5% minimum risk-weight<sup>9</sup>**

Description	CAS 2020-R02	ACIS & STACR 2021-DNA1	ACIS & STACR 2021-HQA1
Step 1: Starting capital for the loans (8% of RWA)	3.35%	2.40%	3.35%
Step 2: Starting CRT Capital prior to specific adjustments (Remove loss timing adjustment, counterparty haircuts, and senior retention)	0.00%	0.26%	0.50%
Step 3: Add loss timing adjustment	0.18%	0.35%	0.50%
Step 4 : Add counterparty haircuts	0.75%	0.37%	0.97%
Step 5: Final (add 5% risk retention)	1.13%	0.76%	1.36%
Comparison to 2020 ECRF	1.64%	1.29%	1.89%

From the above waterfall, the largest haircuts to the capital benefit of CRT transactions are from the counterparty haircuts on the high-LTV transactions (increasing the required capital by an average of 200%) and the 5% risk-weight floor for all three transactions (increasing the required capital by an average of 65%).

Relative to the 2020 ECRF, the proposed amendments increase the capital benefit by an average of approximately 50 basis points, or equivalently reduce the post-CRT required capital by approximately 33%. While this is an improvement in recognizing the economic benefit of CRT, the required capital from the 5% risk retention step contributes a large portion to the post-CRT required capital. Therefore, we adjusted the minimum risk-weight from 0% to 5% in increments of 1% to test the sensitivity of the capital requirement to varying levels of a minimum risk-weight. Table 4 provides a summary of these results for each transaction.

<sup>7</sup> <https://www.fhfa.gov/SupervisionRegulation/Rules/Pages/Amendments-to-the-Enterprise-Regulatory-Capital-Framework-Rule-%E2%80%93Prescribed-Leverage-Buffer-Amount-and-Credit-Risk-Transfer.aspx>

<sup>8</sup> We will provide the modified spreadsheet to FHFA upon request

<sup>9</sup> Note, the loss timing adjustment does not have an impact on the HQA transaction because under the assumptions in the waterfall, the stress loss rate ( $K_A$ ) is greater than the attachment level of the retained A-H tranche. Subsequent sections of this comment letter provide more commentary of this observation. The CAS 2020-R02 transaction does not require any capital in the Step 2 because the transaction is expected to absorb all stress losses.

**Table 4: Capital requirement with varying minimum risk-weights**

Description	CAS 2020-R02	ACIS & STACR 2021-DNA1	ACIS & STACR 2021-HQA1
0% Minimum Risk-Weight	0.75%	0.37%	0.97%
1% Minimum Risk-Weight	0.83%	0.44%	1.05%
2% Minimum Risk-Weight	0.91%	0.52%	1.12%
3% Minimum Risk-Weight	0.98%	0.60%	1.20%
4% Minimum Risk-Weight	1.06%	0.68%	1.28%
5% Minimum Risk-Weight	1.13%	0.76%	1.36%

The minimum risk-weight has a large influence on the required level of capital, and the minimum risk-weight is intended to require capital for losses potentially not absorbed by the transaction after consideration of:

1. Adjustments for differences in loss timing between the reference collateral and the structure
2. Counterparty risk on loan-level credit enhancement

To evaluate what level is an appropriate calibration for post-CRT capital, we performed the following analysis using Milliman M-PIRe:

- Estimate the reference collateral cash flows under alternative economic stress scenarios,
- Estimate the transaction cash flows under the same economic scenarios, and
- Compare the credit losses on the collateral relative to the credit losses absorbed by the transactions.

We compared the results from this analysis to the required capital in Table 4 to provide an indication of the expected loss absorbing capacity of the CRT transactions under alternative economic scenarios at deal inception. Table 4 provides a summary of the results. In the table, Economic Capital is calculated as:

1. The difference between the loss rate on the reference collateral (“Collateral Loss Rate”) and the losses absorbed by the CRT transaction (“CRT Capital”)
2. Less the Collateral Loss Rate in the Baseline Scenario (which is retained through the equity tranche)

This is consistent with the definition of capital in the ECRF. Capital is defined as the amount of loss absorbing capacity required to cover credit losses that exceed expected losses.

**Table 5: Economic capital by scenario**

Economic Scenario	ACIS & STACR 2021-DNA1			ACIS & STACR 2021-HQA1		
	Collateral Loss Rate	CRT Capital	Economic Capital	Collateral Loss Rate	CRT Capital	Economic Capital
Baseline Scenario	0.14%	0.00%	0.00%	0.18%	0.00%	0.00%
10% Home Price Decline	0.24%	0.00%	0.10%	0.28%	0.00%	0.10%
20% Home Price Decline	0.63%	0.33%	0.16%	0.74%	0.41%	0.15%
30% Home Price Decline	1.29%	0.93%	0.23%	1.60%	1.16%	0.27%
2007 Repeat Scenario	1.41%	1.09%	0.18%	1.44%	1.10%	0.16%
				CAS 2020-R02		
Baseline Scenario				0.29%	0.03%	0.00%
10% Home Price Decline				0.74%	0.30%	0.15%
20% Home Price Decline				1.21%	0.90%	0.02%
30% Home Price Decline				2.42%	2.05%	0.08%
2007 Repeat Scenario				1.85%	1.52%	0.04%

For all the transactions, Freddie Mac and Fannie Mae retained the first 0.25 percentage points of loss. The amount of CRT coverage purchased ranges from 2.25 percentage points for the DNA1 transaction to 4.10 percentage points for the CAS transaction. However, when reviewing the modeled results under these scenarios, the capital benefit is not estimated to cover all losses within the initial coverage range for the transactions. The reason for this is the CRT transactions have a shorter duration relative to the reference collateral, and losses continue to accumulate after the end of the transaction. In addition, in some of the more stressful scenarios, it takes time for losses to develop. During the early life of the transaction, the models estimate the senior tranches will pay down on the ACIS/STACR transactions, which removes some of the loss absorbing capacity. This behavior is dependent upon the assumptions of the underlying collateral and can differ from structure to structure. The capital rule accounts for these two observations through the loss timing adjustment.

Comparing the results in Table 5 against the values in Table 4 indicate the 5% risk-weight floor results in capital requirements several times greater than the modeled post-CRT economic capital of the transactions in a severe stress scenario. Specifically, the modeled cash flows of the transactions indicate the post-CRT economic capital requirement is approximately 0.25% for both the ACIS/STACR 2021 DNA1 and HQA1 transactions under a 30% national home price decline scenario. Under the capital rule, Freddie Mac would have post-CRT capital requirements of 0.76% and 1.35% for the DNA1 and HQA1 transactions, respectively. For this transaction, this indicates the required level of capital is potentially 200% greater than an economic indication for the DNA1 transaction and more than 440% greater for the HQA1 transaction. The differences are even greater for the CAS transaction, which provides for more CRT benefit relative to the ACIS/STACR transactions.

With a 0% minimum risk-weight, Freddie Mac would have post-CRT capital requirements of 0.37% and 0.97% for the DNA1 and HQA1 transactions, respectively. These values exceed the economic indication of post-CRT capital, which we estimate to be approximately 0.25% for both transactions. Therefore, our analysis indicates after removal of the risk-weight minimum, the calculation for post-CRT capital still results in excess capital to allow for potential uncertainty in the performance of the reference collateral and associated CRT benefit. We recommend FHFA remove the risk-weight floor in the capital rule to calibrate the proposed rule to be consistent with the economics of CRT transactions.

*Question 6: Is the removal of the overall effectiveness adjustment within the CRT securitization framework appropriate in light of the proposed rule's 5 percent prudential floor on the risk-weight for retained CRT exposures?*

The overall effectiveness adjustment in the initial ECRF was a redundant adjustment incorporated into the rule as a "catch all" for any potential unforeseen differences between actual and contractual benefits from the transactions. The adjustment value or rationale was not supported by accompanying analysis nor factual basis. In our initial response to the proposed capital rule, we recommended FHFA remove the overall effectiveness adjustment from the rule, and we continue to believe the overall effectiveness adjustment should be removed for the reasons cited by FHFA in the proposed amendments.

Consistent with the response to Question 5, our analysis suggests even after removing the overall effectiveness adjustment and reducing the prudential floor on the risk-weight, the capital benefit provided for CRT transactions is conservative. Therefore, removing the overall effectiveness adjustment is appropriate, and we are supportive of this decision.

*Question 7: Is the proposed approach to determining the credit risk capital requirement for retained CRT exposures appropriately formulated? What adjustments, if any, would you recommend?*

As discussed in the response to Question 5, the proposed approach to determining the credit risk capital requirement for retained CRT exposures does not fully recognize the economic benefit of CRT transactions. We recommend removing the risk-weight floor.

One potential unintended consequence of the risk-weight floor is that the risk-weight floor, in addition to resulting in conservative capital benefits, discourages Freddie Mac and Fannie Mae from purchasing CRT with an attachment point greater than the stress loss rate ( $K_A$ ). If the attachment point of the senior retained tranche exceeds the stress loss rate, then the incremental capital benefit of greater coverage is nominal. To demonstrate this feature of the capital rule, Table 6 provides a summary of the capital benefit for ACIS & STACR 2021-HQA1 by varying the size of the issued CRT from 1.25% to 3.75% in increments of 0.50%. For this transaction, the stress loss rate ( $K_A$ ) is equal to 2.75%, and the first 0.25% of loss are retained by Freddie Mac.

**Table 6: Capital requirement with varying levels of CRT coverage**

<b>CRT Issuance</b>	<b>ACIS &amp; STACR 2021-HQA1 Capital Requirement</b>	<b>ACIS &amp; STACR 2021-HQA1 Capital Relief (% of pre-CRT capital)</b>
0.25% to 1.25%	2.80%	17%
0.25% to 1.75%	2.33%	31%
0.25% to 2.25%	1.86%	45%
0.25% to 2.75%	1.39%	59%
0.25% to 3.25%	1.36%	59%
0.25% to 3.75%	1.35%	60%

With the 5% risk-weight floor, the capital relief for this transaction is limited to approximately 60% of the pre-CRT capital requirement for any transaction with coverage greater than 2.75%. This amount does not increase for greater levels of coverage, and the largest driver of this relationship is the risk-weight floor. If the risk-weight floor were removed, then the capital rule would better account for increased levels of CRT coverage through greater capital relief. This is important as this feature encourages the GSE's to limit risk-mitigating activities (i.e., purchase more CRT coverage) if the GSE's want to conservatively increase the amount of CRT coverage for guaranteed loans.

One specific example where this observation could be important is the use of CRT as a potential source of funds to expand affordable housing programs. Several industry participants have suggested CRT could be a source of capital to pursue certain housing programs. Many of the initiatives are new, and the data does not exist to appropriately calibrate the risk-weights for the types of loans guaranteed under these potential programs. To account for this uncertainty, the GSE's could leverage CRT capital to mitigate the risk of such programs. However, the capital rule, as stipulated, provides a limited incentive for the GSE's to purchase CRT coverage above the stress loss rate produced from the existing factors in the capital rule. Removing the risk-weight on the senior retained tranches would result in an increased capital benefit for higher attachment points, still allow for conservatism in the framework and a result in a prudential level of post-CRT capital.

*Question 8: Will the proposed amendments to the CRT securitization framework provide the Enterprises with sufficient incentives to engage in more CRT transactions without compromising safety and soundness?*

After the announcement of the proposed amendments, Fannie Mae announced they would return to the CRT market and reintroduce issuance of CRT. Freddie Mac continues to issue CRT transactions, and the issuance of transactions have increased since the announcement of the proposed amendments. Therefore, it appears the proposed amendments do encourage both Fannie Mae and Freddie Mac to engage in CRT transactions. Per the analysis discussed in this response, the issuance of CRT under the proposed amendments do not impact the safety and soundness of Freddie Mac or Fannie Mae; rather, the framework after consideration for the amendments result in conservative capital recognition for CRT transactions.

### **About Milliman**

For more than 70 years, Milliman has pioneered strategies, tools and solutions worldwide. As one of the largest consulting and actuarial firms in the world, we are recognized leaders in the markets we serve. Milliman insight reaches across global boundaries, offering specialized consulting services in employee benefits, healthcare, life insurance and financial services, and property and casualty insurance. Within these specialties, Milliman consultants serve a wide range of current and emerging markets. Clients know they can depend on us as industry experts, trusted advisors, and creative problem solvers.

We serve a full spectrum of business, financial, government, union, education, and nonprofit organizations. In addition to our consulting actuaries, Milliman's body of professionals includes numerous other specialists, ranging from clinicians to economists.

We serve our clients to protect the health and financial well-being of people everywhere. One part of this mission is to provide our clients with analytic tools and consulting services that assist them in developing and maintaining an affordable and sustainable housing system both domestically in the United States and internationally. Our analytic tools and consulting services help clients with two key aspects to achieve this goal: ensuring they hold adequate capital to maintain the availability of credit through economic cycles and ensuring mortgage credit risk is priced commensurate with the risk, i.e. that the prices are actuarially sound. By actuarially sound, we mean the credit risk charge is reasonable and not excessive, and the expected value of the risk premium is sufficient to cover expected losses and expenses plus a reasonable rate of return.

Recent work by Milliman in providing such consulting services include:

- Assisting the National Association of Insurance Commissioners (“NAIC”) in developing a countercyclical and risk-based capital framework for the mortgage insurance industry;
- Providing actuarial services to the Federal Housing Administration;
- Providing actuarial services to State Housing Finance Agencies with mortgage insurance funds;
- Providing actuarial services to various mortgage insurance companies; and
- Licensing Milliman M-PIRe to various participants providing capital or otherwise engaged in the CRT market.

Milliman M-PIRe is a turnkey solution to analyzing mortgage investment opportunities, including credit risk transfer. The platform includes all of the required data, models (loan-level performance models and cash flow waterfalls), business intelligence dashboards, and other reporting tools to holistically manage and value a portfolio of mortgage exposures. The platform is updated monthly with revised economic information and mortgage performance data for the entire CRT market. Milliman relied upon and extracted analytics from Milliman M-PIRe for analysis presented in this response.

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