

## **Appendix B: Securitization Framework in Basel II - An Overview**

The purpose of this part of the guideline is to summarize the key regulatory developments for securitization arising from the Basel II framework. In the EU, the process for launching the new Directive has not yet been finally concluded (e.g. with respect to national discretions), therefore this version of the appendix relies on the Basel Committee on Banking Supervision (BCBS) document only.<sup>1</sup> For the same reason, potential differences between the Basel and the EU framework are not explicitly addressed in this text, but the appendix will be updated to cover the regulations of the according EU Directive as soon as the Directive will have been appropriately finalized.

Securitization has received considerable attention because it is one of the areas, where the Basel 1 approach has become clearly outdated. The BCBS has published detailed rules for the treatment of securitized assets. The approach covers assets securitized by a bank, where an interest has been retained, and also securitized assets where the bank is the investor.

### ***Pillar I***

Banks must apply the securitization framework for determining regulatory capital requirements on exposures arising from traditional and from synthetic securitizations, or from similar structures that contain features common to both. Since securitizations may be structured in many different ways, the capital treatment of a securitization exposure must be determined on the basis of its economic substance rather than its legal form. Similarly, supervisors will look to the economic substance of a transaction to determine whether it should be subject to the securitization framework for purposes of determining regulatory capital.

*A traditional securitization* is a structure where the cash flow from an underlying pool of exposures is used to service two or more different stratified risk positions or tranches reflecting different degrees of credit risk. Payments to the investors depend upon the performance of the specified underlying exposures, as opposed to being derived from an obligation of the entity originating those exposures. The stratified/tranched structures that characterise securitizations differ from ordinary senior/subordinated debt instruments in that junior securitization tranches can

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<sup>1</sup> International Convergence of Capital Measurement and Capital Standards: A Revised Framework; published by the Basel Committee on Banking Supervision in June 2004 (BCBS 2004).

absorb losses without interrupting contractual payments to more senior tranches, whereas subordination in a senior/subordinated debt structure is a matter of priority of rights to the proceeds of liquidation.

A *synthetic securitization* is a structure with two or more different stratified risk positions or tranches that reflect different degrees of credit risk where credit risk of an underlying pool of exposures is transferred, in whole or in part, through the use of funded (e.g. credit-linked notes) or unfunded (e.g. credit default swaps) credit derivatives or guarantees that serve to hedge the credit risk of the portfolio. Accordingly, the investors' potential risk is dependent upon the performance of the underlying pool.

**Recognition of risk transfer:** The BCBS document lists a variety of operational requirements for the recognition of risk transfer. Banks are required to hold regulatory capital against all of their securitization exposures, including those arising from the provision of credit risk mitigants to a securitization transaction, investments in asset-backed securities, retention of a subordinated tranche, and extension of a liquidity facility or credit enhancement, as set forth in the following.

**Deduction:** When a bank is required to deduct a securitization exposure from regulatory capital, the deduction must in general be taken 50% from Tier 1 and 50% from Tier 2. Net credit enhancing interest-only strips (henceforth abbreviated as I/Os) are deducted 50% from Tier 1 and 50% from Tier 2. Deductions from capital may be calculated net of any specific provisions taken against the relevant securitization exposures.

Banks must deduct from Tier 1 any increase in equity capital resulting from a securitization transaction, such as the equity capital increase associated with expected future margin income (FMI) resulting in a gain-on-sale that is recognised in regulatory capital. Such an increase in capital is referred to as a 'gain-on-sale' for the purposes of the securitization framework.

### **B.1 Standardized Approach for securitization exposures**

Banks that apply the Standardized Approach to credit risk for the type of underlying exposure(s) securitized must use the Standardized Approach under the securitization framework. Under this approach the risk-weighted asset amount of a securitization exposure is computed by multiplying the amount of the position by the appropriate risk weight determined in accordance with the tables published in BCBS 2004 and displayed below.

### Long-term rating category<sup>2</sup>

External Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to BB-	B+ and below or unrated
Risk Weight	20%	50%	100%	350%	Deduction

### Short-term rating category

External Credit Assessment	A-1/P-1	A-2/P-2	A-3/P-3	All other ratings or unrated
Risk Weight	20%	50%	100%	Deduction

**Exceptions to the general deduction treatment of unrated securitization exposures:** As noted in the tables above, unrated securitization exposures must be deducted with the following exceptions: (i) the most senior exposure in a securitization, (ii) exposures that are in a second loss position or better in ABCP programs and meet the certain requirements outlined in paragraph 574 of BCBS 2004, and (iii) eligible liquidity facilities.

**Credit conversion factors (CCFs) for off-balance sheet exposures:** For risk-based capital purposes, banks must determine whether, according to the criteria outlined in BCBS 2004, an off-balance sheet securitization exposure qualifies as an ‘eligible liquidity facility’ or an ‘eligible servicer cash advance facility’. All other off-balance sheet securitization exposures will receive a 100% CCF.

**Treatment of credit risk mitigation (CRM) for securitization exposures:** The treatment of CRM as outlined in paragraphs 585-589 of BCBS 2004 applies to a bank that has obtained a credit risk mitigant on a securitization exposure. Credit risk mitigants under the Standardized Approach for securitizations include guarantees, credit derivatives, collateral and on-balance sheet netting.

When a bank other than the originator provides credit protection to a securitization exposure, it must calculate a capital requirement on the covered exposure as if the bank were an investor in that securitization. If a bank provides protection to an unrated credit enhancement, it must treat the credit protection provided as if it were directly holding the unrated credit enhancement.

<sup>2</sup> The rating designations used in the following charts are for illustrative purposes only and do not indicate any preference for, or endorsement of, any particular external assessment system.

## **B.2 Internal Ratings-Based (IRB) Approach for securitization exposures**

Banks that have received approval to use the IRB Approach for the type of underlying exposures securitized (e.g. for their corporate or retail portfolio) must use the IRB Approach for securitizations. Conversely, banks may not use the IRB Approach to securitization unless they receive approval to use the IRB Approach for the underlying exposures from their national supervisors.

Where there is no specific IRB treatment for the underlying asset type, originating banks that have received approval to use the IRB Approach must calculate capital charges on their securitization exposures using the Standardized Approach in the securitization framework while, on the other hand, investing banks with approval to use the IRB Approach must apply the Ratings-Based Approach (RBA).

The RBA must be applied to securitization exposures that are rated, or where a rating can be inferred. Where an external or a so-called inferred rating (see below) is not available, either the Supervisory Formula (SF) or the Internal Assessment Approach (IAA) must be applied. The IAA is only available to exposures (e.g. liquidity facilities and credit enhancements) that banks (including third-party banks) extend to ABCP programs. Securitization exposures to which none of these approaches can be applied must be deducted.

For a bank using the IRB Approach to securitization, the maximum capital requirement for the securitization exposures it holds is given by the IRB capital requirement that would have been assessed against the underlying exposures had they not been securitized and treated under the appropriate sections of the IRB framework including Section III.G of BCBS 2004. In addition, banks must deduct the entire amount of any gain-on-sale and credit enhancing I/Os arising from the securitization transaction in accordance with paragraphs 561 to 563 of BCBS 2004.

**Liquidity facilities:** Liquidity facilities are treated as any other securitization exposure and receive a CCF of 100% unless specified differently in paragraphs 638 to 641. If the facility is externally rated, the bank may rely on the external rating under the RBA. If the facility is not rated externally and an inferred rating is not available, the bank must apply the SF, unless the IAA can be applied.

**Treatment of CRM:** As with the RBA, also when applying the SF banks are required to apply the CRM techniques as specified in the foundation IRB Approach of Section III of BCBS 2004. The bank may reduce the capital charge proportionally when the credit risk mitigant covers first losses or losses on a proportional basis. For all other cases, the bank must assume that the credit risk mitigant covers the

most senior portion of the securitization exposure (i.e. that the most junior portion of the securitization exposure is uncovered).

### **B.2.1 Ratings Based Approach**

Under the RBA, the risk-weighted assets are determined by multiplying the amount of the exposure by the appropriate risk weights, provided in the tables in BCBS 2004. The risk weights depend on (i) the external rating grade or an available inferred rating, (ii) whether the credit rating (external or inferred) represents a long-term or a short-term credit rating, (iii) the granularity of the underlying pool and (iv) the seniority of the position.

For purposes of the RBA, a securitization exposure is treated as a senior tranche if it is effectively backed or secured by a first claim on the entire amount of the assets in the underlying securitized pool. While this generally is the case only for the most senior position within a securitization transaction, in some instances there may be some other claim that, in a technical sense, may be more senior in the securitization waterfall structure (e.g. a swap claim). But these claims may be disregarded for the purpose of determining which positions are subject to the 'senior tranches' column in the RBA.

In the following table the applicable risk weights are presented for the case where the external assessment represents a long-term credit rating or when an inferred rating based on a long-term rating is available. Banks may apply the risk weights for senior positions if the effective number of underlying exposures (N, as defined in paragraph 633 of BCBS 2004) is 6 or more and the position is senior as defined above. When N is less than 6, the risk weights in column 4 of the table below apply ('tranches backed by non-granular pools'). In all other cases, the risk weights in column 3 of the table below apply ('base risk weights').

**RBA risk weights when the external assessment represents a long-term credit rating and/or an inferred rating derived from a long-term assessment**

<b>External Rating (Illustrative)</b>	<b>Risk weights for senior positions and eligible senior IAA exposures</b>	<b>Base risk weights</b>	<b>Risk weights for tranches backed by non-granular pools</b>
AAA	7%	12%	20%
AA	8%	15%	25%
A+	10%	18%	35%
A	12%	20%	
A-	20%	35%	
BBB+	35%		50%
BBB	60%		75%
BBB-		100%	
BB+		250%	
BB		425%	
BB-		650%	
Below BB- and unrated		Deduction	

The risk weights in the table below apply when the external assessment represents a short-term credit rating, as well as when an inferred rating based on a short-term rating is available. The three distinct cases outlined above for long-term credit ratings also apply for short-term credit ratings.

**RBA risk weights when the external assessment represents a short-term credit rating and/or an inferred rating derived from a short-term assessment**

<b>External Rating (Illustrative)</b>	<b>Risk weights for senior positions and eligible senior IAA exposures</b>	<b>Base risk weights</b>	<b>Risk weights for tranches backed by non-granular pools</b>
A-1/P-1	7%	12%	20%
A-2/P-2	12%	20%	35%
A-3/P-3	60%	75%	75%
All other ratings/unrated	Deduction	Deduction	Deduction

As to inferred ratings, there are a number of operational requirements which - when satisfied - require the bank to attribute an inferred rating to an unrated position. These requirements are intended to ensure that the unrated position is senior in all respects to an externally rated securitization exposure termed the 'reference securitization exposure'.

### B.2.2 Internal Assessment Approach (IAA)

A bank may use its internal assessments of the credit quality of all securitization exposures the bank extends to ABCP programs (e.g. liquidity facilities and credit enhancements) if the bank's internal assessment process meets several operational requirements. Internal assessments of exposures provided to ABCP programs must be mapped to equivalent external ratings of an ECAI (external credit assessment institution). Those rating equivalents are used to determine the appropriate risk weights under the RBA for purposes of assigning the notional amounts of the exposures.

### B.2.3 Supervisory Formula (SF)

Risk-weighted assets generated through the use of the SF are, as in the IRB Approaches, calculated by multiplying the capital charge by the factor 12.5. Under the SF, the capital charge for a securitization tranche depends on five bank-supplied inputs: the IRB capital charge for the pool of exposures had the underlying exposures not been securitized ( $K_{IRB}$ ); the tranche's credit enhancement level (L) and thickness (T); the pool's effective number of exposures (N); and the pool's exposure-weighted average loss-given-default (LGD). The inputs  $K_{IRB}$ , L, T and N are defined below. The capital charge is calculated as follows:

*Tranche's IRB capital charge* = the amount of exposures that have been securitized times the greater of (a)  $0.0056 \cdot T$ , or (b)  $(S[L+T] - S[L])$ ,

where the function  $S[.]$  (termed the 'Supervisory Formula') is defined in the following paragraph. When the bank holds only a proportional interest in the tranche, that position's capital charge equals the prorated share of the capital charge for the entire tranche.

The *Supervisory Formula* is defined as follows:

$$S[L] = \begin{cases} L & \text{when } L \leq K_{IRB} \\ K_{IRB} + K[L] - K[K_{IRB}] + (d \cdot K_{IRB} / \omega)(1 - e^{\omega(K_{IRB} - L) / K_{IRB}}) & \text{when } K_{IRB} < L \end{cases}$$

where

$$\begin{aligned}
h &= (1 - K_{IRB} / LGD)^N \\
c &= K_{IRB} / (1 - h) \\
v &= \frac{(LGD - K_{IRB}) K_{IRB} + 0.25 (1 - LGD) K_{IRB}}{N} \\
f &= \left( \frac{v + K_{IRB}^2}{1 - h} - c^2 \right) + \frac{(1 - K_{IRB}) K_{IRB} - v}{(1 - h) \tau} \\
g &= \frac{(1 - c)c}{f} - 1 \\
a &= g \cdot c \\
b &= g \cdot (1 - c) \\
d &= 1 - (1 - h) \cdot (1 - \text{Beta} [K_{IRB}; a, b]) \\
K[L] &= (1 - h) \cdot ((1 - \text{Beta} [L; a, b]) L + \text{Beta} [L; a + 1, b] c).
\end{aligned}$$

In these expressions, Beta [L; a, b] refers to the cumulative beta distribution with parameters a and b evaluated at L. The supervisory-determined parameters in the above expressions are as follows:  $\tau = 1000$ , and  $\omega = 20$

**Definition of  $K_{IRB}$ :**  $K_{IRB}$  is the ratio of (a) the IRB capital requirement including the expected loss (EL, for the definition of EL see paragraph 376 of BCBS 2004) portion for the underlying exposures in the pool to (b) the total exposure amount of the pool (total exposure amount as, e.g., the sum of drawn amounts related to securitized exposures plus the EAD associated with undrawn commitments related to securitized exposures). Quantity (a) above must be calculated in accordance with the applicable minimum IRB standards (as set out in Section III of BCBS 2004) as if the exposures in the pool were held directly by the bank (relevant for both originator banks and non-originator banks). This calculation should reflect the effects of any credit risk mitigant that is applied on the underlying exposures (either individually or to the entire pool), and hence benefits all of the securitization exposures.  $K_{IRB}$  is expressed in decimal form (e.g. a capital charge equal to 15% of the pool would be expressed as 0.15). For structures involving an SPV, all the assets of the SPV that are related to the securitization have to be treated as exposures in the pool, including assets in which the SPV may have invested a reserve account, such as a cash collateral account. If the risk weight resulting from the SF is 1250%, banks must deduct the securitization exposure subject to that risk weight in accordance with paragraphs 561 to 563 of BCBS 2004.

**Credit enhancement level (L):** L is measured (in decimal form) as the ratio of (a) the amount of all securitization exposures subordinate to the tranche in question to (b) the amount of exposures in the pool. Banks will be required to determine L before considering the effects of any tranche-specific credit enhancements, such as third-party guarantees that benefit only a single tranche. Any gain-on-sale and/or

credit enhancing I/Os associated with the securitization are not to be included in the measurement of L. The size of interest rate or currency swaps that are more junior than the tranche in question may be measured at their current values (without the potential future exposures) in calculating the enhancement level. If the current value of the instrument cannot be appropriately measured, the instrument should be ignored in the calculation of L.

**Thickness of exposure (T):** T is measured as the ratio of (a) the nominal size of the tranche of interest to (b) the notional amount of exposures in the pool. In the case of an exposure arising from an interest rate or currency swap, the bank must incorporate potential future exposure (in contrast to the procedure of determining L). If the current value of the instrument is non-negative, the exposure size should be measured by the current value plus the add-on as in the 1988 Accord. If the current value is negative, the exposure should be measured by using the potential future exposure only.

**Effective number of exposures (N):** The effective number of exposures is calculated as:

$$N = \frac{(\sum_i EAD_i)^2}{\sum_i EAD_i^2}$$

where  $EAD_i$  represents the exposure-at-default associated with the  $i^{\text{th}}$  instrument in the pool. Multiple exposures to the same obligor must be consolidated (i.e. treated as a single instrument). In the case of re-securitization (securitization of securitization exposures), the formula applies to the number of securitization exposures in the pool and not the number of underlying exposures in the original pools. If the portfolio share associated with the largest exposure,  $C_1$ , is available, the bank may compute N alternatively as  $1/C_1$ .

**Exposure-weighted average LGD:** The exposure-weighted average LGD is calculated as follows:

$$LGD = \frac{\sum_i LGD_i \cdot EAD_i}{\sum_i EAD_i}$$

where  $LGD_i$  represents the (in itself exposure-weighted) average LGD associated with all exposures to the  $i^{\text{th}}$  obligor. In the case of re-securitization, an LGD of 100% must be assumed for the underlying securitized exposures.

**Simplified method for computing N and LGD:** For securitizations involving retail exposures, subject to supervisory review, the SF may be implemented using the simplifications:  $h = 0$  and  $v = 0$ .

Under the conditions provided below, banks may employ a simplified method for calculating the effective number of exposures and the exposure-weighted average LGD. Let  $C_m$  in the simplified calculation denote the share of the pool corresponding to the sum of the largest 'm' exposures (e.g. a 15% share corresponds to a value of 0.15). The level of m is set by each bank.

- If the portfolio share associated with the largest exposure,  $C_1$ , is no more than 0.03 (or 3% of the underlying pool), then for purposes of the SF, the bank may set  $\text{LGD}=0.50$  and  $N$  equal to the following amount

$$N = \left( C_1 C_m + \left( \frac{C_m - C_1}{m - 1} \right) \max \{1 - m C_1, 0\} \right)^{-1} .$$

- Alternatively, if only  $C_1$  is available and this amount is no more than 0.03, then the bank may use the combination of  $\text{LGD}=0.50$  and  $N=1/ C_1$  (cf. the general alternative above).