BLACK SWAN | Consulting

February 10, 2015

Basel III Risk-Based Regulatory Capital Framework for Securitization Exposures

Executive Summary

New requirements imposed by banking regulators contain a new set of methodologies which banking organizations must adhere to in order to calculate risk weightings for private label securitization exposures. These new requirements are relevant for non-advanced and non-market risk banks. All banking CFOs and CEOs should be familiar with what these new requirements mean for their organizations. The goal of this whitepaper is to outline the two alternative methodologies for calculating securitization exposures available under the new Basel III capital framework and to highlight the difference between them.

Overview of the New Securitization Framework

Three federal agencies, the Federal Reserve System (FRB), the Office of Comptroller of the Currency (OCC), and the Federal Deposit Insurance Corporation (FDIC) issued the "Final Rules" in July 2013. These rules require banking organizations that are not either advanced approaches[1] or market risk[2] banks to consistently choose either the Simplified Supervisory Formula Approach (SSFA) or the Gross-Up Approach.

The Final Rules do the following:

- Imposes quarterly due diligence and operational requirements. These requirements must be met in order to avoid a 1,250% risk weighting for securitization exposures.
- Implements a supervisory risk weighting floor of 20%. There are certain exceptions for specific types of exposures to these general guidelines (i.e., ABCP and IO MBSs).

---

[1] Advanced Approaches Bank: consolidated assets of more than $250Bln or consolidated on-balance sheet foreign exposures of more than $10Bln

[2] Market Risk Bank: aggregate total trading assets and liabilities more than 10% of quarter-end total assets, or more than $1bln

- Outline which exposures are to be deemed securitization exposures.
- Contains a new set of methodologies which banking organizations must adhere to in order to calculate risk weightings for securitization exposures. These methodologies are consistent with the new mandate within Dodd-Frank that eliminates the use of credit ratings in determining risk weightings
- Requires banking organizations that are not advanced approaches[3] or market risk[4] banks to consistently choose either the Simplified Supervisory Formula Approach (SSFA) or the Gross-Up Approach.

This paper will focus on the methods of risk weighing securitization exposures relevant to US banks that are not advanced approaches or market risk banks. These banks will determine capital based on the Standardized Approach as described below.

[3] Advanced Approaches Bank: consolidated assets of more than $250Bln or consolidated on-balance sheet foreign exposures of more than $10Bln

[4] Market Risk Bank: aggregate total trading assets and liabilities more than 10% of quarter-end total assets, or more than $1bln

Simplified Supervisory Formula Approach (SSFA)

The Simplified Supervisory Formula Approach (SSFA) replaces Basel II's ratings-based approaches for risk weighting of securitization exposures. This replacement is in accordance with the mandate of the elimination of the reliance of external ratings by rating agencies within section 939A of the Dodd Frank Act. The SSFA is based on the prior supervisory formula approach (SFA).

SSFA is a formula-based approach which takes into account the risk weighting of the underlying assets, the exposure's subordination level, the performance of the underlying assets, and whether or not the exposure is a resecuritization. Thus, the resulting risk weightings dynamically evolve as the performance of the underlying assets and subordination levels change over time. Although not without its flaws, SSFA improves upon the static nature of prior ratings-based approaches.

The method of calculating the risk weighting under SSFA depends upon the category to which the exposure falls. If the exposure is junior to K_A, with K_A being the capital charge of the underlying assets adjusted for any impairments, the risk weighting is 1250%. If the exposure is senior to K_A, the risk weighting has a floor of 20%. The final risk weighting will depend on where K_A sits in relation to the exposure's attachment and detachment points.

Data Requirements

In order to perform the SSFA calculation, collateral performance data as well as capital structure data is required. Collateral performance data includes the current delinquency or default status, as well as whether the asset is in foreclosure, bankruptcy, or real estate owned. The status of the underlying assets is needed to calculate the percentage of the portfolio that is impaired. Other data requirements include the amounts and asset types of the underlying assets. The asset types of the underlying assets are needed in order to determine whether the exposure needs to be classified as a resecuritization. The capital structure is needed in order to calculate the attachment and detachment points of the exposure. The data used must not be older than 91 days.

For home equity and non-agency RMBS, additonal data is required at the underlying mortgage level to determine whether each individual mortgage was "prudently underwritten". This may include mortgage level data such as lien position, original LTV, borrower documentation, and modifications made to the mortgage.

Effect of Re-securitization Exposures

Under SSFA, an exposure is considered a resecuritization if it has at least one securitization within its asset pool. In the SSFA calculation, resecuritizations are treated more onerously with a capital surcharge of 1.5 versus a capital surcharge of 0.5 for non-resecuritizations. This has the effect of significantly increasing the risk weighting of the exposure under the SSFA. The effect of this surcharge can be seen in current new issue CLOs which are typically structured without a CLO bucket. The lack of a CLO bucket avoids the resecuritization capital surcharge. Re-tranching of single securitization exposure is not considered a resecuritization. In such instances, the asset quality of the underlying securitization's pool of assets as well as its attachment and detachment points at both top and bottom level must be taken into consideration.

Calculating Attachment and Detachment Points

For certain securitizations, attachment and detachment points are readily available as losses on the underlying asset pool cause write-downs on more subordinated tranches. Tranches from other types of securitizations, in particular cash flow CDOs, do not get written down from asset losses. This raises the question as to how to determine attachment and detachment points for these types of securitizations.

The Final Rules states that the attachment point should be calculated as the ratio of "the current dollar amount of securitization exposures that are subordinated to the tranche that contains the securitization" to "the current dollar amount of all underlying exposures". The detachment point should be calculated by adding the attachment point to the "ratio of the current dollar amount of the securitization exposures that are *pari passu* with the securitization exposure to the current dollar amount of all underlying exposures." Carrying values of the exposure below par are not taken into consideration in calculating subordination.

The question is how to interpret "exposures that are subordinated to the tranche." Black Swan believes that the most accurate way to calculate this is to subtract out notional balances of tranches senior and *pari passu* to the bank's exposure from the collateral balance (with defaulted and deferring assets held at par)

Because there seems to be some uncertainty as to how to interpret attachment and detachment point calculations, it will be up to the bank to determine these data points for the SSFA. The methodology chosen will also depend on access to the appropriate data and analytics. Given this uncertainty, we can imagine that the resulting calculations may be different from one bank to the next. A sample SSFA calculation for a second lien RMBS securitization is provided in the Appendix.

Gross-up Approach

The gross-up calculation carries over from Basel II. It is available to banks that are not advanced-approach banks and are not subject to market risk rules. Under this approach, senior exposures will get a risk weighting equivalent to that of the underlying assets. For subordinate tranches, banks must hold capital against the subordinate tranche as well as for the portion of the senior tranches for which the subordinate tranche is providing support.

Using the required inputs, the credit equivalent amount of the exposure is calculated. This amount represents the amount of exposure plus the pro rata share of any senior tranches which are getting supported by the exposure. The credit equivalent amount is then multiplied by the risk weight of the underlying assets to arrive at the risk weighted asset. Finally, the minimum 20% risk weighting applies.

Data Requirements

Under the gross up approach, four inputs are required: (1) percentage of the bank's exposure to the entire tranche on a par value basis, (2) the par amount of tranches that are more senior to the bank's exposure, (3) the amortized cost of the bank's exposure, and (4) the weighted average risk weighting of the underlying assets.

The gross up approach does not require any deal analytics. It does require capital structure and collateral type data. This data can typically be found in trustee or payment reports or from third party data and analytics providers. As with the SSFA, the data used must be no more than 91 days old.

Differences between the SSFA and the Gross-up Approach

Aside from the obvious differences in the way these two approaches are calculated, the main difference between the two approaches lies in the fact that the SSFA is more dynamic in that it captures the month-to-month evolution of the credit profile of the underlying assets as well as the month-to-month changes in subordination of the exposure. Neither approach makes use of ratings assessments from ratings agencies, but the SSFA does take credit quality into account more readily than the gross up approach by way of the use of the percentage of the portfolio that is impaired. The gross up approach does not take into account the performance of the underlying portfolio.

Under the gross-up approach, the most senior tranche will always get a risk weighting equal to that of the underlying portfolio despite receiving support from tranches lower in the capital structure. This points towards the SSFA as the approach resulting in more advantageous risk weights for senior tranches.

Practical Considerations

For securitization exposures, either the SSFA or the gross up approach needs to be applied consistently across all exposures. Banks cannot use different approaches for different positions. The choice of which approach to use will come down to the availability of required data and analytics to perform certain calculations. The final capital charges required under each of the two approaches will also have an impact on the decision.

For example, under the SSFA approach, the performance of the underlying assets needs to be known. This data can be obtained through third party analytics and data providers, as well as, from periodic performance reports. If this data is not readily accessible by the bank, then the bank may need assistance in obtaining this data or may need to consider using the gross up approach.

As it remains to be seen what effect the approaches will have on banking organizations and which approach they will choose to adopt, we would like to hear your thoughts and comments on this topic. Please email any questions, thoughts or comments to the author.

Appendix: Sample SSFA Calculation

For a hypothetical A3 tranche in a second lien RMBS securitization, here are steps taken in order to calculate the appropriate risk charge:

1) *Kg* is the capital charge of underlying assets if held outside of securitization, which in the case of second lien mortgages is 8%.
2) *W* is the percentage of impaired assets (as outlined in the Final Rules), which is in this case 104,000,000 divided by the amount of total assets of 380,000,000 = 27.4%.

90+ delinquent	= 25,000,000
Bankruptcy	= 11,000,000
Foreclosure	= 62,000,000
REO	= 6,000,000
Subtotal	= 104,000,000

3) K_A is the capital charge of assets adjusted for impaired assets = (100% – 27.4%) * Kg + 27.4% * 50% = 19.5%
4) Based on a review of the liability structure the A3 tranche has *Attachment Point (A)* = 20% and *Detachment Point (D)* = 38%
5) Based on the formula for calculating *Kssfa* = $(e^{\alpha u} - e^{\alpha l})/\alpha(\mu - l)$ = 0.433048, where:

   α = -1 / (p * K_A)

   μ = D - K_A

   l = max (A - K_A, 0)

   e = 2.71828

   p = 1.5 for resecuritizations and 0.5 otherwise

6) Based on the prior results the A3 tranche is determined to be senior to K_A since both attachment and detachment point is greater than K_A.
7) The risk weighting of the A3 tranches, because it is senior to K_A, is calculated by multiplying 12.5 with *Kssfa*, with a floor of 20%. Therefore, the risk weighting is 12.5 * *Kssfa* = 541.3%.

About the Author

Wilson Kung, CFA, is a product specialist at Black Swan Consulting focusing on CDOs and RMBS transactions. Wilson holds a BA in Economics from the University of Pennsylvania and a Master in Mathematics in Finance from NYU's Courant Institute of Mathematical Sciences. Prior to joining Black Swan Consulting in 2008, Wilson worked at various sell-side and buy-side institutions including Rabobank, Guggenheim, Credit Suisse and MetLife.

For any inquiries regarding this weekly newsletter, you can contact the author:

Wilson Kung (917) 338-2380 Wilson.Kung@BlackSwanConsultingGroup.com

For general inquiries regarding Black Swan Consulting you can contact the following individual:

Kristen Verberkmoes (917) 338-2380 Kristen.Verberkmoes@BlackSwanConsultingGroup.com

---

Notice:

The materials in this newsletter and any related links are provided for informational purposes only. The materials in this newsletter are not represented as being accurate, complete, or up-to-date. Any links to other third-party Web sites are only for the convenience of the user, and Black Swan Consulting LLC does not recommend or endorse the contents of the third-party Web sites. Although this newsletter may provide information concerning legal issues, such information is not intended to constitute or be a substitute for legal advice from qualified counsel. Readers of this newsletter should not take, or refrain from taking, any action based on any information contained in this newsletter without first consulting qualified counsel.

Black Swan Consulting LLC makes no express or implied warranty regarding any information or material in this newsletter. Black Swan Consulting LLC hereby expressly disclaims all liability in respect to actions taken or not taken based on any materials provided in this newsletter.

© 2015 Black Swan Consulting LLC