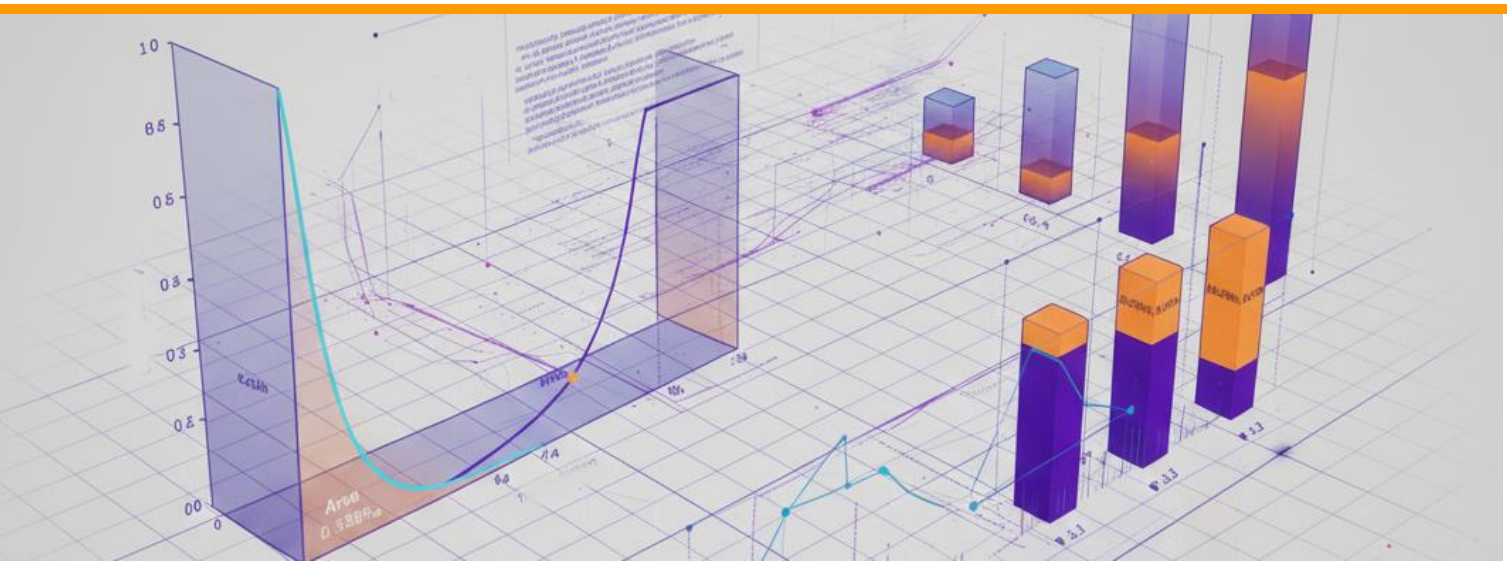


Recalibrating the Formula for Determining Securitization Capital Requirements

W. Scott Frame & Christopher B. Horn | Dec. 11, 2025

Securitization is an important source of market-based finance, supporting lending to households and businesses. However, activity in the United States and Europe has been subdued since the Global Financial Crisis and subsequent regulatory reforms.[1] Policymakers on both sides of the Atlantic have pointed to the post-crisis capital framework as a key factor constraining securitization markets.[2]

U.S. banks calculate their risk-based capital requirements using a standardized approach that includes the Simplified Supervisory Formula Approach (SSFA) for securitization exposures.[3] This post summarizes new research identifying three key limitations of the current SSFA calibration and proposes adjustments to address them. The goal is to achieve a more appropriate balance between conservatism and risk sensitivity in the capital framework for securitization. The research is timely, as the U.S. banking agencies are expected to repropose Basel III Endgame standards soon.

Overview of the SSFA

The SSFA uses the following inputs to calculate the required capital for a given securitization exposure:

- The weighted average capital requirement for the securitized assets (K_G).
- The proportion of underlying exposures that is delinquent (W).
- The attachment and detachment points of the securitization exposure (A, D).[4]

[1] *See* Frame, W. Scott, Post-Crisis Regulatory Reforms and the Decline of Securitization (July 3, 2025). Available at: https://bpi.com/post-crisis-regulatory-reforms-and-the-decline-of-securitization/.

[2] *See* U.S. Department of the Treasury, A Financial System That Creates Economic Opportunities – Capital Markets (October 2017) p. 8; and Proposal for a Regulation of the European Parliament and of the Council (June 17, 2025) p. 1.

[3] A "securitization exposure" is defined as "(1) An on-balance sheet or off-balance sheet credit exposure ... that arises from a traditional securitization or synthetic securitization (including a resecuritization), or (2) An exposure that directly or indirectly references a securitization exposure described in paragraph (1) of this definition." *See* 12 C.F.R. 217.2.

[4] The attachment point represents the threshold at which losses within the underlying asset pool would first be allocated to the securitization exposure. The detachment point represents the threshold at which such losses result in a total loss of principal for the tranche in which the securitization exposure resides.

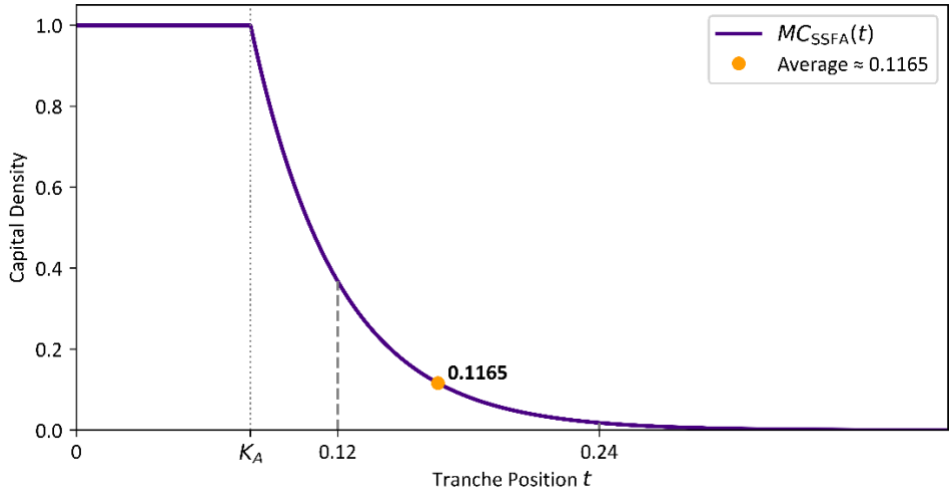
- A supervisory calibration parameter (p).

The values of K_G and W are used to calculate K_A, or the weighted average capital requirement for the underlying exposures adjusted to reflect any adverse performance, where $K_A = (1 - W)K_G + 0.5W$. The 0.5 scalar applied to *W* assigns a 50 percent capital requirement to delinquent underlying exposures. By contrast, the capital requirement for delinquent exposures that are directly held is 12% or less, depending on exposure type.

Once K_A is computed, the SSFA allocates capital requirements across the securitization capital structure (t) using a two-segment marginal capital density function. This function is equal to 1.0 throughout the interval $0 \leq t \leq K_A$, representing a *dollar-for-dollar* allocation of capital to the most subordinate positions. Then, over the interval $K_A < t \leq 1$, the density decays exponentially at rate $\frac{1}{pK_A}$, resulting in progressively lower incremental capital charges for more senior positions. For a given securitization exposure, the capital requirement is obtained by calculating the average value of the marginal capital density function over the interval $t = [A, D]$, subject to a floor value of 1.6%.

Figure 1 illustrates the SSFA marginal capital density function calibrated with an underlying pool buffer $K_G = K_A = 8\%$ and the supervisory calibration parameter ("p-factor") set at its current value of 0.5. The vertical dashed lines mark the attachment and detachment points of a hypothetical securitization exposure $[A = 12\%, D = 24\%]$. The dot indicates the average value of the marginal capital density function over that interval, corresponding to an 11.65% capital requirement.

Figure 1: SSFA Marginal Capital Density Function

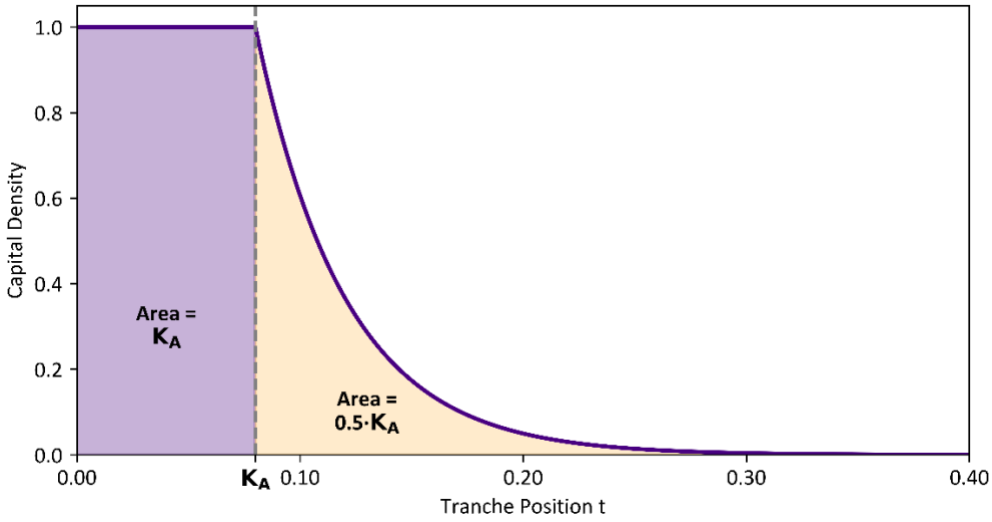


Capital Non-Neutrality under SSFA

For a hypothetical securitization exposure spanning the full capital structure t = [0, 1], total capital under SSFA equals the area under the marginal capital density function. As shown in Figure 2, the flat region from $t = [0, K_A]$ allocates K_A, and the remaining exponential tail from $t = [K_A, 1]$ adds approximately pK_A.[5] With $p = 0.5$, this produces total capital of $1.5K_A$.

[5] The figure is produced assuming $K_A = 8\%$ and there are no delinquent exposures (W = 0). Regardless of the value of K_A, the area of the flat region is K_A and the area of the exponential tail is $0.5 * K_A$.

Figure 2: SSFA Capital Non-Neutrality ($p = 0.5$)



The SSFA results in a non-neutrality of securitization capital requirements ("securitization surcharge"). This arises from two key differences versus directly holding the underlying assets. First, as just noted, the required capital for a pool of assets (K_A) is scaled by (1 + p). Thus, the current calibration (p = 0.5) implies a 50% surcharge when all the underlying assets are performing.[6] Second, delinquent underlying exposures face a 50% capital requirement instead of the (up to) 12% charge if held directly.

Table 1 compares the capital requirements for a pool of assets subject to an 8% baseline capital requirement ($K_G = 8\%$) if held directly with total capital under the SSFA for various pool delinquency rates (W). For securitized assets, total required capital (K_A) is broken into the flat *dollar-for-dollar* region and exponential tail region. The securitization surcharge is computed as the percentage difference between the required capital for the assets if held directly versus securitized.[7]

Table 1: SSFA Capital Requirements and Securitization Surcharge by Delinquency Rate

Capital Requirement					
Delinquency Rate (W)	**Directly Held**	**Dollar-for-Dollar Region**	**Tail Region**	**Total**	**Securitization Surcharge**
0%	8.00%	8.00%	4.00%	12.00%	50.00%
2%	8.08%	8.92%	4.46%	13.38%	65.56%
4%	8.16%	9.83%	4.92%	14.75%	80.76%
6%	8.24%	10.75%	5.37%	16.12%	95.61%
8%	8.32%	11.65%	5.83%	17.48%	110.12%

[6] Note that the 50% figure does not include the effect of the capital floor. If any tranche is subject to the capital floor, the surcharge would be even higher.

[7] The surcharge shown in the table is calculated on the assumption that, were the underlying assets held directly, their capital requirement would increase to 12% upon becoming delinquent.

Capital Requirement					
Delinquency Rate (W)	**Directly Held**	**Dollar-for-Dollar Region**	**Tail Region**	**Total**	**Securitization Surcharge**
10%	8.40%	12.56%	6.28%	18.84%	124.29%
12%	8.48%	13.46%	6.73%	20.19%	138.14%
14%	8.56%	14.36%	7.18%	21.54%	151.66%
16%	8.64%	15.26%	7.63%	22.89%	164.89%
18%	8.72%	16.15%	8.07%	24.23%	177.81%
20%	8.80%	17.04%	8.52%	25.56%	190.45%
↓	↓	↓	↓	↓	↓
100%	12.00%	50.00%	21.62%	71.72%	496.81%

The non-neutrality of securitization capital requirements was introduced by the Basel Committee to address structural risks (e.g., various model risks and agency risk) that can arise in situations where securitized assets perform significantly worse than expected.[8] For example, securitization cash flow projections rely not only on models of the performance of the underlying assets but must also account for features of some transactions, such as triggers that may alter the priority of claims in certain circumstances. Moreover, the incentives of holders of senior and subordinate tranches can diverge as they relate to the servicing of defaulted assets.

Importantly, these structural risks only appear if the securitization experiences stress from a material deterioration in the credit performance of the underlying asset pool. When the assets are performing, holding them in securitized form does not introduce meaningful incremental risk versus holding them directly.

Limitations of the SSFA

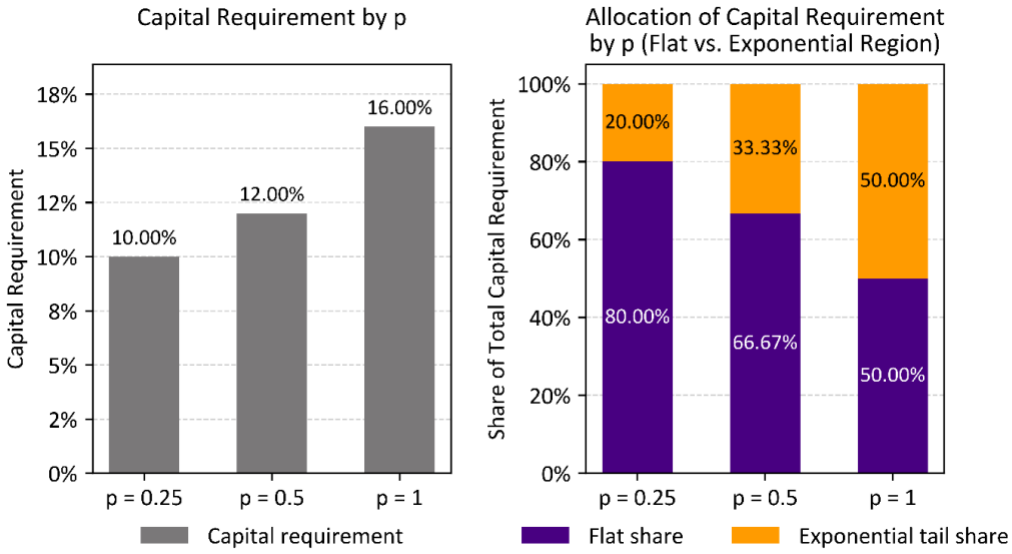
The research paper identifies three primary limitations of the current SSFA framework. The first is that the SSFA relies on the p-factor to establish both the size and allocation of the securitization capital buffer. This introduces an inherent trade-off between conservatism and risk-sensitivity. A higher p-factor increases the overall capital requirement by flattening the marginal capital density function while also spreading capital more evenly across tranche positions.[9] Conversely, a lower p-factor reduces the overall securitization capital charge but enhances risk sensitivity as the marginal capital requirement declines more sharply with tranche seniority thus concentrating required capital in tranches most exposed to potential losses.

[8] *See* Basel Committee on Banking Supervision, Consultative Document, Revisions to the Securitisation Framework, December 2013, p. 8. U.S. regulators also highlighted a desire to reduce the likelihood of regulatory arbitrage through securitizations. *See* 78 Fed. Reg. 62018 (Oct. 11, 2013), p. 62119.

[9] Indeed, as the p-factor approaches infinity, SSFA becomes both maximally conservative and perfectly risk-insensitive, as the capital requirement for any securitization exposure would be 100% regardless of the exposure's seniority or the value of K_A.

Figure 3 shows how a higher p-factor acts to increase the total capital buffer by expanding the exponential tail region. The left panel presents the total required securitization capital, and the right panel shows the allocation of that capital to the flat and exponential tail regions for three calibrations of the p-factor (0.25, 0.5, and 1.0), assuming a pool of performing securitized assets with K_A = 8%.

Figure 3: SSFA Total Capital and Distribution for Different P-Factor Calibrations



A second limitation of the SSFA calibration is that it imposes a securitization capital surcharge even when the underlying exposures are performing ($W = 0\%$) and securitization-specific risks remain dormant. A more risk-sensitive approach would introduce the securitization surcharge only when underlying exposures become delinquent, but before any losses are realized, thereby aligning required capital more closely with emerging credit risk.

Third, SSFA does not align the capital requirement for senior securitization exposures with their actual risk. While the SSFA imposes a capital requirement floor to ensure these exposures are not undercapitalized, the fixed 1.6% capital requirement floor is risk insensitive. The capital floor could be calibrated in a more risk-sensitive manner to reflect both the nature of the underlying exposures and their performance. In addition, SSFA lacks a cap on the capital requirement for senior securitization exposures, thus creating the possibility that a senior exposure could attract a higher capital charge than the underlying exposures.[10]

Proposed Adjustments to the SSFA

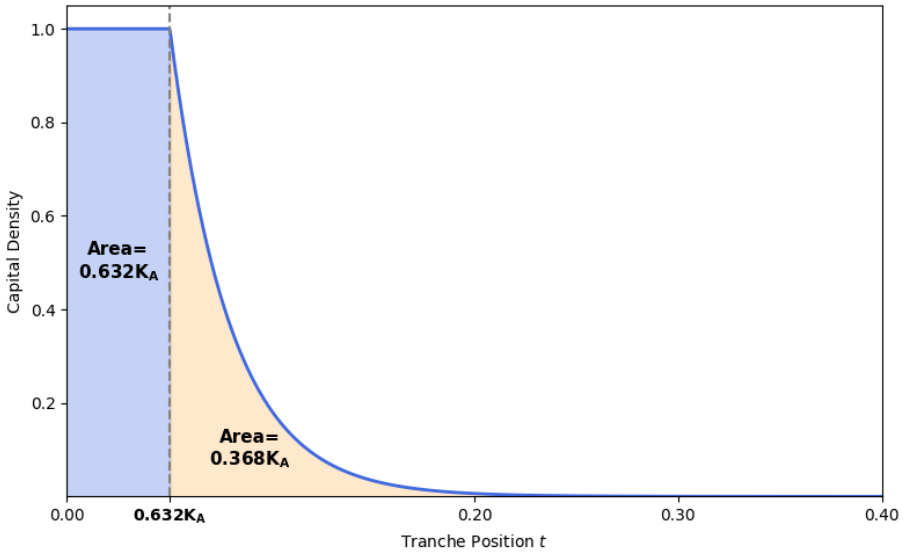
To tailor the securitization surcharge, the paper proposes setting the capital requirement equal to K_A. Then, to allocate the capital requirement, a new parameter q is introduced with $q = 1 - p$. The paper sets q equal to the mean value of the exponential probability distribution underlying the current SSFA model

[10] The Agencies proposed adding this feature, referred to as the "look-through approach," in their initial Basel III Endgame proposal, reasoning that "[t]he proposed risk-weight cap is intended to recognize that the credit risk associated with each dollar of a senior securitization exposure generally will not be greater than the credit risk associated with each dollar of the underlying assets, because the non-senior tranches of a securitization provide credit enhancement to the senior tranche." *See* Regulatory Capital Rule: Large Banking Organizations with Significant Trading Activity, 88 Fed. Reg. 64028 (Sept. 18, 2023), at p. 64072.

(63.2%), which would represent the fraction of the capital buffer allocated to the flat dollar-for-dollar region. The remaining 36.8% of K_A would be allocated to the exponential tail.

Figure 4 illustrates this approach for a hypothetical securitization exposure spanning the full capital structure t = [0,1]. Here, capital neutrality is maintained when the underlying exposures are performing (W = 0) but would impose a securitization surcharge (through an increase in K_A) to account for securitization-specific risks as delinquencies emerge.

Figure 4: Proposed Recalibration of SSFA ($p = 0.368$, $q = 0.632$)



To increase the capital requirement, K_A, as delinquencies emerge, the paper suggests replacing the fixed 50% capital charge for defaulted securitization exposures with a new variable r set equal to $K_G + \frac{1}{e-1} \approx K_G + 0.582$, such that $K_A = (1 - W)K_G + (r * W)$. This calibration is deliberately sized to provide dollar-for-dollar capital coverage for losses up to the performing-exposure capital buffer, K_G. Table 2 illustrates how capital would be decomposed under the proposal into the flat segment, exponential tail region, total capital, and securitization surcharge for various default rates where K_G = 8%.[11]

Table 2: Recalibrated Securitization Capital Requirements

Capital Requirement				
Delinquency Rate (W)	**Flat Region**	**Tail Region**	**Total**	**Securitization Surcharge**
0%	5.06%	2.94%	8.00%	0.00%
2%	5.79%	3.37%	9.16%	13.42%
4%	6.53%	3.80%	10.33%	26.57%

[11] The securitization surcharge is calculated using the assumption that delinquent underlying exposures have 12% capital requirement if directly held by the bank. Many commonly securitized assets have a lower capital requirement if delinquent, resulting in a higher securitization surcharge than that shown in the table.

Capital Requirement				
Delinquency Rate (W)	**Flat Region**	**Tail Region**	**Total**	**Securitization Surcharge**
6%	7.26%	4.23%	11.49%	39.46%
8%	8.00%	4.66%	12.66%	52.11%
10%	8.74%	5.08%	13.82%	64.52%
12%	9.47%	5.51%	14.98%	76.69%
14%	10.21%	5.94%	16.15%	88.64%
16%	10.94%	6.37%	17.31%	100.37%
18%	11.68%	6.80%	18.48%	111.88%
20%	12.41%	7.22%	19.64%	123.18%
↓	↓	↓	↓	↓
100%	41.84%	22.12%	63.96%	433.02%

Finally, to better align the capital requirement for senior exposures with actual risk, the paper suggests replacing SSFA's fixed 1.6% capital floor with a risk-sensitive floor equal to 10%*K_A and imposing a cap equal to the capital requirement applicable to the underlying exposures.

Conclusion

The risk-based capital treatment of bank securitization exposures is governed by the SSFA. Recent research identifies three limitations of the current approach and proposes a recalibration to: (1) decouple the sizing of the required capital buffer from its allocation across securitization tranches, (2) impose a securitization capital surcharge only as underlying assets become delinquent and (3) set a risk-sensitive capital floor and cap for senior securitization exposures. Such changes to the SSFA would improve the balance between conservatism and risk-sensitivity in setting securitization capital requirements.

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