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U.S. Banking Regulators Propose Markedly Higher Credit Risk Weights for Securitization

W. Scott Frame and Christopher B. Horn[1]

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In July 2023, U.S. federal banking regulators proposed to amend capital requirements to implement the revised international standards set by the Basel Committee on Banking Supervision (commonly referred to as the "Basel 3 Endgame"). An economically important, but often overlooked, part of the 2023 proposal relates to changes in the capital treatment of securitization exposures. This post summarizes the current approach to risk-weighting securitization exposures, outlines the proposed changes and illustrates their implications, and discusses how the proposal diverges with Basel 3 Endgame standards implemented in Europe.

Current U.S. Credit Risk-Weighting Requirements for Securitization Exposures

Banks are an integral part of the securitization market as lenders, issuers, and investors. Hence, they bear credit risk associated with securitization exposures[2] arising from warehouse lending to special purpose entities that hold loans originated by third parties, retained interests in their own securitized assets, and investment in asset-backed securities issued by others.[3]

Since 2014, all U.S. banks must calculate their risk-based capital requirements under a standardized approach, which utilizes the simplified supervisory formula approach (SSFA) for calculating risk

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[1] Frame is Chief Economist and Head of Policy at the Structured Finance Association and Horn is Partner in the Financial Services Group at Cadwalader, Wickersham, and Taft. They can be reached at <scott.frame@structuredfinance.org> and ≤chris.horn@cwt.com>, respectively.

[2] A "securitization exposure" is defined as either: (1) an on-balance sheet or off-balance sheet credit exposure arising from a traditional securitization or synthetic securitization (including a resecuritization), or (2) an exposure that directly or indirectly references a securitization exposure. See 12 CFR 217.2.

[3] Banks also face market risk in connection with securitization positions held in their trading books in their capacity as market makers for asset-backed securities. The market risk weight for securitization exposures held in the trading book are calculated separately under the market risk rule (see 12 CFR 217 Subpart F). We set this aside for purposes of the discussion below.

weights for securitization exposures. Large internationally active institutions (generally those with over $250 billion in consolidated assets or at least $10 billion in foreign exposures) must also calculate their risk-based capital requirements using advanced approaches based on internal models, which includes the "supervisory formula approach" for risk-weighting securitization exposures. Banks subject to advanced approaches must calculate their risk-based capital requirements under both the standardized approach and the advanced approaches and use the higher of the two.[4] As the Basel 3 Endgame proposal seeks to eliminate the advanced approaches, our focus is on the standardized approach and SSFA.

The SSFA is a mathematical model that uses five inputs for calculating the risk weight for a given securitization exposure.

1. K_G: The weighted average capital requirement associated with the underlying exposures (i.e., the securitized assets) expressed as a decimal between zero and one.
2. W: The proportion of underlying defaulted exposures expressed as a decimal between zero and one.[5]
3. A: The attachment point of the securitization exposure, or the point in the capital structure of the securitization at which the tranche begins to absorb losses.
4. D: The detachment point of the securitization exposure, or the point in the capital structure of the securitization at which the tranche ceases to absorb losses.
5. p: A supervisory calibration parameter that is equal to 0.5 (or 1.5 if the securitization exposure is a resecuritization exposure).

The values of K_G and W are then used to calculate K_A, or the weighted average capital requirement for the underlying exposures adjusted to reflect any adverse performance: $K_A = (1 - W)K_G + 0.5W$.

[4] This "dual stack" requirement arises from Section 171 of the Dodd-Frank Wall Street Reform and Consumer Protection Act and is commonly referred to as the "Collins Amendment".

[5] Defaulted exposures include those that are: (i) 90 or more past due, (ii) subject to bankruptcy or insolvency proceeding, (iii) in the process of foreclosure, (iv) held as real estate owned, (v) deferring payments for 90 days or more days; or (vi) in default.

Note that the supervisory calibration parameter $\boldsymbol{p}$ is an *ad hoc* adjustment to securitization capital requirements that is intended to account for structural risks. This so-called "p-factor" results in capital non-neutrality (i.e., a "securitization capital surcharge").

Under SSFA, the risk weight for a given securitization exposure is computed using a formula that calculates the average value of a piecewise function using the inputs above evaluated over the range $[\boldsymbol{A}, \boldsymbol{D}]$.

1. If the securitization exposure is entirely junior to $\boldsymbol{K_A}$ (i.e., $\boldsymbol{D} < \boldsymbol{K_A}$), then the exposure is assigned a risk weight of 1,250%.[6]
2. If the securitization exposure is entirely senior to $\boldsymbol{K_A}$ (i.e., $\boldsymbol{A} > \boldsymbol{K_A}$), then the exposure is assigned a risk weight of 1,250% * $\boldsymbol{K_{SSFA}}$, which calculates the risk weight using an exponential decay function that varies with tranche seniority.
3. If the securitization exposure straddles $\boldsymbol{K_A}$ (i.e., $\boldsymbol{A} < \boldsymbol{K_A} < \boldsymbol{D}$), then the risk weight is assigned as: 1,250% for the portion below $\boldsymbol{K_A}$ and 1,250% * $\boldsymbol{K_{SSFA}}$, for the portion above.

Importantly, the risk weight for a given securitization exposure is subject to a 20% risk-weight floor. This is a material constraint since the risk weight for many senior securitization exposures would otherwise be well below 20%.

Appendix 1 provides additional discussion of the SSFA formula as given in the capital rules. Although the underlying exponential decay function is not explicitly defined in the capital rules, we show also how it can be recovered from the $\boldsymbol{K_{SSFA}}$ formula to produce the marginal risk weighting function for securitization exposures.

Figure 1 presents the marginal risk weighting function, ***MRW(t)***, under SSFA where the underlying securitization exposures are subject to a 100% risk weight ($\boldsymbol{K_G}$ = 8%) and there are no defaulted exposures ($\boldsymbol{W}$ = 0) such that $\boldsymbol{K_A} = \boldsymbol{K_G}$. We focus on a hypothetical securitization exposure with an attachment point ***A*** of 12% and a detachment point ***D*** of 24%. The risk weight for this exposure is

[6] A 1,250% risk weight is sometimes referred to as a "dollar-for-dollar" capital requirement (1,250% * 8% = 100%).

145.7%, which is the average value of the function ***MRW(t)*** over the interval between the attachment and detachment points. This corresponds to an 11.7% capital requirement.

[Figure 1 here.]

U.S. Banking Regulators Propose Basel III Endgame Standards

In July 2023, the U.S. federal banking regulators issued a notice of proposed rulemaking to significantly revise risk-based capital requirements applicable to large banks and those with significant trading activity.[7] The 2023 proposal also narrows the approaches available to U.S. banks for calculating risk weights by broadly eliminating internal ratings-based approaches from the capital rules. Instead, a new "expanded risk-based approach," which is essentially an enhanced version of the standardized approach, is proposed. Banks subject to the new approach would be required to calculate risk-weighted assets (all assets, not just securitization exposures) under both the existing standardized approach and the new expanded risk-based approach and use the higher of the two and thus maintaining the "dual stack" requirement.

For securitization, the 2023 proposal would maintain the existing standardized approach using the SSFA for assigning risk weights to securitization exposures, and the new expanded risk-based approach would utilize the "securitization standardized approach" (SEC-SA). SEC-SA is functionally the same model as SSFA, but with some important differences in parameter values, the most notable of which is the proposed doubling of the p-factor from 0.5 to 1.0. SEC-SA also lowers the risk weight floor for securitizations from 20% to 15% but imposes a new 100% risk weight floor for resecuritizations and securitizations of non-performing loans.[8]

[7] See 88 Federal Register 64028 (Sept. 18, 2023) (the "2023 proposal").

[8] Under SSFA, resecuritizations and securitizations of non-performing loans are subject to the same 20% risk weight as other securitization exposures.

In Figure 2, we revisit the hypothetical securitization exposure from Figure 1 to illustrate the effect of increasing p from 0.5 under SSFA to 1.0 under SEC-SA. All other input values remain the same. Doubling the p-factor causes the risk weight of the hypothetical exposure [A =12%, D=24%] to increase from 145.7% to 392.7%. (Alternatively, the associated capital requirement climbs from 11.7% to 31.4%.) Appendix 2 compares SSFA and SEC-SA risk weights for hypothetical exposures evaluated at various attachment and detachment points.

[Figure 2 here.]

U.S. banking regulators cite reductions in the risk weights for some underlying exposures in their decision to increase the supervisory parameter for securitizations, stating: "The proposed increase to the supervisory parameter p for securitizations that are not resecuritization exposures from 0.5 to 1.0 would help to ensure that the framework produces appropriately conservative risk-based capital requirements when combined with the reduced risk weights applicable to certain assets under the proposal that would be reflected in lower values of K_G and the proposed reduction in the risk weight floor under SEC-SA for securitization exposures that are not resecuritization exposures."[9]

To be sure, where there are proposed reductions to underlying risk weights, the effect of the marked increase in p will be offset to some extent by a decrease in K_A. However, the calibration of the securitization function and risk weights for underlying exposures are independent issues. Exposure risk-weights should be calibrated to historical loss experiences irrespective of whether they may be securitized. Moreover, p is being maintained at 0.5 for banks subject to SSFA. Given that the p-factor is simply an *ad hoc* adjustment that is not grounded in economic theory or empirical evidence, the proposed change seems intended to punish securitization activity.

Figure 3 presents the hypothetical securitization exposure from Figure 1 to illustrate the net effect of increasing p from 0.5 under SSFA to 1.0 under SEC-SA, while reducing the risk-weight of the underlying exposures from 100% to 85%. The effect of the increased p-factor on the risk-weight for

[9] See the 2023 proposal, at 64070.

the hypothetical securitization exposure [$\boldsymbol{A}$ =12%, $\boldsymbol{D}$=24%] overwhelms the capital benefit arising from the reduced risk-weight on the underlying exposures. Here the tranche risk weight would increase from 145.7% to 273.3%.[10]

[Figure 3 here.]

U.S. Divergence from Basel Committee Standards and Implementation in the EU, UK

The 2023 proposed U.S. risk-based capital framework for securitization is more restrictive than the Basel Committee standards implemented in the EU and UK in at least three important ways: (1) the lack of internal ratings-based approaches to assign risk weights; (2) the lack of a simple, transparent, and comparable (STC) securitization framework; and (3) an elevated "p-factor".

Internal Ratings-Based Approaches

The Basel Committee standards contemplate four approaches for risk-weighting assets: (1) a standardized approach, (2) an external ratings-based approach, (3) an internal assessments approach, and (4) an internal ratings-based approach. Current U.S. bank capital rules require the use of a standardized approach, although the very largest and internationally active institutions are also subject to the internal ratings-based approach. As noted above, covered institutions must compute capital requirements using both the standardized and internal ratings-based approaches with the higher of the two requirements acting as the binding constraint. The 2023 U.S. Basel 3 Endgame proposal would eliminate the internal ratings-based approach.

Internal ratings-based approaches for computing risk-based capital requirements have long been used by large European banks and not subject to a dual-stack requirement like their U.S. peers. However, the 2016 Basel Committee standards recommend implementing an "output floor" of 72.5% on estimates of required capital derived from internal models. Both the EU and UK have

[10] For this hypothetical tranche, the risk weight for the underlying exposures would have to be reduced from 100% to 67% (rather than from 100% to 85%) for the tranche's risk weight to remain unchanged.

recently adopted this standard, which is to be phased in by 2030.[11] Despite the new constraint, banks domiciled in these jurisdictions maintain a significant competitive advantage compared to their U.S. counterparts in terms of calculating risk-based capital requirements.

Simple, Transparent, and Comparable Securitizations

The Basel Committee on Banking Supervision and the International Organization of Securities Commissions issued criteria in 2015 aimed at fostering the development of simple, transparent and comparable (STC) securitizations.[12] "Simplicity" refers to the homogeneity of underlying assets with simple characteristics, and a transaction structure that is not overly complex. "Transparency" means providing sufficient information on the underlying assets, the structure of the transaction, and the parties involved in the transaction to support investor risk assessments. "Comparability" ensures that investors can make straightforward comparisons across securitization deals within an asset class, accounting for differences across jurisdictions.

In 2016, the Basel Committee published revisions to its securitization framework to include STC securitizations. The goal was to establish securitization best practices, and that transactions compliant with the new standards would benefit from more favorable capital treatment through a lower supervisory calibration parameter. The EU established an STC framework in 2017 (known as "simple, transparent, and standardized" or STS) with eligible transactions benefitting from the p-factor being set at 0.25 (versus 0.5 for non-STS securitizations).[13] The US has not implemented the STC securitization framework.

P-Factor

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[11] See Regulation EU 2024/1623, 172 and Bank of England PS 9/24, 5.59.

[12] See <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD494.pdf>.

[13] Recognizing that the STS framework is applied inconsistently across the EU due to the complexity and ambiguity of many of the criteria, the European Banking Authority published a 123-page report and set of guidelines on May 27, 2024, in an attempt to "provide a single point of consistent interpretation of those criteria and ensure a common understanding of them" by various market participants.

As explored above, the 2023 U.S. proposed implementation of the Basel 3 Endgame would increase the supervisory calibration parameter associated with securitization exposures from 0.5 to 1.0.

While this increase is consistent with Basel Committee standards, the U.S. lacks an STC securitization framework. Moreover, the EU implementation of the standards maintains the p-factor at 0.25 and 0.5 for STS and non-STS securitizations, respectively, for securitization exposures evaluated under the internal models-based approach.[14] The UK is currently considering a similar change.[15]

Overall, to maintain healthy and vibrant securitization markets and ensure competitive balance across jurisdictions, the U.S. should consider maintaining its supervisory calibration parameter at 0.5 and construct a viable STC framework that would be subject to an even lower p-factor.

Closing

By doubling of the *ad hoc* supervisory calibration parameter, U.S. federal banking regulators' 2023 proposed Basel 3 Endgame capital standards would result in markedly higher credit risk weights for securitization exposures. While this is consistent with Basel Committee standards for non-STC securitizations, the EU did not implement this change, and the UK is still contemplating whether to do so. Moreover, banks domiciled in the EU and UK benefit from the STC framework with a lower assigned p-factor, as well as the ability to use internal models to calibrate securitization risk weights.

[14] See Regulation EU 2024/1623, 174.

[15] See Bank of England DP 3/23, 2.29.

Figure 1: SSFA Marginal Risk Weights for Hypothetical Securitization Exposures

This figure presents the underlying marginal risk-weighting function, ***MRW(t)***, under SSFA. In this example, the function is calibrated assuming the underlying exposures are all performing (W = 0) and subject to a 100% risk-weight (K_G = K_A = 8%) and the supervisory calibration parameter p = 0.5. The figure also shows the risk-weight associated with a hypothetical securitization tranche with attachment and detachment points of 12% and 24%, respectively. The point marked as 145.7% is the risk weight of the securitization exposure, or the average value of ***MRW(t)*** over the interval t = 12% (the attachment point) to t = 24% (the detachment point).

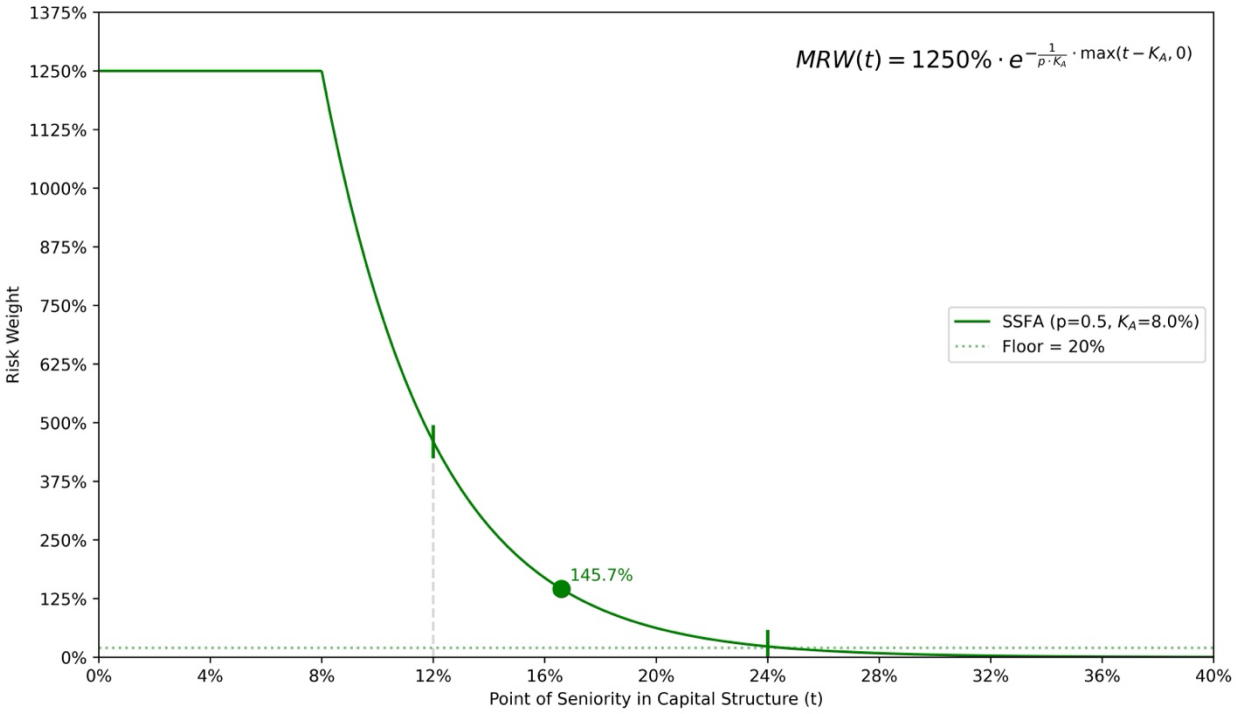


Figure 2: The Effect of Doubling the Supervisory Calibration Parameter under SEC-SA

This figure presents the underlying marginal risk weighting function, ***MRW(t)***, under SSFA and the proposed SEC-SA. Both functions are calibrated assuming the underlying exposures are all performing ($\boldsymbol{W}$ = 0) and subject to a 100% risk-weight ($\boldsymbol{K_G}$ = $\boldsymbol{K_A}$ = 8%). SSFA has a supervisory calibration parameter $\boldsymbol{p}$ = 0.5 and a risk-weight floor of 20%, while the proposed SEC-SA sets $\boldsymbol{p}$ = 1 and is subject to a risk-weight floor of 15%. The figure also shows the risk-weights associated with a hypothetical securitization tranche with attachment and detachment points of 12% and 24%, respectively, under SSFA and SEC-SA. The point marked as 145.7% is the risk weight of the securitization exposure under SSFA and the point marked as 392.7% is the risk weight of the tranche under SEC-SA.

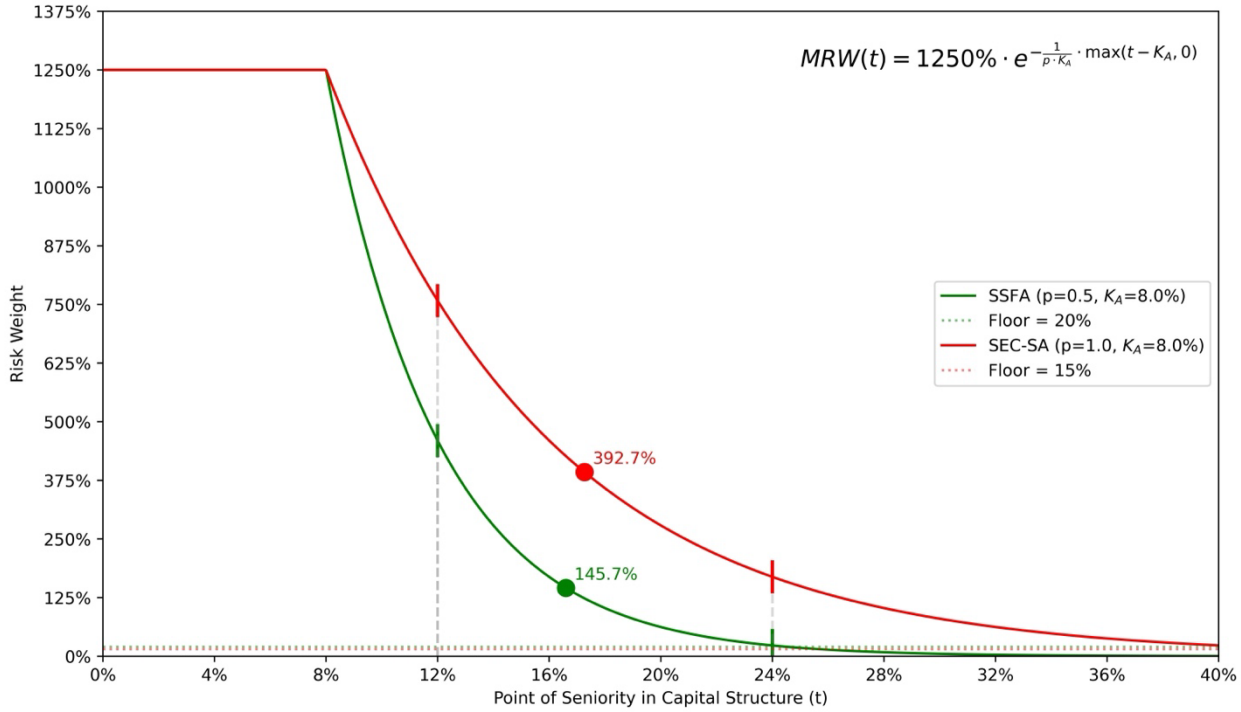
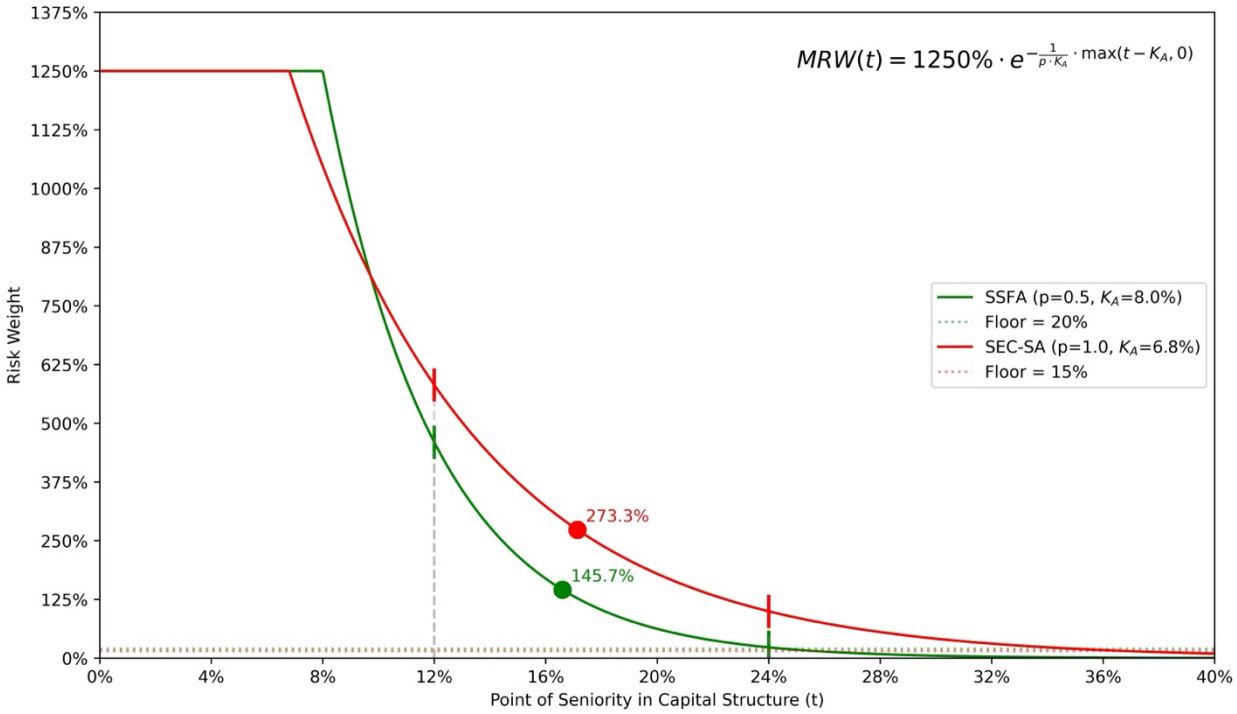


Figure 3: The Effect of Doubling the Supervisory Calibration Parameter and Reducing the Risk-Weight of the Underlying Exposures under SEC-SA

This figure presents the underlying marginal risk weighting function, ***MRW(t)***, under SSFA and the proposed SEC-SA. Both functions are calibrated assuming the underlying exposures are all performing ($\boldsymbol{W}$ = 0). The risk weights for the underlying exposures are assumed to be 100% under SSFA ($\boldsymbol{K_G}$ = $\boldsymbol{K_A}$ = 8%) and 85% under SEC-SA ($\boldsymbol{K_G}$ = $\boldsymbol{K_A}$ = 6.8%). SSFA has a supervisory calibration parameter $\boldsymbol{p}$ = 0.5 and a risk-weight floor of 20%, while the proposed SEC-SA sets $\boldsymbol{p}$ = 1 and is subject to a risk-weight floor of 15%. The figure also shows the risk-weights associated with a hypothetical securitization tranche with attachment and detachment points of 12% and 24%, respectively, under SSFA and SEC-SA. The point marked as 145.7% is the risk weight of the securitization exposure under SSFA and the point marked as 273.3 is the risk weight of the tranche under SEC-SA.



Appendix 1: Risk Weights and Marginal Risk-Weights Under SSFA

The SSFA is the mathematical model used to assign risk weights to securitization exposures under the capital rules' existing standardized approach (see 12 CFR 217.43). Under SSFA, the risk weight for a securitization exposure, RW_{SSFA}, is the average value of an unspecified marginal risk-weighting function, $MRW(t)$ over the interval t = A to t = D , where A and D are the attachment and detachment points, respectively, of the securitization exposure. RW_{SSFA} can thus be expressed as an integral:

$$RW_{SSFA} = \frac{1}{D-A}\int_{A}^{D} \boldsymbol{MRW}(\mathbf{t})dt$$

Note that 12 CFR 217.43(f) imposes a 20% minimum risk weight for any given securitization exposure, notwithstanding the result under the RW_{SSFA} formula.

The RW_{SSFA} formula given in the capital rules is a closed-form solution to the above integral.

$$\mathrm{RW}_{SSFA} = \begin{cases} 1{,}250\%, & \text{if } \mathrm{D} \leq \mathrm{K_A} \\ 1{,}250\% * \mathrm{K_{SSFA}}, & \text{if } \mathrm{A} \geq \mathrm{K_A} \\ \left[\left(\frac{\mathrm{K_A}-\mathrm{A}}{\mathrm{D}-\mathrm{A}}\right) * 1{,}250\%\right] + \left[\left(\frac{\mathrm{D}-\mathrm{K_A}}{\mathrm{D}-\mathrm{A}}\right) * 1{,}250\% * \mathrm{K_{SSFA}}\right], & \text{if } \mathrm{A} < \mathrm{K_A} \text{ and } \mathrm{D} > \mathrm{K_A} \end{cases}$$

Where K_A is the weighted average capital requirement for the underlying exposures adjusted to reflect any adverse performance (as above). K_{SSFA} is defined in the capital rule as:

$$\mathrm{K_{SSFA}} = \frac{e^{\mathrm{a}*\mathrm{u}} + e^{\mathrm{a}*\mathrm{l}}}{\mathrm{a}(\mathrm{u}-\mathrm{l})}$$

$a = \left(-\frac{1}{pK_A}\right)$, $u = D - K_A$, and $l = max(A - K_A, 0)$.

We can rewrite K_{SSFA} as the average value of the exponential function over the interval [l, u], or:

$$K_{SSFA} = \frac{e^{au} - e^{al}}{a(u-l)} = \frac{1}{a(u-l)}\int_{l}^{u} a\boldsymbol{e^{ax}}dx = \frac{1}{(u-l)}\int_{l}^{u} \boldsymbol{e^{ax}}dx$$

Substituting a into the expression, we can rewrite as:

$$K_{SSFA} = \frac{1}{(u-l)}\int_{l}^{u} \boldsymbol{e^{\left(-\frac{1}{pK_A}\right)x}}dx$$

Accounting for the boundary conditions where $A > K_A$:

$$K_{SSFA} = \frac{1}{(D-K_A)-(A-K_A)}\int_{A-K_A}^{D-K_A} \boldsymbol{e^{\left(-\frac{1}{pK_A}\right)x}}dx$$

Simplifying the denominator gives:

$$K_{SSFA} = \frac{1}{(D-A)} \int_{A-K_A}^{D-K_A} \boldsymbol{e}^{\left(-\frac{\mathbf{1}}{\boldsymbol{pK_A}}\right)\boldsymbol{x}} dx$$

And thus RW_{SSFA} can be expressed as:

$$RW_{SSFA} = \mathbf{1{,}250\%} * K_{SSFA} = \frac{1}{(D-A)} \int_{A-K_A}^{D-K_A} \mathbf{1{,}250\%} * \boldsymbol{e}^{\left(-\frac{\mathbf{1}}{\boldsymbol{pK_A}}\right)\boldsymbol{x}} dx$$

To make the integral easier to evaluate, we shift the variable of integration, *x*, so that the bounds align directly with *A* and *D*. Specifically, we define a new variable *t*:

$$t = x + K_A, \qquad \text{so } dx = dt$$

With this change in the variable of integration:

$$x = A - K_A \Longrightarrow t = A$$

$$x = D - K_A \Longrightarrow t = D$$

The exponential term becomes:

$$e^{\left(-\frac{1}{pK_A}\right)x} \Longrightarrow \begin{cases} e^{\left(-\frac{1}{pK_A}\right)(t-K_A)}, & t > K_A \\ e^{\left(-\frac{1}{pK_A}\right)(0)} = 1, & t \le K_A \end{cases}$$

And thus RW_{SSFA} can be expressed as:

$$RW_{SSFA} = 1{,}250\% * K_{SSFA} = \frac{1}{(D-A)} \int_{A}^{D} \boldsymbol{MRW(t)} dt$$

Where:

$$\boldsymbol{MRW(t)} = \begin{cases} 1{,}250\% * e^{\left(-\frac{1}{pK_A}\right)(t-K_A)}, & t > K_A \\ 1{,}250\%, & t \le K_A \end{cases}$$

The above results can be compactly expressed using the max function, allowing us to arrive at the marginal risk-weighting function across all *t*:

$$\boldsymbol{MRW(t)} = \mathbf{1{,}250\%} * \boldsymbol{e}^{\left(-\frac{\mathbf{1}}{\boldsymbol{pK_A}}\right)(\boldsymbol{max}\ \boldsymbol{t}-\boldsymbol{K_A},\mathbf{0})}$$

- When $t > K_A$, $\max(t - K_A, 0) = t - K_A$, so $MRW(t) = 1{,}250\% * e^{\left(-\frac{1}{pK_A}\right)(t-K_A)}$

  (MRW(t) is an exponential decay function when $t > K_A$)

- When $t \leq K_A$, $max(t - K_A, 0) = 0$, so $MRW(t) = 1{,}250\%$.

$$(\mathrm{MRW(t)\ is\ a\ constant\ when\ t} \leq K_A)$$

This formulation is continuous across all t, including at the boundary $t = K_A$ where $e^0 = 1$ smoothly transitions between the two cases.

Appendix 2: Risk Weights Under SSFA and SEC-SA

This table presents risk weights for securitization exposures with various attachment and detachment points for SSFA and the proposed SEC-SA. Both functions are calibrated assuming the underlying exposures are all performing (W = 0) and subject to a 100% risk-weight (K_G = K_A = 8%). SSFA has a supervisory calibration parameter p = 0.5 and a risk-weight floor of 20%. The proposed SEC-SA sets the supervisory calibration parameter p = 1 and is subject to a risk-weight floor of 15%.

Detachment Point	0%		4%		8%		12%		16%		20%		24%		28%	
	SSFA	SEC-SA	SSFA	SEC-SA	SSFA	SEC-SA	SSFA	SEC-SA	SSFA	SEC-SA	SSFA	SEC-SA	SSFA	SEC-SA	SSFA	SEC-SA
100%	150	200	104	156	54	109	21	69	***20***	44	***20***	28	***20***	18	***20***	***15***
96%	156	208	109	163	57	114	22	72	***20***	46	***20***	29	***20***	19	***20***	***15***
92%	163	217	114	170	60	119	23	76	***20***	48	***20***	31	***20***	20	***20***	***15***
88%	170	227	119	179	62	125	24	80	***20***	51	***20***	33	***20***	21	***20***	***15***
84%	179	238	125	187	66	132	26	84	***20***	54	***20***	35	***20***	23	***20***	***15***
80%	187	250	132	197	69	139	27	89	***20***	57	***20***	37	***20***	24	***20***	16
76%	197	263	139	208	74	147	29	95	***20***	61	***20***	40	***20***	26	***20***	17
72%	208	278	147	221	78	156	31	101	***20***	66	***20***	43	***20***	28	***20***	19
68%	221	294	156	234	83	167	33	108	***20***	71	***20***	46	***20***	31	***20***	20
64%	234	312	167	250	89	178	35	116	***20***	76	***20***	51	***20***	34	***20***	23
60%	250	333	179	268	96	192	38	126	***20***	83	***20***	55	***20***	37	***20***	25
56%	268	357	192	288	104	208	42	137	***20***	91	***20***	61	***20***	42	***20***	28
52%	288	384	208	312	114	226	46	151	***20***	101	***20***	68	***20***	47	***20***	32
48%	312	415	227	339	125	248	51	167	21	113	***20***	77	***20***	54	***20***	38
44%	341	452	250	372	139	275	57	186	24	127	***20***	88	***20***	62	***20***	44
40%	375	495	278	412	156	307	66	210	28	146	***20***	102	***20***	73	***20***	53
36%	417	547	312	459	178	346	76	240	34	169	***20***	121	***20***	88	***20***	65
32%	468	609	357	518	208	396	91	278	42	199	***20***	144	***20***	107	***20***	81
28%	535	685	415	591	248	459	113	328	54	238	27	176	***20***	133		
24%	621	777	495	682	307	540	146	393	73	291	39	219				
20%	738	888	609	798	396	647	199	479	107	362						
16%	895	1020	777	943	540	790	291	597								
12%	1097	1161	1020	1117	790	984										
8%	1250	1250	1250	1250												
4%	1250	1250														

Attachment Point