

November 16, 2018

Alfred M. Pollard, General Counsel,
Attention: Comments/RIN 2590-AA95,
Federal Housing Finance Agency
Eighth Floor
400 Seventh Street, SW
Washington, DC 20219

Subject: (RIN) 2590-AA95 FHFA Proposed Rule on Enterprise Capital Requirements

Dear Mr. Pollard:

On behalf of the DUS Peer Group¹, the DUS Advisory Council welcomes the opportunity to comment on the proposed rule on Enterprise Capital Requirements published on July 17, 2018. The DUS Advisory Council represents the 25 DUS Lender firms that do business with Fannie Mae. As our business is originating, underwriting and servicing multifamily loans our comments will pertain to the multifamily business.

We appreciate the ongoing efforts by FHFA to ensure a viable and vibrant housing finance system within the constraints of your role as conservator of the enterprises. However, we believe that, based on our analyses, the approach taken and methodology employed need to be reconsidered as the FHFA proposed capital standards are 3-4 times what other capital standards methodologies would suggest. The risk-based capital framework set under the proposed regulation is inconsistent with the loss experiences of the GSEs in times of severe market distress, resulting in capital standards that are significantly higher than required for prudent lending practices.

¹ The Delegated Underwriting and Servicing (DUS) Peer Group is a coalition of lenders who originate the preponderance of multifamily mortgages that are sold to or securitized by Fannie Mae. Most of our members also utilize the Freddie Mac and Ginnie Mae programs for financing rental housing. Our members are key participants in the multifamily rental housing market as originators, securitizers and servicers of mortgages on rental housing for millions of U.S. households.

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Executive Summary

In our review and analysis of the credit risk capital framework set forth under the Proposed Rule, we believe this new regulation will adversely affect the stability and viability of the multifamily finance system. While we provide a detailed analysis, and a set of recommendations for consideration, we wish to express upfront our major concerns about the proposed rule. Those concerns are:

Concerns:

1. Applicability of methodology, reasonableness of the outcomes, and transparency are all essential elements in establishing capital standards. Unfortunately, we question if this has been the case given the utilization of elements of international banking's Basel capital standards, the disproportionate capital needs relative to other sectors and regulators, and the opacity of the core modeling assumptions used in the framework's derivation.
2. By its own admission, FHFA had insufficient multifamily default data to substantiate the credit risk capital levels suggested. Our analysis provides several suggested reasons for why the FHFA model is producing credit risk capital levels that are so high (detail provided in Section 2). The FHFA's Proposed Rule is said to be based on Basel capital standards, despite differences including the fundamental manner of determining credit risk capital itself. The Basel capital standards were created for the largest, most complex international financial institutions. The nature of these banks' businesses, balance sheets, fundings, and credit risks is materially different from the multifamily lending of the GSEs – essentially a guarantee business that operates like an insurance company with matched term funding (for example, DUS Mortgage Backed Securities). While the Basel capital standards may be fully vetted and widely accepted for the largest international banking institutions, the application of these capital standards to the GSE multifamily businesses is both inappropriate and detrimental. The results are almost three times greater than levels suggested by our analysis of National Association of Insurance Commissioner ("NAIC") standards (see Section 1 and Appendix 4 for analysis).
3. Multifamily credit risk capital proposed is 1.75X that of single-family, while the Multifamily loss experience was and continues to be substantially lower than the single-family loss experience. See Section 1 for analysis.
4. The FHFA's decision to not rely on any future income when deriving risk capital tables is puzzling for a number of reasons we discuss in detail in Section 2 and Appendix 8. Additionally, we question the FHFA's underlying models as they seem to imply materially more asset level volatility than we measure. Discussion can be found in Section 2 and Appendix 7.
5. The Proposed Rule would increase the risk of undercapitalization in a cyclical downturn due to the Pro-Cyclical nature of the proposal. More specifically, mechanisms in the calculation of credit risk would substantially increase capital requirements in periods of distress, when capital is hardest and/or most expensive to raise. Section 3 and Appendix 3 of our response explore this in detail.

Core Recommendations:

The Council has identified three core recommendations that help address our major concerns related to the credit risk capital structure of the Proposed Rule. A detailed discussion of those core recommendations can be found in Section 5 of our response, along with supplemental recommendations. The three core recommendations are:

1. We recommend that Credit Risk Capital be re-evaluated in light of the Council's analyses by (i) reducing Tables 26 and 27 by on average 36% to adjust for Volatility, (ii) further reducing the Credit Risk capital by a factor that approximates 12-months' worth of Guaranty and Servicing ("G&S") fees² and (iii) adjusting the Multiplier for loans with maturity longer than 10-years from 1.15X to 0.95X. The overall result of these three "Bottom-Up" changes conservatively results in having more Credit Risk capital than our "Top-Down" comparison-based approach (both approaches are discussed below).
2. We propose Mark-to Market ("MTM") modifications that remain consistent with the FHFA's total systemic stresses but avoid double counting shocks that have been partially or wholly realized.
3. We propose the Credit Risk Transfer ("CRT") capital relief encompass the going-concern buffer and operational risk factors, as we do not believe that these types of capital should be charged on exposures that have been economically transferred to third parties regardless of the nominal guarantor.

Impact on Competitive Environment – Potential Consequences

As discussed in Section 4 and Appendix 5, the Council has identified an unintended consequence of the proposed framework: a potential shift from two competing business models to one business model. If approved in its current form, the Proposed Rule would threaten liquidity in the market by constraining the Fannie Mae DUS Model's ability to compete. We believe the Proposed Rule would likely make Fannie Mae's DUS Model reliant on Credit Insurance Risk Transfer ("CIRT") hedges, and/or pressure Fannie Mae to adopt Freddie Mac's business model to remain relevant – in either case introducing an element of systemic risk into the housing finance system. This outcome would not be consistent with stated public policy goals to preserve complementary credit risk transfer mechanisms.

The two existing credit risk transfer mechanisms accrue different benefits and risks. The risk retention/DUS model requires sellers/servicers to put "skin in the game" by virtue of loss sharing. This incentivizes positive credit underwriting decisions at origination. The DUS model has withstood the test of time through several real estate cycles, consistently providing liquidity. The securitization model used by Freddie Mac retains less of the credit risk, pushing more of that risk out to private investors which is beneficial to taxpayers. However, the current securitization model has not undergone a stress like the Great Financial Crisis ("GFC"). There is a question of whether this model ensures liquidity in the market just when it is needed – when the market has no appetite for risk instruments.

In short, given the cyclical nature of the housing industry, having two unique execution models allows for more stability. Fannie Mae is far less dependent on well-functioning capital markets to provide liquidity and can weather interest rate and market risk disruptions better than Freddie Mac; while during periods of steady growth, Freddie Mac's securitization offers price competition and access to more private investors. The Council believes it is to the benefit of the multifamily market, and ultimately the estimated 100 million American renters, that two unique execution models continue to compete with one another.

² There would be a similar adjustment for Freddie Mac even if there is not an explicit G&S fee

Our Response is organized in the following manner in the pages that follow:

- 1) We present why we consider the proposed Credit Risk Capital to be too high based on several Top-Down comparisons;
- 2) We suggest potential Bottom-Up reasons why Credit Risk Capital suggested by FHFA models may be too high;
- 3) We explore the Pro-Cyclical Nature of the Proposed Rule and potential outcomes;
- 4) We present consequences of the FHFA's Proposed Rule; and
- 5) We outline seven specific recommendations to improve the proposed capital framework.

After the recommendations section, we include various appendices, which answer questions posed by the FHFA (Appendix 1), pose questions to the FHFA (Appendix 2), support analyses summarized in the body of our response (Appendices 3 – 8), and duplicate key FHFA tables referenced herein (Appendix 9).

The DUS Advisory Committee agrees with the fundamental motivation of the Proposed Rule, that the Enterprises be evaluated through a lens of risk-based capital encompassing credit, market, and operational risk with an additional buffer. We believe a well-constructed framework will ensure that the Enterprises continue to be run prudently and profitably through all parts of the cycle, and that taxpayers be shielded from funding losses.

We believe that with respect to the Credit-Risk Capital for Multifamily, the Proposed Rule goes well beyond that goal. Proposed Credit Risk Capital requirements are sufficiently onerous to jeopardize the flexibility and ability of the management of the GSEs to react to market changes and continue to meet housing goals – affordability being one of the keys. We address this in Section 4, about consequences of the proposed rule. The guidelines for Multifamily Credit Risk do not seem to be accurately calibrated to the actual performance of the asset class, nor are they consistent with how other regulators in the asset class establish capital standards.

Focus Area

While we believe that Fannie Mae's business model should result in holding materially more Credit Risk Capital than Freddie Mac's because Freddie Mac transfers more risk, we believe the FHFA's Proposed Rule has gone too far. Importantly, the tables produced on November 7, 2018 entitled Supplementary Tables S1 and S2 do not adequately highlight the differences in (i) the DUS-style execution versus the K-Series execution since they commingle Whole Loans and company specific execution types, and (ii) focus on on-book rather than new originations notwithstanding the fact that the economics for new originations are a much better indication of future on-book economics. By comparison our memo focuses on new originations for DUS loans versus new originations for K-Series transactions.

To be more specific, the FHFA's Proposed Rule proposes a capital regime that would be applicable to both new originations and seasoned loans. We have focused the majority of our analysis on new originations because (i) new originations are more important to marginal decision-making, (ii) the historic book has benefited from much higher G&S fees/spreads and (iii) more importantly we believe the old book has benefited from faster than normal NOI and property appreciation than we would expect going forward. Going forward, new originations will become the "new book" as the "old book" rolls off. Thus, for the avoidance of doubt, most references to Multifamily capital requirements refer to the 449 basis points that are charged to New Originations rather than the 325 basis points that are charged to Performing Seasoned Loans.

In addition, for both groups whole loans were included. For example, Freddie Mac Whole Loans and Freddie Mac K-Series were included. In comparison our analysis is based on the K-Series alone. So, whereas the Freddie Mac Supplementary Table S2 shows 192 basis points of capital we believe this figure to be closer to half that level (96 basis points per Appendix 6) for the K-Series which will be more prevalent as the whole loans roll off.

Table 31: Fannie Mae and Freddie Mac Combined Estimated Credit Risk Capital Requirements for Multifamily Whole Loans and Guarantees as of September 30, 2017 – by Loan Category*

	Capital Requirement, \$billions	UPB, \$billions	Capital Requirement, bps
New Originations	\$1.9	\$42	449
Performing Seasoned Loans	\$14.6	\$449	325
Non-Performing Loans	<u>\$0.0</u>	<u>\$1</u>	511
Net Credit Risk	\$16.5	\$492	336
Credit Risk Transferred	<u>(\$8.0)</u>		
Post-CRT Net Credit Risk	\$8.5	\$492	174

Note: excludes operational risk, market risk, and Going-Concern Buffer

According to Table 31 of the Proposed Rule, new originations (i.e. the \$42 billion recently originated at the time the Proposed Rule was released) **would be assessed an average of 449 basis points of Credit Risk capital for unexpected credit losses** (this is in addition to expected losses, Operational Risk, or the Going-Concern Buffer).

We note that this figure of 449 basis points in Table 31 this figure is derived for Fannie Mae and Freddie Mac together. However, we expect it to be a close proxy for Fannie Mae on a standalone basis since the two share similar credit profiles. Supplementary Table S2 (reproduced in Appendix 9) calls for 342 bps of capital for Fannie Mae (9.1 billion pre-CRT capital over \$266.1 billion UPB), which is very close to the 336 basis points weighted average for New Originations and Performing Seasoned Loans in Table 31 of the Proposed Rule.

Section 1: Risk Capital is Too High based on Several Top-Down Comparisons

Comparison to Multifamily Capital Under NAIC

The National Association of Insurance Commissioners (“NAIC”) established a risk-based capital (“RBC”) framework that acts as a minimum regulatory capital standard and a “tripwire” for regulators to intervene when companies are undercapitalized³. **To adjust for specific loan attributes such as LTV, etc., we estimated capital charges under the NAIC system using a common group of loans: all Fannie Mae DUS loans issued from October 2017 through September 2018.** These specific loans resulted in 411 basis points of Credit Risk Capital under the Proposed Rule (slightly lower than 449 basis points likely because this sample of loans was simply a different sample than the \$42 billion referenced by the FHFA in Table 31). These specific loans result in 145 basis points of Credit Risk Capital under NAIC. Hence, this loan-by-loan exercise showed that the FHFA’s Proposed Rule resulted in capital requirements that were, on average, **2.8 times** those of NAIC after accounting for FHFA multipliers but with no attribution for Market Risk, Operational Risk, or the Going-Concern Buffer. Please see Appendix 4 for a more detailed description of this analysis. **We consider the NAIC framework and benchmark highly relevant considering the nature of the Fannie Mae multifamily business model, which is essentially an insurance guarantee business with the loans quasi-funded on a matched term basis.**

Additionally, under Bank Holding regulations, Basel 3, and NAIC standards for insurance companies, performing, stabilized high quality Single-Family and Multifamily loans are generally treated approximately on par with one another (i.e. Multifamily is not 1.75X Single-Family).

NAIC Comparison based on Trailing 12m Fannie Mae Loans				
	Tier 2	Tier 3	Tier 4	TOTAL
FHFA Base Capital after Multipliers (bps)	521	252	132	411
NAIC Risk-Based Capital (bps)	164	121	91	145
FHFA Multiple	3.18x	2.07x	1.45x	2.83x

411 bps is slightly below FHFA's published 449 bps. This 411 bps figures is likely based on different loans and DUS Advisory Council's own calculations

Comparison to Agency Multifamily Losses in Great Financial Crisis

The worst-performing vintage (2007) in Fannie Mae Multifamily’s DUS book during the Great Financial Crisis (“GFC”) experienced cumulative losses of 120 bps. If all Enterprise loans performed like this worst historical vintage, based on our estimate that the Proposed Rule’s 449 basis points was net of 75 basis point of *expected* loss, then the difference of 45 basis points worth of actual unexpected losses would have occurred (i.e. 120 bps actual loss less 75 bps expected losses). Hence, the 449 basis points would have been **10 times** (449 Credit Risk capital divided by 45 bps of actual unexpected loss) the Credit Risk capital that would have been sufficient to withstand all loans performing like this worst historical vintage (even when income, operational capital, the going concern buffer are all ignored). Said differently, the Proposed Rule calls for Credit Risk capital sufficient to withstand a crisis that produces losses **4.4 times** as large as the GFC’s worst historical vintage ((449 Unexpected Loss + 75 Expected Loss) / 120 Actual Loss) even when income, operational capital and the going-concern capital are ignored⁴.

When we look at how all Fannie Mae Multifamily DUS loans performed during the GFC, rather than just the worst historical vintage, we estimate 75 basis points of losses were realized. Based on the assumptions above:

³ https://www.naic.org/cipr_topics/topic_risk_based_capital.htm

⁴ (449 UL + 75 EL) / 120 Actual Loss = 4.4x. Expected Loss (EL) figures were not observable in the Proposed Rule, and are expected to be absorbed entirely via net income rather than capital. We estimate expected losses (EL) of 75 basis points, and that this figure is comparable to Fannie Mae Multifamily’s cumulative losses during the Great Financial Crisis on its total then-outstanding DUS book (i.e. all vintages)

- Approximately zero unexpected capital would have been lost since it all would have been expected
- The Proposed Rule calls for Credit Risk capital sufficient to withstand a crisis that produces losses 7X as large as the GFC (even when income, operational capital and the going-concern capital are ignored)⁵.

Using the figures and analysis presented above, the most conservative interpretation is capitalization to a shock 4.4x that of the worst vintage's experience in the GFC. We question why the FHFA thinks this is appropriate.

We acknowledge that loan delinquency rates and losses for the multifamily asset class were higher in the late 1980s and early 1990s. However, we don't believe the asset class performance from that time period is relevant today for several reasons:

1. The S&L Industry in the 1980s suffered significant losses due to tax shelter motivated behaviors combined with S&L industry deregulation that created an oversupply of over-leveraged multifamily housing stock. The 1981 Tax Form Act adopted extremely aggressive depreciation rules that triggered a wave of new construction financed by the S&Ls. The 1986 Tax Reform Act retroactively changed the depreciation rules, helping to trigger significant defaults.
2. Fannie Mae's experience in the late 1980s and early 1990s, resulting in peak delinquencies of about 3.5%⁶ reflected the original 1.15x DSCR lending standards of the DUS program and pro-forma underwriting guidelines. Those standards were eliminated 25 years ago.
3. Freddie Mac's delinquency experience in the early 1990s, peaking at nearly 7%, reflected the LTV based lending of their original multifamily program which was shut down in 1993. Freddie Mac re-entered the market later in the decade with robust credit standards that continue to the present.
4. Borrower leverage is lower today as both private equity and institutional investors seek to mitigate their risk.
5. Fannie Mae and Freddie Mac have established industry leading underwriting standards as well as loan processing and asset management best practices as reflected in their respective industry leading portfolio performances during the GFC.

⁵ (449 UL + 75 EL) / 75 Actual Loss = 7x.

⁶ Per MBA 2Q18 Commercial / Multifamily DataBook

Comparison to Single-Family Required Capital

It was surprising to us that **the Proposed Rule calls for approximately 1.75 times as much Credit Risk Capital on Multifamily loans than on Single-Family residential loans** considering their relative performance histories, summarized in the table below. Specifically, Table 24 in the Proposed Rule shows that new-issue Single-Family loans require 257 basis points of Credit Risk Capital under the Proposed Rule, while new-issue Multifamily loans require 449 basis points of Credit Risk Capital (before taking CIRTs into account).

	Multifamily	Single-Family	MF : SF Ratio
2007 Vintage Cumulative Default Rate	7.7%	15.1%	51%
2007 Vintage Losses (Actual, bps)	120	537	22%
2007 Vintage Losses (Adjusted, bps)	120	330	36%
Current Nonperforming & Reperforming Rate	0.2%	12.2%	2%
Basel Std Approach Risk Weight (non-HVCRE)	50.0%	50.0%	100%
Credit Risk Capital (new originations)	449	257	175%

During the GFC the default rate on Fannie Mae’s Multifamily loans was not 1.75X as great as Single-Family default rate, but rather half, and the loss rate less than a third, that of residential loans⁷ for the 2007 Vintage. After adjusting for expected losses⁸, based on the worst vintage, 10% of Proposed risk capital would have been lost (45 bps vs. 449 bps) in Multifamily and 192% in Single-family (494 bps vs. 257 bps)⁹.

Addressing the possibility that the Single-Family experience was specific to origination practices that are no longer used, Fannie Mae presented its own view of what historical performance would have been under current lending profiles. This is reflected in the “adjusted” performance metrics indicated in the following table. Even if single-family historical losses are re-weighted based on the 2017 origination profile, the comparable figure is 112%. That is more than ten times the 10% rate lost for Multifamily.

	Realized Loss	Credit Risk Capital	Expected Loss (Est)	Lost Capital (Realized - Expected Loss)	% Credit Risk Capital Lost
	<i>a</i>	<i>b</i>	<i>c (b / 6)</i>	<i>d (a - c)</i>	<i>e (d / b)</i>
Multifamily	120	449	75	45	10%
Single-Family	537	257	43	494	192%
<i>Single-Family (Adj)</i>	<i>330</i>	<i>257</i>	<i>43</i>	<i>287</i>	<i>112%</i>

Again, even using the worst vintage per above, **why would the FHFA want the proposal to not be able to withstand the worst vintage for Single-Family but be 10X over capitalized for Multifamily?** Should our estimates be off for expected losses the conclusion and question would not meaningfully change.

We recognize that the FHFA likely studied time periods other than the GFC but looking at today’s data makes us seriously doubt how Multifamily capital can be higher than Single-Family’s. For example, the Enterprises’ reported

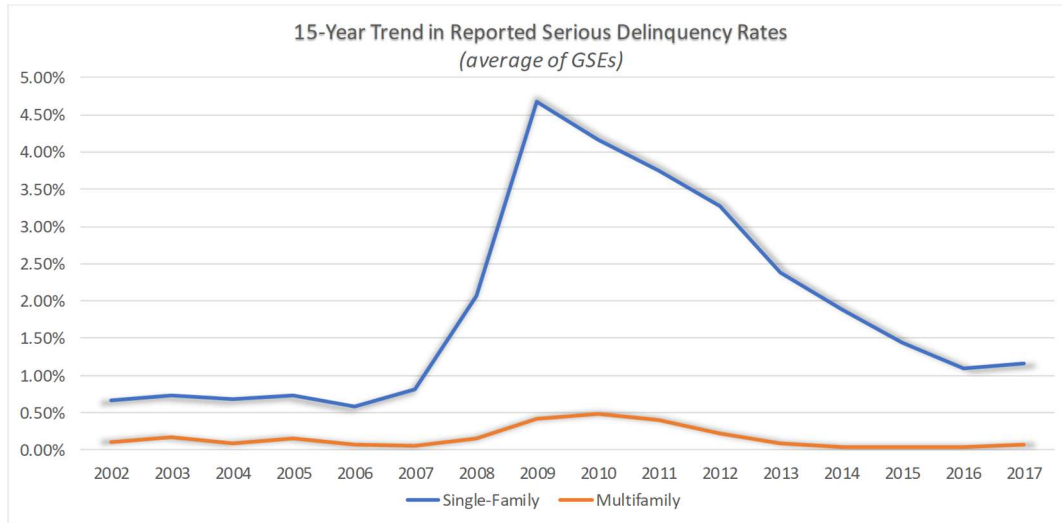
⁷ Based on "Fannie Mae Quarterly Financial Supplement Q1 2018 " for Multifamily Losses; "Connecticut Avenue Securities Investor Presentation" December 2017 for Single-Family Losses; Fannie Mae analysis of DUS fixed-rate "Prepay Population" for Multifamily Defaults;

"Fannie Mae Quarterly Financial Supplement Q1 2018 " for Single-Family Defaults

⁸ Assumed to equal one-sixth of Credit Risk Capital (i.e. MF: 449 / 6 = 75 bps, SF: 257 / 6 = 43 bps)

⁹ Unhedged, and excludes Going-Concern Buffer, Market Risk and Operational Risk Components. Adjusted losses "Reflects historical loss rates re-weighted to reflect the FICO, CLTV, & Risk Layer Count distribution of CAS 2017-C07 G1" sourced from December 2017 Connecticut Avenue Securities Program presentation

year-end serious delinquency rates on their Multifamily and Single-Family portfolios are shown in the following chart.



Further corroborating this, Table 24 in the Proposed Rule itself points out that out that 12.3% of Enterprise Single-Family loans and guarantees are either non-performing or re-performing. The comparable figure for Multifamily loans is less than 0.2% per Table 31. This too suggests Single Family should have more risk capital than Multifamily, not less.

As a final illustration of the relative Multifamily capital-intensiveness proposed, the 257 basis points of single-family credit risk capital would translate to just 131 basis points for Multifamily if scaled by the relative default rates referenced above ($131 \text{ bps} = 257 \text{ bps new SF origination capital} * 7.7\% \text{ Multifamily 2007 cumulative defaults} / 15.1\% \text{ Single-Family Cumulative Defaults}$; To arrive at multiple, $449 / 131 = 3.4x$). The 449 basis points of credit risk capital proposed is **3.4 times** this figure. We note that this multiple would have been even higher if the loss experience had been used in place of the relative defaults.

Summary of Top-down Comparisons

Comparison Approach Summary			
<i>FHFA Multifamily Average Base Credit Risk Capital vs Other Measures</i>			
<i>Measure</i>	<i>Multiple</i>	<i>Est Reduction</i>	<i>Inferred Capital (bps)</i>
FHFA New Originations (Table 31)			449
DUS Loss History - Worst Vintage (conservative)	4.4x	-77%	102
FHFA Residential Extrapolation	3.4x	-71%	132
NAIC Multifamily Mortgages	2.8x	-65%	159
Estimated Overall Factor	3.5x	-72%	127

All of these measures, even though generally based on the worst vintage, suggest that capital is approximately three to four times too high, with an average of 3.5. No matter how sound and thoughtful the inputs were to underlying models, the above points give us serious concern and pause with respect to whether the outputs are sensible.

As discussed herein, you will see that the DUS Advisory Council Suggested Framework brings the Credit Risk Capital down closer toward (but not all the way to) the results from these comparisons.

Section 2: Potential Bottom-Up Reasons the Risk-Capital is Too High

In this section we highlight several areas of study that may explain why the Proposed Rule's Credit Risk Capital levels are substantially higher than comparable approaches suggest. The areas of study are:

- Implied asset level volatility assumptions
- Explicit decision to not rely on any future income
- Multipliers on long term fixed rate loans

Implied asset level volatility assumptions

We believe that the levels of asset level volatility imbedded in the Enterprise models were likely too high. We built a Monte-Carlo simulation that assumes:

Market: market growth of 1.75% each year, except during year 2 the market is shocked with a 15% NOI drop and a 35% valuation drop (prescribed by the FHFA's stress) (together these are "market assumptions"). We also assumed term defaults occurred when 0.85X DSCR was breached which we believe to be quite conservative.

Asset Level Volatility: without individual assets being assigned an annual volatility to their performance (to create dispersion), a loan with $\leq 65\%$ LTV would require no capital (since the only shock would be a 35% value drop and loans with $\leq 65\%$ LTV would have sufficient equity). Based on the assumptions listed above, without individual assets being assigned an annual volatility, the average amount of capital charged new originations would not be 449 basis points but rather far less than 100 basis points. However, when we give all assets a single input of annual volatility (caused by things like economic changes, cap rate changes, interest rate changes, etc.) we needed to utilize a 10.6% standard deviation in NOI and value per asset per year in order to make a "reverse engineered table" have **the same** 449 basis points of average unexpected loss (and for our reverse engineered table's distribution to closely resemble) as the FHFA's Table 26.

While we recognize that the FHFA's models may not have been this simplistic, it clearly did have inputs driving idiosyncratic risk. Even if the FHFA did not explicitly use a 10.6% asset level standard deviation around the stressed market scenario, we believe that this is a reasonably accurate proxy for the FHFA's aggregate level of idiosyncratic risk (for example, if the FHFA used similar curves that may have had volatility imbedded in them).

We studied asset level volatility in detail. Based on our detailed review of industry data, we would suggest that individual Multifamily assets exhibit behavior more closely resembling $\sim 8.75\%$ annual standard deviations around the market (not the implied 10.6%). Please see Appendix 7 for more information.

We ask that the FHFA reevaluate its inputs that ultimately drove asset level volatility and idiosyncratic risk and seriously question if using faulty assumptions drove up the credit risk capital tables. Specifically, did the Enterprises adjust for volatility caused by renovations, in which intentional short-term declines do not indicate problems but rather portend future value increases? Did the Enterprises adjust for volatility caused by faulty data? Did the Enterprises utilize a sample set that had similar operating margins as today's book? Assets with over 50% operating margins exhibit far less volatility than assets with under 50% margin on average. How did the Enterprise models account for loan modifications which have historically helped many loans avoid loss? How did the Enterprises study the data over longer periods of time to adjust for auto-correlation?

Explicit decision to not rely on any future income when deriving risk-capital tables

The FHFA's Proposed Rule explicitly stated that it assumed that future income could not be relied upon to replenish capital levels in the event of a crisis. The only reason we can think of to make this assumption is if one feared a crisis could hit so hard and so quickly that losses would be recognized¹⁰ – and capital depleted – immediately.

There is no evidence to support that assumption. Instead, historical events like the GFC show the scale of a crisis would be recognized over the course of well over a year – during which fees would continue to be earned. This is true on an accounting basis, and even more so on a cash basis. To support this, we ran 10,000 simulations using the assumptions above (with each one starting off with a GFC-like event) and found **not one** portfolio of 500 loans each going through a down 15% NOI and down 35% in value, plus the higher-level volatility described above, would lose their credit risk capital more quickly than 2.5 years. From this viewpoint and with these assumptions, it is mathematically unreasonable to assume that at least this much income could not be relied upon (although we suggest far less reliance in our recommendations below).

History shows the Enterprises not only enjoy relatively stable fee income streams, but the Senior Preferred Share Purchase Agreements' net worth sweeps ensure that dividends would be cut before capital is depleted. As this prevents fees from being disbursed as dividends as a crisis develops, the fees would bolster capital.

Additionally, we believe this aspect of the framework was borrowed from Basel III which governs U.S. banking institutions. In borrowing banking frameworks we point out that while banks have deposits that can be subject to fluctuation, the Enterprises are *match-term funded* (e.g. DUS MBS) which makes the models far more predictable than that of banks.

In this respect the CCAR framework¹¹, from which the FHFA appears to have borrowed key elements, may be a better comparison and does allow the inclusion of future interest earnings. As the FHFA says, "the proposed rule is conceptually and methodologically similar to" and "loss scenarios draw on conceptual and methodological inputs from regulatory frameworks such as DFAST, CCAR, and the Basel Accords". However, income was omitted.

We question how the FHFA came to the conclusion losses could erode capital so quickly that no future income (or turning off of dividends) could be relied on in light of the above information. See Appendix 8 for more detail.

¹⁰ Upon adoption of the CECL regime in which expected lifetime credit losses must be recognized, even if the stress path is realized (and the former "EL + UL" becomes "EL") we see no chance that this realization would occur instantaneously. During the process of this realization, fee income would continue to be earned to bolster capital.

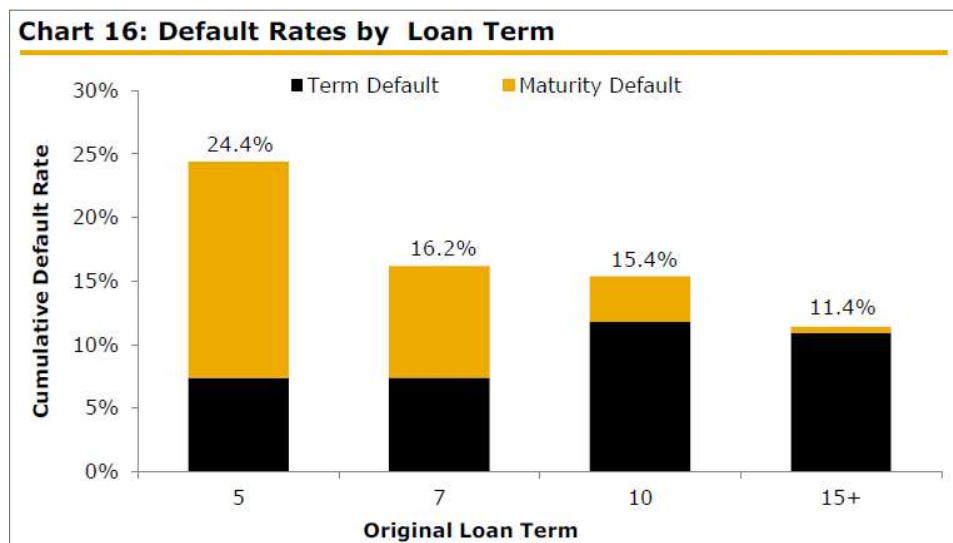
¹¹ Comprehensive Capital Analysis and Review (together with the Dodd-Frank Act Supervisory Stress Testing) represents an assessment of capital adequacy following a supervisory stress test, assuming a hypothetical set of stressful economic conditions developed by the Federal Reserve.

Multipliers on long-term fixed rate loans

While we appreciate the theoretical notion that a longer-term exposure carries more risk, in practice we believe that there are mitigating factors: (1) Maturity default risk becomes progressively smaller as loan terms increase. Amortization reduces nominal balloon balances, while inflation serves to reduce the real amounts of these values. Over nearly any historical period exceeding 10 years, property incomes and values have increased between origination and maturity. (2) For similar reasons, *marginal* default risk past ten years is reduced significantly, increasing the probability that a borrower has both income and equity in a property and therefore less incentive to default.

We also note that a specific policy objective of the Enterprises has been to facilitate long-term financing and its continued presence helps to ensure that there is liquidity in the multifamily debt market with less reliance on refinancings drastically reducing ballooning maturity related defaults.

The first two points are illustrated in the below chart from Kroll Bond Rating Agency's CMBS Default and Loss Study published in September 2016:



Source: Kroll

Finally, we point out that the market agrees with us; Guaranty Fees, which reflect pure compensation for credit risk, are slightly lower for longer-dated (>10-year) paper versus comparable 10-Year loans, expressing less risk (per year) not more.

We question how the FHFA decided to make longer-term loans have Multipliers greater than 1.00 in light of the above information. Section 5 of our response provides a specific recommendation on this topic.

Section 3: Pro-cyclical nature of the Proposed Rule

The usage of mark-to-market metrics presents what we believe are unintended consequences that undermine the intent of the framework.

The FHFA identified the risk that the proposed framework could reduce capital requirements in times of rapid price appreciation.

We believe the larger risk – which was not identified or discussed – is the risk that MTM mechanisms in the calculation of credit risk would substantially increase capital requirements in periods of distress, when capital is hardest and/or most expensive to raise. If a downturn were to begin, stressed MTMLTV values would be passed into the Base Credit Risk Capital grids (i.e. Tables 26 and 27), and this would create the need to raise significantly more capital specifically when it would be most expensive, and resources would be most strained. We expect this framework would therefore *increase* the probability that an Enterprise find itself undercapitalized in a recession.

We have estimated this sensitivity on Fannie Mae’s recent DUS originations by first calculating capital factors for each loan, stressing the MTMDSCRs and MTMLTVs by the prescribed 15% and 35% respectively, and finally recalculating the capital factors. **This analysis suggested that Base Credit Risk Capital requirements¹² would more than double, and would rise by more than 80% using a broader measure that accounted for Operational Risk, the Going-Concern Buffer, and counterparty risk.**

Impact of Prescribed Stress on Capital Requirements (Trailing 12 months DUS)			
	Base	15% NOI /35% Value Stress	Change
Base Capital After Multipliers (bps)	411	851	107%
Total Risk Capital (bps)	365	667	83%

In Section 5 of our response, we offer specific recommendations to modify the proposed pro-cyclical framework.

¹² Basic measure calculated using the grids and multipliers, but not accounting for risk sharing / CRT or counterparty risk. Comprehensive measure assumes 2/3 risk sharing and 6.0% counterparty risk charge.

Section 4: Consequences of FHFA’s Proposed Rule

If approved in their current form, the Proposed Rule on Enterprise Capital would threaten liquidity in the market by constraining the DUS Model’s ability to compete. We believe that the proposal would likely force Fannie Mae to be completely reliant on the nascent, likely cyclical in terms of availability, and largely unproven Credit Insurance Risk Transfers (“CIRTs”) – or else adopt Freddie’s business model to remain competitive, introducing systemic risk through further reliance on the subordinated unguaranteed securities market.

To support our view, we have analyzed all loans written during the most recent two quarters and found that after-tax returns on capital were below reasonable hurdle rates, which we have estimated at 14%. We believe that viewing whether assets are accretive relative to these hurdle rates would be important both internally and to attract private capital.

In order to achieve those hurdle rates of return on new originations, Fannie Mae would have to raise pricing on average 16-29 bps (by loan type). This pricing increase would force Fannie Mae to move out on the risk spectrum, likely resulting in a less credit worthy portfolio.

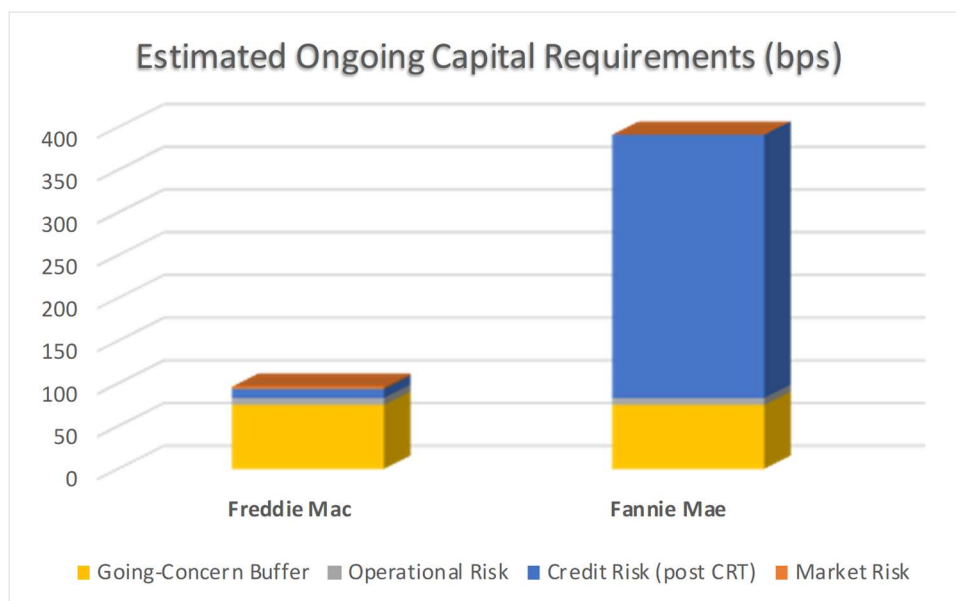
Pricing Implications in Absence of CIRT Hedging				
Tier	DUS	Required Pricing Increases to Reach Hurdles		
	% Issuance*	2Q18	3Q18	Trend**
Tier 2	64%	13	26	39
Tier 3	23%	-10	0	13
Tier 4	12%	1	-1	12
TOTAL	100%	6	16	29

* Percent issuance is reflected over trailing 12 months

** Trend reflects additional 13bps for possible continuation of recent pricing trends. We estimate weighted-average waivers have increased by 13 basis points in each of the past two quarters (i.e. 26 bps in 6 months), after controlling for loan attributes.

Fannie Mae can only achieve estimated hurdle rates of return via CIRT trades. Based on estimates of recent pricing, these trades result in accretive returns on capital. However, as this is a nascent and thinly-traded market, Fannie Mae’s returns could again fall below assumed hurdle rates if pricing widens from currently-estimated levels. We are concerned these CIRTs would not be available in a downturn although we recognize pricing could widen out then too.

Freddie Mac, on the other hand, is able to generate outsized returns as it requires so little capital. For more on this, see Appendix 6.



The above chart demonstrates that the proposed capital regime is not restrictive to Freddie Mac but represents an existential threat to Fannie Mae’s DUS business model, absent CIRT hedges. As discussed in Appendix 5, we strongly believe a reliance on CIRT hedging is problematic because the market is nascent, unproven and may be providing more aggressive insurance quotes than is implied by the Freddie Mac K-Series bonds.

We believe having two distinct GSE business models is crucial for competition, liquidity, stability and affordability of the Multifamily market.

- The securitization model retains less of the credit risk, pushing that risk out to private investors, which is beneficial for taxpayers.
- The DUS model provides much smoother and less volatile long-term returns to its owners. The securitization model has not undergone a stress like the GFC. When the market has no appetite for risk instruments, Freddie Mac may either be required to retain loans on its balance sheet or arrest originations. The DUS model is far less dependent on well-functioning capital markets providing a liquidity backstop for the industry, which is especially important given large balloon balances that come due at maturity and the associated probability that this would be at a time of deep distress.
- The DUS model is much more of a “skin in the game” model by virtue of loan life-long loss sharing. This incentivizes positive credit underwriting decisions at origination. Historical evidence shows that cumulative 2007 CMBS conduit defaults reached 25% - more than three times that of DUS loans¹³.
- Having two models (DUS and securitization) to support the Multifamily mortgage market has been good for competition and good for markets.

¹³ Per Kroll CMBS Default and Loss Study, published September 16, 2017. DUS loans peaked at 7.7% cumulative defaults for the 2007 vintage as cited above.

Section 5: DUS Council Suggested Modifications and Recommendations

In the following discussion we detail our primary recommendations. Importantly, our recommendations are only a few of the ways to account for our belief that the prescribed risk capital in the FHFA's proposal is too high relative to the comparisons outlined in Section 1. All of our suggested modifications speak to concerns we have with the proposal; we are not tied to their specific mechanics but hope the FHFA remains consistent with their intent.

We recommend that:

1. Credit Risk Capital be re-evaluated in light of the Council's analyses by (i) reducing Tables 26 and 27 by on average 36% to adjust for volatility, (ii) further reducing the Credit Risk capital by a factor that approximates 12-months' worth of G&S and (iii) adjusting the Multiplier for loans with maturity longer than 10-years from 1.15X to 0.95X. The overall result of these three "Bottom-Up" changes conservatively results in having more Credit Risk capital than our "Top-Down" comparison-based approach.
2. To address the issue of Pro-Cyclicality, **we recommend that mark-to-market ("MTM") modifications require more capital only when systemic market shocks exceed the prescribed 15% NOI and 35% value stresses.**
3. The going-concern buffer and operational risk factors should be adjusted for risk sharing (e.g. factored down by 33% in standard risk sharing).

Secondary recommendations related to FHFA questions are that:

4. Hard steps be avoided in loan size multipliers.
5. There be gradations in the Interest-Only ("IO") Multipliers for the length of the IO term, or at least a differentiation for a partial IO versus full IO.
6. The FHFA provide more specific and quantified guidance for Counterparty Financial Strength Ratings and the associated haircuts, and should explicitly consider restricted liquidity relief, at-risk Servicing Rights value, and CRT for counterparties.
7. The FHFA permit required equity capital to be invested and earn its own rate of return

Discussion

Recommendation 1: We propose that Credit Risk Capital be reduced in three ways

As outlined in Section 2, we've identified three specific "Bottom-Up" changes.

First, one particular assumption that we believe should be revisited is idiosyncratic risk, or the annual standard deviation of property performance relative to market. We propose that assumptions that drive asset level volatility assumptions be reduced. As outlined, in our model we approximated this by using 8.75% asset level volatility instead of 10.6%. There is significant support for this figure in Appendix 7 and we expect that at a minimum this is an area for further consideration by the FHFA. **By using a more accurate asset level standard deviation this would reduce capital in Tables 26 and Table 27 by an average of 36%¹⁴.**

Second, we do not believe that the multiplier of 1.15 for long-term loans is justified by the historical record. Per the Kroll study cited above, term default risk is lower on these assets is slightly below that of 10-year loans. That maturity default risk is also lower on these assets is backed up not only with the Kroll study but also intuition, as the loans are able to amortize for longer and the collateral has a longer average benefit from rent inflation and growth. We believe that the Multiplier should be between 0.85 and 0.95 but have chosen the conservative end of the range. **We therefore recommend that this Multiplier be reduced to 0.95, which would reduce average capital needs by 7%.¹⁵**

Third, we take issue with the assumption that no income is used to reduce risk capital. The implication is that all fee income would all be disbursed as dividends regardless of losses, and/or that a crisis could come so quickly that no future income could be relied upon before all risk capital was lost. We don't believe this is realistic on either an accounting or cash basis, due to:

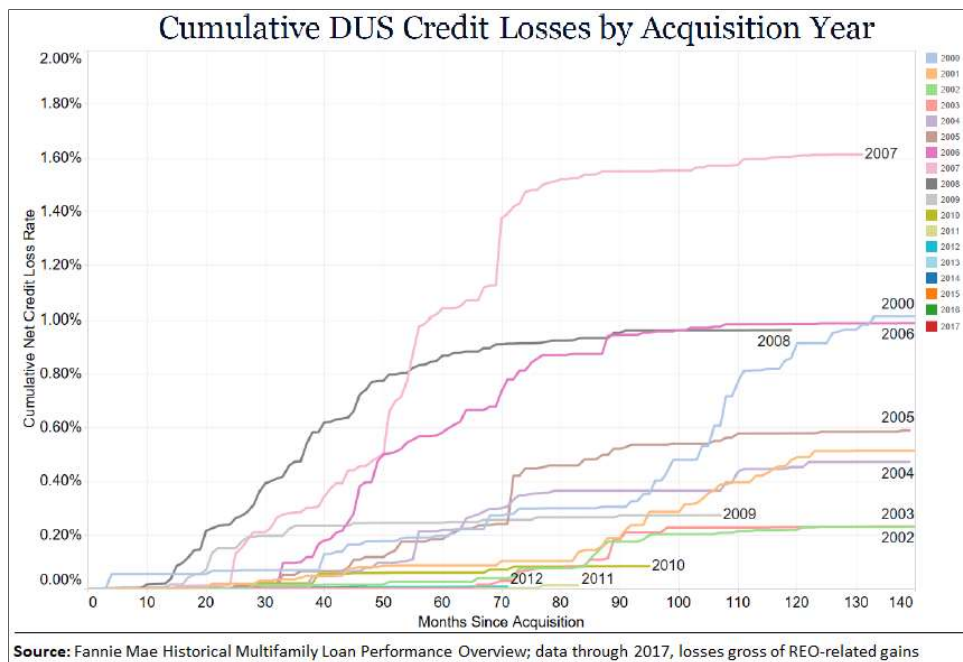
1. The match-term funded liabilities of the Fannie Mae DUS model
2. The general stability of fee income – Even during the early 1990s, Multifamily serious delinquency rates peaked at below 7% for Freddie Mac and 4% for Fannie Mae – implying that the vast majority of loans continued to pay fees.
3. The full scope of a crisis would not be grasped – and losses not realized – immediately. All loans do not default together, nor are their economic drivers immediately and accurately forecasted.
4. The dividend can be cut – Per the net worth sweep detailed in the Preferred Stock Purchase Agreements and letter agreements, the dividend can and would be cut as a line of defense against the erosion of capital – thereby ensuring that fee income is not disbursed as dividends and building capital. This would also apply in a post-conservatorship environment.
5. Evaluated through a cash-based lens, losses are not realized immediately as liquidation lags mean that losses typically take at least a year to be realized following default.
6. Also through a cash-based lens, not all loans default at the same time even in a deep recession.
7. This is inconsistent with the stated policy goal that the GSEs provide countercyclical liquidity to the market, which is reinforced by the presence of the Going-Concern Buffer.

We recognize that, on an accounting basis, losses must be recognized when incurred/expected. However, to support the claim that not all loans default at the same time in the FHFA's scenario, the DUS Council ran 10,000 random simulations of a 500 loan portfolio when each loan, each time, was shocked instantaneously by 15% NOI / 35% value, and zero times did the portfolio deplete its capital within 30 months (2.5 years) of the moment of crisis, even assuming no liquidation lag or modifications. Put differently, this suggests that at least 2.5 years of fee income

¹⁴ We note that, consistent with options theory, this would likely result in lower reductions for high-LTV/low-DSCR loans while resulting in greater reductions for low-LTV/high-DSCR loans. While we would encourage the FHFA to consider these nuances, we feel that making specific recommendations on this point is beyond the scope of this paper.

¹⁵ This figure was derived by running Fannie Mae's trailing 12-month originations through the proposed capital system.

could be used even in the worst out of 10,000 FHFA Stress-like cases. See Appendix 8 for more detail. This is corroborated by Fannie Mae’s loss curves by vintage (please note that the below does not include the net benefit from REO / credit gains, which is the reason 2007 losses are displayed higher than the 1.2% cited in the above discussion of credit losses in the worst vintage).



Finally, we note that in the CCAR framework, upon which the FHFA appears to have taken several elements, net interest income would partially offset projected loan losses in the regulatory capital changes.

With the results of our simulation analysis in mind, we conservatively recommend just 12 months of actual G&S Fees be offset against capital needs for Fannie Mae loans. This is based on an approximation of net income over a 15-month period, or half of the 2.5-year period referenced above where zero out of 10,000 portfolios each shocked with a crisis ran out of capital in this timeframe. 12 months of G&S fee is a conservative proxy for 15 months’ worth of income given income taxes, etc. **We estimate that, for Fannie Mae loans, this would reduce capital needs by 84 basis points**, based on weighted-average 3Q18 G&S fees of 89 basis points less 5 basis points for deemed servicing compensation.

Bottom-Up Summary				
	<i>Change</i>	<i>Impact (bps)</i>	<i>Credit Risk Capital (bps)</i>	<i>Total FNMA Capital (bps)*</i>
FHFA New Originations per Table 31			449	391
Volatility Reduction	-36%	-163	286	279
Long-Term Loan Multiplier	-7%	-20	265	265
Less Income Adjustment	-84 bps	-84	181	208
Percentage Reduction			-59.6%	-47.0%

**Total Capital assumes 2/3 loss share with 6% C/P charge, 83 bps for Operational Risk and Going-Concern Buffer
Note figures may not add due to rounding*

These three Bottom-Up factors together require less capital reduction than would be suggested by the Top-Down Analysis. We estimate that Credit Risk Capital would be reduced by approximately 59% if these recommendations are adopted. For Fannie Mae, we estimate that this would result in a total capital reduction on new-issue loans of 47% after CRT. For Freddie Mae, the corresponding total capital reduction would be 7%.

Adjusted Multifamily vs Single-Family Capital (Pre-CRT)			
	<i>MF</i>	<i>SF</i>	<i>Compared</i>
Credit Risk (Tables 24, 31)	449	257	
Recommended Reduction	59.6%	0.0%	
Credit Risk Capital Recommended Pre-CRT	181	257	71%
<u>Operational and Going Concern</u>	<u>83</u>	<u>83</u>	
Total Recommended Capital Pre-CRT	264	340	78%

We note our recommendation suggests that Multifamily hold **78%** as much Total pre-CRT capital as Single-Family (and **71%** as much pre-CRT Credit Risk capital) even though:

- Losses for Multifamily were **22%** as much as SF for the 2007 vintage during the GFC (120 bps actual MF / 537 bps actual SF)
- Losses for Multifamily were **36%** as much as Adj-SF for the 2007 vintage during the GFC (120 bps actual MF / 330 bps Adj-SF)
- Unexpected losses for the 2007 vintage in Multifamily were **15%** as much as Adj-SF during GFC ((120 bps actual minus 75 bps expected) vs. (330 bps actual minus 43 bps expected))
- Current non-performing or re-performing for MF vs. SF are **1.6%** as much (0.2% vs. 12.2%)

Recommendation 2: We propose Mark-to-Market (“MTM”) modifications that broadly require more capital only when systemic shocks exceed prescribed NOI and Value stresses, and to define the market stress as down 15%/down 35% from the previous high water mark.

We propose keeping the proposed grid structure intact, but reorienting the axes such that **additional capital would not be required until the market were to drop 15% for NOI or 35% for value compared to peak market levels.** Meanwhile, idiosyncratic underperformance would continue to require additional capital. This would be accomplished by converting DSCRs and LTVs to “Stressed” values informed by market indices, and by making corresponding changes to the axes of Table 26 and Table 27. This is detailed with examples in Appendix 3.

This is intended to simulate more dynamic modeling while maintaining the static, grid-based system. In spirit this proposal is intended to mirror what would happen if, in all periods following origination, unexpected losses were recalculated using then-current performance metrics, using a stressed scenario in which the market overall (i.e. all assets) would sustain peak-to-trough 15%/35% drop from the market’s high water mark.

Here are the three steps of how it would work. **First**, permanently add in the green highlighted axes to the final version of Tables 26 and 27 per the below in addition to the blue axes that are already there and would remain so.

Fixed Rate Base Capital Charges (Core Areas)								
			LTV - FHFA Usage vs Proposed Usage					
			55.0% - 65.0%	65.0% - 70.0%	70.0% - 75.0%	75.0% - 80.0%	80.0% - 90.0%	
			84.6% - 100.0%	100.0% - 107.7%	107.7% - 115.4%	115.4% - 123.1%	123.1% - 138.5%	
DSCR - FHFA Usage vs Proposed Usage	1.20x - 1.25x	1.02x - 1.06x	578	660	733	778	855	
	1.25x - 1.30x	1.06x - 1.11x	520	593	645	690	755	
	1.30x - 1.35x	1.11x - 1.15x	470	528	568	608	670	
	1.35x - 1.50x	1.15x - 1.28x	428	475	510	548	610	
	1.50x - 1.65x	1.28x - 1.40x	315	345	375	408	455	
	1.65x - 1.80x	1.40x - 1.53x	245	270	298	330	378	
	1.80x - 1.95x	1.53x - 1.66x	190	210	235	258	325	
	1.95x - 2.10x	1.66x - 1.79x	163	180	204	221	299	
	2.10x - 2.25x	1.79x - 1.91x	149	165	188	203	286	
	>=2.25x	>=1.91x	142	158	180	194	279	

Second, each period (i.e. year) following the loan’s origination, one would update the Stressed DSCR and the Stressed LTV for each asset as follows:

- To find its **“Stressed DSCR”** = [Actual Most Recent DSCR] * [100%-15%], except that the 15% figure could be lower than 15% if the **market** NOI has dropped since its most recent post loan-origination peak. For example, if NOI’s are down 5% since last year’s peak the 15% factor would be adjusted to 10.5% (10%/95%) so that 5% and 10.5% compound to a cumulative down 15% for market NOI.
- To find its **“Stressed LTV”** = [Actual Most Recent LTV] / [100% - 35%], except that the 35% figure could be lower than 35% if the **market’s** overall valuation has dropped since its most recent post loan-origination peak.

Third, look up the combination of the Stressed DSCR and Stressed LTV in the above table using the Green axes. That will tell you how much capital this asset should have at that future point in time. And overall, this will have the effect of always shocking for a cumulative 15% / 35% from the most recent post loan origination peak while allowing for idiosyncratic events to be reflected by asset.

Recommendation 3: We propose CRT capital relief encompass the going-concern buffer and operational risk factors

We are concerned that CRT capital relief does not encompass the going-concern buffer or operational risk factors. In lender risk-sharing, it seems unreasonable to charge capital against exposures economically transferred to third parties though nominally guaranteed.

Based on Table 30 (on page 206) it is clear that the 75 bps of Going-Concern Buffer and 8 basis points of Operational Risk capital are being charged to all of FNMA DUS. Based on § 1240.41-43 we believe (but cannot confirm) that the combined 83 basis points is not being charged to the 14% non-guaranteed FHLMC K-Series securities. Particularly if the latter is true, we believe that these factors should not be applied to the 33% that is absorbed by the Lenders (adjusted for their credit risk).

Therefore, we recommend adding it to the LenderCapital_§ calculation as

$$\text{LenderCapital}_{\S} = ((\text{PGCRC}_{\text{bps}} + \text{OperationalRiskCapReq}_{\text{bps}} + \text{GCBufferReq}_{\text{bps}}) / 10,000) * \text{UPB}_{\S} * \text{MF_LS}_{\%}$$

Recommendation 4: We propose hard steps be avoided in loan size multipliers

In response to Question 16, we believe the avoidance of hard steps would be beneficial. In its current form, the Proposed Rule charges less capital when size thresholds are surpassed. When these thresholds are approached, this creates an incentive to make a more aggressive loan with less capital attributed.

Recommendation 5: We propose that there be gradations for the length of the IO term, or at least a differentiation for a partial IO versus full IO

In response to Question 17, we suggest that there be gradations for the length of the IO term, or at least a differentiation for a partial IO versus full IO. Whereas a 10-year deal with no IO will have amortized approximately 20% by maturity, a loan with a two-year IO period would have amortized 15% - versus no amortization for a full-term IO. This has a significant impact on remaining equity, balloon risk, and LGD measures.

Recommendation 6: We request the FHFA provide more guidance with respect to Counterparty Financial Strength Ratings and the associated haircuts, and propose explicit consideration of restricted liquidity relief, at-risk servicing rights value, and CRT for counterparties

In response to Question 22, we believe that we're generally unable to comment due to a lack of clarity into the ratings process and derivation of the associated haircuts.

We do propose explicit consideration of restricted liquidity and at-risk servicing rights value, as Fannie Mae already holds funds that could be accessed in the unlikely event of a DUS Lender default.

Additionally, the framework does not give (or at least make explicit) consideration of a Lender entering into a CRT agreement comparable to that of an Enterprise. Currently, DUS lenders with loss sharing are prohibited from entering into agreements to hedge or insure credit losses without permission, but can seek Fannie Mae's consent to enter into a trade similar in spirit and execution to Fannie Mae's CIRT transactions. This type of hedging could be expressly considered within the Proposal.

Recommendation 7: We request that FHFA explicitly permit required equity capital to be invested and earn its own rate of return

The Proposed Rule is silent on whether, and how, required capital could be invested once raised. For the avoidance of doubt, we recommend that the FHFA explicitly allow the Enterprises to earn a return on required capital itself.

We believe the most reasonable assumption would be earning a risk-free rate, whether as short-term Treasuries or a ladder of long-term Treasuries (with the intention of match-funding, not speculating on the curve). The Enterprises could also repurchase the securities they guarantee, though this may be subject to additional capital needs.

In essence, the Proposed Rule's intent is that the Enterprises hold equity on their balance sheets equal to at least the mandated capital levels (including off-balance sheet guarantees). However, it remains ambiguous whether the FHFA permits the Enterprises from assuming a return on its required capital itself.

As either Fannie Mae or Freddie Mac is required to hold equity capital, and provided that the definition of ROE is the same as for banks (i.e. net income / equity capital), we know of no institution that can't invest its entire asset base to drive revenue (and thereby net income) regardless of its funding source (whether equity or deposit/liability). Economically, if Fannie Mae held \$100 of loans backing \$100 in MBS and were required to hold \$4 of required equity capital, it would raise \$4 such that it would carry total assets of \$104 and total liabilities of \$100 (including off-balance sheet guarantees). All \$104 would be reasonably expected to be invested. From the GAAP perspective, with the \$100 off the balance sheet, the \$4 of required equity would be invested. We don't understand why the FHFA would not permit an Enterprise from investing in risk-free assets. To prohibit the Enterprises from assuming that the \$4 of required capital earn a return is equivalent to mandating that it be held in physical cash.

We note that a prohibition on investing required equity capital would advantage Freddie Mac's business model over Fannie Mae's, since Freddie Mac's Multifamily program is (rightfully) required to hold less capital.

Conclusion:

The analyses and recommendations noted above are the work of the DUS Advisory Council. However, it should be noted that the DUS Advisory Council engaged Promontory Financial Group, LLC¹⁶, an IBM Company, to conduct a third-party review and technical validation of aspects of the analyses.

We appreciate the commitment that has been made by FHFA to ensure a continued fiscally responsible, financially sound multifamily finance system. The history of the Fannie Mae and Freddie Mac multifamily programs is unprecedented in setting standards, providing capital to a truly national market, establishing proven credit parameters and leadership in product innovation, serving underserved markets and providing alternative financing mechanisms. This in turn has provided a stable and liquid multifamily finance market that has been effective in all market cycles. Given this, we believe it would be prudent to continue to promote competition and alternative financing mechanisms while assuring that each enterprise is adequately capitalized in an adverse market scenario.

We thank you for considering our comments and are available to answer any questions you may have. Please feel free to contact the

- Chair of our Council, Donald King, at 781-707-9494 or DKing@walkerdunlop.com
- Vice Chair, William Hyman, at 212-317-5750 or William.hyman@huntcompanies.com

Sincerely,

The DUS Advisory Council

¹⁶ Promontory is a leading strategy, risk management, and regulatory-compliance consulting firm focusing on the financial services industry. Promontory's experts have significant experience in advising clients concerning the interpretation and application of regulatory capital frameworks for the financial services industry. Promontory's team includes both experienced industry professionals, as well as former examiners from major US banking supervisors, in each case with experience in mortgage credit risk management and capital planning.

Appendix 1 – Responses to Specific Questions

- Question 3: FHFA is soliciting comments on the use of updated risk characteristics, including LTV and credit score, in the proposed risk-based capital requirements, particularly as it relates to the pros and cons of having risk-based capital requirements with elements of pro-cyclicality.
 - o As outlined herein, we propose a modification that addresses pro-cyclicality while maintaining the stated benefit that “using updated risk characteristics... would result in a more accurate assessment of the risks faced by the Enterprises at any particular point in time within credit and economic cycles.”
- Question 15: FHFA is soliciting comments on the proposed framework for calculating credit risk capital requirements for multifamily whole loans and guarantees, including comments on the loan segments, base grids, and risk multipliers. What modifications should FHFA consider and why?
 - o Our primary concern with the system is the application of mark-to-market metrics (i.e. MTMLTV and MTMDSR), whereas the grid appears to have been calibrated relative to current or at-origination values. If the prescribed stresses of 15% NOI and 35% value declines were to occur, passing stressed MTM values into the grid would effectively force capitalization to levels associated with *additional* 15%/35% declines from already-distressed values. This would increase capital requirements by over 80%¹⁷, and as a result increase potential undercapitalization, just as capital would be most scarce/expensive to raise.
 - Our suggestion is that the basic grid structure be retained but changed to be less impacted by systemic shocks. This could be accomplished by making the mapping switch to stressed levels, in conjunction with indexing MTMLTVs against top-of-market values. The MTMLTV input could be stressed by the *greater of* a) [0%] or b) the prescribed 35% value decline less any decline already sustained since peak values. In other words, if property values had already declined 20%, they would be stressed the *remaining* 15% necessary to reach a cumulative 35% decline. On the other hand, if the market had already sustained a 40% decline, no *additional* stress would be applied.
 - In response to the FHFA’s question, we do not think at-origination values should be used. It would not be informed by the state of the market and could not differentiate between long-seasoned collateral originated at the trough and recently-originated loans. To demonstrate potential future implications, we can look back – without appreciation, the 325 basis points the FHFA proposes for seasoned loans in Table 31 would likely look much like the 449 basis points charged to new assets.
 - o As a minor point relating to (and interacting with) this concern, the grids are insufficiently granular to reasonably deal with a distressed environment once underway. Specifically, the grids provide narrow bins of 5% increments at moderate leverage levels between 65% and 80%, but 10% bins between 80% and 100% and no differentiation past 100% - whereas in reality the sensitivity of losses becomes increasingly important as leverage increases towards (or surpasses) 100%. For example, in practical terms there is a large difference between an at-the-money 100% LTV and a 150% LTV which suggests a 33% loss¹⁸.
- Question 16: FHFA is soliciting comments on the proposed multifamily size multiplier and how it is applied to a loan’s entire balance, rather than marginally to a portion of a loan that exceeds a certain size threshold. What modifications to the multifamily size multiplier should FHFA consider and why?
 - o The avoidance of hard steps would be beneficial, as they could create the incentive to make a more aggressive loan with less capital attributed.

¹⁷ Based on recent originations; data per DUS Disclose

¹⁸ Before accounting for uncertainty, friction costs, etc.

- Question 17: FHFA is soliciting comments on the proposed multifamily IO multiplier, and how it is applied to full-IO loans with no amortization term and IO loans that have seasoned beyond the IO period. What modifications to the proposed multifamily IO multiplier should FHFA consider and why?
 - o We suggest that there be gradations for the length of the IO term, or at least a differentiation for a partial IO versus full IO. Whereas a 10-year deal with no IO will have amortized approximately 20% by maturity, a loan with a two-year IO period would have amortized 15%¹⁹ - versus no amortization for a full-term IO.
- Question 20: FHFA is soliciting comments on the proposed approaches for calculating multifamily CRT capital relief. What modifications should FHFA consider and why?
 - o Our concern is that CRT capital relief does not encompass the going-concern buffer or operational risk factors. Based on Table 30 (on page 206) it is clear that the 75 bps of Going-Concern Buffer and 8 basis points of Operational Risk capital are being charged to all of FNMA DUS. Based on § 1240.41-43 we believe (but cannot confirm) that the combined 83 basis points is not being charged to the 14% non-guaranteed FHLMC K-Series securities. Particularly if the latter is true, we believe that these factors should not be applied to the 33% that is absorbed by the Lenders (adjusted for their credit risk).
 - o Therefore, we recommend adding it to the LenderCapital_§ calculation as
 - $$LenderCapital_{§} = ((PGCRC_{bps} + OperationalRiskCapReq_{bps} + GCBufferReq_{bps}) / 10,000) * UPB_{§} * MF_LS_{\%}$$
- Question 21: Should the proposed multifamily CRT formulae differentiate the capital relief allowed in CRT transactions with low loan counts from that allowed in CRT transactions with high loan counts?
 - o We do not believe that this would be beneficial in the context of the framework. First, this would only be theoretically applicable to horizontal CRT. Second, it raises questions about diversification benefits on UL that are not explicitly considered in the core framework itself. Especially given the general simplicity sought in the core framework onto which this would be attached, a mathematically-intensive formula with limited applicability would not be expected to be useful.
- Question 22: FHFA is soliciting comments on multifamily counterparty haircuts. What modifications should FHFA consider and why?
 - o We propose explicit consideration of restricted liquidity and at-risk servicing rights values, as Fannie Mae already holds funds that could be accessed in the unlikely event of a DUS Lender default.
 - o The framework does not give (or at least make explicit) consideration of a Lender entering into a CRT agreement comparable to that of an Enterprise. Currently, lenders with loss sharing are prohibited from entering into agreements to hedge or insure credit losses without permission, but can seek Fannie Mae's consent to enter into a trade similar in spirit and execution to Fannie Mae's CIRT transactions. This type of hedging could be expressly considered within the Proposal.
- Question 24: FHFA is soliciting comments on the proposed approach for calculating market risk capital requirements for multifamily whole loans. What modifications should FHFA consider and why?
 - o None – this would have very limited applicability to Multifamily. In the spirit of simplicity, we do not believe that the usage of internal models is necessary to capture any material attributes of spread duration. The majority of Enterprise loans are subject to call protection (lockout, yield maintenance, prepayment penalties, and defeasance), so in contrast to quantifying *interest rate* risk on Multifamily loans, borrower behavior and resulting cash flows are not impacted by credit spread movements. In any event, both the MBS market and securitization markets generally price loans to zero prepayment and zero defaults, so traditional modified duration is appropriate. This metric could be closely approximated in a grid based on the term of the loan and perhaps prevailing interest rates. In light

¹⁹ Assumes 4.5% interest rate

of the general imprecision of other multipliers on the credit side, we feel that turning to internal models here would be overly complicated.

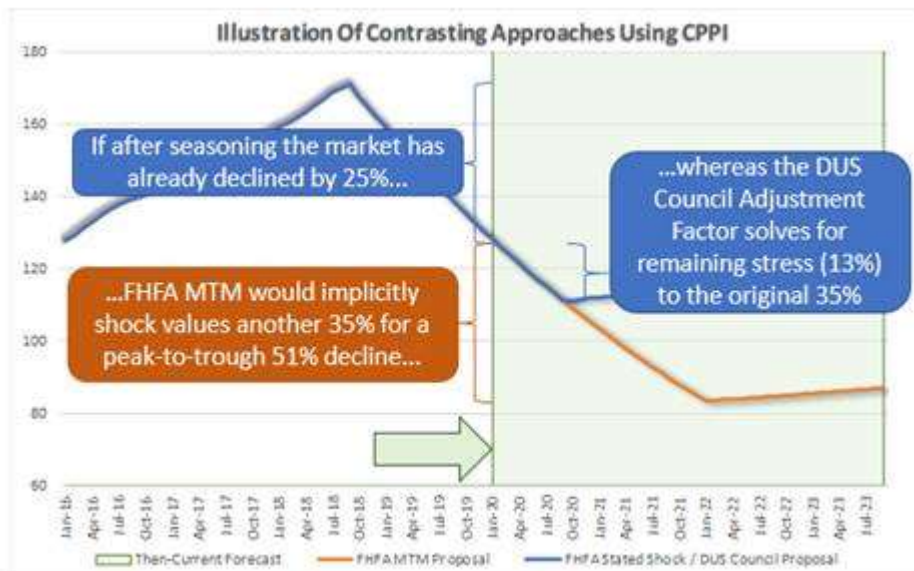
- Question 28: Should FHFA consider additional capital buffers, such as buffers to address pro-cyclical risks, in addition to the leverage ratio and FHFA's existing authority to temporarily increase Enterprise leverage requirements and why?
 - o Risks in proposed framework & Mitigation
 - FHFA identified the risk that the proposed framework could reduce capital requirements in times of rapid price appreciation. Using authority to temporarily increase leverage requirements would lack forward guidance and predictability, in turn leading to surprises and an inability to plan on the part of the agencies.
 - The larger risk – which was not identified or discussed – is the risk that MTM mechanisms in the calculation of credit risk would be expected to substantially increase capital requirements in periods of distress, when capital is hardest and/or most expensive to raise. Per the guidelines the grids were established to withstand 15% NOI and 35% value declines. In the proposed framework, if these stresses had already been realized, MTM mechanisms would essentially lead to stressing by an *additional* 15%/35% from already-stressed levels. The DUS Council estimated that total Multifamily capital requirements (including Credit, Operational, and Going-Concern) would increase by over 80%. This is not a sustainable plan.
 - o This would be consistent with the objective of keeping the Enterprises as going concerns, as the existing proposal may demand too much capital in distressed times and lead to their being undercapitalized.
- Question 37: Given that loss reserves are for expected losses and capital is for unexpected losses, FHFA is soliciting comments on the appropriateness of including loss reserves in the definition of total capital. Should loss reserves be added to the proposed risk-based capital requirements in order to offset their inclusion in total capital?
 - o No, we do not believe that this would be appropriate. Not only is the practice of capitalizing only unexpected losses consistent in the industry (including in Basel standards), but in Fannie Mae (where this would be applicable), Guarantee Fees are likely to more than cover all expected losses through the income statement without having to access capital. We expect that a portion of unexpected losses would be funded with these fees as well.
 - o We feel an appropriate inclusion / offset would be an allowance for expected net income, approximated in Fannie Mae's case as 12 months' G&S fees (pre-CRT)

Appendix 2 – Questions to FHFA

1. Were the ex-ante modeled results from which the grids were derived supported by ex-post historical data? Specifically, this is referring to the results and not inputs (e.g. propensity to default).
2. Can the Base Credit Risk Capital grids in Tables 26 and 27 be expressed with more granularity? The bands widen past 80% LTV, even though a borrower's "put option" would be closer to being in the money and the delta would increase, showing that bands should narrow rather than widen to increase precision when it matters most.
3. What is the justification for requiring less capital on an already-delinquent loan than a modified loan, all else equal? Is the expectation commensurately higher (or more) expected losses appearing as reserves?
4. With respect to the interest-only multipliers
 - a. What is the justification for not differentiating between partial and full-term IO, as these have pronounced effects on balloon LTV?
 - b. Can the FHFA include an interaction term with LTV whereby no penalty is applied below a certain LTV? At a 50% LTV, for example, full-term IO would still yield a low balloon LTV and, all else equal, lead to a lower probability of term default.
5. What were the default parameters/thresholds in the models generating the Base Credit Risk Capital grids?
 - a. Did they assume ruthless defaults? Enterprise borrowers have generally exhibited a lower propensity to default, all else equal.
 - b. Were structural crosses considered?
6. If the pro-cyclical feature of the Proposal is not addressed endemically (which for the avoidance of doubt we believe should be), what is the proposed communication mechanism for the FHFA to exercise its authority to adjust required capital levels?
7. What are the criteria used to assign the counterparty risk grades?
8. Please clarify the application of the going-concern buffer and operational risk capital as it relates to CRT. Is this applied both to credit exposures that have been sold to private investors and are not guaranteed, as well as to exposures against which CRT is in force?
 - a. Our reading of the Proposal suggests that subordinate unguaranteed K-certificates (i.e. bottom 14% on standard deals) would not be charged capital; however our interpretation of figures in Table 31 suggests that they may be.
 - b. Can the application of these amounts be reconsidered in light of CRT? In lender risk-sharing, it seems unreasonable to charge capital against exposures economically transferred to third parties though nominally guaranteed. We would not be averse to subjecting these exposures to counterparty risk, so that a reduction is present but less than 1:1.
9. If a counterparty has engaged in its own form of CRT, how is this taken into account?
10. Please provide clarification about the manner in which capital could be held and invested. Specifically, could the excess capital be invested in risk-free assets such as a ladder of US Treasuries, and would any risk capital be required on any such investments? We believe this to be theoretically sound and consistent with other frameworks but seek specific guidance as the Proposal was silent on how capital could be held and invested.
11. How did the FHFA or Enterprises input asset-level volatility into their models?
12. How is Fannie compensated for being the party creating the stated goal of a counter-cyclical liquidity backstop? Are return thresholds the same for a conduit like trading business as a long-term buy-and-hold business? Fannie Mae's model has significantly more locked in income to be earned whereas Freddie Mac's has already been earned; how is this considered?
13. How did the FHFA take modifications and extensions into account while building their capital tables?

Appendix 3 – Proposed Change to Grid Implementation to Reduce Cyclical Impacts

Our primary concern with the proposed grid system is its usage of mark-to-market metrics (i.e. MTMLTV and MTMDSR), whereas the grid appears to have been calibrated relative to at-origination values. If the prescribed stress of 15% NOI and 35% value declines were to occur, passing stressed MTM values into the grid would effectively force capitalization to levels associated with *additional* 15%/35% declines from already-distressed values.



Specifically, our analysis suggested that Base Credit Risk Capital requirements would more than double, and would increase by 83% using a broader measure that accounted for Operational Risk and the Going-Concern Buffer. As a result, this would *increase* potential undercapitalization just as capital would be most scarce and expensive to raise. That said, we do not propose using only at-origination values, as these would not be informed by the state of the market or the underperformance of a property, and could not differentiate between long-seasoned collateral originated at the trough versus recently-originated loans at cyclical highs.

As this is arguably the single most critical portion of the framework, a small degree of complexity may be warranted and that this portion could be addressed formulaically. Our suggestion is that the basic grid structure be retained but that the mapping (i.e. axes and lookup values) switch to stressed levels, in conjunction with indexing MTMLTVs against top-of-market values. Top of Market values would be established by referencing one of several commercially available indices. The MTMLTV input could be stressed by a Remaining Stress Factor equal to the greater of a) [0%] or b) the prescribed 35% value decline less any decline already sustained since peak values. In other words, for example, if property values had already declined 25%, they would be stressed another 13% to get to a 35% decline. On the other hand, if the market had already sustained a 40% decline, [no] additional haircut would be applied from MTM values.

$$\text{Remaining Stress Factor} = \text{MIN}(\text{Stress}_{\text{Min}}, \text{Index}_{\text{Peak}} * \text{Stress}_{\text{FHFA}} / \text{Index}_{\text{Curr}})$$

Where, respectively for Income & Value:

$\text{Index}_{\text{Curr}}$ = Current Index Value (e.g. CPPI)

$\text{Stress}_{\text{FHFA}}$ = 1 – Mandated shock (i.e. 15% / 35%)

$\text{Index}_{\text{Peak}}$ = Peak Index Value (e.g. CPPI)

$\text{Stress}_{\text{Min}}$ = 1 – Minimum shock (if applied)

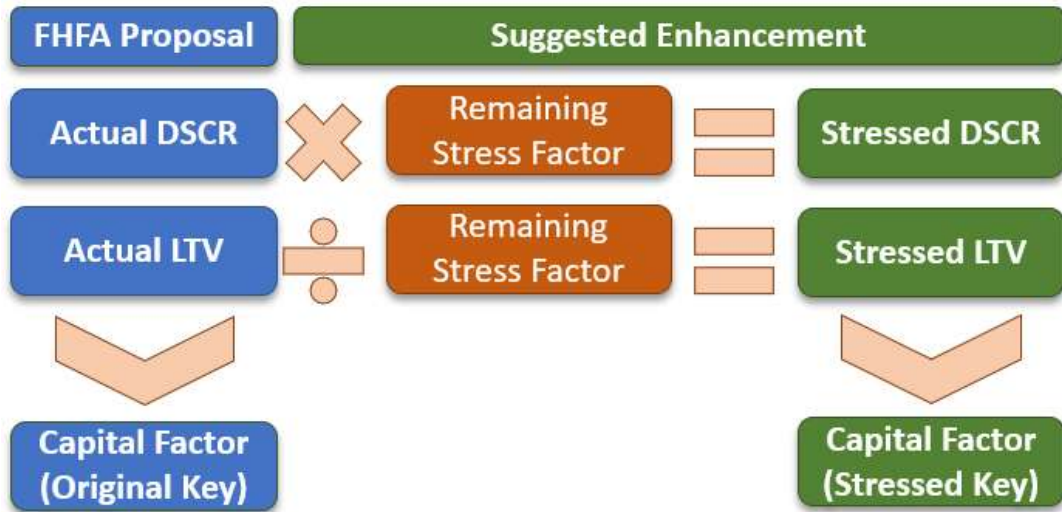
As the stresses would be applied at the portfolio level, changes due to idiosyncratic risk would be maintained.

While maintaining the grid-based system, in spirit this proposal is intended to mirror what would happen if, in all periods following origination, unexpected losses were recalculated using then-current performance metrics, using a stressed scenario in which the market overall (i.e. all assets) would sustain peak-to-trough 15%/35% drop from the market’s high water mark.

To demonstrate this concept, we show how the same grids could be represented differently. **Rather than passing in UW or MTM values to their as-stated values in blue (referred to below as “Original Key”), the keys could be converted to their as-stressed equivalents in green (“Stressed Key”).** These relate to the NOI and value stresses of 15% and 35% respectively, and the figures being passed into the grids would be converted as well using simple formulas:

Fixed Rate Base Capital Charges												
		LTV - FHFA Usage vs Proposed Usage										
		up to 35.0%	35.0% - 45.0%	45.0% - 55.0%	55.0% - 65.0%	65.0% - 70.0%	70.0% - 75.0%	75.0% - 80.0%	80.0% - 90.0%	90.0% - 100.0%	>=100.0%	
		up to 53.8%	53.8% - 69.2%	69.2% - 84.6%	84.6% - 100.0%	100.0% - 107.7%	107.7% - 115.4%	115.4% - 123.1%	123.1% - 138.5%	138.5% - 153.8%	>=153.8%	
DSCR - FHFA Usage vs Proposed Usage	up to 1.00x	up to 0.85x	415	480	610	870	996	1119	1226	1328	1378	1453
	1.00x - 1.15x	0.85x - 0.98x	359	413	520	735	843	943	1028	1118	1160	1224
	1.15x - 1.20x	0.98x - 1.02x	321	368	460	645	740	825	895	978	1015	1071
	1.20x - 1.25x	1.02x - 1.06x	298	338	418	578	660	733	778	855	895	955
	1.25x - 1.30x	1.06x - 1.11x	266	303	375	520	593	645	690	755	790	843
	1.30x - 1.35x	1.11x - 1.15x	251	283	345	470	528	568	608	670	700	745
	1.35x - 1.50x	1.15x - 1.28x	231	259	315	428	475	510	548	610	640	685
	1.50x - 1.65x	1.28x - 1.40x	201	218	250	315	345	375	408	455	498	561
	1.65x - 1.80x	1.40x - 1.53x	175	185	205	245	270	298	330	378	423	490
	1.80x - 1.95x	1.53x - 1.66x	129	138	155	190	210	235	258	325	375	450
	1.95x - 2.10x	1.66x - 1.79x	118	122	130	163	180	204	221	299	351	430
	2.10x - 2.25x	1.79x - 1.91x	106	110	118	149	165	188	203	286	339	420
	>=2.25x	>=1.91x	100	104	111	142	158	180	194	279	333	415

The index-based Remaining Stress Factors would be used to convert the UW/MTM values being passed into the grid. At the peak of the market, both UW and MTM LTVs and DSCRs would be stressed by the full amounts (i.e. 35% and 15% respectively). However, as the market began a downturn, so that capital was not determined based on ever-lower stressed levels, only the remaining amount of stress required to arrive at the original target would be applied. Put simply, if a loan were capitalized based on a 35% decline, no additional capital would be charged until either a) the market declined by more than 35% or b) the loan had idiosyncratic issues.



A variety of indices could be used, such as RCA CPPI for property values²⁰, NCREIF indices²¹ for both values and income, or CoStar or CBRE Econometric Advisors²².

To demonstrate how this would work in practice, multiple scenarios are shown for a loan originated at 1.50x DSCR and 75% LTV, which would carry an initial capital charge of **375 bps** in either framework (with the exception of Example D):

²⁰ The Real Capital Analytics Commercial Property Price Indices (RCA CPPI) are a series of transaction-based, repeat-sales regression (RSR) indices developed to measure the change in price of commercial real estate and reflect the empirical results of direct investments over time.

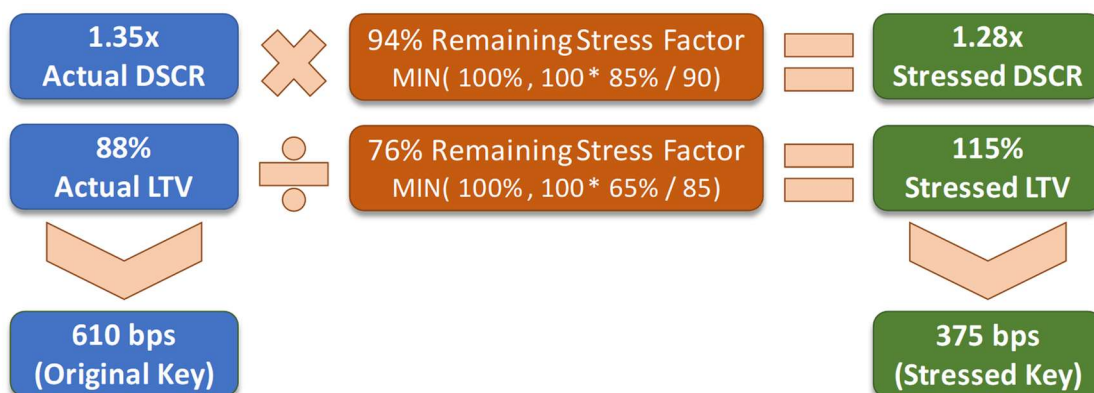
²¹ National Council of Real Estate Investment Fiduciaries (NCREIF); NCREIF Property Index (NPI) Trends is a quarterly report that tracks the changes in both capitalization rates and net operating income (NOI). These are generally subject to a lag when the market turns, as they're appraisal-based and rely on reporting, but are industry benchmarks.

²² CBRE Econometric Advisors and CoStar each publish a national / composite-level NOI Index and Value Index.

Scenario A: Loan behaves like market, market in decline but within specified bands

In Scenario A, the loan’s MTMDSCR and MTMLTV have suffered as a result of the market’s performance and are now estimated at 1.35x and 88% respectively. Under the original usage of the grid, this would have led to a capital requirement increasing by more than 50% to 610 basis points. In the proposal, Remaining Stress Factors are first calculated using index values. Then, using this stress factor, we will be able to calculate stressed DSCR/LTV. Because the market is still within the band and the loan performed in line with the market, the Stressed MTMDSCR and Stressed MTMLTV remain constant and 0% additional capital would be charged.

	Value	Income
Peak Index	100	100
Current Index	85	90
FHFA Stress	35%	15%



Scenario B: Loan underperforms the market, market at peak levels

In Scenario B, the loan’s MTMDSCR and MTMLTV have suffered as a result of its own idiosyncratic poor performance and are estimated at 1.35x and 83% respectively. This shows that the poor performance translates to more capital – to 610 basis points under either regime.

	Value	Income
Peak Index	100	100
Current Index	100	100
FHFA Stress	35%	15%



Scenario C: Loan behaves like market, market in deep decline outside specified bands

In Scenario C, the loan’s MTMDSCR and MTMLTV have suffered due to the market’s extremely poor performance and are now estimated at 1.13x and 125% respectively. Under the original usage of the grid, this would have led to a capital requirement more than tripling to 1224 basis points – due to the fact that the implied value drop of its stress is now an aggregate 61% decline. In our proposal, the Stressed MTMDSCR and Stressed MTMLTV would reflect the revised values but no additional stress resulting in 670 basis points of capital²³.

	Value	Income
Peak Index	100	100
Current Index	60	75
FHFA Stress	35%	15%



Scenario D: Loan originated while market in distress

In Scenario D, the loan is originated into a distressed market. As the distressed peak-to-trough “path” has already been realized and not assumed to repeat, the asset would be charged 45% less capital – 205 basis points. This was constructed in this manner to ensure consistent treatment, and application of market shocks, across all assets.

	Value	Income
Peak Index	100	100
Current Index	65	85
FHFA Stress	35%	15%



²³ Note that a floor of [5%] of additional stress could be specified to allow for some remaining risk.

Appendix 4 – NAIC Comparison

We believe that the grids in the Proposal would require capital requirements significantly in excess of life company levels. The National Association of Insurance Commissioners (“NAIC”) established a risk-based capital (“RBC”) framework that acts as a minimum regulatory capital standard and a “tripwire” for regulators to intervene when companies are undercapitalized²⁵. The first table shows the NAIC grids for performing Multifamily loans based on their rating criteria:

NAIC Grids for Performing Multifamily Loans						
		DSCR				
		below 0.95x	0.95x up to 1.15x	1.15x up to 1.50x	1.50x up to 1.75x	1.75x and above
LTV	below 55%	1.75%	1.75%	1.75%	0.90%	0.90%
	55% up to 75%	3.00%	1.75%	1.75%	0.90%	0.90%
	75% up to 85%	3.00%	3.00%	1.75%	0.90%	0.90%
	85% up to 100%	5.00%	3.00%	1.75%	1.75%	1.75%
	100% up to 105%	5.00%	5.00%	3.00%	3.00%	1.75%
	105% and above	7.50%	5.00%	3.00%	3.00%	1.75%

Since virtually all Enterprise loans would be originated with LTVs at or below 80% and DSCRs of at least 1.20x, the vast majority of loans originated would face a capital charge of 0.90% to 1.75%²⁶. To underscore this, we compared required Base Credit Risk Capital for fixed-rate loans per Table 26 to those of the NAIC requirements²⁷.

Multiple of FHFA Fixed-Rate to NAIC Capital											
		LTV (at FHFA Midpoint)									
		34%	40%	50%	60%	68%	73%	78%	85%	95%	100%
DSCR (at FHFA Midpoint)	0.90x	2.1x	2.4x	3.1x	2.6x	3.0x	3.3x	3.6x	2.4x	2.5x	2.6x
	1.08x	1.8x	2.1x	2.6x	3.7x	4.3x	4.8x	3.0x	3.3x	3.4x	2.2x
	1.18x	1.6x	1.9x	2.3x	3.3x	3.8x	4.2x	4.6x	5.0x	5.2x	3.2x
	1.23x	1.5x	1.7x	2.1x	2.9x	3.4x	3.7x	4.0x	4.3x	4.6x	2.8x
	1.28x	1.4x	1.5x	1.9x	2.6x	3.0x	3.3x	3.5x	3.8x	4.0x	2.5x
	1.33x	1.3x	1.4x	1.8x	2.4x	2.7x	2.9x	3.1x	3.4x	3.6x	2.2x
	1.43x	1.2x	1.3x	1.6x	2.2x	2.4x	2.6x	2.8x	3.1x	3.3x	2.0x
	1.58x	2.0x	2.2x	2.5x	3.1x	3.4x	3.7x	4.0x	2.3x	2.5x	1.7x
	1.73x	1.7x	1.8x	2.0x	2.4x	2.7x	2.9x	3.3x	1.9x	2.2x	1.5x
	1.88x	1.3x	1.4x	1.5x	1.9x	2.1x	2.3x	2.6x	1.7x	1.9x	2.3x
	2.03x	1.2x	1.2x	1.3x	1.6x	1.8x	2.0x	2.2x	1.5x	1.8x	2.2x
	2.18x	1.0x	1.1x	1.2x	1.5x	1.6x	1.9x	2.0x	1.5x	1.7x	2.1x
2.30x	1.0x	1.0x	1.1x	1.4x	1.6x	1.8x	1.9x	1.4x	1.7x	2.1x	

assumes 11% average FHFA grid reduction due to multipliers, does not include Market, Operational, or Going-Concern charges.

This shows required capital under the proposed FHFA system to generally be two to four times that of NAIC requirements throughout most of the areas in which the Enterprises lend.

We next estimated hypothetical capital charges under the NAIC system on all actual Fannie DUS loans issued since June 2017, using the same DSCR & LTV inputs as used for FHFA estimations. This showed FHFA requirements to be

²⁵ https://www.naic.org/cipr_topics/topic_risk_based_capital.htm

²⁶ https://www.naic.org/documents/committees_e_capad_lrbc_final_instructions.pdf

²⁷ NAIC requirements are compared against FHFA Base Credit Risk Capital requirements with a consistent reduction of 11% to account for multipliers. These may have uneven influences through the grid but overall decrease FHFA requirements by approximately 11%. Operational Risk, Market Risk, or the Going-Concern Buffer components are not included. Although we only intend to compare base credit risk factors without respect to these, we lack the expertise to be certain that there are not additional factors in NAIC’s framework in that might require capital over the Risk-Based Capital (“RBC”) factors.

2.8 times those of NAIC after accounting for multipliers but with no attribution for Market Risk, Operational Risk, or the Going-Concern Buffer.

	Tier 2	Tier 3	Tier 4	TOTAL
FHFA Base Capital after Multipliers (bps)	521	252	132	411
NAIC Risk-Based Capital (bps)	164	121	91	145
FHFA Multiple	3.18x	2.07x	1.45x	2.83x

Appendix 5 – Fannie Mae Return on Equity Analysis

After concluding that the FHFA’s proposed levels of credit risk capital were too high, the DUS Advisory Council next sought to evaluate the potential impact of the framework’s implementation. This was based on the premise that returns on equity must achieve hurdle rates that private capital would demand. **This analysis showed that an unintended consequence of the FHFA’s onerous capital proposal would be undermining Fannie Mae’s ability to compete and remain a viable source of financing – including on affordable housing.**

We estimated after-tax return on capital for every DUS loan originated in the past six months²⁸ and analyzed which segments would become more and less accretive. This was based on theoretical unhedged after-tax returns, using on actual G&S fees and estimates of ancillary income, expected losses, overhead, and taxes²⁹. This does not assume that risk capital is invested to earn additional returns³⁰. All loans were assumed to have one-third lender loss sharing and counterparty risk was considered³¹.

Results of this analysis are shown in the tables below. The charts show the percentage of business and returns in different areas of the business over the past year, and also a quarterly view to show the impact of recent pricing trends. Importantly, this shows would-be current capital levels, but does not address the additional Pro-cyclical capital being recommended in the Proposal as discussed herein.

Return on Capital in Absence of CIRT Hedging				
Loan Size	DUS	Estimated Return on Capital by Size		
	% Issuance*	2Q18	3Q18	Trend**
up to 3.0mm	2.0%	10.6%	10.5%	9.3%
3.0 to 5.0mm	2.7%	14.1%	12.6%	11.1%
5.0 to 10.0mm	8.8%	14.4%	10.9%	9.2%
10.0 to 25.0mm	33.4%	12.6%	11.7%	9.5%
25.0 to 50.0mm	32.9%	13.5%	11.6%	9.1%
50.0 to 100.0mm	14.7%	12.8%	10.5%	8.0%
100.0 and above	5.5%	11.3%		
TOTAL	100.0%	13.0%	11.4%	9.2%
* Percent issuance is reflected over trailing 12 months				
** Trend reflects additional 13bps for possible continuation of recent pricing trends. We estimate weighted-average waivers have increased by 13 basis points in each of the past two quarters (i.e. 26 bps in 6 months), after controlling for loan attributes.				

Affordable Housing	DUS	Estimated Return on Capital		
	% Issuance	2Q18	3Q18	Trend
Affordable	8%	9.8%	9.0%	7.4%
Affordable loans where DUS Disclose shows an Affordable Housing Type, excl "Not MAH"				

²⁸ Data from DUS Disclose as of September 11, 2018 and includes all loans with an Issuance date on or after April 1, 2018.

The 3rd quarter of 2018 is not final as more loans would be issued with a formal 9/1/18 issuance date after 9/11/18,

²⁹ Total G&S fees were based on the difference between interest rates and pass-through rates. G-Fees were assumed to be two-thirds of the excess over 5 basis points. Ancillary income was assumed to be loan-specific compensation for estimated yield maintenance penalties (sensitized to G-Fees), float, and upfront premia; this figure averaged 22% of the estimated G-Fees. Expected losses were risk-dependent and assumed to be one-sixth of required credit risk capital, converted to basis points by dividing by the loan’s term, times a two-thirds risk share. Overhead was assumed to be 15 basis points based on reported 2015-2017 Administrative Expenses. Tax was assumed at 23%.

³⁰ If the Enterprises were actually capitalized, such capital (the additional assets required to result in the balance sheet equity) may be invested in risk-free assets consistent with other RAROC frameworks. We did not make this explicit assumption since insufficient guidance was provided in the FHFA’s Proposal.

³¹ Capital requirements used the grids and primary multipliers. Counterparty risk was assumed for capital purposes at 6.0% factor (risk grade 3).

The first table leads to three general conclusions:

- Pricing has trended sharply lower recently.
- Small loans are most non-accretive with unhedged returns below 12% thresholds due to their high Multiplier.
- On the other end of the market, large loans have moderate returns due to a combination of lower fees and less capital, but are most sensitive to additional pricing swings.

Initial Leverage	DUS	Estimated Return on Capital by LTV		
	% Issuance	2Q18	3Q18	Trend
up to 60%	20.5%	15.2%	14.7%	10.8%
60% to 65%	18.6%	16.4%	13.9%	11.1%
65% to 70%	20.6%	14.1%	12.8%	10.6%
70% to 75%	19.4%	11.3%	9.6%	8.0%
75% to 80%	15.2%	10.5%	9.5%	7.9%
80% and above	5.7%	9.7%	7.9%	6.6%
TOTAL	100.0%	13.0%	11.4%	9.2%

Tier	DUS	Estimated Return on Capital by Tier		
	% Issuance	2Q18	3Q18	Trend
Tier 2	64.5%	12.2%	10.5%	8.7%
Tier 3	23.5%	16.3%	14.1%	11.0%
Tier 4	12.1%	13.6%	14.3%	9.6%
TOTAL	100.0%	13.0%	11.4%	9.2%

The second chart, by leverage, shows that Fannie Mae would already be virtually required to exit these segments, hedge using CIRTs, or accept drastically lower returns for loans of 65% LTV and above. This is closely related to the third chart, which shows the business by Tier (primarily, a combination of DSCR and LTV). Recent Tier 2 loans are expected to have unhedged returns on capital that may not meet probable return hurdle rates.

Since loans of at least 70% LTV jointly account for over 40% of Fannie Mae's business, and Tier 2 loans account for two-thirds of Fannie's volume, these charts underscore the significant reliance put on Fannie Mae to enter into CIRTs if the Agencies are ultimately forced to capitalize.

Required Pricing Adjustments Not a Viable Option

The following tables detail the spread increases that would be necessary to achieve an estimated 14% target hurdle rate. This shows that based on the most recent quarter's credit profile and pricing, spreads would need to increase by 16 basis points overall³². Certain areas would be disproportionately impacted, with 39bps of adjustment necessary for loans up to \$3 million, 39 basis points for loans between 75% and 80% LTV, and 26 basis points for all of its Tier 2 business (which is two-thirds of the total).

In addition, pricing has been trending sharply lower. We estimate weighted-average pricing waivers have increased 13 basis points in each of the past two quarters (26 bps total) after controlling for loan attributes. We believe that this measure could increase another 13 bps. Should this occur, required spreads would be even further out of line with accretive levels.

³² This total is evaluating the multifamily business as a whole; it is not an aggregation of the segments which could lead to a different result.

Pricing Implications in Absence of CIRT Hedging				
Loan Size	DUS	Required Pricing Increases to Reach Hurdles		
	% Issuance	2Q18	3Q18	Trend*
up to 3.0mm	2.0%	35	39	52
3.0 to 5.0mm	2.7%	0	11	24
5.0 to 10.0mm	8.8%	-3	25	38
10.0 to 25.0mm	33.4%	9	14	27
25.0 to 50.0mm	32.9%	3	13	26
50.0 to 100.0mm	14.7%	6	18	31
100.0 and above	5.5%	9		
TOTAL	100.0%	6	16	29

Initial Leverage	DUS	Required Pricing Increases to Reach Hurdles		
	% Issuance	2Q18	3Q18	Trend*
up to 60%	20.5%	-4	-2	11
60% to 65%	18.6%	-11	0	13
65% to 70%	20.6%	-1	7	20
70% to 75%	19.4%	22	35	48
75% to 80%	15.2%	30	39	52
80% and above	5.7%	42	57	70
TOTAL	100.0%	6	16	29

Tier	DUS	Required Pricing Increases to Reach Hurdles		
	% Issuance	2Q18	3Q18	Trend*
Tier 2	64%	13	26	39
Tier 3	23%	-10	0	13
Tier 4	12%	1	-1	12
TOTAL	100%	6	16	29

* Trend reflects additional 13bps for possible continuation of recent pricing trends. We estimate weighted-average waivers have increased by 13 basis points in each of the past two quarters (i.e. 26 bps in 6 months), after controlling for loan attributes.

Since Fannie Mae is in a competitive market and can't dictate pricing, absent viable hedging vehicles the probable outcome could be Fannie Mae being forced out of the Multifamily business with its current business model.

Estimated Returns using Credit Insurance Risk Transfers ("CIRTs")

Return estimates are then run assuming CIRTs assuming 4 bps and 15 bps of premium, an attachment point of 2.25%, and a detachment point of 4.5%. Capital relief was assumed after again assuming a one-sixth EL vs UL ratio, and using the Proposal's relief formula³³, and a 6% Counterparty risk factor was assumed. At a 4 bps assumed charge³⁴, this shows that returns were assisted; however much of the benefit had eroded at a higher 15 bps charge.

$$TCRC_{bps} = (DTCH - ATCH) * \left[\max \left(0, \min \left(\left[\frac{PGCRC_{bps} + PGEL_{bps} - ATCH}{DTCH - ATCH} \right], 1 \right) \right) - \max \left(0, \min \left(\left[\frac{PGEL_{bps} - ATCH}{DTCH - ATCH} \right], 1 \right) \right) \right]$$

³³

³⁴ We believe 4 bps to be representative of current market conditions on a run-rate-equivalent basis, after accounting for the impact of prepayments

DUS Share	Estimated Return on Capital		
	2Q18	3Q18	Trend*
Unhedged Return on Capital	13.0%	11.4%	9.2%
CIRT 4bps / 2.25% to 4.50%	20.2%	17.4%	13.8%
CIRT 15bps / 2.25% to 4.50%	16.2%	13.5%	9.9%

CIRTs may or may not be available in the future in scale. CIRTs afford capital relief by allowing Fannie Mae to buy protection on the difference between uncapped expected loss levels, and capitalized unexpected loss levels, by setting attachment and detachment points for pooled credit insurance³⁵. In exchange, fixed premia are paid for the coverage. While the net effect of this transaction currently allows Fannie Mae to originate accretive business, this market is largely undeveloped. The cost of protection could increase quickly and cease to help Fannie Mae's return on risk capital.

In other words, use of CIRTs should not be treated as a permanent solution, does not mitigate our view that the grids themselves should be aligned to other benchmarks. That said at some prescribed prices (not open ended) it is possible that CIRT hedges should be encouraged or required.

³⁵ Economic considerations may drive attachment points higher in practice.

Appendix 6 – Freddie Mac Capital Required

Risk-based capital requirements for existing Freddie Mac guarantees are limited to 83 basis points, as all credit risk and market risk has been transferred to private investors. New originations, however, are assessed capital for all risks. We have estimated credit risk at 449 bps in this analysis, in line with FHFA’s reported average for new originations. Also, in contrast to Fannie Mae, Market Risk is assessed. We have estimated this figure at 107 basis points, under the assumption that loans carry an average spread duration of just over 7, which translates to 14 basis points to a point (i.e. 15 bps defined stress / 14 bps/pt * 100).

To derive average capital requirements for Freddie Mac’s K-Deal program³⁷, we assumed that \$230 billion of loans pledged to K-Series deals are active, and that \$65 billion is originated annually. New originations are assumed to have 8 “turns” per year³⁸ and that 60% of a deal’s volume is active at any given point while collateral is aggregated and warehoused³⁹. This results in an average on-book balance of 7.5% of a given year’s origination volume⁴⁰. This is the only portion assessed net credit risk and operational risk capital.

Illustrative K-Series Freddie Mac Capital Needs					
	UPB / Vol \$MM	Exposure Factor	Exposure \$MM	RBC bps	Capital Req \$MM
Freddie On Book	230,000	86.0%	197,800	83	1,642
Freddie in Transition	65,000	7.5%	4,875	370	180
Freddie Gross			202,675	90	1,822

Given how low its required capital levels are believed to be, Freddie Mac is able to earn a substantially larger return on capital than Fannie Mae with any reasonable assumption of income and expenses.

As even a multiple of the required capital would not jeopardize Freddie Mac’s ability to attain reasonable return hurdles, this analysis demonstrates Freddie Mac’s insensitivity to the levels of proposed credit risk capital relative to Fannie Mae⁴¹.

³⁷ We note that the capital figures shown in this table are substantially below those of Supplementary Table S2 (which is duplicated in Appendix 9). Based on Table S2’s 80% CRT reduction and 31bps of Market Risk capital, we believe that this demonstrates that approximately 25-30% of Freddie Mac’s *current* book is held on balance sheet. Our analysis instead focuses on the securitization program, under the assumptions that a) marginal new business is done in the K Program, and b) this is a better reflection of stabilized operations.

³⁸ This is conservative as the number of vanilla K-deals every year has averaged 10 (10 in 2015 (K42 to K51), 9 in 2016 (K52 to K60), and 11 in 2017 (K61 to K71)). Increasing velocity would improve Freddie Mac’s returns, all else equal.

³⁹ This would fluctuate continually and in theory this would average half the deal’s volume. We increased this slightly as the cutoff date must be set before securitization, after which aggregation for the next pool begins.

⁴⁰ 60% average balance / velocity of 8 turns per year = 7.5%

⁴¹ Fannie Mae’s figures use consistent assumptions (i.e. 480 bps credit estimation), and are shown after Lender loss sharing subject to 6.0% counterparty risk, and without the application of CIRT.

Appendix 7 – Volatility Analysis

Part 1: Reverse-Engineering FHFA Assumptions

The DUS council attempted to reverse engineer the FHFA's Risk Capital Table 26 and 27. By making the following assumptions (in the below chart) we were able to reverse-engineer a table that had the same mean (449 basis points) and a similar distribution (for various LTV/DSCR combinations) as FHFA Tables 26 and 27.

	Stress Case	Expected Losses
Model Type	10,000 random trials, taking the average	10,000 random trials, taking the average
Market NOI Path	Down 15% event over 2 years, then 1.75% growth for last 8 years	1.75% growth
Asset Level Annual NOI dispersion around the mean	10.6% standard deviation per year	10.6% standard deviation per year
Cap Rates	Expand so that values are down 35% at year 2 (in combination with the 15% NOI drop) and remain expanded for 10 years	Unchanged from today
Term Defaults	When NOI \leq 0.85X DSCR	When NOI \leq 0.85X DSCR

Even as we altered various of the above assumptions (such as using a lower growth rate from 1.75%) we needed to assume approximately that asset level NOI dispersion (i.e. standard deviation) around the market mean was around 10.6% to make the losses/capital levels for various LTV/DSCR combinations line up to the FHFA Table 26. In this memo, we suggest that this level of standard deviation is too high. Specifically, we show a revised reverse engineered fixed rate table using an 8.75% annual standard deviation for individual assets versus the market's overall NOI growth, which we think is more appropriate.

We would appreciate insight on the FHFA's actual figures and the support behind the standard deviation figure it assumed.

Part 2 – 8.75% Standard Deviation Study

We approached this in two different ways; Methodology 1 and 2 and took the average to arrive at 8.75%.

Method 1 resulted in 8.4% volatility

One servicer took loans from their servicing book to analyze standard deviation around the overall market NOI change, from 2011 to 2016.

- Maintained all loans that had at least 3 consecutive years worth of data from 2011 to 2016
- Given the sample had too many small loans, they dropped a number of the properties so that the average loan balance was \$16 million to approximate agency lending.
- They compared ending financial statements (year 3) to beginning financial statements (year 0)
 - Calculating it over a 3 year period reduces anti-autocorrelation
 - Of course, to derive the annualized figure, they divided the 3 year change by the square root of 3 years' time at the end of the analysis.
- They further compared the 3-year NOI change to 3-year MSA level NOI change for the corresponding 3 year period (whether 2011-2014, 2012-2015, or 2013-2016) to find dispersion relative to MSA-level metrics

- MSA's NOI growth was calculated by assuming actual MSA rent growth and actual MSA occupancy changes per CoStar, and assuming the majority of expenses were grown at CPI and property taxes at 3% (except 2% for California due to Prop 13).
- See discussion below about whether or not to calculate standard deviation overall or only with an MSA
- This resulted in around 2,735 loans
- Approximately 110 of the loans seemed to exhibit numbers that made no sense or likely flagged an obvious significant property renovation (the cutoff points were extremely conservative and the sample set probably includes standard deviation for many renovations that they did not take out because of this conservatism). Additionally, they limited NOI changes that seemed nearly impossible mathematically (i.e. this limited NOI changes to 50% up or down, and resulted in reigning in volatility for 0.5% of the properties in the sample).
- This resulted in 2,625 loans remaining in the sample

Two items that cancel out:

- 1) During the stress we wanted the MSAs to move in tandem due to our assumption that the FHFA prescribed a uniform shock. Post stress (y6-10) we wanted MSA level volatility to create additional volatility. If we were to add back the volatility among MSA's for years 6-10, that would add back ~0.5% volatility points to the 8.4%.
- 2) We noted our sample had an average NOI margin that was lower than FNMA's average and compared that to the fact that properties with lower NOI margins clearly tend to exhibit higher NOI volatility. When we adjust this factor out (to make the NOI margins comparable) this reduces the standard deviation by ~0.5% back to 8.4%.

The previous items cancel out and hence we excluded them.

Method 2 resulted in 9.1% volatility

We found 985 properties in Real Capital Analytics ("RCA") and Yardi that:

- Sold at least twice during the time period of 2000-2017 (so that we would have values at two different points in time)
- Had an average hold period of between 9 and 11 years in between the sales transactions (so that it would approximate our 10-year hold time)
- Were deemed by RCA or Yardi as "investment properties", not "condo conversion" nor "renovation" nor "redevelopment" by either buyer or seller
- Had moves that were less than 3.5 standard deviations from the mean (even assuming 10.6 vol) to filter out obviously bad data or extraordinary events (like adding an additional building, etc.) since this should happen less than 0.2 times per 985

We compared this to the CoStar national value index for the appropriate time periods.

The average annual standard deviation around the National Average value change was 9.1%.

Appendix 8 – Retained Income Discussion

We take issue with the assumption that no income is used to reduce risk capital – that effectively all income would all be disbursed as dividends. The only logical explanation we can come up with for making this assumption is that a crisis could come so quickly that no future income could be relied upon before all risk capital was lost. We don't believe this is realistic on either an accounting or cash basis, due to a) the general stability of fee income, b) the small probability that a recession's full scope would be realized immediately, and c) the rules governing the Enterprises ensure that dividends are reduced before capital is depleted.

If a financial crisis were to develop, fee-based revenues are unlikely to be significantly impaired. Even during the early 1990s, Multifamily serious delinquency rates peaked at below 7% for Freddie Mac and 4% for Fannie Mae – implying that the vast majority of loans continued to pay fees. Neither the DUS Model nor Securitization Model are forced to mark to market their Guaranty exposures, which could quickly impair net income (and would be more relevant for bank loans, explaining the exclusion of income in Basel) and capital.

As the economy weakens and the crisis develops, it is unrealistic to assume that the full scope would be grasped immediately – all loans do not default at the same time, nor are the economic drivers that create these defaults immediately and accurately forecasted. We therefore do not believe there to be a plausible chance that losses would be recognized immediately – particularly by today's incurred "probable" standard for loss reserves⁴², and even in the future CECL "expected" regime. Said differently, even if the stress path is realized (and the former "EL + UL" becomes "EL") we see no chance that this realization and the associated accounting implications would occur instantaneously. During the process of this realization, fee income would continue to be earned to bolster capital.

Based on the Preferred Stock Purchase Agreements and the letter agreements signed on December 21, 2017, "an Enterprise will only pay a dividend to its owners if the net worth at the end of a quarter is more than \$3 billion."⁴³ As such, if Enterprise net income declined due to the recognition of losses⁴⁴, the dividend can and would be cut as a line of defense against the erosion of capital – thereby ensuring that fee income is not disbursed as dividends.

Evaluated through a cash-based lens, the primary risk is a liquidity issue. To address this concern, we ran 10,000 random simulations of a portfolio of 500 equal weighted loans, each with the same assumptions as listed above, except (i) we used 77.5% LTV/1.20 DSCR loans only to exaggerate the case, and (ii) we forced the defined stress (15% and 35%) to entirely occur at the end of year 2 (not spread over years 1-2) to further exaggerate the case. In ALL 10,000 out of 10,000 cases there was enough capital to survive at least 30 months (2.5 years) from the moment of the 15% NOI drop/35% value drop crisis without reliance on any income. This tells us that based on the prescribed stress, it is unreasonable to not be in a position to rely on at least *some* after-tax income. Hence, we suggest it is extremely conservative to allow just 12 months of G&S Fees (pre-risk sharing, approximating 15 months' / 1.25 years' worth of held-to-maturity income) to be considered for the reduction of the risk capital tables. Said differently, if 15%/35% represents the FHFA stress scenarios, then 10,000 out of 10,000 of these scenarios would have had \geq 2.5 years' worth of income before capital was lost and we are suggesting we should prospectively be able to rely on 1.25 years' (15 months') worth of income. Finally, we point out that ignoring this income specifically disadvantages agencies that earn their income on a held to maturity basis.

⁴² Per Fannie Mae's 2017 10-K: "Our combined loss reserves, which include our allowance for loan losses and reserve for guaranty losses, provide for an estimate of credit losses **incurred** in our guaranty book of business, including concessions we granted borrowers upon modification of their loans. When we reduce our loss reserves, we recognize a benefit for credit losses."; "Combined loss reserves" consists of our allowance for loan losses and reserve for guaranty losses." (emphasis added)

⁴³ <https://www.fhfa.gov/Conservatorship/Pages/Senior-Preferred-Stock-Purchase-Agreements.aspx>

⁴⁴ Whether realized losses exceeding reserves, or increases in reserves

Modifications and Extensions. We note that our analyses assumed an immediate default and liquidation at the moment NOI dropped below a specified threshold (DSCR <0.85X). In the real world, we believe this is quite conservative because many loans obtain modified rates or extended terms to prevent and postpone losses (while additional servicing fees are collected). We did not include modifications into account in our modeling our proposed capital tables to be conservative. How did the FHFA take modifications and extensions into account while building their capital tables?

Appendix 9 – Key FHFA Tables

Table 26: Multifamily FRM Base Credit Risk Capital (in bps)

		Acquisition LTV or MTMLTV									
		LTV ≤35%	35% < LTV ≤45%	45% < LTV ≤55%	55% < LTV ≤65%	65% < LTV ≤70%	70% < LTV ≤75%	75% < LTV ≤80%	80% < LTV ≤90%	90% < LTV ≤100%	LTV >100%
Acquisition DSCR or MTMDSCR	DSCR<1.00	415	480	610	870	996	1119	1226	1328	1378	1453
	1.00≤DSCR<1.15	359	413	520	735	843	943	1028	1118	1160	1224
	1.15≤DSCR<1.20	321	368	460	645	740	825	895	978	1015	1071
	1.20≤DSCR<1.25	298	338	418	578	660	733	778	855	895	955
	1.25≤DSCR<1.30	266	303	375	520	593	645	690	755	790	843
	1.30≤DSCR<1.35	251	283	345	470	528	568	608	670	700	745
	1.35≤DSCR<1.50	231	259	315	428	475	510	548	610	640	685
	1.50≤DSCR<1.65	201	218	250	315	345	375	408	455	498	561
	1.65≤DSCR<1.80	175	185	205	245	270	298	330	378	423	490
	1.80≤DSCR<1.95	129	138	155	190	210	235	258	325	375	450
	1.95≤DSCR<2.10	118	122	130	163	180	204	221	299	351	430
	2.10≤DSCR<2.25	106	110	118	149	165	188	203	286	339	420
DSCR≥2.25	100	104	111	142	158	180	194	279	333	415	

Table 27: Multifamily ARM Base Credit Risk Capital (in bps)

		Acquisition LTV or MTMLTV									
		LTV ≤35%	35% < LTV ≤45%	45% < LTV ≤55%	55% < LTV ≤65%	65% < LTV ≤70%	70% < LTV ≤75%	75% < LTV ≤80%	80% < LTV ≤90%	90% < LTV ≤100%	LTV >100%
Acquisition DSCR or MTMDSCR	DSCR<1.00	647	691	745	1060	1223	1375	1508	1691	1831	2041
	1.00≤DSCR<1.25	569	603	638	902	1034	1159	1264	1424	1542	1720
	1.25≤DSCR<1.30	506	535	567	797	908	1014	1101	1245	1349	1505
	1.30≤DSCR<1.36	454	478	503	704	810	901	956	1089	1190	1341
	1.36≤DSCR<1.42	410	430	452	630	720	789	847	962	1050	1183
	1.42≤DSCR<1.47	361	390	408	568	637	688	747	854	931	1046
	1.47≤DSCR<1.53	298	332	372	511	565	619	674	773	849	962
	1.53≤DSCR<1.70	236	265	293	376	410	451	501	577	660	784
	1.70≤DSCR<1.87	186	208	237	288	322	358	406	478	562	686
	1.87≤DSCR<2.03	154	164	179	223	247	283	317	412	498	628
	2.03≤DSCR<2.21	137	143	150	191	210	245	272	379	467	599
	2.21≤DSCR<2.38	129	132	136	175	191	226	250	362	451	585
	DSCR≥2.38	125	127	128	167	182	217	239	354	443	577

Table 31: Fannie Mae and Freddie Mac Combined Estimated Credit Risk Capital Requirements for Multifamily Whole Loans and Guarantees as of September 30, 2017 – by Loan Category*

	Capital Requirement, \$billions	UPB, \$billions	Capital Requirement, bps
New Originations	\$1.9	\$42	449
Performing Seasoned Loans	\$14.6	\$449	325
Non-Performing Loans	\$0.0	\$1	511
Net Credit Risk	\$16.5	\$492	336
Credit Risk Transferred	(\$8.0)		
Post-CRT Net Credit Risk	\$8.5	\$492	174

* Excludes both Enterprises' retained portfolio holdings of MBS guaranteed by the other Enterprise, and Ginnie Mae MBS.

Table 28: Multifamily Risk Multipliers

Multifamily Risk Multipliers		
Risk Factor	Value or Range	Risk Multiplier
Payment Performance	Performing	1.00
	Delinquent	1.10
	Re-Performing (without Modification)	1.10
	Modified	1.20
Interest-Only	Not Interest-Only	1.00
	Interest-Only	1.10
Original/Remaining Loan Term	Loan Term <= 1Yr	0.70
	1Yr < Loan Term <= 2Yr	0.75
	2Yr < Loan Term <= 3Yr	0.80
	3Yr < Loan Term <= 4Yr	0.85
	4Yr < Loan Term <= 5Yr	0.90
	5Yr < Loan Term <= 7Yr	0.95
	7Yr < Loan Term <= 10Yr	1.00
	Loan Term > 10Yr	1.15
Original Amortization Term	Amort. Term <= 20Yr	0.70
	20Yr < Amort. Term <= 25Yr	0.80
	25Yr < Amort. Term <= 30Yr	1.00
	Amort. Term > 30Yr	1.10
Original Loan Size	Loan Size <= \$3M	1.45
	\$3m < Loan Size <= \$5M	1.15
	\$5m < Loan Size <= \$10M	1.00
	\$10m < Loan Size <= \$25M	0.80
	Loan Size > \$25M	0.70
Special Products	Government-Subsidized	0.60
	Not a Special Product	1.00
	Student Housing	1.15
	Rehab/Value-Add/Lease-Up	1.25
	Supplemental	Use FRM or ARM Capital Grid by adding supplemental UPB to the base loan and recalculating DSCR and LTV

Supplementary Table S1: Fannie Mae Estimated Risk-Based Capital Requirements for Multifamily Whole Loans, Guarantees and Related Securities as of September 30, 2017

	Capital Requirement		
	\$billions	bps	Share, %
Net Credit Risk	\$9.1		
Credit Risk Transferred	<u>(\$2.4)</u>		
Post-CRT Net Credit Risk	\$6.7	251	71%
Market Risk	\$0.5	20	6%
Going-Concern Buffer	\$2.0	75	21%
Operational Risk	<u>\$0.2</u>	<u>8</u>	<u>2%</u>
Total Capital Requirement	\$9.4	354	100%
Total UPB, \$billions	\$266.1		

Note: Calculated totals may not match due to rounding.

Supplementary Table S2: Freddie Mac Estimated Risk-Based Capital Requirements for Multifamily Whole Loans, Guarantees and Related Securities as of September 30, 2017

	Capital Requirement		
	\$billions	bps	Share, %
Net Credit Risk	\$7.5		
Credit Risk Transferred	<u>(\$5.6)</u>		
Post-CRT Net Credit Risk	\$1.9	80	42%
Market Risk	\$0.7	31	16%
Going-Concern Buffer	\$1.7	72	38%
Operational Risk	<u>\$0.2</u>	<u>8</u>	<u>4%</u>
Total Capital Requirement	\$4.5	192	100%
Total UPB, \$billions	\$233.5		

Note: Calculated totals may not match due to rounding.