



# **FHFA Proposed Rule on Enterprise Capital**

## **Arch Capital Group Ltd. Comment Letter**

**Arch Capital Group Ltd.**  
**26 October 2018**

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## 1. Introduction

The Federal Housing Finance Agency's (FHFA's) Proposed Rule on Enterprise Capital (Proposed Rule) is a significant and important development in the regulation of the U.S. mortgage market, particularly because it establishes a sophisticated risk-based capital framework based on a granular assessment of credit risk. Arch Capital Group Ltd., on behalf of itself and its affiliates (Arch), recognizes the substantial effort required to publish this framework, and appreciates the FHFA's willingness to work collaboratively with industry stakeholders to incorporate important feedback on aspects of the Proposed Rule.

Arch is a leading insurance organization, and through its insurance subsidiaries, provides commercial, institutional and individual customers with mortgage, property-casualty, and reinsurance offerings on a worldwide basis. As the leading provider of private mortgage insurance in the United States with \$272 billion of insurance in-force as of June 30, 2018, and an active participant and innovator in credit risk transfer (CRT) programs, Arch is dedicated to making substantial, lasting equity investments in the U.S. housing market by bringing high-quality private capital to the housing finance system. Arch manages its own mortgage credit risk through its programmatic issuance of insurance-linked notes to the capital markets – the Bellemeade Program. Arch has developed its own internal credit risk and econometric models and invests heavily in the intellectual capital required to support underwriting decisions and risk management. Thus, Arch is well-positioned to provide input on the Proposed Rule.

The Proposed Rule on Enterprise Capital (also known as the Conservatorship Capital Framework or the CCF) is pertinent to Arch's current business model in that it will inform the guarantee fee (GFee) levied to cover the credit risk on loans delivered to Fannie Mae and Freddie Mac (the GSEs). GFee levels impact the origination volumes of the Federal Housing Administration (FHA) and the GSEs, and GFee changes can shift mortgage demand across the loan-to-value (LTV) spectrum. In addition, Arch presumes the "other business decisions" referred to in the Proposed Rule's preamble means that the CCF output will inform the GSEs' CRT purchasing decisions, which will provide Arch with valuable insight into GSE CRT decision making. The CCF could also impact the relative attractiveness of alternate credit enhancement structures including both back-end and front-end executions in which Arch participates. Finally, Arch believes the FHFA could use this framework to inform future updates to the capital levels and counterparty requirements in the Private Mortgage Insurer Eligibility Requirements (PMIERS).

Arch's comments are limited to a discussion of the Proposed Approach for Single-Family Whole Loans, Guarantees, and Related Securities and the Minimum Leverage Capital Requirements. Arch makes no response to questions pertaining to PLS, Multifamily or CMBS at this time. Arch's comments are also limited to the Proposed Rule and do not include its views on the capital required for activities outside of the scope of the Proposed Rule, e.g. the financing provided to support servicing operations. The Executive Summary in Section 2 highlights Arch's key observations and recommendations, which are discussed in detail in Sections 3-12 thereafter.

## 2. Executive Summary

Arch's comments to the Proposed Rule fall broadly into ten categories: (1) the appropriateness of the credit risk framework; (2) the proposal of a countercyclical capital buffer; (3) counterparty evaluation; (4) CRT credit; (5) sources and uses of credit risk capital; (6) the proposal of a systematic risk buffer; (7) market risk: liquidity and spread risk; (8) the limitation of regulatory discretion; (9) the minimum leverage ratio; and (10) the definition of capital.

### 2.1. Appropriateness of the Credit Risk Framework

The risk-based capital framework included in the Proposed Rule on Enterprise Capital includes granular loan-level charges and meaningful recognition of credit enhancement and risk transfer. While different from other regulatory frameworks, these features are appropriate given the differences in the business model of an enterprise compared to other financial institutions, and the capital outputs are reasonable. Relative to Arch's internal models, the capital levels required under the CCF are broadly in line with a scenario assuming a 25% home-price-decline (HPD). Arch agrees that this assumption and the resulting required capital are reasonable, and does not expect the implementation of the CCF to cause material changes to the overall price of mortgage credit risk or, by extension, mortgage rates.

While the overall output is reasonable, Arch observes that the lifetime capital consumption is highly sensitive to the home-price-appreciation (HPA) experienced by a loan through its life. While Arch agrees that homeowner equity is the key parameter to assess the risk of default and the framework should reflect mark-to-market LTV (MTMLTV), the consequence is that the price of mortgage credit risk will be significantly affected by the future HPA assumption at loan origination. Since the required capital is a material portion of the GFee, overly optimistic (yet defensible) estimates of HPA could result in inadequate prices. This reduction of lifetime capital by overly optimistic assumptions of future HPA may be further exacerbated when house prices are overheating, but pricing is still based on HPA assumptions grounded in momentum rather than reversion effects, as well as by the use of refreshed FICO scores during periods of favorable market conditions. Therefore, Arch suggests that FHFA consider reducing the overall sensitivity to HPA by relying only on original credit scores, rather than refreshed credit scores, and by implementing a countercyclical buffer, as discussed more fully below.

Arch also recommends simplifying the grid structure by combining the New Origination and Performing Seasoned loan segments and the Non-Modified RPL and Modified RPL segments. Arch's analysis indicates that the complexity created by the additional segmentation is not proportional to the impact. In addition, relative to Arch's internal models, the CCF requires less capital for loans with lower FICOs (and by extension potentially lower GFees) at the expense of loans with higher FICOs, which require more capital. Moreover, assuming the enterprises will use the CCF to inform GFee pricing decisions going forward, the proposed framework implies a much more granular risk-based GFee pricing, which could have a significant impact on the execution of mortgages in the market. Therefore, Arch proposes that the FHFA issue a separate RFI prior to implementing material changes to GFee levels or structure.

Finally, the FHFA should define the product set to which the CCF applies. As proposed, the applicability of the CCF is unlimited, yet the data set that the enterprises released to the public only contains a subset of 30-year and less, fully amortizing, full documentation, single-family, conventional fixed-rate mortgages.<sup>1</sup> The data excludes historical products that are not being bought today, yet the CCF applies to legacy loans outside of this subset. Therefore, Arch recommends that 1) the FHFA define the product set that the CCF is applicable to, and 2) require both enterprises to release loan-level performance data on all types of loans acquired by the enterprises to enable commenters to assess the appropriateness of the CCF to these products.

## 2.2. Countercyclical Capital Buffer

As observed by the FHFA, there is inherent pro-cyclicality implicit in the proposed CCF. However, the FHFA has explicitly stated that its discretionary authority under the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (Safety and Soundness Act) to increase capital requirements – either risk-based or minimum leverage – reduces the need to put in place a countercyclical buffer. Arch respectfully disagrees. Relying on discretionary authority to increase capital requirements creates market uncertainty that will discourage the participation of private capital, particularly equity investment in enterprises or their successor entities and competitors post-conservatorship. Relying on discretion also places enormous pressure on the FHFA to act in a timely and measured fashion, across political administrations, to avoid creating an unanticipated asset need or a “cliff effect”. Finally, political pressure from market participants often runs counter to the demands of prudent risk management.

Rather than relying on discretionary authority, Arch suggests adding a countercyclical capital buffer to the CCF based on criteria that are simple and transparent enough that enterprises and other market participants can forecast future capital requirements. The buffer should be assessed at the enterprise portfolio level rather than by adjusting the loan-level grids, and it should be designed to move gradually over time. Applying the buffer at a loan-level creates significant movements in the capital required as the loan moves between LTV buckets. This is smoothed at the portfolio level when assessing thousands of loans simultaneously. The countercyclical buffer would be a single number but should not move significantly quarter over quarter, creating a cliff effect. It is important to recognize too that there will likely be regional dispersion in over/undervaluation. While the enterprises have a nationally diversified footprint, and therefore a nationally assessed buffer may suffice, the FHFA should consider mechanisms for differentiating market heterogeneity, while retaining transparency of the method.

To this end, Arch suggests the FHFA create a countercyclical buffer, to be assessed at the portfolio level, by comparing current market value of housing to the estimated fundamental value, on a MSA, state or regional level, to determine whether a housing bubble is forming. While simple in principle, Arch recognizes the challenge in determining fundamental home values, with no authoritative measure being published in the market today. There are multiple approaches that currently exist – for example, CoreLogic utilizes a method that analyzes per

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<sup>1</sup> See Fannie Mae Single-Family Loan Performance Data FAQs dated September 22, 2017 at [https://loanperformancedata.fanniemae.com/lppub-docs/FNMA\\_SF\\_Loan\\_Performance\\_FAQs.pdf](https://loanperformancedata.fanniemae.com/lppub-docs/FNMA_SF_Loan_Performance_FAQs.pdf)

capita income by census groupings and certain states, to determine the percent a CBSA is over/undervalued.<sup>2</sup> Similarly, Fitch publishes quarterly metro-level results of their sustainable home price model, which is a function of income, unemployment, changes in population, interest rates and rents. The FHFA has previously published an approach to estimate fundamental value by comparing the home price increase in each state to the historic time trend pre-2002. Arch also has a propriety model to estimate over/undervaluation, and other market participants have derived views of fundamental value. However, the market has not yet coalesced around a single measure.

Thus, Arch suggests the FHFA consider creating a consensus estimate that incorporates the estimates of market participants. Clearly, the FHFA would need to validate that the approach and output is reasonable, and that the interests of the submitting party are aligned with the interests of the enterprises and market stability. Alternatively, the FHFA could consider publishing a request for input on this narrow point, requesting specific input in an effort to create an authoritative measure of fundamental value. Finally, when implementing the countercyclical capital buffer, the HPD implicit in the CCF framework should be recalibrated. The 25% HPD implied by the CCF framework is broadly representative of the peak-to-trough HPD during the Great Recession. The peak-to-trough decline of a countercyclical framework calibrated to the recent crisis would be the sum of an over-correction of housing relative to fundamentals (approximately 10-15%) plus the degree to which housing is currently overvalued. The FHFA has acknowledged that it may be necessary in the future for it to revise this rule or to develop additional rules. Arch respectfully requests that the FHFA prioritize the need to incorporate a countercyclical buffer into the CCF framework to promote market stability across credit cycles in the best interest of consumers, taxpayers, and market participants alike.

### 2.3. Counterparty Evaluation

Arch fully supports differentiating on the basis of counterparty strength and agrees that the creditworthiness and concentration of the counterparty are the primary considerations. However, the Proposed Rule requires the enterprises to assign a counterparty rating, and lacks transparency into the underlying methodology. For example, it is unclear whether the enterprises' counterparty frameworks are applied separately for each legal entity within a group or evaluated at the group level. Arch believes the counterparty framework and rating assignment should reflect the considerable benefits of being part of a larger, diversified, multi-line group. However, recognizing that the enterprises have differing methodologies, Arch suggests that the FHFA require the enterprises to publish their methodologies used to assign counterparty ratings. This transparency will create "virtuous competition", as counterparties manage their operations to maximize the CE multiplier<sup>3</sup> under the proposed rating scheme and compete on the basis of counterparty strength.

To further incent this virtuous competition, Arch advocates that the enterprises differentiate GFees and loan level price adjustments (LLPAs) based on counterparty strength, when appropriate. For example, the fees should be lower on loans insured by better rated MI companies, all else equal. Differentiating fees based on the strength

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<sup>2</sup> A CBSA is defined as a core-based statistical area defined by the Office of Management and Budget that consists of one or more counties, anchored by an urban center of at least 10,000 people.

<sup>3</sup> A CE multiplier is defined as a factor applied to reduce the gross risk capital requirement for the benefit from loan-level credit enhancements.

of the MI provider not only creates virtuous competition, but also gives the enterprises the ability to prospectively manage counterparty risk by incenting originators to use stronger counterparties, and create a more resilient market. Currently, the enterprises are compensated equally for their counterparty risk from MI companies through higher GFees for high LTV loans. Arch accrues no benefit from being the stronger counterparty. By extension, as the strongest rated MI counterparty Arch provides approximately \$100m<sup>4</sup> of annual pre-tax subsidy for the counterparty risk of the MI industry, and originators are indifferent to the counterparty risk of the MI provider. Thus, the FHFA should require the enterprises to both publish their counterparty criteria and differentiate on the basis of counterparty strength in furtherance of the safety and soundness of the system.

Finally, Arch suggests that the FHFA modify the Proposed Rule to require the enterprises to maintain and use a diverse panel of counterparties to transfer credit risk to the private market. The FHFA currently requires the enterprises to participate in CRT as a core business practice, as detailed in its annual scorecard.<sup>5</sup> However, to ensure that the CRT practices of today continue across political administrations, and include the use of diverse counterparties, the Proposed Rule should be modified to require the enterprises to participate in both front end and back end transactions with diverse counterparties. Ceding risk to the private market throughout the economic cycle is particularly critical since it is the only mechanism to reduce the systemic risk posed by the enterprises in the current, unreformed state.

#### 2.4. CRT Credit

The FHFA should adjust the capital credit derived from CRT transactions to grant some credit for risk transferred above the CCF stress losses. Collateralized CRT transactions provide meaningful protection, but the protection is not fungible like equity capital held by the enterprises. Equity capital is not limited to cover losses incurred within a structure; rather, it is fungible and can absorb losses from any part of the portfolio.<sup>6</sup> To compensate for the inability to transfer capacity across CRT transactions as well as the risk of model error with respect to assessing stress losses, FHFA should adjust the capital credit derived from CRT transactions to grant some credit for risk transferred above the CCF stress losses.

Arch believes that, all things considered, the approach to calculating CRT capital credit articulated in the CCF is sensible and benefits from simplicity and transparency. The timing curves specified are broadly comparable to those arrived at from Arch's credit risk model on each of the types of collateral specified, for a 25% HPD/rising interest rate scenario. Arch shares the concern about high prepayments (perhaps associated with monetary easing in stress) affecting the ability to recover the available limit at the valuation date, but also agrees that the

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<sup>4</sup> Based on reasonable assumptions of CCF implied annualized lifetime capital requirements for MI companies; the current pre-tax return of MI companies; the difference in CCF counterparty haircut of 1-2 rating grades; the current insurance in-force of Arch.

<sup>5</sup> See 2018 Scorecard for Fannie Mae, Freddie Mac and Common Securitization Solutions at <https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/2018-Scorecard-12212017.pdf>.

<sup>6</sup> See Andrew Davidson & Co., Inc's Comment on the Proposed Rule on Enterprise Capital Requirements, submitted July 9, 2018, which makes similar comments on the superiority of equity providers.

existence of performance triggers in CRT transactions ameliorate this issue. That said, Arch believes additional haircuts should be applied to certain transactions where there are no or inadequate performance triggers which would materially affect the timing curves specified.

## 2.5. Sources and Uses of Credit Risk Capital

In general, Arch has observed that the CCF conflates certain foundational aspects of economic capital regimes and the result is an approach that is not fully in line with the underlying economic rationale. The following table summarizes the contributory sources and uses of credit risk capital, how these are used within the CCF and Arch’s proposal for change:

Source/Use of Capital	CCF Proposal	Arch Proposal
<b>Uses</b>		
Expected loss	Not explicitly included in required capital	The CCF charges, which are applied at the loan level, should reflect stress loss (expected plus unexpected)
Unexpected loss	Charges reflect unexpected loss only	
<b>Sources</b>		
Future Revenue	Not explicitly included in framework. Partially included as implicit support to cover expected loss on performing loans	Should be explicitly recognized. GFees are set to cover more than expected loss so increased credit is warranted.
B/S Reserves	Reserves are established for the expected loss of non-performing loans under “incurred loss” accounting	No change under current accounting model. The Proposal should clarify treatment under the CECL <sup>7</sup> expected loss accounting model.

In Arch’s opinion, articulating the capital requirement only with respect to unexpected losses makes it unnecessarily difficult for external stakeholders to evaluate the CCF and will limit the usefulness of the feedback the FHFA receives from RFI respondents.

Other regulatory regimes (e.g. Solvency II, CECL) have a definition of capital which is grounded in an “economic balance sheet.” An economic balance sheet explicitly reflects the present value of all cash flows arising from contractually bound obligations under an expected scenario. As applied to mortgage credit risk, this leads to a requirement to hold reserves for both performing and non-performing loans, and an associated reduction in available capital, all else equal. This methodology provides transparency and consistency with respect to expected losses, and will mitigate the risk that the enterprises reduce prices to preserve volume, when expected losses are increasing but the CCF capital requirement remain static. Arch therefore believes that the CCF charges should represent stress losses (expected and unexpected). The CCF would reflect asset-based charges (rather than capital charges), and the enterprises would calculate the total asset charges and then deduct their carried

<sup>7</sup> The Financial Accounting Standards Board (FASB) issued a new accounting current expected credit loss (CECL) standard that will require financial institutions to estimate expected losses over the life of loan.



loss reserves. Until the adoption of CECL, the enterprises would need to estimate and deduct the expected losses for performing loans in addition to the carried reserves for non-performing loans that they hold in their current incurred loss framework.

Consistent with an economic balance sheet approach, the FHFA should also include all cash flows or uses arising from contractually bound obligations. The FHFA has stated that it considers it prudent not to recognize future revenue toward capital. Arch respectfully disagrees and believes that failing to recognize all sources and uses of capital obfuscates the true capital required. Arch's chief concern is that making future revenue an implicit buffer will expose the system to lower capital levels if the GSEs reduce GFees, compared to a system with explicit revenue credit. The corollary is also true; revenue credit that mitigates capital requirements will counteract downward pricing pressure and lean against a race to the bottom in pricing.

## 2.6. Systemic Risk Buffer

Arch recognizes that the FHFA is not taking a position on housing finance reform by publishing the proposed CCF framework. As a result, Arch believes that the Proposed Rule should recognize the systemic risk posed by the enterprises in the current, unreformed state. In Arch's opinion, this systemic risk arises from two main drivers: (1) entanglement with the overall housing market, including the origination and securitization functions that are so critical to the functioning of the market, and (2) concentration of credit risk in just two companies lacking an orderly resolution regime. While the CRT program significantly reduces the risk held on the balance sheets of the two enterprises, and the enterprises can do more in this respect, the enterprises remain the epitome of "too big to fail". Thus, the FHFA should codify the heightened regulatory supervision that exists today to address the entanglement and impose a systemic capital buffer to address the concentration risk, net of the risk ceded through CRT.

The FHFA has acknowledged that it may be necessary to revise the CCF or develop a separate capital planning and liquidity rule upon completion of housing finance reform. To the extent that housing reform actions occur, and the entanglement and concentration risk of the enterprises is reduced, the FHFA should reconsider whether a systemic buffer and heightened supervision continues to be necessary. But in the current unreformed state, the enterprises perform a significant number of functions critical to the market including operation of the core infrastructure. At this time, the enterprises are systemically important and the FHFA should address these unique risks, either in the CCF or through a separate Request for Input, by implementing a systemic risk buffer that scales with market concentration and the relative resolvability of each enterprise risk.

## 2.7. Market Risk: Liquidity Risk and Spread Risk

The FHFA should set forth the core requirements of a robust liquidity management framework, either in the CCF or in a separate capital management and liquidity rule. In the absence of a rule, the enterprises' focus and the regulatory oversight of prudent liquidity management demonstrated today could erode. The FHFA should ensure the prudent management of short term liquidity needs, and that the going-concern buffer (and systemic risk buffer if adopted) is comprised of high quality, liquid assets that are uncorrelated to the housing market. Absent reform, the enterprises are systemically important with defined liquidity profiles that need to be addressed.

The FHFA has identified the complexities of calculating spread risk, as it exists on the balance sheet, in part due to high prepayment sensitivity across multiple risk drivers. Given this complexity, Arch believes an internal model approach is likely the best course, so long as there is sufficient oversight of the internal approach. An

appropriately structured internal approach can provide a valuable decision-making framework that encourages the enterprises to improve the management of their market risk.

## **2.8. Regulatory Discretion**

The CCF framework empowers FHFA with significant regulatory discretion, which includes adjusting the risk-based capital and/or minimum leverage ratio by rule or by order. In Arch's opinion, discretionary authority should be limited as it is susceptible to changing political priorities, particularly during periods of economic expansions. If history is any indication of the future, the housing cycle experiences long periods of favorable conditions, which result in flush capital reserves. And at the very point that companies should be holding and raising additional capital, there has been enormous shareholder and regulatory pressure to the contrary given the long tailwinds of good market conditions.

Discretionary authority also creates unnecessary uncertainty. Equity investors and market analysts base their investment decisions on the ability of companies to provide a return to their shareholders. Changing the capital standard based on discretion adds unpredictability that may depress the returns to investors, which will likely depress private capital investment (e.g. the initial market reaction to PMIERS 2.0). Thus, Arch strongly objects to the FHFA using discretionary authority to serve as a countercyclical role across economic cycles.

## **2.9. Minimum Leverage Ratio**

Arch acknowledges that the FHFA is required under the Safety and Soundness Act to maintain both a minimum leverage capital requirement and a prescriptive risk-based capital requirement for the enterprises. Such leverage ratio is to ensure a minimum level of capital within the system at all times. Of the two alternatives specified: the "2.5 percent alternative" and "the bifurcated alternative" – Arch strongly advocates for the bifurcated alternative. The bifurcated alternative recognizes the different funding risks of trust and non-trust assets, and gives credit to the more stable source of funding. Arch further suggests amending the bifurcated alternative to give credit for CRT. The 1.5 percent factor applicable to trust assets under the bifurcated approach is based on the GSEs' portfolio as of 2017 and includes a material number of legacy vintages that are not covered by CRT transactions. As the mix of vintages shifts over time, and the legacy vintages run-off, the 1.5 percent requirement will become punitive. Deducting CRT credit from the leverage ratio provides a structural incentive to continue these transactions, and will help to calibrate the magnitude of leverage ratio over time. Thus, Arch suggests applying a gross minimum leverage ratio to trust assets and deducting available CRT credit from this amount.

## **2.10. Definition of Capital**

FHFA has no authority to change the definition of capital, which excludes recognition of deferred tax assets (DTAs) and accumulated other comprehensive income (AOCI). Arch agrees with the CCF's proposal to exclude AOCI from capital. Arch also agrees with the FHFA that the capital requirement should compensate for the lack of recognition of DTAs by reducing the required capital for the value that could reasonably expect to be eliminated under a stress scenario (e.g. claw back of prior tax payments).

### 3. Appropriateness of the Credit Risk Framework

#### 3.1. Overall Risk Charges

The CCF segments capital requirements among whole loan requirements, credit for mortgage insurance credit enhancement, credit for CRT transactions, and the counterparty haircuts on risk transfer. The loan-level grids of prescribed factors remove the opacity and operational complexity of relying on the FHFA's internal econometric models, and provide market participants with some much needed transparency into the FHFA's assessment of credit risk. Arch broadly agrees with the segmentation used and the explicit recognition of capital transfer, and believes the capital outputs are reasonable.

The CCF states that the FHFA leveraged the baseline and severely adverse scenario defined in the Dodd Frank Act Stress Tests (DFAST) to project expected and stressed losses. While this approach is reasonably prudent, and Arch agrees with the model reflecting "lifetime" stress losses rather than a shorter time horizon, the proposal includes little detail on the stress scenario used. Further, while a 25% peak-to-trough decline in the severely adverse scenario mirrors the peak-to-trough decline experienced in some markets during the Great Recession, the severity of the decline was due in part to markets being significantly overvalued pre-crisis. In other words, the HPD would likely have fallen by less if the same shock occurred in a different year. Arch estimates that a 25% decline on fair-valued housing is approximately two times as punitive as the over-correction experienced in the Great Recession. In the spirit of further transparency and market understanding, Arch encourages the FHFA to provide further detail on the home price, interest rate and unemployment paths underlying the CCF.

#### 3.2. Lifetime Capital

Arch has observed that the lifetime capital consumption is highly sensitive to the home-price-appreciation (HPA) experienced by a loan through its life. While Arch agrees that homeowner equity is the key parameter to assess the risk of default and the framework should reflect MTMLTV, the consequence is that the price of mortgage credit risk will be significantly affected by the future HPA assumption at loan origination, which may incent overly optimistic (yet defensible) estimates of HPA and potentially inadequate prices. This reduction of lifetime capital by overly optimistic assumptions of future HPA may be further exacerbated when house prices are overheating, but pricing is still based on HPA assumptions grounded in momentum rather than reversion effects. By way of example, the annualized gross capital charges, through the life of a 720 FICO / 90% LTV loan, when assuming 5% HPA per annum, is approximately 50% of the requirement when assuming home prices stay flat. Alongside static capital charges grounded in a 25% peak-to-trough decline, marking loans to market rather than fundamental value introduces significant pro-cyclicality.

#### 3.3. Refreshed FICO Scores

For nearly three decades, the industry has entrenched around the origination FICO score. From building models to scoring performance over time, the origination FICO score is memorialized in the historical and public data sets utilized by the mortgage industry to measure the riskiness of loans. Enshrining refreshed FICO scores within the CCF will diminish the usefulness of the CCF for providers of credit risk capital and will provide the enterprises with a competitive advantage grounded in information asymmetry. For example, the enterprises could be incentivized to undertake CRT transactions on loans where FICO scores have deteriorated, to obtain a capital benefit for a risk which the market cannot price as accurately as the enterprises. The introduction of refreshed FICO scores essentially breaks the industry's ability to rely on historical data because refreshed FICO scores were not

historically gathered and are not available in Fannie Mae Single-Family Loan Performance Data or Freddie Mac Single Family Loan-Level Dataset (together, the enterprises' "Public Data Sets").<sup>8</sup>

If the FHFA adopts the use of refreshed FICO scores in the final CCF, the enterprises should supplement their Public Data Sets to include refreshed FICO scores. But even assuming that refreshed FICO scores are available on historical loans, implementing the new risk factor is a complex and expensive task. In order to operationalize refreshed FICO scores in its business framework, Arch would need to:

- analyze refreshed FICO scores, and re-model its existing insurance portfolio;
- update internal proprietary models to include refreshed FICO scores;
- update all concentration limits, key risk indicators and Board limits that are related to credit scores and gain internal approval;
- update loss mitigation and other eligibility criteria and communicate changes to customers;
- update internal systems to conform to new guidelines; and
- change all systems that capture credit scores to also capture the refreshed score.

Moreover, the use of refreshed FICO scores could introduce an additional element of pro-cyclicality during periods of favorable market conditions. As recently reported by FICO, credit scores have reached a new high, an average of 704, compared to an average of 686 in 2009.<sup>9</sup> If FICO scores for existing borrowers increase over time through peaks of the business cycle, this could reduce the capital in the system and could motivate looser lending on new originations even as market conditions are becoming overheated. In addition, relying on refreshed FICO scores adds further uncertainty to model outcomes over the life of the loan, by introducing a requirement to forecast FICO score movements in response to macroeconomic projections. To justify the effort and cost, and the resulting complexity from implementing a new risk variable, using refreshed FICO scores should demonstrate measurable benefit that outweighs the benefits realized from utilizing a simpler approach to differentiate risk for non-performing loans.

### 3.4. Sloping of Risk

Arch believes the framework broadly captures the key differentiators of risk, but differs in its assessment of risk relativities in the following areas:

- Base LTV/FICO Grids: Relative to Arch's internal models, the CCF risk charges and relativities are lower with respect to loans with FICO scores between 600-700, and are higher for loans with FICO scores between 700-800, which results in loans with lower FICO scores being allocated less capital and by extension potentially charged lower GFees, at the expense of loans with higher FICO scores.

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<sup>8</sup> Arch recognizes that the enterprises release refreshed FICO scores to investors of CRT transactions; however, the CRT data is not nearly as comprehensive as the enterprises' Public Data Sets.

<sup>9</sup> See FICO Scores Hit Record High at [http://www.mortgagenewsdaily.com/10042018\\_fico\\_scores.asp](http://www.mortgagenewsdaily.com/10042018_fico_scores.asp).

- **Factors other than LTV/FICO:** Arch believes that most of the Single-Family Risk Multipliers in the CCF framework are reasonable in both direction and magnitude when compared to its internal model for newly originated loans and seasoned loans. The main area where Arch's risk factors diverge from the CCF, other than LTV/FICO, is on the dimension of debt-to-income (DTI). The CCF framework for newly originated and performing seasoned loans has a 1.2x factor for loans with a DTI of 40% or higher, versus loans with a DTI of 25% to 40%. This 20% increase in risk is in line with what Arch observes for a 10% increase in DTI, and therefore a 1.2x factor for a 42% DTI vs a 32% DTI (midpoint of the 25% to 40% band) seems appropriate. The concern is that there is no additional factor as DTI increases beyond this point, and our internal models indicate that default risk continues to rise as DTI rises. Arch's analysis is consistent with the recent analysis published by the Urban Institute<sup>10</sup>. The lack of additional risk factors is especially concerning considering the recent expansion of the enterprises' credit policy that now permits loans with DTIs up to 50%. Under this framework, loans with DTIs approaching 50% would see no capital penalty for increased risk, which may create a structural incentive to originate these high risk loans. Arch believes there is an opportunity for additional granularity in the risk charges levied in the > 40% DTI space to ensure the incremental risk is appropriately priced.
- **Non-Performing Loans:** The key difference between the CCF and Arch's models is that the CCF framework includes factors based on refreshed FICO scores and do not reflect original FICO scores. Removing the original FICO score as a factor is appropriate and is corroborated by Arch's internal models. The risk relativity between a 699 and 780 FICO score is only 1.14x – rather than the 2x equivalent in the CCF based on refreshed FICO scores. Arch does not access refreshed FICO scores in the normal course of business due to the added cost and complexity; however, usage of previous payment behavior such as how long the loan has been delinquent and whether, and how many times, the loan has cured from delinquency enables Arch to differentiate risk for non-performing loans. Payment behavior factors could replace refreshed FICO scores in the CCF framework and remove the dependency on receiving refreshed FICO scores. Arch also recommends that the FHFA consider applying a 0.30 multiplier to the delinquent loan charges for each loan backed by a property located in a FEMA Declared Major Disaster Area, and either 1) is subject to a forbearance plan executed in response to a FEMA Declared Major Disaster Area eligible for Individual Assistance under the terms of forbearance plans offered by the enterprises, or 2) has an initial default date occurring up to either (i) 30 days prior to or (ii) 90 days following the Major Disaster event. In the case of the foregoing, the 0.30 multiplier shall be applied to the *delinquent loan* for no longer than 120 days from the initial default date absent a forbearance plan described in 1) above. This methodology is consistent with the approach in PMIERS 2.0 and the 0.30 factor is reasonable based on Arch's experiences in the 2017 hurricanes.

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<sup>10</sup> Fannie Mae Raises the DTI Limit, A Win for Expanding Access to Credit. Edward Golding, Laurie Goodman, and Jun Zhu, July 2017.

### 3.5. Credit for Mortgage Insurance

#### 3.5.1. Performing loans

In general, the CCF implied charges for new originations are higher than PMIERS, even though the CCF only includes unexpected losses. The CCF is also punitive with respect to high FICO segments relative to PMIERS, while low FICO segments receive a benefit. As a result, the risk charges may create a structural incentive to originate riskier loans, given the relatively lower capital allocated to low FICO loans.

#### CCF Implied MI % of Risk minus PMIERS -- Non-Cancellable MI

CCF is unexpected loss; PMIERS is total stress loss

PMIERS based on Table 4: Risk-Based Required Asset Factors, adjusted by LPMI Factors

		FICO Band					
		<620	620 - 679	680-699	700 -719	720-739	740 - 759
LTV Band	<= 85%	1.4%	0.9%	2.0%	2.1%	2.5%	2.3%
	85.01 - 90%	-5.9%	-3.4%	-1.0%	-0.3%	0.5%	0.9%
	90.01 - 95%	-3.1%	-0.6%	0.8%	1.4%	1.8%	2.0%
	> 95%	-5.2%	-2.0%	0.1%	0.9%	1.4%	1.7%

The table above compares CCF implied MI capital charges, for performing loans, to PMIERS<sup>11</sup>, keeping in mind that CCF is unexpected loss only, while PMIERS considers the entire stress loss. The risk factors in Table 4 of PMIERS, applies to originations post-June 2012 and the factors are comparable to the CCF implied charges for new originations. The comparison is of 30 year fixed rate mortgages with non-cancellable MI (LPMI).

#### 3.5.2. Non-Performing loans

In general, the CCF implied charges for non-performing loans are much lower than PMIERS charges (on average 23% of risk versus approximately 34% of risk in PMIERS). The glaring exception is one missed payment, which is considered performing under PMIERS, since loans with one missed payment have not yet been reported to the mortgage insurer. Comparing Arch data for non-performing loans, under a baseline scenario and under a stress scenario with a 25% HPD, the difference is approximately 23% of RIF, which is consistent with the average CCF charge. Therefore, Arch's view is that the CCF charges for delinquent loans are more appropriate than the current PMIERS charges.

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<sup>11</sup> Fannie Mae and Freddie Mac published revised PMIERS on September 27, 2018, that will take effect on March 31, 2019. However, the risk-based factors remain unchanged in this update.

CCF MI Credit Enhancement

PMIERS

1 Missed Payment Table

		FICO Band						
		<580	581 - 639	640 - 699	700 - 719	720 - 759	760 - 779	>=780
LTV Band	<= 85%	26%	24%	22%	20%	18%	15%	11%
	85.01 - 90%	27%	25%	23%	21%	18%	16%	11%
	90.01 - 95%	31%	29%	26%	23%	21%	18%	13%
	95.01 - 97%	29%	27%	24%	22%	19%	17%	12%
	> 97%	28%	26%	24%	21%	19%	16%	12%

Missed Payments	Factor	Expected	Unexpected
2-3	55%	13%	42%
4-5	69%	17%	52%
6-11	78%	37%	41%
>=12	85%	68%	17%
Pending Claims	106%	100%	6%

2 Missed Payments Table

		FICO Band						
		<580	581 - 639	640 - 699	700 - 719	720 - 759	760 - 779	>=780
LTV Band	<= 85%	29%	26%	24%	22%	19%	17%	12%
	85.01 - 90%	30%	27%	25%	22%	20%	17%	12%
	90.01 - 95%	32%	29%	27%	24%	21%	19%	13%
	95.01 - 97%	30%	27%	25%	22%	20%	17%	12%
	> 97%	29%	26%	24%	22%	19%	17%	12%

Average Unexpected Factor = 34%

3-6 Missed Payments Table

		FICO Band						
		<580	581 - 639	640 - 699	700 - 719	720 - 759	760 - 779	>=780
LTV Band	<= 85%	29%	27%	24%	22%	19%	17%	12%
	85.01 - 90%	29%	27%	24%	22%	20%	17%	12%
	90.01 - 95%	31%	28%	26%	23%	21%	18%	13%
	95.01 - 97%	29%	26%	24%	21%	19%	17%	12%
	> 97%	28%	25%	23%	21%	19%	16%	12%

> 7 Missed Payments Table

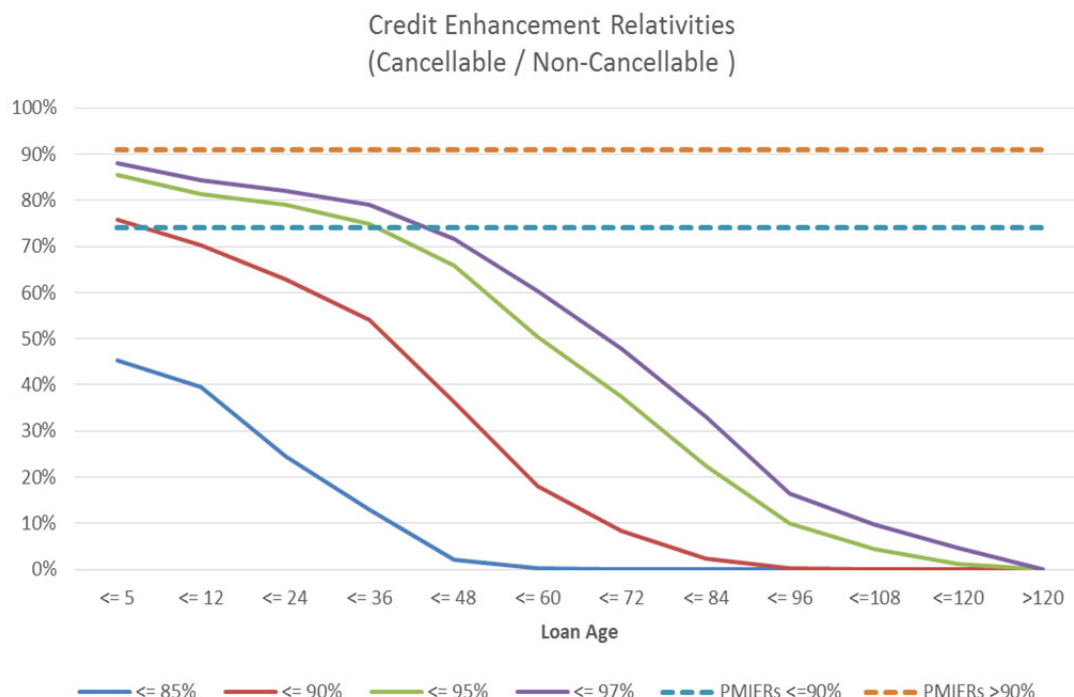
		FICO Band						
		<580	581 - 639	640 - 699	700 - 719	720 - 759	760 - 779	>=780
LTV Band	<= 85%	31%	28%	26%	23%	21%	18%	13%
	85.01 - 90%	31%	28%	25%	23%	20%	18%	13%
	90.01 - 95%	30%	27%	25%	22%	20%	17%	12%
	95.01 - 97%	28%	25%	23%	21%	18%	16%	11%
	> 97%	27%	25%	22%	20%	18%	16%	11%

Average = 23%

The tables above compare CCF implied MI capital charges for non-performing loans to PMIERS (using Arch's expected losses under each framework. In the case of non-performing loans, it is relatively easy to convert PMIERS charges to an unexpected loss basis by subtracting reserves from non-performing required assets). The risk factors in Table 8 of PMIERS apply to all loans with more than one missed payment.

### 3.5.3 Cancellable versus Non-Cancellable MI

In general, the CCF charges imply a larger spread between BPMI and LPMI than currently exists in PMIERS. Arch agrees that the credit enhancement applied to gross credit risk charges should be lower for cancellable MI and that this effect should be more pronounced at original LTVs closer to 80% and as the loan amortizes over time. However, while the CCF implied charges make sense directionally (including the variation by age), the magnitude of the BPMI/LPMI spread is hard to justify and will drive significant differences in capital requirements and, by implication, pricing decisions between LPMI and BPMI.



The chart above illustrates that the credit given for cancellable MI (borrower paid or BPMI) is lower than that for non-cancellable MI (lender paid or LPMI). As an illustration, for a 95% LTV loan, the credit enhancement (or deduction of capital) provided to an enterprise by BPMI cover is 85% of that provided by LPMI cover, at age <= 5 months; and 10% at 12 years. The dotted lines illustrate the relationship to PMIERS, which does not vary by age. Note that the PMIERS charges reflect the full amount of stress loss, while the CCF implied charges reflect only unexpected loss. At the time the PMIERS multipliers for LPMI were introduced in 2015, Arch could find little empirical data to support large differences in persistency between LPMI (almost all single premium) and BPMI single premium. However, a longer history in a rising interest rate environment may prove that such differences do exist.

### 3.6. Complexity

While Arch applauds the use of a grid-based structure, there are still components of the model where the added complexity is not proportional to the impact. First, Arch suggests combining the New Origination and Performing Seasoned loan segments. These segments are largely the same, save for the carve out for origination LTV of 80% and the age-related multipliers. With MTMLTV in the model, origination LTV is still an important risk factor; thus, Arch recommends combining these risk groups and having a risk multiplier for origination LTV band. This approach would reduce complexity, increase risk differentiation, and remove the proposed unintuitive increase in capital for loans with an original loan to value (OLTV) between 75-80% after 5 months seasoning. Second, the FHFA should combine the Non-Modified RPL and Modified RPL loan segments. Given the relatively low level of modifications and the observation that the relativities in the base grids and multipliers between these groups are not dissimilar, Arch believes the most pragmatic approach to modeling this would be to combine the groups and have a multiplier reflecting a modification to shift the absolute *level* of risk between the groups.



## 4. Countercyclical Capital Buffer

As observed by the FHFA, there is inherent pro-cyclicality implicit in the proposed CCF. To illustrate, consider a 90% LTV / 700 FICO loan originated at the end of 2001. The table below shows actual home prices scaled to 100 at 2001, the MTMLTV of the loan through time, and the proposed gross capital charges (excluding secondary risk factors). As home prices grew rapidly through year-end 2005, the MTMLTV decreases and the CCF required capital required to support the loan is significantly reduced. As housing falls through 2011, additional capital is required to support the loan.

Year-end	2001	2003	2005	2007	2009	2011	2013	2015	2017
HPI	100	114	140	145	127	121	127	141	159
MTM LTV	90%	79%	64%	62%	71%	74%	71%	64%	57%
CCF Capital	452	286	134	134	199	199	199	134	46

Arch places significant emphasis on the fundamental value of housing and believes a good capital model should be countercyclical, requiring additional capital as housing becomes overvalued and reducing capital requirements as housing becomes undervalued. This approach reduces risk to homeowners, taxpayers and market participants, while also helping to expand homeownership over the cycle. Arch's fundamental home price model shows U.S. housing markets were fairly valued at the end of 2001; 22% overheated by the end of 2005; and 8% undervalued at the end of 2011. The table and chart below illustrate the additional capital required on the aforementioned loan under a countercyclical model which marks loans to fundamental rather than market values.

Year-end	2001	2003	2005	2007	2009	2011	2013	2015	2017
Market and Fundamental values of homes (2001=100)									
HPI	100	114	140	145	127	121	127	141	159
Fundamental	100	105	114	125	122	132	137	148	154
Overvaluation	0%	9%	22%	16%	4%	-8%	-7%	-5%	3%
Mark to Market/Fundamental LTV for a 90 LTV loan originated in 2001									
MTM LTV	90%	79%	64%	62%	71%	74%	71%	64%	57%
MTF LTV	90%	86%	79%	72%	74%	68%	66%	61%	59%
CCF / Countercyclical capital charges (FICO = 700)									
CCF Capital	452	286	134	134	199	199	199	134	46
Countercyclical Capital	452	452	286	199	199	134	134	134	46
Countercyclical: CCF	100%	158%	213%	149%	100%	67%	67%	100%	100%

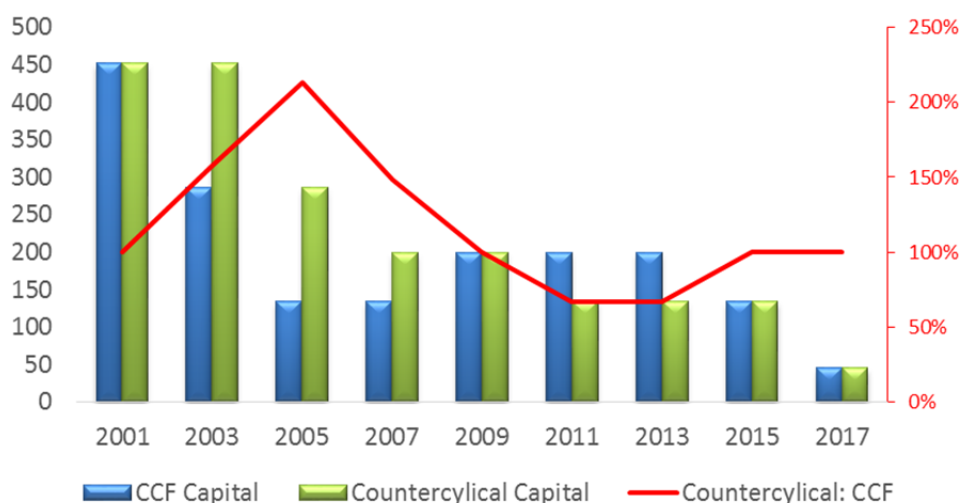
In this example, the countercyclical model requires more than two times the capital required by the CCF to support the loan in 2005. Capital is released on this loan between 2003 and 2005 as fundamental values increase, but the countercyclical capital is still more than twice that required under the CCF.

Arch advocates that the Enterprises mark their portfolios to fundamental value (rather than market value), which will inform the countercyclical capital buffer level alongside the existing MTMLTV capital charges. Such an approach supports the countercyclical objective of discouraging capital investment in new originations when

housing is overvalued. Note, a 90% LTV loan originated in 2005, would be marked-to-fundamental at 110% and would require 950 bps of capital compared to 452 bps under the CCF framework.<sup>12</sup> When home prices are overvalued, a countercyclical model will serve to constrain market appetite, and as a result, will protect low to moderate income borrowers from buying homes when they are overvalued. Arch's experience shows the likelihood of default is significantly higher with respect to borrowers that purchase overvalued properties. This approach also injects additional capital if housing values over-correct after a stress, thereby stimulating additional lending when the economy is likely to need it most. As illustrated, the capital required to support a loan in 2011-2013 is 33% lower than the CCF proposal.

The chart below is a graphical representation of the above table.

CCF versus CCF with a Countercyclical Capital Buffer for a 90% LTV / 700 FICO loan originated in 2001



To illustrate further, Arch proposes the following mechanical steps to assign capital charges to enterprise portfolios to reflect mark-to-fundamental, rather than market, values. Consider, by way of example, that fundamental/market values have increased 4%/9% respectively between t=0 and t=1.

1. Apply loan level capital charges to all portfolio loans based on mark-to-market grids (similar to the current construct). At t=1, the capital factors will reflect the 9% increase in home-owner equity since t=0.
2. Apply a countercyclical buffer at the enterprise portfolio level (not the loan level). This approach would add additional capital to Enterprise portfolios reflecting the 5% (9% market value – 4% fundamental value) *over-valuation* established between t=0 and t=1.

<sup>12</sup> With a market price of 100, 22% overvaluation means fundamental price of 82 (i.e.  $100/1.22=82$ ), so for a 90 LTV loan, the MFTLTV is  $90/82 = 110\%$ . The table reflects countercyclical capital for a loan originated in 2001, not the capital for the 2005 loan.

The combination of these steps ensures that only the 4% increase in fundamental value is reflected in the decrease in required capital from  $t=0$  to  $t=1$ . An alternative approach would be to have the loan level grids reflect mark-to-fundamental changes – however Arch believes this would be overly complex and would not be as transparent as the approach we have suggested.

To summarize, Arch proposes that the FHFA introduce a countercyclical buffer that is:

- Assessed at the enterprise portfolio level. In the interest of simplicity, we do not propose that the CCF loan-level grids be adjusted; rather, Arch proposes that the buffer be assessed at the macro level and applied to the entire enterprise portfolio. Note that, there may be circumstances which require applying the countercyclical buffer to a sub-portfolio, for example, to CRT portfolios, before application of the CRT capital credit calculation. Arch believes such circumstances are limited and the approach can easily be extended.
- Equal to zero when a geographic housing region is fairly valued; positive when housing is overvalued and negative when housing is undervalued. The degree to which the countercyclical buffer is negative should be limited such that the framework reflects at least a 10% drop in home prices, regardless of how undervalued housing markets are.
- Transparent in estimating housing fundamentals. The method should be simple/transparent enough such that enterprises and other market participants can forecast future capital requirements.
- Designed to move gradually over time. The above example illustrates significant movements in capital required as the loan moves between LTV buckets. This is smoothed at the portfolio level when assessing thousands of loans simultaneously. The countercyclical buffer would be a single number but should not move significantly over a short period of time.
- Cognizant of the U.S. housing market heterogeneity. At any given time there will likely be regional dispersion in over/undervaluation. Since the enterprises have a nationally diversified footprint, a nationally assessed buffer may suffice. The FHFA should however consider mechanisms for differentiating market heterogeneity, while retaining transparency of the method.

If such a countercyclical capital regime is to be considered, Arch encourages the FHFA to recalibrate the HPD implicit in the CCF framework. The 25% HPD implied by the CCF framework is broadly representative of the peak-to-trough home price decline during the Great Recession. However, home prices were significantly overvalued pre-crisis. If the 25% HPD is applied in a fair or undervalued market, the CCF result would be very punitive, particularly in a model which includes a going-concern buffer and does not give any credit for future revenue. The peak-to-trough decline of a countercyclical framework calibrated to the recent crisis would first start with the over-correction of housing relative to fundamental (approximately 10-15%) plus the degree to which housing is currently overvalued.

Finally, the CCF bases MTMLTV on the FHFA purchase-only index instead of the FHFA all-transactions index. Arch suggests the FHFA consider using the all-transactions index instead of the purchase-only index because it covers all 403 metropolitan areas and divisions instead of just the top 100 MSAs. While Arch appreciates that valuations of refinanced loans are based only on appraisals instead of transactional prices, Arch believes that the appraised values are more accurate post-crisis, and is unsure of the theoretic validity of applying purchase only indexes to value refinanced mortgages.

## 5. Counterparty Evaluation

### 5.1. Additional Transparency

Arch fully supports differentiating on the basis of counterparty strength and agrees that the creditworthiness and mortgage concentration of the counterparty are the primary considerations. The haircuts, ranging from 1% to 48%, provide sufficient differentiation to distinguish between counterparty financial strength. This approach is appropriately prudent and will provide material counterparties, such as MI companies, an incentive to focus on financial strength. The framework benefits well-diversified counterparties and aligns with the approach currently used within collateral requirements for participants in CRT.

However, the mechanism for assigning ratings lacks transparency, both with respect to the methodology used to assign a counterparty rating of 1-8 and the determination of whether mortgage concentration risk is “high” or not. Regarding counterparty strength, for example, it would be helpful to know the relative importance of pricing discipline, underwriting profits, capitalization, market share, and risk management practices. Regarding the assessment of mortgage concentration, Arch believes there is considerable benefit to being part of a larger multi-line group, but it is not clear whether the enterprises’ frameworks are applied separately for each legal entity within a group or evaluated at the group level. In addition, it is unclear how the enterprises set their internal counterparty concentration limits and whether there is latitude for stronger counterparties to exceed such limits. Finally, it is unclear whether an MI company’s own risk transfer strategy impacts its rating – in particular credit for the use of collateralized risk transfer structures. Recognizing that the enterprises have different methodologies, Arch suggests that the FHFA require the enterprises to publish their methodologies to assign counterparty ratings and to assess mortgage concentration. This transparency will create “virtuous competition”, as counterparties manage their operations to minimize the counterparty haircut under the proposed rating scheme.

### 5.2. Differentiation to Drive Business Practices

To further incent this virtuous competition, Arch advocates that the enterprises differentiate GFees and LLPAs based on counterparty strength when appropriate. For example, the fees should be lower on loans insured by better rated MI companies, all else equal. Differentiating fees based on the strength of the MI provider not only creates virtuous competition, but also gives the enterprises the ability to prospectively manage counterparty risk by incenting originators to use stronger counterparties. Currently, the enterprises are compensated equally for their counterparty risk from MI companies through higher GFees for high LTV loans. Arch accrues no benefit from being a strong counterparty. By extension, as the strongest rated MI counterparty Arch provides approximately \$100m<sup>13</sup> of annual pre-tax subsidy for the counterparty risk of the MI industry, and originators are indifferent to the counterparty risk of the MI provider. Thus, the FHFA should require the enterprises to both publish their

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<sup>13</sup> Based on reasonable assumptions of CCF implied annualized lifetime capital requirements for MI companies; the current pre-tax return of MI companies; the difference in CCF counterparty haircut of 1-2 rating grades; the current insurance in-force of Arch.

counterparty criteria and differentiate on the basis of counterparty in furtherance of the safety and soundness of the system.

### 5.3. Diversity of Counterparties

Finally, Arch suggests that the FHFA modify the CCF to require the enterprises to continue to use diverse counterparties, inclusive of both capital market investors and equity providers, to transfer credit risk to the private market. While the enterprises have rightly identified concentration in mortgage risk as increasing counterparty risk, the concentration associated with monoline MI companies also ensures that the capital maintained will be deployed only to cover mortgage losses, and ensures participation through the entire economic cycle. Capital market investors, on the other hand, are opportunistic and will choose to deploy their resources elsewhere during periods of market stress. As evidenced by current practices, the FHFA and the enterprises clearly recognize the benefit of maintaining diverse counterparties, inclusive of insurers, reinsurers and capital market investors, and executing a diversity of transaction types. However, to ensure that the prudent practices of today continue across political administrations and shifting priorities, the CCF should be modified to require the enterprises to maintain this diversity of counterparties and transaction types.

## 6. CRT Credit

One of the primary differences between the CCF and the regulation of other financial institutions is the explicit recognition of capital credit for risk ceded to the private market. Arch strongly agrees with granting explicit credit because it incentivizes meaningful transfer of credit risk to private market participants and provides the following benefits:

1. CRT improves the safety and soundness of the overall housing market by diversifying the counterparties and increasing the amount of capital in the housing finance system to pay credit losses. While the CCF is calibrated to ensure an enterprise can withstand a 25% down stress, and maintain as a going concern for a year or two, CRT provides protection above that stress (e.g. to cover an idiosyncratic scenario).
2. CRT, like excess of loss reinsurance, reduces the volatility of losses and stabilizes the enterprises' earnings during an economic stress.
3. CRT reduces the cost to consumers to the extent that the cost of capital associated with a diversified CRT counterparty is less than that required of equity capital in a monoline and concentrated enterprise.

That said, Arch suggests the FHFA make two slight adjustments to the credit given for collateralized CRT transactions because the protection of one transaction is not fungible and there is a risk of model error that could impact the effectiveness of the structure. For example, actual stress losses may be higher than CCF stress losses for some transactions, exhausting CRT limits, while actual stress losses may be lower than CCF stress losses for other transactions, and not exhaust CRT limits. However, the unexhausted CRT limit on the latter transaction cannot be used to fund the stress losses above the detachment on the exhausted transaction. In addition, there is inherent uncertainty associated with the model output and forecast of stress losses used to structure the CRT transaction. Thus, the FHFA should consider reducing the capital credit on tranches just below the CCF stress loss and give some capital credit for tranches sitting above the CCF stress loss.

As an example, consider the following structure:

	Attachment	Detachment	Layer	CRT Capital	
				Relief	% Relief
<b>CCF Proposal</b>					
M1	300	400	100	0	0%
M2	100	300	200	200	100%
B1	50	100	50	50	100%
<b>Total</b>	<b>50</b>	<b>400</b>	<b>350</b>	<b>250</b>	<b>71%</b>
<b>Arch Proposal</b>					
M1	300	400	100	40	40%
M2	100	300	200	160	80%
B1	50	100	50	50	100%
<b>Total</b>	<b>50</b>	<b>400</b>	<b>350</b>	<b>250</b>	<b>71%</b>

If the CCF stress loss is 300 bps, the current methodology would give 100% capital relief for the B1 and M2 layers and no credit to M1. The FHFA should consider giving lower relief to M2 (perhaps 80%) and give some credit for M1 so that the overall capital relief is no less than the current method. In this example, 40% credit would need to be given to M1 such that the same amount of total capital credit is maintained. This approach will appropriately incentivize the GSEs to transfer risk above the CCF stress loss, which will compensate for the inability to transfer capacity across CRT transactions and the inherent risk of model error.

Second, and consistent with Arch’s view that all expected sources and uses of capital should be explicitly recognized as discussed more fully below, the capital credit associated with CRT transactions should be reduced by the revenue ceded to the CRT investors to fund each transaction. This reduction will incentivize additional CRT placement as lower capital relief is accrued to the enterprises, all else equal.

## 7. Sources and Uses of Capital

The Proposed Rule calculates unexpected loss as the present value of the difference in lifetime losses under a stressful macroeconomic scenario and lifetime losses under an expected scenario. Losses under the expected scenario (expected losses) are netted out from losses under the stressful macroeconomic scenario (stress losses) to be consistent with other regulatory regimes. The proposal states that the enterprises set GFees at a level to cover the lifetime cost of expected losses; therefore, there is no need for the enterprises to hold capital for expected loss. In general, Arch finds this description conflates various foundational aspects of economic capital regimes and results in an approach which is not in line with the economic rationale of the underlying regimes. Arch proposes that the FHFA revise the risk-based grid factors to reflect all of the sources and uses of capital, particularly in light of the transition to “expected loss” accounting under CECL.

## 7.1. Stress (Expected Plus Unexpected) versus Unexpected Loss

Loan-level grids reflecting unexpected loss increase the complexity and opacity of the CCF and make it unnecessarily difficult for external stakeholders to evaluate. For example, consider loan A and loan B, with CCF unexpected losses of 100 and 300, respectively. Companies X and Y may evaluate that the CCF is consistent with each of their internal models, even though their models may evaluate relative riskiness (where riskiness is measured by stress multiple (i.e. volatility around expectation)) of these loans to be mirror opposites:

	Expected Loss	Stress Loss	Stress Multiple	Unexpected Loss
<b>Company X</b>				
Loan A	25	125	5.0	100
Loan B	30	330	11.0	300
<b>Company Y</b>				
Loan A	10	110	11.0	100
Loan B	75	375	5.0	300

By implication, the differing evaluations of expected risk may limit the usefulness of the feedback the FHFA receives from RFI respondents. Note that Arch agrees with the observation in the commentary that the capital factors can be non-monotonic because they reflect unexpected loss. However, this observation is only made for non-performing loans, and Arch found only monotonic factors for performing loans. This leads Arch to suspect that the capital factors for performing loans reflect unexpected and expected loss. If implemented in this form, the CCF may lead to unintended consequences in the incentives it provides for risk taking. Further clarification from FHFA on this issue is required.

Other regulatory regimes (e.g. Solvency II, CECL) have a definition of capital which is grounded in an “economic balance sheet”. An economic balance sheet explicitly reflects the present value of all cash flows arising from contractually bound obligations under an expected scenario. As applied to mortgage credit risk, this leads to a requirement to hold reserves for both performing and non-performing loans, and an associated reduction in available capital, all else equal. This type of methodology provides transparency and consistency with respect to expected losses and will mitigate the risk that the enterprises could reduce prices at the point in the economic cycle to preserve volume, when expected losses are increasing but the CCF capital requirements are static. Revenue credit that mitigates capital requirements will counteract downward pricing pressure at the very point in the credit cycle when the enterprises should be building reserves.

Arch therefore believes that the CCF should reflect stress losses with factors that represent the unexpected loss for non-performing loans and the expected plus unexpected loss for performing and re-performing loans. The CCF would reflect asset based charges (rather than capital charges), and the enterprises would calculate the total asset charges and then deduct their carried loss reserves. Until the adoption of CECL, the enterprises would need to estimate and deduct the expected losses for performing loans in addition to the carried reserves for non-performing loans that they hold in their current incurred loss framework.

## 7.2. Future Revenue

Arch believes that the FHFA conflates the concept of required capital (which Arch advocates should cover stress losses) with the recognition of future revenue. On the one hand, the FHFA states that it considers it prudent to have risk-based capital requirements that do not count future enterprise revenue toward capital. On the other hand, the FHFA states that GFees are set at a level to cover the lifetime costs of expected losses, which reflects support for the inclusion of future revenue within the framework. In other words, future revenue is a recognized source to cover expected losses, but is not recognized as a source to cover unexpected losses. Since the majority of the GFee pricing is to cover unexpected loss (or capital), Arch believes that the CCF should *explicitly* recognize future revenue. While Arch agrees there is some uncertainty regarding the recoverability of future revenue under a stress Arch notes that at the lowest point during the Great Recession, approximately 92 percent of borrowers with enterprise guaranteed mortgages were current on their mortgages. In addition, the going concern buffer is included in the framework to ensure the continued operation of the enterprises, post stress, in order to collect such future premium. Any estimate of future revenue is uncertain and will vary according to modelled prepayment rates which are sensitive to, inter alia, future rate environment and credit risk profile. As such, Arch is amenable to a haircut to modelled future revenue in order to recognize the inherent model error.

A key advantage of explicit and broader recognition of future revenue as a source of capital is that it provides significant disincentive to lower GFees in order to grow business volumes, which is a key risk that is inadequately controlled for in the current framework. For the avoidance of doubt, there should only be revenue credit with respect to in-force business at the valuation date, not for assumed future new business.

In addition, the proposal states that the inclusion of revenues could result in very low or zero risk-based capital requirements for specific portfolio segments. Arch agrees that this is true based on current GFee pricing. In a future state capital framework based on risk-based capital and some recognition of future income, GFee pricing would theoretically adjust so that there would be no zero-based capital requirements in any portfolio segments. Finally, Arch notes that recognizing future revenue is common in the insurance industry and rating agency models. Unlike banking institutions, which have other sources of revenue (e.g. deposits), GFee revenue is the primary source of income for the enterprises.

## 7.3. Moving to CECL Accounting

Industry estimates of the impact of the enterprises moving from an “incurred loss” model to an “expected loss” model under FASB’s CECL accounting framework – would require the enterprises to post an additional combined \$12.5B loss reserve. Under the current “incurred loss” accounting framework, the enterprises are only required to set up a reserve when a loan is delinquent. The enterprises are not required to hold reserves to cover ultimate or expected losses associated with future delinquencies. Rather, there is an implicit credit for future revenue that will cover future expected losses. Since the CECL implementation is approaching and will require the enterprises to hold reserves against for future expected losses, the CCF framework should be explicit about how it should be interpreted under this new accounting regime, including the analogous recognition of future revenue.



## 8. Systemic Risk

### 8.1. Systemic Risk

In Arch's opinion, the CCF does not adequately address the systemic risk posed by the enterprises in the current, unreformed market. Systemic risk arises from two main drivers: (1) entanglement with the overall housing market, including the origination and securitization functions, and (2) market concentration. On one hand, the enterprises' CRT programs have significantly reduced risk concentrated on the enterprises' balance sheets, and the counterparty charges to unfunded credit risk transfer/enhancement add a layer of conservatism to the framework by *increasing* the capital in the system and spreading the risk over a wider number of counterparties. On the other hand, the potential recovery actions available to the enterprises, given their size and market entanglement, are extremely limited. For example, an enterprise could limit their purchase of whole loans during a period of stress to preserve liquidity; however, the political reality of such action makes this untenable. At this point, failure of one of the enterprises is not an option. Thus, the FHFA should consider assessing a systemic risk buffer in addition to the going-concern buffer and codifying the heightened regulatory supervision of critical activities (such as liquidity management discussed more fully below), so long as the enterprises pose heightened systemic risk.

The systemic risk buffer and heightened supervision is appropriate now, in an unreformed state, but may become unnecessary to the extent that administrative or legislative housing reform further lessens the concentration risk, and addresses the resolvability of the enterprises. For example, the leading Congressional reform proposals contemplate multiple guarantors or private credit enhancers, and include a general prohibition or significant limitations between issuance and credit enhancement activities. These actions would lessen the concentration risk by creating a framework with more than two enterprises, and by disentangling the issuance and credit enhancement functions. That said, the probability, and the form of, future reform actions remains highly uncertain. Therefore, the FHFA should address the systemic risk that exists now, and then re-consider whether a systemic risk buffer and/or heightened supervision remain applicable in light of the reform actions that may come to pass.

## 9. Market Risk: Liquidity Risk and Spread Risk

### 9.1. Liquidity Risk

Systemic risk intersects with liquidity risk and the adequacy of the going-concern buffer, which is intended to provide sufficient capital to fund one to two years of new acquisitions. In other words, liquidity risk is exacerbated as systemic risk increases. While the commentary states that liquidity risk is adequately managed, the FHFA should set forth the core requirements of a robust liquidity management framework, either in the CCF or in a separate capital management and liquidity rule. In the absence of a rule, the enterprises' focus and the regulatory oversight of prudent liquidity management could wane. Assuming there is an explicit governmental guarantee of the mortgage-based securities issued by the enterprises, which is necessary to avoid disrupting the to-be-announced (TBA) markets, the liquidity of the enterprises post-conservatorship will likely be similar to their needs today. Thus, Arch suggests that the FHFA solidify the core components of a robust liquidity management

program as a part of an overall market risk management program that includes certain core requirements, including but not limited to:

- maintaining minimum cash and cash equivalents to meet expected obligations for a defined period of time (e.g. 30-60 days);
- forecasting cash flow, both under an expected case and under stress, at one and five years;
- ensuring that the asset maturity profile does not exceed the expected timing of their liability cash flows under stress; and
- maintaining broad access to multiple sources of contingent liquidity that may reasonably be expected to be available under a stress scenario.

In addition to ensuring the prudent management of short term liquidity needs, the rule should ensure the going-concern buffer (and systemic risk buffer if adopted) is comprised of high quality, liquid assets that are uncorrelated to the housing market. Arch agrees with the CCF proposal to exclude accumulated other comprehensive income (AOCI) from capital and from inclusion in the going-concern buffer. During periods of declining interest rates, unrealized gains will accumulate in equity. However, this equity is not readily available to fund capital needs without full liquidation of the available-for-sale (AFS) securities. Likewise, periods of stress would typically involve higher interest rates resulting in unrealized losses. The assets that comprise the going-concern buffer should be invested to cover projected cash needs during a DFAST Global Market Shock. A sufficient going-concern buffer and liquidity plan should mitigate the need to liquidate a significant portion of the AFS portfolio to support cash flow requirements.

Arch recognizes that the FHFA is not taking a position on housing finance reform by publishing the proposed CCF framework, and that the FHFA recognizes that it may be necessary in the future to revise a final rule or develop additional rules. For example, to the extent the future state does not include a government guarantee on non-MBS debt issued by the Enterprises, the liquidity profile of the enterprises would be significantly more complex, and Arch's proposal would be inadequate. Absent reform, the enterprises are systemically important with defined liquidity profiles that need to be addressed.

## 9.2. Spread Risk

Spread risk is defined as the risk of loss in value of an asset relative to a risk free rate due to changes in the spread of mortgage assets (single-family, multifamily, private label, CMBS), debt, and derivatives used to hedge the position. This risk primarily affects those assets on the balance sheet that are marked-to-market, including held-for-sale mortgage loans and other mortgage-related securities (CMBS, private-label, revenue bonds, etc.). While derivatives are used for multiple hedging purposes, none are accounted for under hedge accounting and all are marked-to-market which also exposes them to spread risk.

For new originations and performing seasoned loans, the FHFA has identified that the complexity of calculating the spread risk is amplified due to high prepayment sensitivity across multiple risk drivers. Given this complexity, an internal models approach is likely the best course, so long as there is sufficient governance and regulatory oversight of the internal approach. The use of internal models in this context is analogous to banks using the advanced internal ratings-based approach (Advanced IRB) to implement the Basel standards. To extend that analogy, the advantages of an internal approach here are two-fold: 1) the approach will be more sensitive to drivers of the risk, and 2) an appropriately structured internal approach can provide a valuable decision-making

framework that encourages the enterprises to improve the management of their market risk. Finally, the fact that the Enterprises will have different outputs will provide the FHFA with valuable regulatory insight and the ability to benchmark the results. However, as with the Advanced IRB approach, the FHFA will need to closely monitor the integrity of any internal process, and should take a holistic view of market risk, since for example, the same sensitivity to prepayment risk with respect to both whole loans and enterprise MBS and spread risk, also amplifies the enterprises' liquidity risk.

### 9.3. Testing Market Risk by DFAST Global Market Shock

The FHFA should utilize the global market shock component devised by the Federal Reserve and annual stress testing to ensure that the Enterprises are holistically managing the market risk of their assets. The global market shock component for the severely adverse scenario is designed around three main elements:

- a sudden sharp increase in general risk premia and credit risk;
- a rise and steepening of the U.S. yield curve; and
- a general sell-off of U.S. assets relative to other developed countries.

The scenario and impact of the global market shock component can be different in each year's iteration of the stress tests, so the capital requirement should not be strictly linked to this measure. However, the nature of the shock may materially impair the value of the assets; thus, the FHFA should consider how such impairment might reasonably affect the assets supporting a going-concern buffer requirement such that any shortfall be made good.

## 10. Regulatory Discretion

Consistent with its recommendation to adjust the framework to be countercyclical, Arch strongly objects to the FHFA using discretionary authority to serve as the sole countercyclical force across economic cycles. If history is any indication of the future, the housing cycle experiences long periods of favorable conditions, which result in flush capital reserves. And at the very point that companies should be holding and raising additional capital, there has been enormous shareholder and regulatory pressure to the contrary given the long tailwinds of good market conditions. For example, the MI companies released contingency reserves in 2007, with both enterprise and state regulatory approval, just prior to the market crash. There is also current action being taken to deregulate banks and other market participants, such as increasing the threshold above which banks are considered to be systemically important, from \$50 billion to \$250 billion, thereby removing the regulatory scrutiny on the capital plans (dividends and buybacks) of many medium-sized institutions. Discretionary authority creates unnecessary uncertainty; equity investors and market analysts base their investment decisions on the ability of companies to provide a return to their shareholders. Changing the capital standard unpredictably based on discretion will depress the returns of investors, and will depress investor appetite.

While the FHFA has the authority to determine appropriate capital standards, that authority is limited with respect to temporary increases such as countercyclical actions that respond to macroeconomic changes. The

FHFA has the authority to impose temporary increases in capital levels, “when the Director determines that such an increase is necessary and consistent with the prudential regulation and the safe and sound operations of a regulated entity”.<sup>14</sup> However, the Director is also required to issue regulations establishing the standards for the imposition and rescission of a temporary increase, and the timeframes upon which it must review the increase for potential rescission.<sup>15</sup> Given the chilling effect that discretionary authority has on private investment, and the statutory limitations governing temporary increases, the FHFA should adhere to the Administrative Procedures Act and provide notice and an opportunity to comment on prospective changes.

## 11. Minimum Leverage Ratio

Arch acknowledges that the FHFA is required under the Safety and Soundness Act to maintain both a minimum leverage capital requirement and a prescriptive risk-based capital requirement for the enterprises. This mechanism is to ensure a minimum level of capital within the system at all times and to establish a backstop in the event the risk-based requirements underestimate the risk of an enterprise’s assets. We acknowledge that there is model risk associated with any risk-based measure and a minimum constraint is required. The Proposed Rule also highlights pro-cyclicality risk as another key risk factor influencing the inclusion of a minimum leverage ratio – Arch’s proposal removes this risk factor through an explicit countercyclical capital buffer.

Of the two alternatives specified: the “2.5 percent alternative” and “the bifurcated alternative” – Arch strongly advocates for the bifurcated alternative. The bifurcated alternative recognizes the different funding risks of trust and non-trust assets. Under trust assets, investors provide the Enterprises a stable source of funding that is match-funded with the mortgage assets that Fannie Mae and Freddie Mac purchase and hold in trust accounts. While these mortgage assets are reflected on the balance sheets of the Enterprises and represent the vast majority of their assets, the funding for these assets has already been provided and cannot be withdrawn during times of market stress. This stable funding for trust assets is in contrast to the banking deposits and short-term debt that banks rely on which could become unavailable during a stress event.

For the Enterprises’ trust assets, the 1.5% requirement is calibrated to be comparable to the proposed post-CRT credit risk capital requirements for the Enterprises’ portfolios as of September 30, 2017. Arch believes this result is elevated as it includes significant capital consumption from risky crisis vintages which are not protected by CRT. If the enterprises performed the same exercise, but only on recent vintages, Arch believes the result would be significantly lower. As such, as the crisis years run-down, the 1.5% threshold will become inappropriately punitive. To address the change in capital consumption as the mix changes between vintages that are, and are not, covered by CRT, Arch propose an “amended bifurcated alternative” where a gross risk invariant minimum leverage ratio is applied to trust assets and the available CRT credit is deducted from this amount. Arch’s proposed amendment to the bifurcated alternative would incentivize the continued programmatic issuance of

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<sup>14</sup> The Safety and Soundness Act, as amended by HERA at 12 U.S.C. §4612(d)(1).

<sup>15</sup> 12 U.S.C. §4612(d)(3).

the successful CRT program and would be less likely to produce a binding leverage requirement that could negatively impact an Enterprises' marginal economic decision-making. The FHFA could codify the deduction for CRT credit when calculating the minimum leverage ratio by modifying the CCF, or through a separate rulemaking specific to codifying the prudent CRT practices of today.

## 12. Definition of Capital

As the FHFA has no authority to change the definition of capital, the CCF aims to compensate for items that would otherwise be adjusted through increased capital charges. More specifically, the Safety and Soundness Act includes definitions of core capital and total capital. Core capital is defined as the sum of the stated value of outstanding common stock, the stated value of outstanding perpetual, noncumulative preferred stock, paid in capital, and retained earnings. The definition of core capital does not reflect any specific considerations for deferred tax assets (DTAs) and excludes accumulated other comprehensive income (AOCI). Total capital is defined as core capital with a general allowance for foreclosure losses and any other amounts available to absorb losses. As the FHFA notes, the recoverability of DTAs is likely to be compromised under stress due to deterioration in the projected future taxable income. During the financial crisis, the enterprises established partial valuation allowances on the DTAs which directly reduced capital. Since the definition of core capital cannot be changed, Arch agrees that the capital requirement should compensate for this risk by reducing the required capital for the value that could reasonably expect to be eliminated under a stress scenario (e.g. claw back of prior tax payments).

On the other hand, the CCF does not include any capital charges for AOCI. AOCI generally consists of unrealized gains and losses on available-for-sales securities (AFS) which are measured at fair value under GAAP accounting. Unrealized losses accumulate in periods of rising interest rates, and the counter is true in periods of falling interest rates. Given the potential volatility of this item on capital, Arch agrees with the CCF's proposal to exclude AOCI from capital. During periods of declining interest rates, unrealized gains will accumulate in equity. However, this equity is not readily available to fund capital needs without full liquidation of the securities. Likewise, periods of stress would typically involve higher interest rates resulting in unrealized losses. However, these would not be realized unless a significant portion was sold to address liquidity needs. A sufficient going-concern buffer and liquidity risk management framework should mitigate the need to liquidate a significant portion of the AFS portfolio to support cash flow requirements.

Total capital also includes the stated value of outstanding perpetual, noncumulative preferred stock. The enterprises currently have two forms of preferred stock: Senior Preferred Stock issued to the Treasury as part of the "senior preferred stock purchase agreement" and preferred stock issued by the enterprises prior to entering into conservatorship. Arch agrees with the current proposal to include perpetual, noncumulative preferred stock to the extent that the shareholders have no right to require redemption of the shares and the payment of the dividend is not mandatory and at the discretion to be declared by the Board of Directors.

### 13. Conclusion

The Proposed Rule on Enterprise Capital is foundational to creating a prudent regulatory framework and provides transparency into the FHFA's view on capital adequacy. Given its importance, Arch urges the FHFA to take deliberate steps to refine and build upon the Proposed Rule, including solicitation of industry feedback on critical aspects such as countercyclicality and the determination of fundamental housing values, a more granular GFee structure based on the CCF reflective of counterparty strength, allowing for future revenue, liquidity management, and systemic risk. Arch recognizes the substantial effort required to publish this framework, and appreciates the opportunity to provide its feedback and recommendations. Arch remains committed to working collaboratively with the FHFA, the enterprises, and industry stakeholders to develop a robust regulatory framework that creates a more stable mortgage market post-conservatorship that balances the interests of consumers, taxpayers, market participants and the U.S. economy as a whole.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Rippert".

Andrew Rippert  
CEO, Global Mortgage Group  
Arch Capital Group Ltd.