MOELIS & COMPANY

FHFA Proposed Rule on Enterprise Capital Requirements

August 2018

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I. Executive Summary

Background

Proposed Rule Put Out for Comment

- On July 17, 2018 FHFA officially published a new proposed rule, 12 CFR 1750, substantially revising minimum capital requirements for Fannie Mae and Freddie Mac (collectively the "GSEs" or the "Enterprises")
- Any final rule for GSE regulatory capital requirements will be suspended during conservatorship, but would govern capital minimums should the GSEs be released from conservatorship
  - Our understanding is that FHFA has been using a version of these capital requirements (the Conservatorship Capital Framework, or "CCF") since 2017, assisting the GSEs in management decisions
- FHFA's proposed rule would maintain the statutory definitions of core capital and total capital
- The proposed rule is subject to a comment period which ends on November 16, 2018

Historical Regime

- Pre-crisis capital requirements for the GSEs were calculated as (0.45% x guaranteed trust assets) + (2.5% x on-balance sheet non-trust assets)
  - Under this rule the core capital requirements for the Enterprises, on a combined basis, were $64.7 billion and $69.8 billion in 2006 and 2007, respectively
  - As of Q4 2017 the entities would have had to hold $41.4 billion in core capital, on a combined basis, under the historical regulatory regime which equates to approximately 0.75% of total on-and-off balance sheet assets and guarantees
  - These historical existing capital requirements have been suspended since the 2008 imposition of the conservatorships

FHFA has released new proposed minimum capital standards for the GSEs. This proposed rule, if finalized, will dictate post-conservatorship capital requirements for the GSEs

Source: FHFA, Company Filings

Summary Objectives

Moelis

- Moelis is an independent investment bank, and is currently engaged as a financial advisor to certain non-litigating preferred shareholders in the GSEs

- In this role, Moelis publicly released in 2017 the *Blueprint for Restoring Safety and Soundness to the GSEs* ("Moelis Blueprint", or "Blueprint"), which included financial analysis, preliminary estimates of GSE capital requirements and recapitalization timelines

Objective

- These materials are designed to:

1. Provide summary-level analysis of the proposed FHFA capital requirements
2. Discuss certain differences between the proposed GSE capital requirements and the approach used by U.S. and international bank regulators
3. Provide selected recommendations related to the proposed rule

Moelis has conducted financial analysis related to the feasibility of the GSEs raising and retaining capital to meet these proposed requirements and has formulated some initial recommendations for FHFA related to the proposed rule

Summary of Conclusions

The differences between FHFA's proposed rule and U.S. bank capital requirements, or the requirements proposed in the Moelis Blueprint, are minor, explainable, and defensible

Description of Conclusions

- The proposed rule approximately triples capital requirements at the GSEs versus the existing regime
- The multi-pronged approach, incorporating risk-based capital requirements, a simple leverage ratio and stress testing is consistent with international bank requirements. This also follows the same general approach laid out in the Moelis Blueprint and is consistent with GSE reform proposals put forward by other major market participants (e.g., the Mortgage Bankers Association[1])
- While some differences between the proposed GSE capital rule and U.S. bank standards exist, the net effect of the proposed rule would be to bring the regulatory regime of the GSEs more closely in line with U.S. and international bank regulations
- Financial analysis of the GSEs conducted by Moelis based on projected future earnings at the Enterprises, indicates that the GSEs can raise and retain the quantum of capital required to meet or exceed these new requirements in a period of 3-to-4 years

Preliminary Recommendations

- Our primary recommendation is that FHFA direct the GSEs to submit Capital Restoration Plans, as contemplated by HERA[2]
  - While Moelis's analysis supports the feasibility of raising and retaining sufficient capital at the GSEs to meet these requirements, the Enterprises would benefit from engaging their own financial advisors to construct such plans
  - Such analysis is also necessary to allow FHFA, along with the Treasury Department and other relevant administrative agencies, to make fully informed decisions about potential paths for GSE reform
- Our second recommendation is that FHFA pause the Net Worth Sweep so that the GSEs can begin to retain capital
  - Our analysis, which we believe would be replicated by independent financial advisors to the GSEs, indicates that a second pre-requisite to the GSEs achieving these capital requirements is reduction of the balance of Senior Preferred Stock held by Treasury, which currently precludes any efforts to externally raise or retain core capital and serves as a block to any dividends to common equity or preferred stock

Source: FHFA, Mortgage Bankers Association
1. See "GSE Reform: Creating a Sustainable, More Vibrant Secondary Mortgage Market," Mortgage Bankers Association, page 16
2. See, e.g., Section [1369C (12 U.S.C. 4622)]

II. Description and Analysis of Proposed Rule

Summary of Proposed Capital Rules

- The proposed rule includes two prongs (i) a **leverage ratio requirement** and (ii) a **risk-based capital requirement**, with required capital equal to the larger of the two requirements

1. Two distinct **leverage ratio** alternatives were put forward in FHFA's proposed rule:
   - 2.5% x trust and non-trust assets (calculated by FHFA as $139.5bn as of Q3 2017), and
   - 1.5% x trust assets + 4.0% x non-trust assets (calculated by FHFA as $103.5bn as of Q3 2017)

2. **The risk-based capital** ("RBC") calculation is robust, including components for Credit Risk, Market Risk, and Operational Risk, as well as a Going Concern Buffer (calculated by FHFA, in aggregate, as $180.9bn as of Q3 2017)
   - The proposed RBC approach addresses weaknesses in the existing rules, including the failure of existing requirements to differentiate across various mortgage risk types. This weakness also applies to standardized approach mortgage RWA calculations under U.S. Basel III
     - A grid-based approach (across OMLTV and FICO), enhanced by multipliers for documentation type, mortgage purpose, etc., establishes a more nuanced approach to capital calculations and more accurately captures risk layering
   - Risk-based capital requirements for Deferred Tax Assets have an effect which is somewhat analogous to deducting certain DTAs from capital (bringing FHFA's core capital[1] definition more closely in line with bank Tier 1 capital)
   - While capital relief granted for CRT transactions is transaction specific, the illustrative example set out in FHFA's proposed rule grants relief equivalent to 75% of the reference portfolio's (pre-CRT) credit risk capital requirement

- The proposed capital rules would have required the GSEs to hold core capital in excess of $180.9 billion (the higher of the risk-based capital requirement and the leverage ratio requirement)[1] as of Q3 2017, equivalent to 3.24% of total assets and guarantees
  - Our understanding is that, per the requirement under Section 165 of the Dodd-Frank Act, the annual DFAST process will continue, but the stress test is a reporting requirement that evaluates capital sufficiency and is not a capital requirement
  - The 2017 DFAST severely adverse stress case, which generally represents economic conditions that occurred during the 2008 financial crisis, resulted in cumulative, had combined stress losses of $100 billion[2]

FHFA's two-pronged risk-based capital and leverage ratio approach is consistent with U.S. Basel III and the Moelis Blueprint. The Q3 2017 core capital requirement of $180.9bn (3.24% of total assets) under FHFA's proposed plan is broadly consistent with the approach and capital restoration plan outlined in the Blueprint

Source: FHFA

1. Core capital is the sum of the stated value of outstanding common stock (common stock less treasury stock), the stated value of outstanding noncumulative perpetual preferred stock, paid-in capital, and retained earnings, as determined in accordance with GAAP
2. 2017 DFAST relates to stress scenarios applied to the Enterprises as of December 31, 2016. Cumulative severely adverse stress losses of $100 billion include the establishment of valuation allowances against the Enterprises Deferred Tax Assets. As of the time of the publication of this presentation, the 2018 DFAST scenario (related to the companies as of December 31, 2017) had not been released by the FHFA

Risk-Based Capital Requirement
Summary Overview

The risk-based capital calculation is comprised of multiple components including Credit Risk, Market Risk, Operational Risk and a Going Concern Buffer, as well as adjustments for Deferred Tax Assets and Credit Risk Transfers

Item	Description	Result ($bn)[1]	Result (%)[1]
Credit Risk	Calculated using a series of grids, similar to those employed in the Private Mortgage Insurer Eligibility Requirements (PMIERs) ▪ Inclusion of multipliers by documentation type, mortgage purpose, etc., provides a more nuanced approach to capture risk layering	$112.0	2.01%
Credit Risk Transfer	Reduced via the application of capital relief to CRT transactions	($21.5)	(0.39)%
Market Risk	Calculated using one of three methods: a) a single- point estimate, b) an interest rate shock, c) internal models	$19.4	0.35%
Operational Risk	Calculated by applying an 8bp assessment to nearly all of the GSEs' on and off-balance-sheet assets	$4.3	0.08%
Going Concern Buffer	Calculated by applying a 75bp assessment to nearly all of the GSEs' on and off-balance-sheet assets (with no assessment against cash balances)	$39.9	0.72%
DTA Adjustment	GSEs are required to hold capital against certain deferred tax assets (e.g., NOL DTAs, or timing DTAs in excess of 10% of core capital, similar to Tier 1 capital deductions in Basel III)	$26.8[2]	0.48%[2]
Total		**$180.9**	**3.24%**

As of September 30, 2017, the GSEs risk-based capital requirements totaled $180.9 billion (or 3.24% of total assets). This risk-based capital figure is expected to decline in future years, driven primarily by reductions in Deferred Tax Assets and continued use of credit risk transfer transactions

Source: FHFA, Company Filings
1. As of September 30, 2017 by FHFA, unless otherwise stated
2. As of December 31, 2017 the DTA component of risk-based capital had fallen to $11.2bn or 0.20% of total on-and-off balance sheet assets

Risk-Based Capital Requirement
Summary Preliminary Projections

	Q3 2017 Combined Enterprises		Q4 2017[2] Combined Enterprises		2020E[3] Combined Enterprises	
	$ billions	bps	$ billions	bps	$ billions	bps
Net Credit Risk	$112.0	201	$112.0	201	$102.1	183
Credit Risk Transferred	(21.5)	(39)	(21.5)	(39)	(31.0)	(56)
Post-CRT Net Credit Risk	$90.5	162	$90.5	162	$71.1	127
Market Risk	$19.4	35	$19.4	35	$19.4	35
Going-Concern Buffer	39.9	72	39.9	72	39.9	72
Operational Risk	4.3	8	4.3	8	4.3	8
Other (DTA)	26.8	48	11.2	20	7.2	13
Sub-Total	**$180.9**	**324**	**$165.3**	**296**	**$141.9**	**254**
Total Asset and Off Balance Sheet Guarantees[1]	**$5,579.0**		**$5,579.0**		**$5,579.0**	

- FHFA proposed rule contained a headline capital requirement of $180.9bn (3.24%)
  - On closer examination, tax reform has reduced DTA-related capital requirements by $15.6bn as of Q4 2017, taking the required core capital to ~$165bn (or ~2.96%), ceteris paribus
  - Further reductions in capital requirements, related to continued CRT transactions as well as run-off of legacy risk, should reduce aggregate risk-based capital requirements to ~2.55% by 2020 year end
- The slightly lower capital requirements in FHFA's proposed rule (as compared to the Blueprint) can be partially attributed to the use of more robust capital calculations for mortgage guarantees which are differentiated across loan type and quality
  - The Blueprint applied the 50% (across-the-board) risk weight that U.S. Basel III applies under the "standardized approach" to mortgage loans and guarantees.
  - Note that the Blueprint specifically states: *"FHFA may elect to implement a more nuanced risk-weighting system for mortgages, as compared to the fairly simplistic (e.g., 50% RWA) approach applied to multi-product banks. Such an approach would be consistent with FHFA's more granular Private Mortgage Insurance Eligibility Requirements (PMIERs)"*[4]

FHFA's proposal's risk-based capital requirements are projected to come down from $180.9bn (3.24%) in 3Q 2017 to ~$165bn (2.96%) in Q4 2017, with the potential for further reductions in subsequent years driven by continued CRT

Source: FHFA, Company Filings, Moelis estimates

1. For illustrative purposes, we have assumed no change in balance sheet size (as reflected in the $5.579 trillion "Total Asset and Off Balance Sheet Guarantees" figure) through 2020 year end. Moelis is in the process of updating our own internal projections, but has used zero balance sheet growth as a simplifying assumption throughout this presentation
2. Q4 2017 figures are illustrative and assume no change from published 3Q17 figures, with the exception of capital held against deferred tax assets, which has been calculated as $11.2bn as of 12/31/2017 by FHFA
3. Figures reflect preliminary Moelis estimates for capital held against credit risk (and associated CRT) and against DTAs. Other categories are assumed to be unchanged from published Q3 2017 figures as a simplifying assumption
4. Blueprint for Restoring Safety and Soundness to the GSEs, page 13

Risk-Based Capital Requirement
Non-Credit Components

NON-CREDIT RISK RISK-BASED CAPITAL REQUIREMENTS ($ BN)

	Q3 2017 Combined Enterprises		Q4 2017[2] Combined Enterprises		2020E[3] Combined Enterprises	
	$ billions	bps	$ billions	bps	$ billions	bps
Market Risk	$19.4	35	$19.4	35	$19.4	35
Going-Concern Buffer	39.9	72	39.9	72	39.9	72
Operational Risk	4.3	8	4.3	8	4.3	8
Other (DTA)	26.8	48	11.2	20	7.2	13
Sub-Total	**$180.9**	**324**	**$165.3**	**296**	**$141.9**	**254**
Total Asset and Off Balance Sheet Guarantees[1]	**$5,579.0**		**$5,579.0**		**$5,579.0**	

Overview

- The table above illustrates projected capital requirements related to the Market Risk, Going Concern Buffer, Operational Risk and Deferred Tax Asset components of the Enterprises' proposed risk-based capital requirements
  - Capital held against these risk components could reduce by ~$20bn in aggregate by 2020 year-end (from $90+bn in Q3 2017 to an estimated ~$71bn at 2020 year end)
  - The Market Risk, Operational Risk and Going Concern Buffer components of risk-based capital requirement are assumed to remain constant in the above table (see further commentary below)
  - Capital held against deferred tax assets decreased by ~$16bn in Q4 2017 and is projected to reduce marginally over subsequent years

1 **Market Risk**

- The Market Risk component of risk-based capital is difficult to estimate given the complexity of the calculations and the lack of available data
- While it is expected to reduce slightly over time with the run-down of the GSEs' investment portfolio and related interest rate risk, we have assumed no change over time in the calculations herein, for the purposes of conservatism

2 **Operational Risk and Going Concern Buffer**

- The Operational Risk and Going Concern Buffer components are calculated by applying fixed scalars (0.08% and 0.75%, respectively) to nearly all on-and-off-balance sheet assets. As such, these figures are expected to remain relatively constant over time

3 **Deferred Tax Assets**

- The DTA component of risk-based capital was reduced by nearly $16 billion in Q4 2017 and is projected to experience a modest continued reduction in future years (barring substantive losses at the GSEs)

Non-credit components of risk-based capital are projected to decline by ~$20bn over time (from the Q3 2017 published figure). The primary driver of this trend is reduction in deferred tax assets at the GSEs

Source: FHFA, Company Filings

1. For illustrative purposes, we have assumed no change in balance sheet size (as reflected in the $5.579 trillion "Total Asset and Off Balance Sheet Guarantees" figure) through 2020 year end. Moelis is in the process of updating our own internal projections, but has used zero balance sheet growth as a simplifying assumption throughout this presentation
2. Q4 2017 figures are illustrative and assume no change from published 3Q17 figures, with the exception of capital held against deferred tax assets, which has been calculated as $11.2bn as of 12/31/2017 by FHFA
3. Figures reflect preliminary Moelis estimates for capital held against credit risk (and associated CRT) and against DTAs. Other categories are assumed to be unchanged from published Q3 2017 figures as a simplifying assumption

Risk-Based Capital Requirement
Summary Credit Risk and CRT

CREDIT RISK AND CRT CALCULATIONS

- FHFA's proposed rule would require 201bps (pre-CRT) of credit risk capital for the entities as of Q3 2017
  - Preliminary estimates reflecting runoff and legacy risk as of year-end 2020 put credit risk capital requirements at ~1.8%, consistent with FHFA's grid for base credit risk capital on mortgage loans with LTVs of 75-80% and FICO scores of between 740 and 760
- Continued CRT and CIRT transactions should also have a meaningful impact on credit-risk capital
  - CRT is projected to reduce to the GSEs net credit risk position by $31.0 billion in 2020 as risk transfer transactions are projected to increase from ~30% of the Enterprises' single-family guarantee book (Q3 2017) to nearly 40% (2020 y/e)
  - Moelis has estimated the amount of capital relief provided by CRT in 2020 by providing the same level of relief estimated by FHFA as of Q3 2017 as a percentage of CRT outstanding

CREDIT RISK CAPITAL REQUIREMENTS AND ASSOCIATED CRT CAPITAL RELIEF ($BN)

	Q3 2017			2020E
	Fannie Mae	Freddie Mac	Consolidated	Consolidated
Total Assets & Off-Balance Sheet Guarantees	$3,353	$2,226	$5,579	$5,579
Net Credit Risk ($)	71	42	112	102
Net credit risk	*2.1%*	*1.9%*	*2.0%*	*1.8%*
Credit risk transferred	**($12)**	**($10)**	**($22)**	**($31)**
CRT relief	(16.3%)	(24.1%)	(19.2%)	(30.4%)
CRT relief as % of CRT outstanding	*(1.4%)*	*(1.8%)*	*(1.6%)*	*(1.6%)*
SF CRT initial reference pool	$1,153	$761	$1,914	
Single-Family CRT outstanding reference pool	822	565	1,387	2,000
Single-Family guaranty book of business	2,891	1,800	4,691	4,691
SF CRT as % book of business	*28.4%*	*31.4%*	*29.6%*	*42.6%*
Multi-Family guaranty book of business	267	233	499	499
Total guaranty book of business	**$3,158**	**$2,033**	**$5,191**	**$5,191**
Total Credit Risk Capital	**$59**	**$32**	**$91**	**$71**
Total Credit Risk Capital % of Book of Business	**1.87%**	**1.55%**	**1.74%**	**1.37%**

Credit risk capital requirements are also projected to decrease by ~$20bn by 2020 year end (from $91bn to ~$71bn), due to continued CRT transactions, as well as modest improvements in average credit quality

Source: FHFA, Company Filings, Moelis estimates
Note: For illustrative purposes, we have assumed no change in balance sheet size (as reflected in the $5.579 trillion "Total Asset and Off Balance Sheet Guarantees" figure) through 2020 year end and that Enterprises have an illustrative $2 trillion of notional UPB hedged by CRT

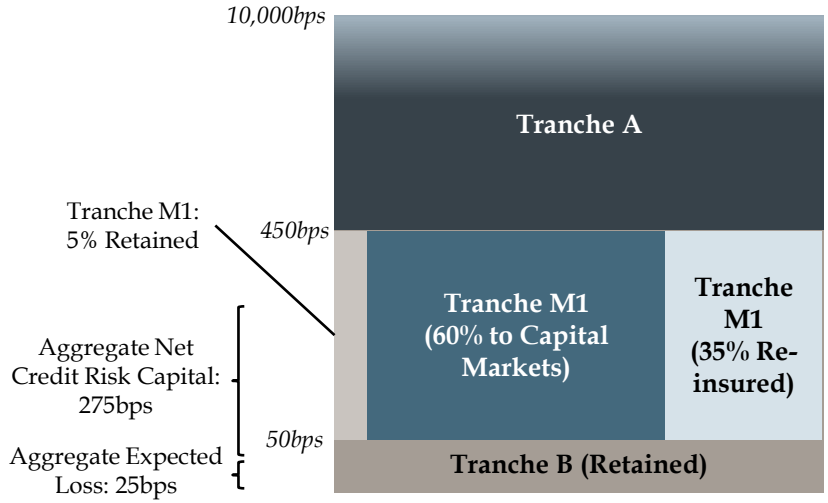
Risk-Based Capital Requirements
Illustrative CRT Capital Relief

FHFA's proposed rule provides risk-based capital relief for CRTs using a modified version of the SSFA approach (as utilized in the Blueprint)

COMMENTARY

- The proposed approach for providing capital relief in relation to Credit Risk Transfers is described as "analogous to the Simplified Supervisory Formula Approach ("SSFA") under banking regulators' capital rules", but is refined to take into account certain risks specific to CRTs (e.g., maturity mismatch) and has other differences versus the SSFA (e.g., the SSFA increases the total capital held against all tranches, while FHFA's approach does not)[1]
- Note that the Blueprint states: *"The regulator should grant risk-based capital relief for CRT and for other approved structures . . . For Illustrative purposes, we have applied a reduced risk weight . . . Taken from the Simplified Supervisory Formula Approach, or 'SSFA'"*

SINGLE-FAMILY CRT EXAMPLE



Class	Size (%)	Size ($)	Retention (%)	Retention ($)	Credit Risk Capital Requirement	ACIS/ CIRT (%)	STACR/ CAS	ACIS/ CIRT	Aggregate expected losses	STACR/ CAS (%)
A	95.5%	955,000,000	**100.0%**	955,000,000	-%	-			0.00%	-
M1	**4.0%**	40,000,000	**(A) 5.00%**	2,000,000	2.50%	**35.00%**	24,000,000	14,000,000	0.00%	**60.00%**
B	**0.5%**	5,000,000	**100.0%**	5,000,000	0.25%	-			0.25%	-
Total	**100.0%**	**1,000,000,000**			**2.75%**					

Class	Aggregate Net Credit Risk Capital	Capital Relief	Loss-Timing Factor	Loss-Timing Factor Capital Relief	Reinsurer's Uncollateralized Exposure	Counterparty Haircut	Aggregate Capital Relief
A	0.00%	0.000%	**88.00%**	0.00%	-	-%	-%
M1	(B) 2.50%	(B)*(1-(A)) = (C) 2.375%	(D) **88.00%**	(C)*(D)=(E) 2.09%	4,900,000	(F) 0.025%	(E)-(F)= 2.06%
B	0.25%	0.000%	**88.00%**	0.00%	-	-%	-%
Total	**2.75%**						**2.06%**

The illustrative CRT example provided in FHFA's proposal grants capital relief of ~75% of held capital (2.06% relief against 2.75% pre-CRT capital) for a fairly typical CRT transaction

Source: FHFA, Moelis Blueprint
1. FHFA's Proposed Rule on Enterprise Capital, page 151

III. Comparison of Proposed Rule to Other Standards

Comparison of Minimum Capital Requirements

The differences between FHFA's proposed rule and U.S. bank capital requirements, or the requirements proposed in the Moelis Blueprint, are minor, explainable and defensible

ITEM	FHFA'S PROPOSED RULE	MOELIS BLUEPRINT	BASEL III (GSIB)
Leverage Ratio	2.50%[1]	3.00%[2]	3.75 - 4.00%[3]
Calculation of Credit Risk-Based Capital	PMIERs-style grids based on LTV, FICO and documentation terms	50% of RWA, adjusted for CRT	50% of RWA, potentially adjusted for CRT
Risk-Based Capital Requirements (Pro Forma 2020)	2.54%[4]	3.00%[5]	3.60%[6]
Deferred Tax Asset Treatment	Excess DTAs are added to risk-based capital requirement[7]	DTAs included in core capital	Excess DTAs deducted from Tier 1 Capital
Limitations on Junior Preferred Stock	No limitations (JPS included in core capital)	No limitations (JPS included in core capital)	JPS effectively limited to 1.5% of RWAs (or ~$30bn) at minimum capital requirements[8]

The Moelis Blueprint largely borrowed from international Basel III standards, with some minor adjustments to reflect the unique business model of the GSEs. FHFA's proposed rule makes further adjustments resulting in a more granular, but slightly less onerous, set of capital requirements than those used under the Basel III standard or as outlined in the Blueprint

Source: FHFA, Company Filings, Federal Reserve, Bank for International Settlements (BIS), Moelis Blueprint
Note: *See Appendix for corresponding footnotes*

Risk-Based Capital Comparison to U.S. GSIBs

U.S. banks are required to hold 8.5% in Tier 1 regulatory capital against RWAs (rather than total on- and off-balance sheet assets). Given the difference in denominator, the headline ratio may appear larger when compared to figures cited in FHFA's proposed rule

STANDARDIZED RISK-BASED CAPITAL REQUIREMENTS

- Moelis estimates that if the GSEs' balance sheets were to be risk-weighted in a manner similar to banks, consolidated risk-weights would be in the range of 35-45%[1]
- This is in contrast to generally higher average risk-weights for GSIB balance sheets (on average closer to 60%), as those banks have broader activities, higher-risk commercial and consumer loans and extensive capital markets operations
- As illustrated below, the FHFA's proposed risk-based capital framework is broadly consistent with the framework applicable for banks once balance sheets are normalized for RWAs
  - GSE Tier 1 Capital requirements would be ~6.60% - 9.80%, compared to the 8.50% bank minimum, when standardized to a bank-style approach[2]
  - Likewise, banks, when adjusted to the FHFA method, would have RBC minimum requirements of ~3.70% - 5.65% compared to the GSEs consolidated 3.25% RBC ratio as of Q3 2017

	CET1 Requirement	Capital Conservation Buffer	Additional Tier 1 Req.	Tier 1 Capital Requirement	Average Standardized Approach Risk Weights	Gross RBC Requirement[3]	G-SIB Surcharge
U.S. GSIBs							
Wells Fargo	4.5%	2.5%	1.5%	**8.50%**	66.2%	**5.62%**	2.0%
Bank of America	4.5%	2.5%	1.5%	**8.50%**	64.5%	**5.48%**	2.5%
Citigroup	4.5%	2.5%	1.5%	**8.50%**	60.9%	**5.18%**	3.0%
JP Morgan Chase	4.5%	2.5%	1.5%	**8.50%**	59.6%	**5.07%**	3.5%
Goldman Sachs	4.5%	2.5%	1.5%	**8.50%**	59.6%	**5.06%**	2.5%
State Street	4.5%	2.5%	1.5%	**8.50%**	49.1%	**4.17%**	1.5%
Bank of New York Mellon	4.5%	2.5%	1.5%	**8.50%**	46.9%	**3.99%**	1.5%
Morgan Stanley	4.5%	2.5%	1.5%	**8.50%**	43.9%	**3.73%**	3.0%
Mean - U.S. GSIBs					**56.3%**	**4.79%**	**2.4%**
Median - U.S. GSIBs					**59.6%**	**5.07%**	**2.5%**
ENTERPRISES							
Fannie Mae - Assumed 45% RWA Density		*Implied T1C Requirement @ RWA Density* →		**7.62%**	45.0%	**3.43%**	
Freddie Mac - Assumed 45% RWA Density				**6.58%**	45.0%	**2.96%**	
Fannie Mae - Assumed 35% RWA Density				**9.80%**	35.0%	**3.43%**	
Freddie Mac - Assumed 35% RWA Density				**8.46%**	35.0%	**2.96%**	

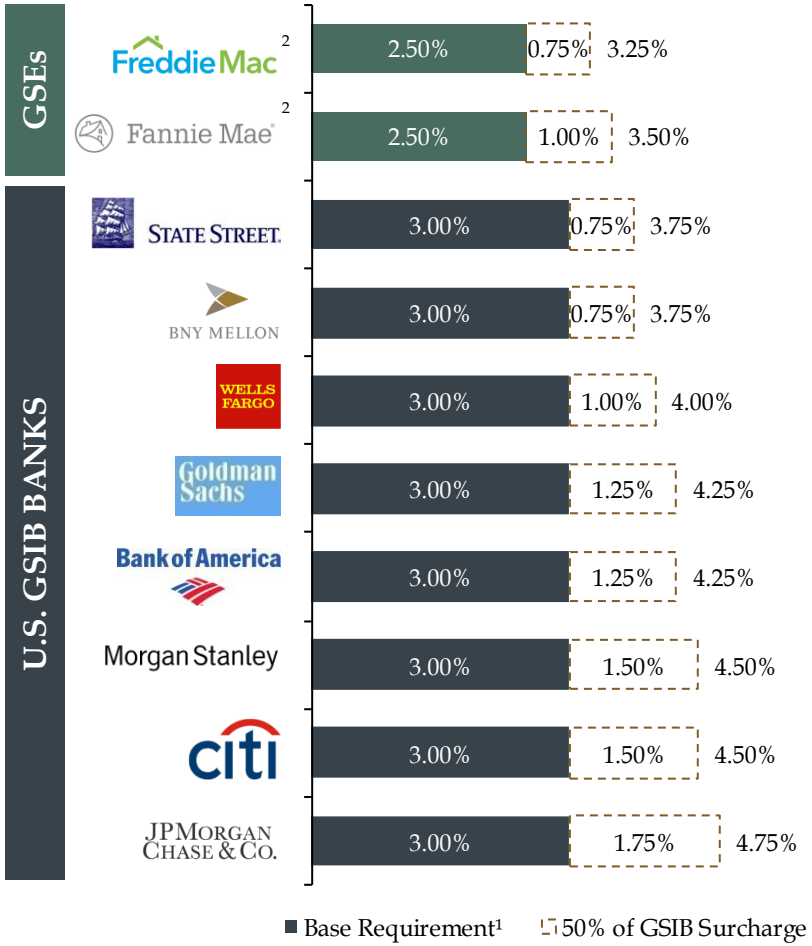
Upon normalizing for risk-weighting, the FHFA's proposed risk-based capital requirements for the GSEs are much more similar to banks than it would first appear

Source: Company Filings, figures as of Q4 2017
1. Moelis Blueprint estimates risk-weights drop from 42% to 36% over 4 years
2. Based on assumed GSE RWA density range of 35% to 45%
3. Excludes impact of GSIB add-on

Leverage Ratio Comparison to U.S. GSIBs

Recent efforts have focused on lowering the eSLR requirement for U.S. GSIBs

LEVERAGE RATIO REQUIREMENTS



COMMENTARY

- The Treasury Department, the recent banking bill, and bank regulators have all advocated for a relaxed eSLR
  - The Treasury Department called for the removal of certain items (cash on deposit with central banks, U.S. Treasury Securities, and initial margin for centrally cleared derivatives) from the denominator of the SLR calculation[3]
  - The Economic Growth, Regulatory Relief, and Consumer Protection Act adopted part of the Treasury's recommendations by relaxing the leverage ratio only for "custodial banks" by removing funds held at central banks from the leverage ratio's denominator[4]
  - The Fed and the OCC released a proposal in April 2018 that would tailor the eSLR for GSIBs by modifying the fixed 2.0% eSLR buffer to be set to one half of each firm's GSIB capital surcharge. For example, to the extent that a GSIB's capital surcharge is 2.0% it would be required to maintain an eSLR ratio of 4.0% under the proposal (3.0% minimum requirement plus a modified 1.0% buffer) which is reduced from the current 5.0% requirement[5]
- Further, as the FHFA did in its proposed rule, there is precedent for regulators tailoring the leverage ratio to conform to an institution's unique circumstance and, as an example, the Federal Reserve reduced the eSLR requirement for GE Capital (from 5.0% to 4.0%) when it was designated a nonbank SIFI
  - As nonbanks which are (i) single purpose in nature and (ii) match funded, the GSEs are not exposed to the same types of business, market and interest rate risks as large-scale depositories
- If FHFA sought to include a GSIB surcharge on the proposed leverage ratio in line with that of the Fed's proposed requirement, it would likely result in a ~0.75% - 1.00% increase in minimum capital requirements with the leverage ratio becoming the binding capital constraint

The FHFA's proposed leverage requirements will become much more comparable to bank requirements given recent policy initiatives surrounding the eSLR

Source: Company Filings, figures as of Q4 2017
Note: *See Appendix for corresponding footnotes*

Overview of Proposed Risk-Based Capital Requirements

FHFA's proposed risk-based capital requirements provide a granular approach for assigning capital requirements to individual assets and guarantee categories

SINGLE-FAMILY CREDIT RISK EXAMPLE

- Credit risk capital is defined as the product of FHFA defined (1) base grid capital, (2) risk multipliers and (3) credit enhancement multipliers after adjusting for counterparty haircuts
- Consider a newly originated loan with OLTV of 90%, an original credit score of 730 that has identical features to the baseline loan except for the following: property type of condominium, DTI of 42% and mortgage insurance coverage of 24%:

1 Base grid capital: 400bps

2 Select risk multipliers

Loan purpose:	1.0
Occupancy type:	1.0
Property type:	1.1
Number of borrowers:	1.0
DTI:	1.2
Product type:	1.0
Loan Size:	1.0

3 Credit enhancement multiplier and counterparty haircut

Multiplier:	0.551
Haircut:	17.2%

4 Credit risk capital =

(400 bps) x (1.1 x 1.2) x (1 - (1 - 0.551) x (1 - 0.172)) **= 332 bps**

1 BASE GRID FOR SINGLE-FAMILY NEW ORIG.

(in bps)		Original Loan-To-Value (OLTV) (%)							
		(30, 60]	(60, 70]	(70, 75]	(75, 80]	80	(80, 85]	(85, 90]	(90, 95]
Original Credit Score	[680, 700)	53	154	230	300	339	405	528	656
	[700, 720)	46	134	199	259	293	344	452	566
	[720, 740)	39	115	171	222	251	300	400	507
	[740, 760)	31	95	141	183	206	244	326	417
	[760, 780)	25	77	114	148	166	195	262	339
	>= 780	19	59	87	113	127	148	200	258

BASE GRID LOAN CHARACTERISTICS

- Purchase
- Owner occupied or second home
- 1-Unit
- Multiple borrowers
- DTI between 25% and 40%
- 30-year fixed-rate mortgage (FRM)
- Loan size greater than $100,000
- Retail channel sourced
- No second lien

2 SINGLE-FAMILY RISK MULT.

Loan Purpose	**Purchase**	**1.0**
	Cashout Refinance	1.4
	Rate/Term Refinance	1.3
Occupancy Type	**Owner Occ. or Second Home**	**1.0**
	Investment	1.2
Property Type	**1-Unit**	**1.0**
	2-4 Unit	1.4
	Condominium	1.1
	Manufactured Home	1.3
Number of Borrowers	Multiple Borrowers	1.0
	One Borrower	1.5
Debt-To-Income (DTI)	DTI <= 25%	0.8
	25% < DTI <= 40%	**1.0**
	DTI > 40%	1.2
Product Type	**FRM 30 Year**	**1.0**
	ARM 1/1	1.7
	FRM 15 Year	0.3
	FRM 20 Year	0.6
Loan Size at Origination	UPB <= $50,000	2.0
	$50,000 < UPB <= $100,000	1.4
	UPB > $100,000	**1.0**

3 CREDIT ENHANCEMENT MULT.

Credit Enhancement Multipliers by Guide for 30 Yr Amortizing	OLTV: (80-85], CvrgPct[1] = 12%	0.867
	OLTV: (85-90], CvrgPct = 25%	**0.551**
	OLTV: (90-95], CvrgPct = 30%	0.412
	OLTV: (95-97], CvrgPct = 35%	0.322
	OLTV: >97, CvrgPct = 35%	0.272

FHFA's proposed approach to risk-based capital is far more granular than the Basel *Standardized Approach*, and seeks to align capital requirements with mortgage risk instead of applying a one size fits all risk–weight of 50%

Source: FHFA
1. CvrgPct = Coverage Percentage

Comparison to Basel IV Risk-Weight Approach

Bank regulators may also adopt a more granular risk-weighting methodology in Basel IV relative to the approaches used in Basel III

BASEL IV

- In December 2017, the Basel Committee released a consultative document revising the standardized approach for risk-weighting. Among other critiques, it called the current standardized approach out-of-date, lacking granularity and risk-sensitivity
  - With respect to residential real estate where repayment is not dependent on cash flows generated by the property, risk weights would be determined by LTV

RESIDENTIAL REAL ESTATE LOANS

Basel IV Risk Weight by Loan-to-Value Ratio

LTV Ratio	Risk Weight
≤ 50%	20%
50% - 60%	25%
60% - 80%	30%
80% - 90%	40%
90% - 100%	50%
>100%	70%

ENTERPRISES' MORTGAGE PORTFOLIO RISK WEIGHTS: BASEL IV[1]

Fannie Mae

LTV Ratio	% of Portfolio	Risk Weight
≤ 60%	20%	25%
60% - 70%	14%	30%
70% - 80%	38%	30%
80% - 90%	11%	40%
90% - 100%	14%	50%
>100%[2]	3%	80%
Weighted Average		**34%**

Freddie Mac

LTV Ratio	% of Portfolio	Risk Weight
≤ 60%	20%	25%
60% - 80%	52%	30%
80% - 100%	24%	45%
>100%[2]	4%	80%
Weighted Average		**35%**

TAILORED FHFA APPROACH

- FHFA's granular risk-weight approach is based on historical statistical loss analysis on conforming mortgages
- Further, banks generally hold whole loans on balance sheet which are exposed to interest rate, market and credit risk, while the GSEs core guarantee function only exposes the Enterprises to credit risk

Bank regulators may move in the direction of more granularity for mortgage risk-weights under Basel IV. FHFA's proposed rule, however, is substantially more sophisticated as it relates to mortgage risk-weights

Source: Federal Reserve, Company Filings, Davis Polk, Wall Street Research
1. Based on single-family credit guarantee portfolio as of Q4 2017
2. Assumes residential real estate exposure is evenly split between individuals and SMEs

Credit Risk Transfer Capital Relief Commentary

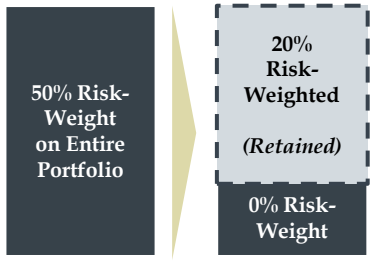
FHFA Proposed Rule | **Question 10**

Does the proposed rule's approach of providing capital relief for CRTs adequately capture the risk and benefits associated with the Enterprises' CRT transactions? Should FHFA consider modifications or alternatives to the proposed rule's approach of providing capital relief for the Enterprises' CRTs, and if so, what modifications or alternatives, and why?

COMMENTARY

- GSE capital requirements for mortgage reference pools are reduced by approximately 75% through the use of CRT under FHFA's proposed capital rule (based on the illustrative example included in FHFAs proposed rule)
- This is substantially higher than the relief that would be granted for banks through the application of the SSFA, which was estimated to be on the order of 60% in the Moelis Blueprint for a similar transaction assuming full issuance of subordinated tranches to the insurance and capital markets, as illustrated in the example below
  - It should be noted that Moelis estimates that the SSFA provides closer to 40% of capital relief when accounting for partial retention of subordinated tranches by the GSEs[1]
- However, ultimately, the impact would be manageable were FHFA to modify its approach to providing capital relief to CRTs in a similar fashion to banks
  - As of Q3 2017, through a bank-style approach, capital relief provided by CRT would be decreased by $10.0 billion (from $21.5 billion to an estimated $11.5 billion)
  - As of 2020E, the Blueprint estimates that CRT is expected to cover close to 40% of the GSEs' single-family book of business and, as such, would provide about $31.0 billion in capital relief under the current FHFA proposed approach; this capital relief would likely drop to below $20 billion were FHFA to instead adopt an SSFA approach

ALTERNATIVE CRT RISK-BASED CAPITAL RELIEF THROUGH THE USE OF THE SSFA



	Pre-CRT	Post-CRT
Notional	$100	$100
RWA	$50	$19
Capital Req.[2]	$4.25	$1.62

- The Blueprint's application of CRT reduces the Enterprises' RWAs as the GSEs bear less credit risk as a result of these transactions through the application of the SSFA
  - These mortgages were risk-weighted at 50% on a stand-alone basis in accordance with the Basel Standardized Approach, leading to a capital charge $4.25 per $100 of guarantee notional[3]
  - Blueprint assumed for illustrative purposes an issuance of the first 5.0% of the subordinated credit risk through a CRT transaction to third-party investors which resulted in the risk weighting of the senior exposure (i.e., 5%-100%) retained by the GSEs dropping from 50% to 20% under the SSFA
    - The SSFA developed by U.S. regulators establishes the capital required for securitization exposures requires a risk-weight floor of 20%
  - The risk-weighting for the 0.0%-5.0% exposure drops to 0.0% assuming no tranches are retained by the GSEs
  - As a result the required risk-based capital to be held against these mortgage drops by ~60% from $4.25 to $1.62 per $100 mortgage guarantee notional

FHFA's proposal provides for higher capital relief for CRT than would typically be afforded by the SSFA; however, the impact to GSE capital requirements would be manageable were FHFA to adopt a bank-style regulatory framework for CRT

Source: Federal Reserve, BIS, FHFA, Moelis Blueprint
1. See slide 34 for additional detail
2. Based on 8.5% required risk-based capital ratio
3. Based $100 of notional UPB hedged * 50% risk-weight * 8.5% Risk-Based Capital requirement

Summary Leverage Ratio Requirement

FHFA's proposed rule includes two alternative minimum leverage capital requirements (i) the 2.5% alternative and (ii) the bifurcated alternative

PROPOSED LEVERAGE RATIO APPROACHES

2.5% Alternative	▪ Enterprises would be required to hold 2.50% of capital against total assets and off-balance sheet guarantees
Bifurcated Alternative	▪ 1.5% of trust assets plus 4.0% of non-trust assets — Trust assets are defined as Fannie Mae mortgage-backed securities or Freddie Mac participation certificates held by third parties and off-balance sheet guarantees related to securitization activities — Non-trust assets are defined as total assets as determined in accordance with GAAP plus off-balance sheet guarantees related to securitization activities minus trust assets — The Enterprises' retained portfolios would be included in non-trust assets

September 30th, 2017	Fannie Mae	Freddie Mac	Enterprises Combined
Total Assets Plus Off-balance Sheet Guarantees	**$3,353**	**$2,226**	**$5,579**
Non-Trust Assets	$403	$388	$791
Trust Assets	$2,950	$1,838	$4,788
2.5% Minimum Capital Alternative			
2.5% Minimum Capital Alternative Requirement	$83.8	$55.7	$139.5
% of Total Assets and Off-balance Sheet Guarantees	2.5%	2.5%	2.5%
Bifurcated Minimum Capital Alternative			
Bifurcated Minimum Capital Alternative Requirement	$60.4	$43.1	$103.5
% of Total Assets and Off-balance Sheet Guarantees	1.8%	1.9%	1.9%
Requirement for Non-Trust Assets	$16.1	$15.5	$31.6
% of Non-Trust Assets	4.0%	4.0%	4.0%
Requirement for Trust Assets	$44.3	$27.6	$71.8
% of Trust Assets	1.5%	1.5%	1.5%

The leverage ratio establishes a floor on risk-based capital requirements. The proposed rule would set this floor at either 2.50% of total assets, or at a slightly lower requirement (just under 2.0%), depending on which of two alternative approaches is implemented

Source: FHFA, Company Filings

Leverage Ratio Requirement Commentary

FHFA Proposed Rule | Questions 30-34

- *30: "FHFA is soliciting comments on the advantages and disadvantages of the bifurcated alternative . . . "*
- *31: "FHFA is soliciting comments on the relative advantages and disadvantages of the 2.5% alternative and the bifurcated alternative"*
- *32: ". . . should FHFA, instead, adopt another approach to the minimum leverage ratio . . . specifically for assets that are part of CRT transactions"*
- *33: ". . . should FHFA consider a lower . . . leverage ratio for [cash and cash equivalents] . . "*
- *34: "FHFA is soliciting comments on the advantages and disadvantages of including off-balance sheet exposures"*

Preliminary Comments

- FHFA's proposed rule includes substantial analysis supporting adjustment of the 4.0% bank leverage ratio (e.g., adjusting this ratio for the relative risk of the Enterprises business, analysis of lifetime losses excluding discontinued asset types, analysis of the current book of business, etc.),[1] as well as substantial analysis related to the bifurcated approach
  - The 2.5% approach has the benefits of simplicity and general consistency with bank approaches, but sacrifices nuance
- The Moelis Blueprint adopted a dual leverage ratio for minimum capital requirements which factored in CRTs as a secondary form of capital for leverage ratio purposes
  - An alternative to FHFA's leverage ratio standard would be to allow for the fractional inclusion of loans subject to CRT transactions in the leverage ratio
- Adjustments to the leverage ratio for cash and cash equivalents would be consistent with past suggestions from the Treasury Department[2]
- Other potential adjustments to the leverage ratio requirement include: (i) adjustments for excess DTAs or for AOCI (discussed subsequently in this presentation), and (ii) adjustments to the calibration of the bifurcated approach (e.g., 2.0% / 5.0%)
  - Neither of these would have an impact on current capital requirements due to the currently binding nature of the risk-based capital requirements

The leverage ratio approaches presented in the proposed rule prudently adhere to a general principal of targeting a non-binding leverage ratio. The potential adjustments discussed above would not materially change current capital requirements

Source: FHFA, U.S. Treasury, Moelis Blueprint

1. FHFA's Proposed Rule on Enterprise Capital, page 223
2. The Treasury Department's June 2017 report, responding to President Trump's Executive Order, suggested "Exceptions to the denominator of total exposure should include: (1) cash on deposit with central banks (2) U.S. Treasury Securities; and (3) initial margin for centrally cleared derivatives."

Treatment of Deferred Tax Assets & AOCI
Commentary

The proposed rule relies upon the definition of core capital, consistent with statutory requirements, but makes certain indirect adjustments to account for DTAs and AOCI

FHFA Proposed Rule

Question 35

- *How should FHFA incorporate the potential impact of DTAs and [Accumulated Other Comprehensive Income] AOCI, given that FHFA cannot change the definition of core capital as provided in the statute?*
- *What additional modifications to the proposed capital requirement for DTAs should FHFA consider, and why?*
- *What additional modifications to the proposed capital requirement for AOCI should FHFA consider, and why?*
- *Is AOCI a suitable other source of loss-absorbing capacity for purposes of the statutory definition of total capital?*

Preliminary Comments

Item	Potential Alternative	Commentary
Deferred Tax Assets ("DTAs")	Incorporation of FHFA's risk-based capital DTA adjustment into the leverage ratio	▪ Could take the form of a revised Leverage Ratio requirement (e.g., 2.5% + excess DTAs), bringing the GSE's leverage ratio approach more in line with banks, which have limitations on inclusion of DTAs in Tier 1 capital ▪ With RBC requirements exceeding Leverage Ratio requirements, excluding the DTA adjustment ($154bn vs. $103-139bn as of Q3 2017), would not have any impact on existing requirements ▪ The primary consideration is that the non-binding nature of the Leverage Ratio is by design (as a binding leverage ratio removes incentives to manage risk, such as through the use of CRT, at the Enterprises)[1]
Accumulated Other Comprehensive Income ("AOCI")	Incorporation of AOCI into the GSEs capital requirements	▪ As FHFA is bound by the statutory definition of core capital, which excludes AOCI, an adjustment could be made to required capital through the deduction of AOCI (or addition of negative AOCI) ▪ At present, this would result in a minor reduction in Enterprise capital requirements (due to positive $0.9bn of AOCI on a combined Enterprise basis as of 2017 year-end), if applied to risk-based (and/or leverage ratio) requirements ▪ Such an approach would promote closer alignment of capital requirements with GAAP and with bank requirements, and would provide enhanced cushion in crisis-era back-testing, but would require additional capital to be raised against mark-to-market losses during downturns

FHFA's proposed risk-based capital requirements include adjustments for DTAs which are generally consistent with Basel III. The incorporation of AOCI into capital requirements, and/or addition of excess DTAs to leverage ratio requirements, would have little-to-no impact on current capital requirements

Source: FHFA

Note: FHFA's Proposed Rule on Enterprise Capital, page 246: "The economic incentives created by a binding leverage ratio could increase the overall risk profile of the Enterprises' book of business relative to its current operations. As a result, while a binding minimum leverage ratio would result in higher Enterprise capital levels, such a requirement would not necessarily make an Enterprise more safe and sound."

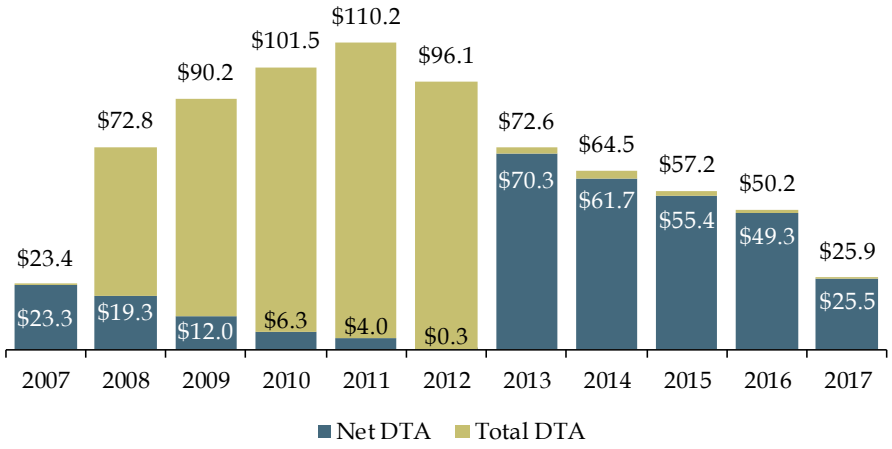
1. DTA requirement calculated by subtracting total Fannie Mae & Freddie Mac DTAs from proposed 2007 Fannie Mae & Freddie Mac risk-based capital requirement

Treatment of Deferred Tax Assets & AOCI
Impact of DTAs on the GSEs

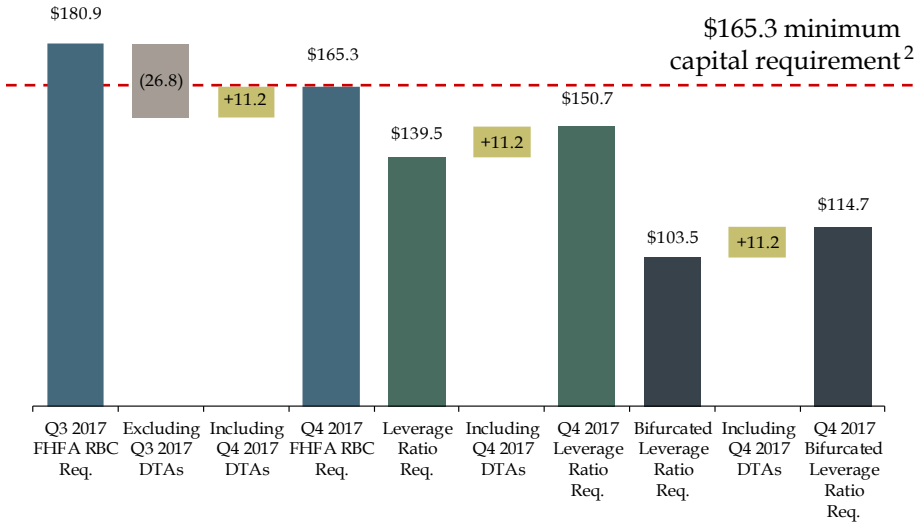
COMMENTARY

- Deferred tax assets at the GSEs have declined substantially from their crisis-era highs, due to a combination of (i) partial reversal of mark-to-market losses, (ii) utilization of DTAs via post-crisis earnings and charge-offs on crisis era loan loss provisions, and (iii) reduction in the federal tax rate
  - Similar to bank standards, additional capital related to certain DTAs (e.g., timing DTAs) is required only to the extent that DTAs exceed a fixed percentage (e.g., 10%) of capital
  - The reduced balance of DTAs at the Enterprises, combined with more onerous proposed capital requirements, has limited the impact of adding certain excess DTAs to risk-based capital requirements (with risk-based capital held against DTAs estimated by FHFA as $11.2bn as of Q4 2017)[1]
  - Further, the impact of adding certain excess DTAs to leverage ratio requirements – which is not a current feature of the proposed rule - would have no current impact on GSE core capital requirements as the leverage ratio is not the binding constraint

COMBINED GSE DEFERRED TAX ASSETS OVER TIME ($ BN)



IMPACT OF DTA ON CAPITAL REQUIREMENTS ($ BN)

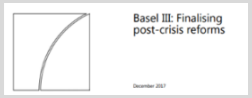


The substantial decrease in DTA balances at the GSEs, combined with the non-binding nature of the leverage ratio constraint, implies that as of Q4 2017 there would be no impact to including (vs. excluding) excess DTAs in the leverage ratio requirement

Source: FHFA, Company Filings
1. As of December 31, 2017 the DTA component of risk-based capital had fallen to $11.2bn assuming core capital was equal to risk-based capital requirements
2. Minimum assumes that actual core capital is equal to the calculated risk-based capital requirement

Treatment of Deferred Tax Assets & AOCI
Alternative Capital Approaches

- ***Bank Capital Approach:*** International Basel III bank standards limit DTAs that can be included in CET1 and Tier 1 capital
  - The adjustments largely mirror those used in the proposed FHFA rule (e.g., deduction of 100% of DTAs arising from NOLs, deduction of 100% of DTAs arising from temporary difference >10% of CET1, and risk-weighting of 250% for useable DTAs)
  - These adjustments are deductions, reducing the headline capital number, and impact both RBC and leverage ratio requirements
  - U.S. Basel III also includes AOCI in capital for advanced approaches banks but retained a one-time opt-out for non-advanced banks
- ***Insurance Capital Approach:*** Insurance regulation is substantially more fragmented than bank regulation, with substantive differences across region as well as within countries (e.g., U.S. state insurance regulation, PMIERs for mortgage insurers, etc.)
  - The International Association of Insurance Supervisors ("IAIS") does publish risk-based global insurance capital standards (the "ICS")
  - The current version excludes from capital the portion of AOCI associated with debt securities backing long-term liabilities and includes recognized deferred tax assets, subject to a review from the local supervisor as to whether a haircut should be applied
- ***Moelis Blueprint:*** The "Blueprint for Restoring Safety and Soundness to the GSEs" utilizes the existing statutory definition of core capital and does not make adjustments for DTAs or AOCI

Capital Regime	Treatment of DTAs (Risk-Based Capital)	Treatment of DTAs (Leverage Ratio)	Treatment of AOCI
	NOL DTAs and timing DTAs in excess of 10% (CET1) threshold deducted from capital (numerator)	NOL DTAs and timing DTAs in excess of 10% (CET1) threshold deducted from capital (numerator)	AOCI included in capital (for advanced approaches banks, subject to opt-out for standardized banks)
	DTAs are generally recognized at a consolidated group level, subject to supervisory review	Not applicable to IAIS's risk-based standards	Certain AOCI items, related to assets that bank long-term liabilities, are excluded from capital calculations
	Statutory definition of core capital DTAs are included in capital, without adjustment	Statutory definition of core capital DTAs are included in capital, without adjustment	Statutory definition of core capital AOCI is not included in this calculation

Basel III bank capital standards limit the use of deferred tax assets as capital. AOCI is included in bank capital standards for banks that follow the advanced approach. Insurance capital regimes range in treatment of these asset/liability types

Source: FHFA, BIS, Federal Reserve, Moelis Blueprint
1. Discrepancy with most recently available public information from Freddie Mac which shows AOCI of $32.4 billion as of December 31, 2008

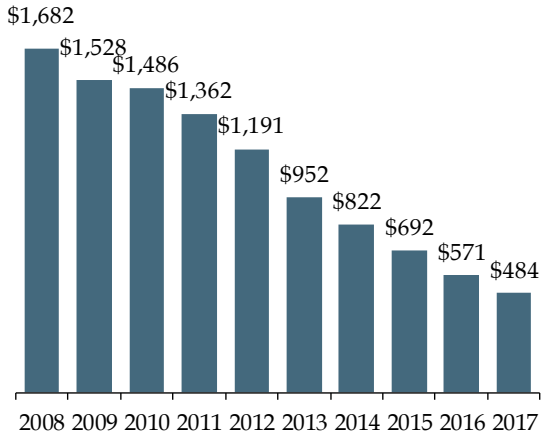
Treatment of Deferred Tax Assets & AOCI
Impact of AOCI on the GSEs

COMMENTARY

- Post-crisis, the GSEs have substantially run-off their mortgage portfolios
  - Furthermore, the majority of the remaining GSE mortgage portfolios are comprised of loans as opposed to AFS securities, which, together with improvements in market conditions, have largely eliminated the impact of AOCI
- Given the permanent nature of this reduction (consistent with the PSPA-mandated limits of $250bn per GSE), the quantum of AOCI is unlikely to be material in the future relative to the quantum of GSE capital requirements
- Further, the GSEs AFS portfolios appear to be largely spread sensitive and not interest rate sensitive
- As such, the decision to include (or exclude) AOCI in GSE capital requirements is neither currently a major driver of GSE capital requirements, nor is it expected to become a major driver in future

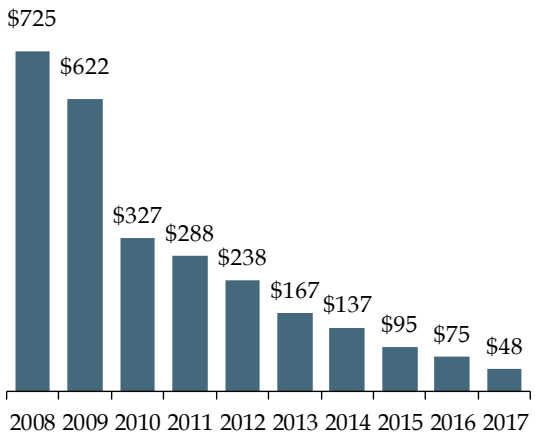
RETAINED MORTGAGE PORTFOLIO

($ in billions)



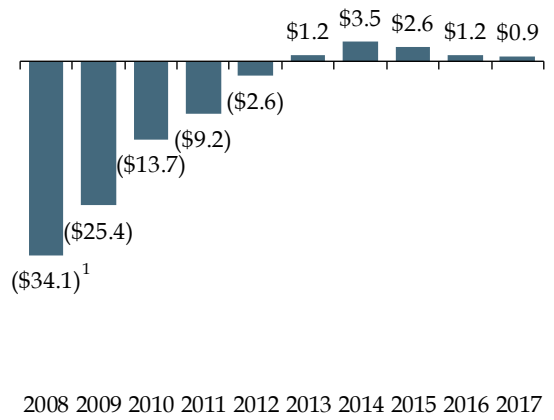
AVAILABLE-FOR-SALE SECURITIES

($ in billions)



AOCI

($ in billions)



Given the substantive reduction of GSE investment portfolios, the choice of including/excluding AOCI is no longer material relative to the quantum of GSE capital requirements

Source: FHFA, Company Filings
1. Discrepancy with most recently available public information from Freddie Mac which shows AOCI of $32.4 billion as of December 31, 2008

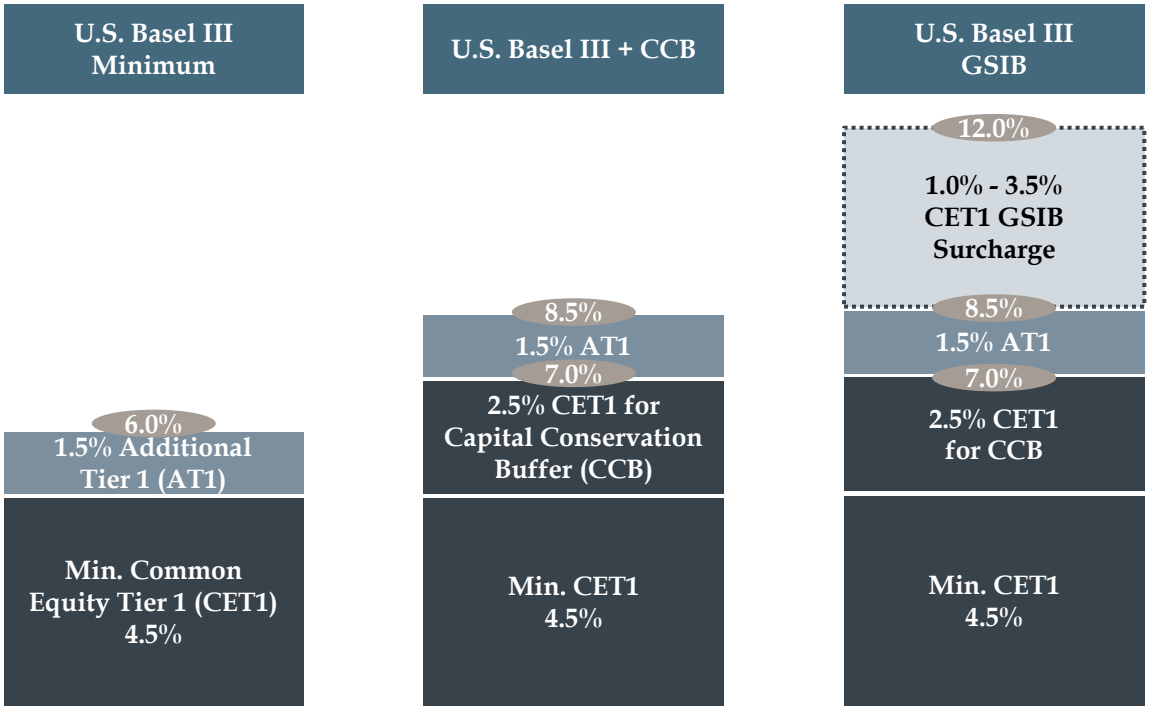
Treatment of Outstanding Perpetual, Noncumulative Preferred

Financial institutions designated by the FSB or FSOC as SIFI's are required to hold a minimum of 7.0% in Common Equity Tier 1 ("CET1") Capital and 8.5% in Tier 1 Capital as a percentage of Risk-Weighted Assets

FHFA Proposed Rule | **Question 36**

FHFA is soliciting comments on the capital treatment of outstanding perpetual, noncumulative preferred stock. Given that FHFA cannot change the definition of core capital as provided in the statute, what modifications should FHFA consider and why?

EXISTING BASEL III TIER 1 CAPITAL FRAMEWORK[1]



COMMENTARY

- Noncumulative perpetual preferred stock is equity-like in nature and is, accordingly, treated as Tier 1 Capital under bank standards
- U.S. Basel III includes, for leverage ratio purposes, noncumulative preferred stock (or "junior preferred stock" or "JPS" for the GSEs) through reliance on Tier 1 Capital as the numerator
- U.S. Basel III risk-based capital requirements do not explicitly limit junior preferred stock, but do implicitly limit the portion of JPS that can be used to achieve minimum Tier 1 capital ratios by establishing an additional minimum capital ratio (e.g., CET1 > 7% of RWA for SIFIs)
- FHFA, bound by the statutory definition of core capital, could achieve a similar effect by adding excess junior preferred stock to risk-based capital requirements[2]
  - The Moelis Blueprint did not make such an adjustment given the loss absorbing nature of JPS

Given its equity-like nature, the inclusion of noncumulative preferred stock in core capital is consistent with the approach used in the Moelis Blueprint and is broadly consistent with the Basel III framework

Source: BIS, Federal Reserve Board, FHFA
1. Excludes Tier 2 capital and countercyclical buffer requirements
2. This adjustment could be performed in a similar manner to the excess DTA adjustment in the FHFA's proposed rule; whereby, the FHFA could increase the required calculated minimum core capital amount on a dollar-for-dollar basis above a predefined threshold of includable junior preferred stock

Bank Capital and Loan Loss Reserves

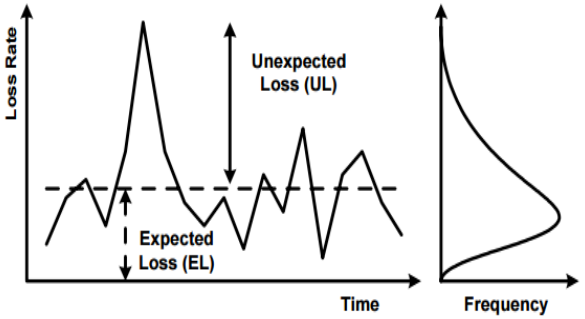
FHFA Proposed Rule | Question 37

Given that loss reserves are for expected losses and capital is for unexpected losses, FHFA is soliciting comments on the a 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?

BASEL COMMITTEE: ECONOMIC FOUNDATIONS OF RISK WEIGHT FORMULAS

"While it is never possible to know in advance the losses a bank will suffer in a particular year, a bank can forecast the average level of credit losses it can reasonably expect to experience. These losses are referred to as Expected Losses (EL) and are shown in Figure 1 by the dashed line. Financial institutions view Expected Losses as a cost component of doing business, and manage them by a number of means, including through the pricing of credit exposures and through provisioning. One of the functions of bank capital is to provide a buffer to protect a bank's debt holders against peak losses that exceed expected levels. Such peaks are illustrated by the spikes above the dashed line in Figure 1. Peak losses do not occur every year, but when they occur, they can potentially be very large. Losses above expected levels are usually referred to as Unexpected Losses (UL) - institutions know they will occur now and then, but they cannot know in advance their timing or severity. Interest rates, including risk premia, charged on credit exposures may absorb some components of unexpected losses, but the market will not support prices sufficient to cover all unexpected losses. Capital is needed to cover the risks of such peak losses, and therefore it has a loss-absorbing function."

– BIS, An Explanatory Note on the Basel II IRB Risk Weight Functions, July 2005



BANK CAPITAL AND LOAN LOSS RESERVES

- U.S. banks are allowed limited recognition of loan loss reserves in regulatory capital under the Basel III framework as these amounts reflect expected losses rather than unexpected losses
- When calculating total capital using the standardized approach, U.S. banks are permitted to include in Tier 2 capital the amount of loan loss reserves that do not exceed 1.25% of standardized total risk-weighted assets
- Under the advanced approach, banks must deduct from CET1 any shortfall in loan loss reserves relative to expected credit losses that are calculated under the IRB models
  - Conversely, these banks are permitted to include in Tier 2 capital the balance in loan loss reserve in excess of its total expected losses provided the amount does not exceed 0.6% of its credit RWAs

Banks are allowed limited recognition of allowance for loan losses in Tier 2 capital

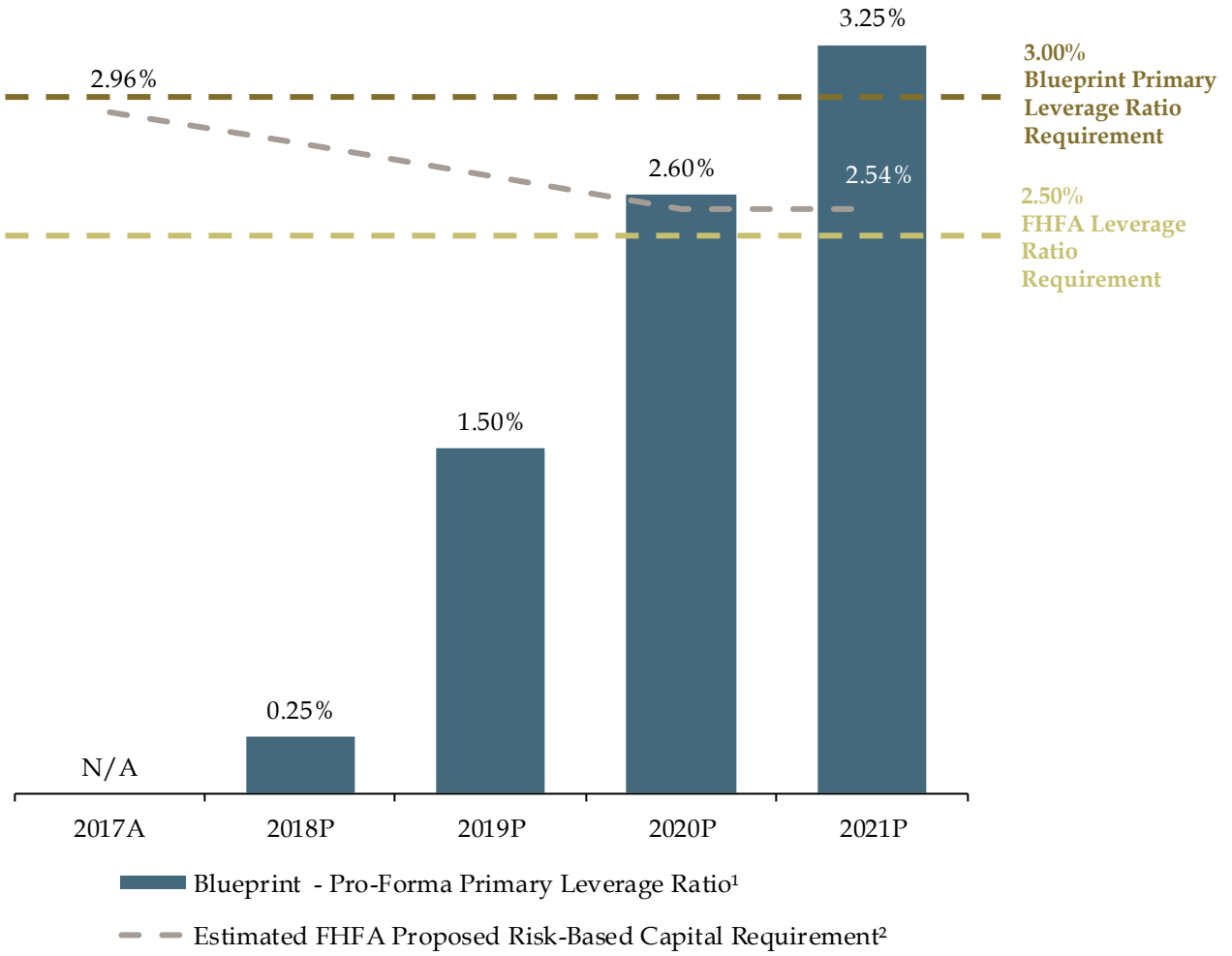
Source: FHFA, BIS, Federal Reserve Board

IV. Financial Analysis of Capital Raise Feasibility

Illustrative Core Capital Build

The projected capital build outlined in the Blueprint would allow the Enterprises to achieve and exceed the minimum capital standards prescribed in FHFA's proposed capital rule in a 3 - 4 year timeframe

ILLUSTRATIVE CORE CAPITAL BUILD (% OF ASSET AND OFF BALANCE SHEET GUARANTEES)



COMMENTARY

- The target core capital used in the Blueprint (3.25% of total assets) is consistent with FHFA's proposed risk-based and leverage ratio capital requirements
  - FHFA's risk-based capital requirement is expected to reduce over time through increased issuance of CRT and continued utilization of DTAs
- Enterprises would reach minimum FHFA requirements by year-end 2020
  - Capital raised by retaining earnings and raising primary equity in public offerings
- Any recapitalization would require the existing balance of Senior Preferred Stock to be deemed to be repaid (e.g., payments in excess of the original 10% contractual rate be treated as principal payments) or otherwise converted to common equity
  - Senior Preferred Stock does not qualify as core capital under the statutory definition

Source: Company Filings, Moelis estimates, FHFA

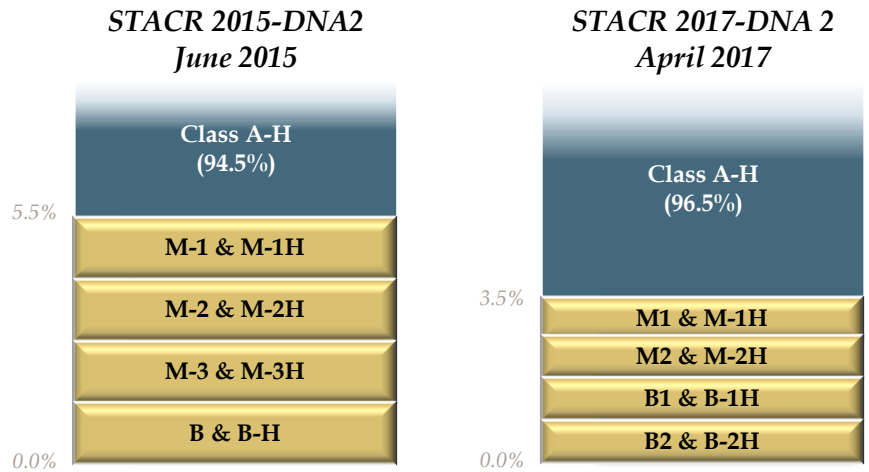
1. Based on figures from the Moelis Blueprint moved forward one year. The Blueprint used the statutory definition of core capital. Note, these figures do not account for, among other things, (i) revisions to earnings and associated impact of corporate tax reform (which reduced tax rates from 35% to 21%), (ii) the impact on core capital related to the write-down of DTAs from tax reform and (iii) changes to projected assets, liabilities and CRT which would impact earnings and leverage ratio requirements
2. Assumes pro-rata reduction to 2020 preliminary risk-based capital level with figure being held constant thereafter. See slide 11 for further detail

Appendix

A. CRT Capital Relief Under SSFA Framework

Credit Risk Transfer

- The Blueprint assumes that the GSEs follow a bank-style capital framework where significant regulatory capital relief is obtained by continued selling of CRT subordinated classes to third-parties
- The Blueprint, however, assumes that the GSEs benefit from greater capital relief than would be afforded under current CRT structures
  - First, the Blueprint assumes full issuance of the subordinated tranches into the insurance and capital markets, without any risk retention by the GSEs
  - Second, the Blueprint models a fixed CRT capital structure where the subordinated tranches issued to investors reference 0.0%-5.0% of losses
    - This structuring is more typical of earlier CRT transactions where some M-1 tranches detached at 5.0% or above
    - More recent CRT structures typically have M-1 tranche detachment points at 3.5%



STACRS 2016-DNA4 CAPITAL RELIEF ($MM)

- As outlined in the Blueprint, while the full issuance of a 0.0% – 5.0% tranche would result in ~60% capital relief against the reference pool assuming an 8.5% Tier 1 Capital requirement and full issuance of junior tranches, capital relief achieved through the SSFA drops to ~40% when accounting for partial retention of junior tranches by the GSEs

	Reference Pool			STACR 2016-DNA4			ACIS 2016-8			Retained		
	Amount	Class Size (%)	CE (%)	Amount	Spread	Risk-weight	Amount	Spread	Risk-weight	Amount	Risk-Weight (%)	RWAs
A-H	$23,603	95.00%	5.00%	$0.0	0.000%	0.0%	$0.0	0.000%	0.0%	$23,603	20.0%	$4,721
M-1	$248	1.00%	4.00%	$177.0	0.800%	0.0%	$58.2	0.900%	0.0%	$13	983.0%	$130
M-2	$248	1.00%	3.00%	$177.7	1.300%	0.0%	$59.0	1.850%	0.0%	$12	1,250.0%	$147
M-3	$497	2.00%	1.00%	$354.0	3.800%	0.0%	$118.0	3.750%	0.0%	$25	1,250.0%	$311
B	$248	1.00%	0.00%	$31.0	8.600%	0.0%	$31.1	8.750%	0.0%	$186	1,250.0%	$2,330
Total	**(1) $24,845**	**100.00%**		**$739.7**	**2.683%**		**$266.3**	**3.290%**		**(2) $23,839**	**32.0%**	**(3) $7,639**

Capital Relief	Pre-Transaction	Post-Transaction	% Change
Notional Exposure	(1) $24,845	(2) $23,839	(4.0%)
(x) Risk Weight	50.0%	32.0%	(35.9%)
Risk-Weighted Assets	**$12,422**	**(3) $7,639**	**(38.5%)**
(x) T1C Requirement[1]	8.50%	8.50%	n/a
T1C Requirement - $	**$1,056**	**$649**	**(38.5%)**

The Blueprint assumes risk-based capital relief is granted to CRT transactions, consistent with the SSFA approach

Source: Federal Reserve, Company filings
1. Based on 8.5% required Tier 1 Capital ratio

SSFA Capital Relief

The capital relief for a $1 billion STACR reference pool where the first 0.0% - 5.0% of losses are transferred to investors is estimated to be $26.4 million, roughly a 60% reduction in capital required for this pool, by using the SSFA framework

SECURITIZATION REGULATORY FRAMEWORK

- To calculate capital charges for securitization exposures under Basel II, banks make use of either a Ratings-Based Approach ("RBA") or the Supervisory Formula Approach ("SFA")
  - **RBA:** Based on a regulatory-mandated risk weight using specific tranche ratings from external credit rating agency (eliminated under Dodd-Frank)
  - **SFA:** Based on regulatory formula and bank-supplied inputs
- Bank regulators in the U.S. developed a revised methodology for calculating the capital required for securitization exposures based on a number of bank-supplied inputs under the SSFA

$$K_{SSFA} = \frac{e^{\alpha\mu} - e^{\alpha l}}{\alpha(\mu - l)}$$

$$RWA = max(1, 250\% \; x \; K_{SSFA}, 20\%)$$

- The SSFA framework seeks to risk weight individual securitization tranches based on expected losses, subordination levels, and required capital ratios for the underlying assets subject to a 20% minimum
- It should be noted that global regulators have developed a revised hierarchy of approaches to risk-weight securitization exposures that will be implemented next year

STACRS 2015-DNA1: SSFA INPUTS

VAR.	VALUE	COMMENTARY
K_G	4.00%	Capital charge that the bank would incur for the assets on an unsecuritized basis, 8% minimum at 50% RWA
W	0.00%	Percentage of underlying securitized assets that are NPL
K_A	4.00%	Adjustment given credit quality deterioration in the pool
A	5.00%	Attachment point for the tranche
D	100.0%	Detachment point for the tranche
p	0.50	Scaling: 0.5 for securitizations & 1.5 for resecuritizations
α	(50.00)	
μ	0.96	
l	0.00	
K_{SSFA}	**1.28%**	
RWA	**20.0%**	Risk-weight minimum set at 20%

Source: Federal Reserve, Moelis Estimates

B. Reference Footnotes

Additional Notes to Preceding Pages

Slide 16:

1. FHFA's proposal presents two alternative leverage ratio methodologies. The first methodology is a simple leverage ratio, requiring that core capital exceed 2.50% of total on-and-off balance sheet assets and guarantees. The second methodology (1.50% of on-balance sheet assets) + (4.0% of off-balance sheet guarantees) produces a lower result which is equivalent to approximately 1.9% of total assets and guarantees
2. The Moelis Blueprint's primary leverage ratio requires core capital to exceed 3.0% of total on-and-off balance sheet assets. Note that the Blueprint also includes a secondary leverage ratio (core capital + outstanding CRT >= 5.0% of total assets), which could increase core capital requirements to the extent CRT issued and outstanding is below 2.0%. This secondary leverage ratio has been excluded from the table for the purposes of simplification
3. The U.S. Basel III enhanced Supplementary Leverage Ratio ("eSLR") requires GSIBs to hold Tier 1 Capital (roughly, but not exactly, analogous to core capital) in excess of 5.0% of total on-and-off balance sheet assets plus other adjustments for bank holding companies. However, international Basel III standards only require banks to hold Tier 1 Capital in excess of 3.0% of total on-and-off balance sheet assets plus other adjustments. U.S. and international regulators appear to be converging towards a new approach with GSIB leverage ratios being set at 3.0% + 50% x (GSIB Add-On), which would put U.S. GSIB requirements (e.g., for JPM, Citi, BONY, etc.) in the 3.5% - 4.25% range. Using the FSB framework, Moelis estimates the GSIB add-ons for Fannie Mae and Freddie Mac at 2.0% and 1.50% respectively, implying a leverage ratio of 3.75% - 4.0% for the GSEs to the extent they were subject to the proposed U.S. and international banks standards
4. See slide 11 for further detail
5. Based on figures from the Moelis Blueprint
6. The Moelis Blueprint uses an RBC requirement of 8.5% x Risk-Weighted Assets and estimates application of the international Basel III approach using the SSFA to provide RBC-relief for CRT transactions. The Blueprint projects 2020 RWAs at ~36% of balance sheet assets, leading to an RBC requirement of ~3.0% (equal to 36% x 8.5% RBC requirement). GSIB capital requirements of ~10% of RWAs for the GSEs would increase the RBC requirement to ~3.6% (equal to 36% x 10%). Note further that, unlike international regulators, U.S. bank regulators have not granted RBC-relief for synthetic securitizations
7. Note that, while FHFA's framework in some ways mirrors bank requirements (which deduct NOL DTAs and timing DTAs in excess of 10% of minimum capital), there are 2 key differences: 1) FHFA's proposed rule adds excess DTAs to the minimum capital requirement, rather than deducting them from the definition of capital (this has the effect of grossing up the headline number, e.g., in Q3 2017 FHFA's definition of core capital must exceed $181bn – o/w $26bn is excess DTAs, equivalent to a Tier 1 Capital requirement of $155bn), and 2) FHFA's adjustment for DTAs applies only to the risk-based capital requirements (and not to the leverage ratio requirement)
8. Basel III rules include risk-based capital minimums of: 1) Tier 1 Capital > 8.5% (+ GSIB add-on) x RWA, and 2) Common Equity Tier 1 Capital > 7.0% (+ GSIB add-on) x RWA. While a bank can issue more than 1.5% junior preferred stock, which can be counted as Tier 1 capital, the minimum of 7.0% CET1 would effectively limit Junior Preferred Stock to 1.5% of RWAs (at minimum capital standards)

Slide 18:

1. For banks, based on proposed approach of minimum 3.0% eSLR requirement prior to 50% GSIB surcharge. For GSEs, based on 2.50% alternative minimum
2. Based on Moelis estimated GSIB surcharge of 2.0% and 1.50% for Fannie Mae and Freddie Mac respectively as of December 31, 2017. Note that FHFA's proposed rule does not include an add-on related to GSIB surcharge, and note further that FHFA's proposed rule includes two potential approaches to the Leverage Ratio Requirement (2.5%, as illustrated, being one of those options)
3. See, "A Financial System that Creates Economic Opportunities," U.S. Department of the Treasury, page 14
4. See, "Economic, Regulatory Relief, and Consumer Protection Act," S. 2155-65
5. See, "Rule proposed to tailor 'enhanced supplementary leverage ratio' requirements," released 4/11/2018